

# Alibaba Cloud Elastic Compute Service Migration Service

Issue: 20190918

## Legal disclaimer

---

Alibaba Cloud reminds you to carefully read and fully understand the terms and conditions of this legal disclaimer before you read or use this document. If you have read or used this document, it shall be deemed as your total acceptance of this legal disclaimer.

1. You shall download and obtain this document from the Alibaba Cloud website or other Alibaba Cloud-authorized channels, and use this document for your own legal business activities only. The content of this document is considered confidential information of Alibaba Cloud. You shall strictly abide by the confidentiality obligations. No part of this document shall be disclosed or provided to any third party for use without the prior written consent of Alibaba Cloud.
2. No part of this document shall be excerpted, translated, reproduced, transmitted, or disseminated by any organization, company, or individual in any form or by any means without the prior written consent of Alibaba Cloud.
3. The content of this document may be changed due to product version upgrades, adjustments, or other reasons. Alibaba Cloud reserves the right to modify the content of this document without notice and the updated versions of this document will be occasionally released through Alibaba Cloud-authorized channels. You shall pay attention to the version changes of this document as they occur and download and obtain the most up-to-date version of this document from Alibaba Cloud-authorized channels.
4. This document serves only as a reference guide for your use of Alibaba Cloud products and services. Alibaba Cloud provides the document in the context that Alibaba Cloud products and services are provided on an "as is", "with all faults" and "as available" basis. Alibaba Cloud makes every effort to provide relevant operational guidance based on existing technologies. However, Alibaba Cloud hereby makes a clear statement that it in no way guarantees the accuracy, integrity, applicability, and reliability of the content of this document, either explicitly or implicitly. Alibaba Cloud shall not bear any liability for any errors or financial losses incurred by any organizations, companies, or individuals arising from their download, use, or trust in this document. Alibaba Cloud shall not, under any circumstances, bear responsibility for any indirect, consequential, exemplary, incidental, special, or punitive damages, including lost profits arising from the use

or trust in this document, even if Alibaba Cloud has been notified of the possibility of such a loss.

5. By law, all the content of the Alibaba Cloud website, including but not limited to works, products, images, archives, information, materials, website architecture, website graphic layout, and webpage design, are intellectual property of Alibaba Cloud and/or its affiliates. This intellectual property includes, but is not limited to, trademark rights, patent rights, copyrights, and trade secrets. No part of the Alibaba Cloud website, product programs, or content shall be used, modified, reproduced, publicly transmitted, changed, disseminated, distributed, or published without the prior written consent of Alibaba Cloud and/or its affiliates. The names owned by Alibaba Cloud shall not be used, published, or reproduced for marketing, advertising, promotion, or other purposes without the prior written consent of Alibaba Cloud. The names owned by Alibaba Cloud include, but are not limited to, "Alibaba Cloud", "Aliyun", "HiChina", and other brands of Alibaba Cloud and/or its affiliates, which appear separately or in combination, as well as the auxiliary signs and patterns of the preceding brands, or anything similar to the company names, trade names, trademarks, product or service names, domain names, patterns, logos, marks, signs, or special descriptions that third parties identify as Alibaba Cloud and/or its affiliates).
6. Please contact Alibaba Cloud directly if you discover any errors in this document.



# Generic conventions

Table -1: Style conventions

Style	Description	Example
	This warning information 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.
	This warning information 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 restore business.
	This indicates warning information, supplementary instructions, and other content that the user must understand.	 <b>Notice:</b> Take the necessary precautions to save exported data containing sensitive information.
	This indicates supplemental instructions, best practices, tips, and other content that is good to know for the user.	 <b>Note:</b> You can use Ctrl + A to select all files.
>	Multi-level menu cascade.	Settings > Network > Set network type
<b>Bold</b>	It is used for buttons, menus, page names, and other UI elements.	Click <b>OK</b> .
<code>Courier font</code>	It is used for commands.	Run the <code>cd / d C :/ windows</code> command to enter the Windows system folder.
<i>Italics</i>	It is used for parameters and variables.	<code>bae log list --instanceid Instance_ID</code>
[ ] or [a b]	It indicates that it is an optional value, and only one item can be selected.	<code>ipconfig [-all -t]</code>

Style	Description	Example
<code>{}</code> or <code>{a b}</code>	It indicates that it is a required value, and only one item can be selected.	<code>swich {stand   slave}</code>



# Contents

---

Legal disclaimer.....	I
Generic conventions.....	I
1 Server Migration Center.....	1
2 Cloud Migration tool for P2V and V2V.....	3
2.1 Cloud Migration tool.....	3
2.2 Migrate your server to Alibaba Cloud by using the Cloud Migration tool.....	8
2.3 Migrate to the cloud through Alibaba Cloud VPC.....	21
2.4 GUI of Cloud Migration tool (Windows).....	27
2.5 CLI parameters.....	29
2.6 Cloud Migration tool FAQ.....	32
2.7 Troubleshooting.....	37
2.8 Feedback and support.....	43
3 Migration service.....	44
3.1 Migration overview.....	44
3.2 Supported systems and scopes of migration.....	44
3.3 Migration assessment.....	46
3.4 Migration solutions.....	50
3.4.1 Full migration.....	50
3.4.2 Incremental migration.....	53
3.4.3 Batch migration.....	54
3.4.4 VPC-based migration.....	56
3.4.5 Migrate a source instance to a target instance.....	59
3.4.6 Other migration solutions.....	61
3.5 Migration scenarios.....	62
3.5.1 Migrate your physical server to Alibaba Cloud ECS.....	63
3.5.2 Migrate your VMware VM to Alibaba Cloud ECS.....	67
3.5.3 Migrate your Xen/KVM/Hyper-V VM to Alibaba Cloud ECS.....	71
3.5.4 Migrate your AWS EC2 instance to Alibaba Cloud ECS.....	75
3.5.5 Migrate your Azure VMs to Alibaba Cloud ECS.....	79
3.5.6 Migrate your HUAWEI CLOUD ECS instance to Alibaba Cloud ECS...	82
3.5.7 Migrate your Tencent Cloud CVM instance to Alibaba Cloud ECS....	87
3.5.8 Migrate your UCloud host to Alibaba Cloud ECS.....	92
3.5.9 Migrate your instance within Alibaba Cloud ECS.....	98
3.6 Subsequent operations.....	101
4 Databases in ECS instances.....	104
4.1 Migrate a database between two ECS instances.....	104
4.2 Migrate a local database to ECS.....	107
4.3 Manage user-created databases hosted on an ECS instance.....	111

# 1 Server Migration Center

---

Server Migration Center (SMC) is a migration platform developed by Alibaba Cloud. SMC can help you migrate one or more source servers to Alibaba Cloud.

## Overview

SMC can help you migrate one or more source servers to Alibaba Cloud. The source servers include IDC servers, virtual machines, cloud hosts on other cloud platforms, and other types of servers. For more information, see [SMC documentation](#).

## Benefits

SMC has the following benefits:

- An underlying environment independent of migration sources

SMC supports physical-to-cloud (P2C), virtual-to-cloud (V2C), and cloud-to-cloud (C2C) migrations for a variety of file systems and disk types.

- Automatic collection of migration source information

You do not need to manually configure system settings for migration sources. After running the relevant commands, the SMC client automatically collects the migration source information and imports it to the SMC console to prepare for subsequent migration operations.

- Ease of use

The SMC console allows you to easily configure migration tasks and migrate data to the cloud.

- Support for batch migration

You can select multiple migration tasks in the SMC console and perform a batch migration.

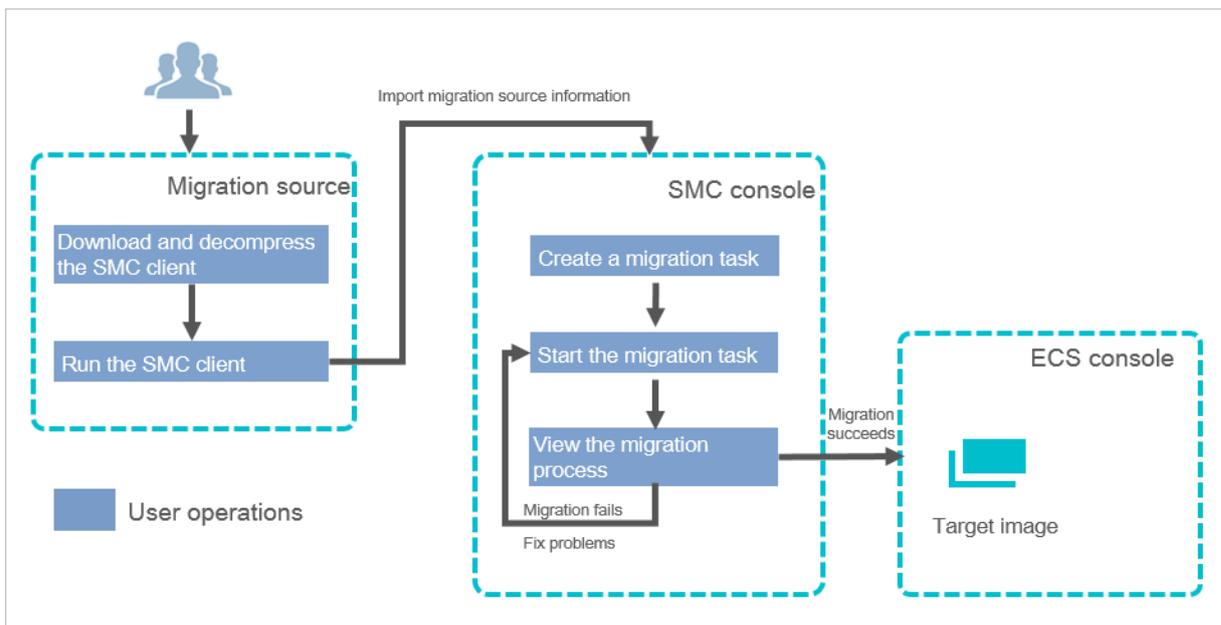
- Central tracking of migration progress

When migrating source servers to Alibaba Cloud in batches, you must track the migration status of each source server. The SMC console overview page displays the status of all your migration sources and tasks. It shows the overall migration progress and allows you to identify and troubleshoot problems that occur during migration.

### Migration process

SMC consists of a client and a console. Import the information of a source server to the console through the client. This step connects the source server with your Alibaba Cloud account. Then, create a migration task in the console for the source server and start the migration task to migrate the source server to Alibaba Cloud. For more information, see [#unique\\_5](#).

The following figure shows how to use SMC to migrate a source server.



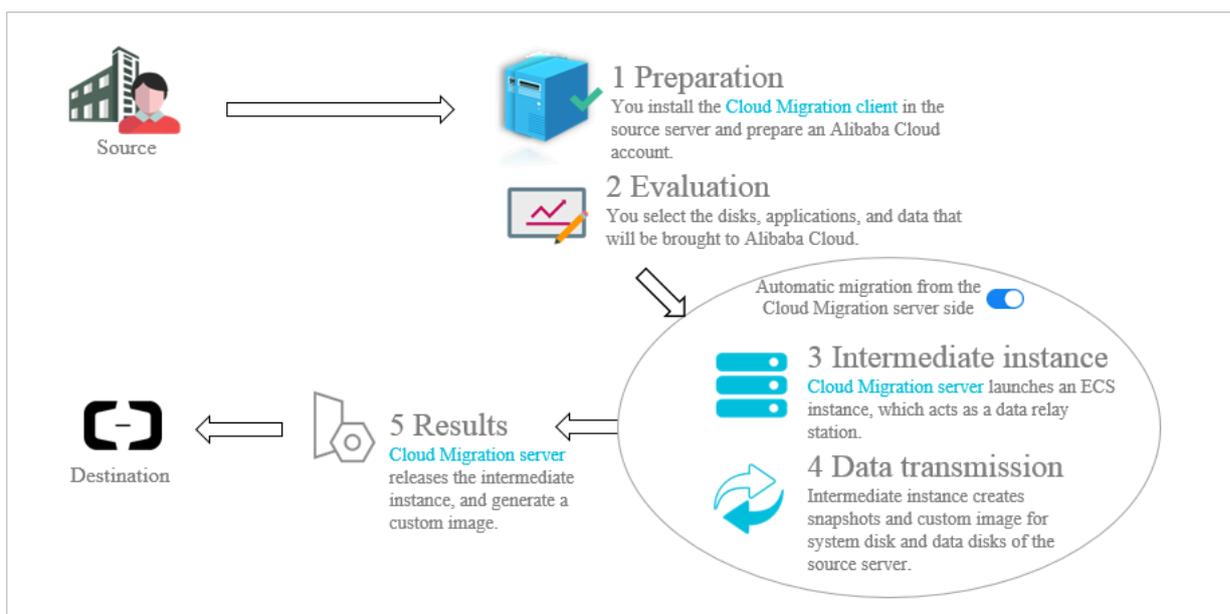
## 2 Cloud Migration tool for P2V and V2V

### 2.1 Cloud Migration tool

The Cloud Migration tool provided by Alibaba Cloud allows you to migrate physical servers, Virtual Machines (VMs), and hosts on third-party cloud platforms (collectively referred to in this topic and other topics of the Cloud Migration tool as source servers) to Alibaba Cloud ECS to implement unified resource deployment and hybrid cloud computing architecture. The Cloud Migration tool applies to such migration scenarios as P2V (migrating physical on-premises data centers to ECS) and V2V (migrating VMs or cloud hosts to ECS).

#### Migration workflow

After you download the Cloud Migration tool to your source server, the Cloud Migration tool can be used to create snapshots for the operating system, applications, and application data in the disk partitions of the source server according to your configuration file. Then, the Cloud Migration tool synchronizes data and generates a custom image at the ECS side. You can use the custom image to quickly create an ECS instance. The following figure shows the workflow of migrating your source server by using the Cloud Migration tool.



## Applicable operating systems

The Cloud Migration tool supports physical servers, VMs, or cloud hosts that are installed with the following 32-bit or 64-bit operating systems.

Windows	Linux
<ul style="list-style-type: none"> <li>· Windows Server 2003</li> <li>· Windows Server 2008</li> <li>· Windows Server 2012</li> <li>· Windows Server 2016</li> </ul>	<ul style="list-style-type: none"> <li>· Amazon Linux 2014 or later</li> <li>· CentOS 5/6/7</li> <li>· Debian 7/8/9</li> <li>· Gentoo 13.0</li> <li>· OpenSUSE 13.1</li> <li>· Oracle Linux 5/6/7</li> <li>· Red Hat 5/6/7</li> <li>· SUSE 11.4/12.1/12.2</li> <li>· Ubuntu 10/12/14/16/17</li> </ul>

If your operating system is not listed in the preceding table, we recommend that you see [Migrate your server to Alibaba Cloud by using the Cloud Migration tool](#) to learn more.

## Billing details

The Cloud Migration tool is provided free of charge. However, you may be charged for using the following resources:

- An ECS instance that is automatically created under your Alibaba Cloud account as an intermediate instance during a cloud migration. This instance is named `INSTANCE_FOR_GOTOALIYUN` for migration tools of v1.5.0 and lower, and `No_Delete_GotoAliyun_Transition_Instance` for migration tools of v1.5.0 and higher. This intermediate instance is billed by the Pay-As-You-Go billing method. Therefore, you must make sure your Alibaba Cloud account has a sufficient balance for this migration. For more information about the Pay-As-You-Go billing method, see [Pay-As-You-Go](#).
- Cloud disks that are automatically created under your Alibaba Cloud account as intermediate disks during a cloud migration. These disks are attached to your intermediate instance for data transfer.



**Note:**

Even if the cloud migration fails, the instance is still retained in the ECS console. If you no longer require the instance, you can log on to the ECS console and [release the instance](#) to avoid incurring unnecessary charges.

## References

- The Cloud Migration tool can also be used to shrink your cloud disk volume. For more information, see [Shrink disk volume](#).
- You can also [import images](#) to ECS to implement P2V or V2V server migration.
- If you need to migrate databases to Alibaba Cloud, see [Data migration](#).

## Update history

The following table describes the update history of the Cloud Migration tool. You can download the [latest version](#).

Date	Version	Description
2019-05-17	1.5.1.5	<ul style="list-style-type: none"> <li>• Added the automatic scale-out function for intermediate disks.</li> <li>• Optimized the Windows restoration check function.</li> <li>• Added the <code>-- verbose</code> option for displaying detailed progress of cloud migration.</li> <li>• Fixed other known bugs.</li> </ul>
2019-05-05	1.5.1.3	<ul style="list-style-type: none"> <li>• Added the zoom out button to the Windows GUI of the Cloud Migration tool.</li> <li>• Optimized the Windows restoration check function.</li> <li>• Fixed Windows VSS error 0x80042308.</li> <li>• Optimized the Linux GRUB retry logic.</li> <li>• Added End-User License Agreement (EULA).</li> <li>• Fixed other known bugs.</li> </ul>
2019-04-02	1.5.1	<ul style="list-style-type: none"> <li>• Optimized data transfer performance.</li> <li>• Optimized the GRUB configuration logic.</li> <li>• Optimized support for the SUSE/SLES OS.</li> </ul>
2019-03-14	1.5.0.5	<ul style="list-style-type: none"> <li>• Provided the Chinese interface for <a href="#">Windows GUI</a>.</li> <li>• Added support for proxy during <a href="#">cloud migration through VPC intranet</a>.</li> </ul>

Date	Version	Description
2019-03-09	1.5.0	<ul style="list-style-type: none"> <li>• Unified the names and descriptions for intermediate resources (instances, disks, and snapshots).</li> <li>• Added support for automatic recovery upon errors, for example recovery of an intermediate instance that is deleted accidentally.</li> <li>• Added support for the <a href="#">Elastic IP Address (EIP)</a> for the intermediate instance.</li> <li>• Added support for the EFI boot mode for Linux.</li> <li>• Optimized migration logs and prompt messages.</li> <li>• Optimized operations related to initialization of the intermediate instance and the configuration of GRUB.</li> <li>• Optimized the configuration file structure, and removed the Architecture parameter.</li> </ul>
2019-02-02	1.3.2.5	<ul style="list-style-type: none"> <li>• Optimized HTTP access timeout settings.</li> <li>• Optimized the Windows restoration check function.</li> <li>• Optimized the migration progress display.</li> <li>• Fixed the issue that causes failure in checking the name of error-format images.</li> </ul>
2019-01-23	1.3.2.3	<ul style="list-style-type: none"> <li>• Optimized HTTP access timeout settings.</li> <li>• Optimized the Windows restoration check function.</li> <li>• Added support for migration of large Windows data disks.</li> </ul>
2019-01-11	1.3.2	<ul style="list-style-type: none"> <li>• Fixed incompatible cloud-init configurations.</li> <li>• Added support for automatic mount of Linux data disks.</li> <li>• Added support for migration of large Linux data disks.</li> <li>• Optimized support for the SUSE/SLES OS.</li> </ul>
2018-11-12	1.3.1	<ul style="list-style-type: none"> <li>• Added support for transferring data through SSH and for dynamic SSH security token authentication.</li> <li>• Optimized the transfer performance for Windows.</li> <li>• Optimized support for Amazon Linux, Oracle Linux, and SLES OSs.</li> <li>• Fixed several bugs.</li> </ul>
2018-08-29	1.3.0	<ul style="list-style-type: none"> <li>• Increased the migration speed and fixed several bugs.</li> <li>• Added automatic restoration for Windows servers, eliminating the need to manually run the file permission resetting tool.</li> </ul>

Date	Version	Description
2018-07-04	1.2.9.5	<ul style="list-style-type: none"> <li>Added support for migration of Ubuntu 17 servers.</li> <li>Optimized the client functions of the Cloud Migration tool and fixed several bugs.</li> </ul>
2018-07-11	1.2.9	<ul style="list-style-type: none"> <li>Added a simplified Wizard GUI for the Cloud Migration tool in Windows.</li> <li>Restored the default filter option for some Windows data disk files and directories that cannot be found.</li> </ul>
2018-04-28	1.2.8	<ul style="list-style-type: none"> <li>Added command line parameter options, which can be queried by running the <code>-- help</code> command in the directory where the Cloud Migration tool is located.</li> <li>Added support for migrations from a leased-line VPC to Alibaba Cloud.</li> </ul>
2018-04-03	1.2.6	<ul style="list-style-type: none"> <li>Fixed the bug in which the parent directory of a Linux server data disk copied data from subdirectories repeatedly.</li> <li>Added file transfer parameters.</li> </ul>
2018-03-07	1.2.3	<ul style="list-style-type: none"> <li>Shortened the first startup attempt for Linux instances.</li> <li>Rectified the repeated disk space insufficiency prompt that occurred at every instance startup. Now the prompt displays only when disk space is determined to be insufficient.</li> <li>Added support for Ubuntu 10 server.</li> </ul>
2018-02-08	1.2.1	<ul style="list-style-type: none"> <li>Simplified user interactions during the migration process.</li> <li>Added support for temporarily disabling the SELinux feature of a Linux on-premises server.</li> </ul>
2018-01-18	1.2.0	<ul style="list-style-type: none"> <li>Added support for migration of more resources.</li> <li>Enhanced the efficiency and stability of image creation.</li> </ul>
2018-01-11	1.1.8	<ul style="list-style-type: none"> <li>Added support for the SUSE 12 SP2 server.</li> <li>Increased the connection speed.</li> <li>Optimized the layout of migration logs.</li> <li>Fixed the bug related to NetworkManager.</li> </ul>
2017-12-21	1.1.7	<ul style="list-style-type: none"> <li>Added support for the SUSE 12 SP1 server.</li> <li>Added support for limiting the maximum data transfer bandwidth.</li> </ul>

Date	Version	Description
2017-12-14	1.1.6	<ul style="list-style-type: none"><li>· Added support to scan for the latest release of the Cloud Migration tool.</li><li>· Fixed error 6144 in data transfer.</li><li>· Added support for proofreading the request parameters specified in the user_config.json configuration file.</li></ul>
2017-12-08	1.1.5	<ul style="list-style-type: none"><li>· Fixed the bug of Linux data disk directory.</li><li>· Highlighted error messages in the migration logs.</li></ul>
2017-12-01	1.1.3	Added support for the Debian server.

## 2.2 Migrate your server to Alibaba Cloud by using the Cloud Migration tool

This topic describes how to use the Cloud Migration tool to migrate your server to Alibaba Cloud ECS.



### Note:

In this topic, the source server refers to your on-premises server, VM, or cloud host. The steps described in this topic also apply to the migration of other types of servers. If you only want to migrate a database, see [Data migration](#).

### Preparations

Before you use the Cloud Migration tool, ensure that you have made the following preparations:

#### Account and permissions

1. [Create an Alibaba Cloud account](#). If you want to migrate the source server to an Alibaba Cloud region in Mainland China, you need to complete real-name authentication.
2. Ensure you have sufficient balance on your linked credit card.



### Notice:

The Cloud Migration tool is provided free of charge. However, some [Pay-As-You-Go](#) resources are created during a migration, and the creation of these resources incurs a small fee charged to your account.

3. If you want to use a RAM user account, you need to first use your Alibaba Cloud account to grant permissions to the RAM user so that the RAM user has permission to read and write ECS and VPC resources. We recommend that you grant permissions to the RAM account to use the AliyunECSFullAccess policy and AliyunVPCFullAccess policy. For more information, see [#unique\\_17](#).
4. [Activate the snapshot service](#) in the ECS console.
5. If you use a service provider account, ensure that you can call ECS APIs to order and purchase resources.

#### Source server

1. Ensure that the local time of the source server is the same as the actual time. Otherwise, the error message `IllegalTimestamp` will occur during a migration.
2. Ensure that the source server can access the following service addresses and ports:
  - ECS: `https://ecs.aliyuncs.com:443`. For information about ECS service addresses in other regions, see [Endpoints](#).
  - VPC: `https://vpc.aliyuncs.com:443`.
  - STS: `https://sts.aliyuncs.com:443`.
  - ECS intermediate instance: port 8080 and port 8703 of Internet IP addresses. When you perform a [cloud migration through Alibaba Cloud VPC](#), the source server accesses private IP addresses.
3. If your source server runs a Linux operating system, ensure that:
  - a. The Rsync database is installed.
    - CentOS: Run the `yum -y install rsync` command.
    - Ubuntu: Run the `apt - get -y install rsync` command.
    - Debian: Run the `apt - get -y install rsync` command.
    - SUSE: Run the `zypper install rsync` command.
    - Other platforms: See their respective official websites for installation documentation.



Note:

By default, mainstream servers are installed with the Rsync database. No manual installation is required.

- b. The SELinux feature of the source server is disabled. You can run the

`setenforce 0` command to disable SELinux temporarily, or edit the `/etc/selinux/config` file to set the field `SELINUX = disabled` to disable SELinux permanently.



Note:

In most cases, SELinux is disabled only for CentOS and Red Hat.

- c. The virtio (KVM) driver is installed. For more information, see [Install the virtio driver](#).



Note:

In most cases, mainstream servers are installed with the virtio (KVM) driver by default. No manual installation is required.

- d. The latest version of Grand Unified Bootloader (GRUB) is installed. For earlier versions of operating systems (such as CentOS 5, Red Hat 5, and Debian 7), the GRUB version must be V1.9 or later. For more information, see [Update GRUB 1.99 for a Linux server](#).



Note:

For some operating systems, such as Amazon Linux, the GRUB version must be V2.02 or later.

## Precautions

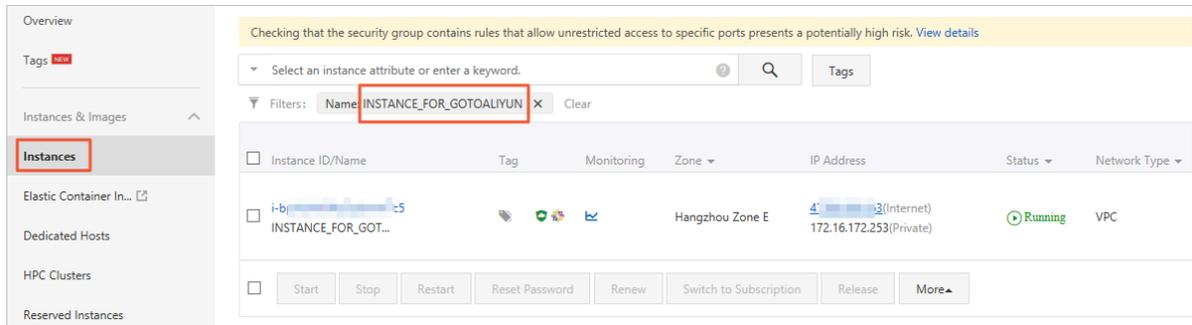
To ensure that one or more server migrations are successful, we recommend that you pay attention to the following precautions:

- Do not operate the intermediate instance. During a migration, a temporary intermediate instance named `INSTANCE_F OR_GOTOALI YUN` is created automatically under your Alibaba Cloud account. Do not stop, restart, or release the intermediate instance. After the migration, the intermediate instance is released automatically.



Note:

The name of the temporary intermediate instance is `No_Delete_ GotoAliyun`  
`_Transitio n_Instance` if the version of the Cloud Migration tool is 1.5.0 or later.



- Incremental data migration is not allowed. We recommend that you pause such applications as databases and containers, or filter specified data directories before a migration and then synchronize these data directories after the migration.
- By default, the following data directories are migrated:
  - For Windows servers: By default, only data on the C drive (including shared directories attached to the C drive) is migrated as a partition of the system disk. If you want to migrate data on other partitions such as the D drive, see [Data disk parameter settings](#).
  - For Linux servers: By default, data on the subdirectories (including shared directories) under the root directory (/) is migrated as a partition of the system disk. If you want to migrate data on other directories such as / `disk1` , see [Data disk parameter settings](#).

## Procedure

The overall procedure for a server migration to Alibaba Cloud is as follows:

1. [Download and install the Cloud Migration tool](#).
2. [Configure the user\\_config.json file](#).
3. (Optional) [Exclude files or directories from migration](#).
4. [Run the Cloud Migration tool](#).

### Step 1: Download and install the Cloud Migration tool

Download the [Cloud Migration tool package](#) and decompress it to the source server.



**Note:**

The Cloud Migration tool is available for Windows and Linux in both the 32-bit and 64-bit versions. `i386` refers to the 32-bit version and `x86_64` refers to the 64-bit version. You can select a version compatible with the source server.

Figure 2-1: Version list

Table 2-1: Package files or folders

File or folder	Description
<code>go2aliyun_client.exe</code>	The Windows CLI executable file.
<code>go2aliyun_gui.exe</code>	The Windows GUI executable file. For more information, see <a href="#">Windows GUI of Cloud Migration tool</a> .
<code>go2aliyun_client</code>	The Linux CLI executable file.
<code>user_config.json</code>	The configuration file of the migration source and migration destination.
Excludes folder	The folder in which to add directories to exclude from the migration.
<code>client_data</code>	The migration data file, which includes such information as the intermediate instance and migration progress.

### Step 2: Configure the `user_config.json` file

Open and edit the `user_config.json` file. For a description of the parameters, see [Server parameter description](#) and [Data disk parameter description](#). The initial content of the `user_config.json` file is as follows:

```
{
  " access_id ": "",
  " secret_key ": "",
  " region_id ": "",
  " image_name ": "",
  " system_disk_size ": 40 ,
  " platform ": "",
  " architecture ": "",
  " bandwidth_limit ": 0 ,
  " data_disks ": []
}
```



**Note:**

If you are using Windows GUI, you can configure the user\_config file on the GUI. For more information, see [Windows GUI of Cloud Migration tool](#).

Table 2-2: Server parameter description

Name	Type	Required?	Description
access_id	String	Yes	<p>Your AccessKeyID for accessing Alibaba Cloud APIs. For more information, see <a href="#">#unique_21</a>.</p> <div style="background-color: #f0f0f0; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note:</b></p> <p>We recommend that you perform the server migration by using the AccessKey of an authorized RAM user to avoid disclosing the AccessKey of your Alibaba Cloud account. After the server migration is complete, you can disable the AccessKey of the corresponding RAM user.</p> </div>
secret_key	String	Yes	Your AccessKeySecret for accessing Alibaba Cloud APIs. For more information, see <a href="#">#unique_21</a> .
region_id	String	Yes	The ID of the Alibaba Cloud region to which your server is migrated, for example, cn - hangzhou (China (Hangzhou)). For more information, see <a href="#">#unique_22</a> .
image_name	String	Yes	Set a name for the image of the source server. The name must be unique in the Alibaba Cloud region. The name is a string of 2 to 128 characters. It must begin with an English or a Chinese character. It can contain A-Z, a-z, Chinese characters, numbers, periods (.), colons (:), underscores (_), and hyphens (-).

Name	Type	Required?	Description
system_disk_size	Integer	No	<p>Specify the system disk size. Unit: GiB. Value range: 40 to 500.</p> <p> <b>Note:</b> The value must be greater than the space occupied by the system disk on the source server. For example, if the system disk size is 500 GiB and the occupied space is 100 GiB, set this parameter to a value greater than 100 GiB.</p>
platform	String	No	<p>The operating system of the source server. Valid values: Windows Server 2003   Windows Server 2008   Windows Server 2012   Windows Server 2016   CentOS   Ubuntu   SUSE   OpenSUSE   Debian   RedHat   Others Linux</p> <p> <b>Note:</b> The value of the <code>platform</code> parameter is case-sensitive.</p>
architecture	String	No	<p>System architecture. Valid values: i386   x86_64</p> <p> <b>Note:</b> This parameter is not used in the Cloud Migration tool of 1.5.0 or later.</p>
bandwidth_limit	Integer	No	<p>The maximum bandwidth of data transmission. Unit: KB/s.</p> <p>The default value is 0, which indicates that the bandwidth is not limited.</p>

Name	Type	Required?	Description
data_disks	Array	No	A list of data disks. A maximum of 16 data disks are supported. For more information about specific parameters, see the following table. This parameter can be set to a value (in GiB) required to shrink disk volume. However, it cannot be less than the actual space used by the data disk.

Table 2-3: Data disk parameter description

Name	Type	Required?	Description
data_disk_index	Integer	No	The serial number of a data disk. Value range: 1 to 16. Default value: 1.
data_disk_size	Integer	No	The size of a data disk. Unit: GiB. Value range: 20 to 32768.   <b>Note:</b> The value must be greater than the space occupied by the data disk on the source server. For example, if the source data disk size is 500 GiB and the occupied space is 100 GiB, set this parameter to a value greater than 100 GiB.
src_path	String	Yes	The source directory of a data disk. Examples: <ul style="list-style-type: none"> <li>• In Windows, specify a drive letter, such as <code>D :</code>, <code>E :</code>, or <code>F :</code>.</li> <li>• In Linux, specify a directory, such as <code>/mnt / disk1</code>, <code>/mnt / disk2</code>, or <code>/mnt / disk3</code>.</li> </ul>  <b>Note:</b> It cannot be the root directory or system directories, such as <code>/ bin</code> , <code>/ boot</code> , <code>/ dev</code> , <code>/ etc</code> , <code>/ lib</code> , <code>/ lib64</code> , <code>/ sbin</code> , <code>/ usr</code> , or <code>/ var</code> .

Four scenarios are provided as follows to describe how to edit the `user_config.json` file. In each scenario, the migration destination of the target server is the Alibaba Cloud region of China (Hangzhou).

#### Scenario 1: Migrate a Windows server without data disk

- The source server is configured as follows:
  - Operating system: Windows Server 2008
  - System architecture: 64-bit
  - System disk size: 30 GiB
- Migration destination:
  - Image name: CLIENT\_IMAGE\_WIN08\_01
  - System disk setting: 50 GiB

```
{
  " access_id ": " YourAccess  KeyID ",
  " secret_key ": " YourAccess  KeySecret ",
  " region_id ": " cn - hangzhou ",
  " image_name ": " CLIENT_I MA GE_WIN08_0 1 ",
  " system_dis k_size ": 50 ,
  " platform ": " Windows  Server  2008 ",
  " architectu re ": " x86_64 ",
  " data_disks ": [],
  " bandwidth_ limit ": 0
}
```

#### Scenario 2: Migrate a Windows server with data disk

In this scenario, two more data disks are attached to the Windows server that was used in Scenario 1. The drive letters and sizes of the data disks are as follows:

- Partitions of the source data disk:
  - D: 50 GiB
  - E: 100 GiB
- Partitions of the target data disk:
  - D: 100 GiB
  - E: 150 GiB

```
{
  " access_id ": " YourAccess  KeyID ",
  " secret_key ": " YourAccess  KeySecret ",
  " region_id ": " cn - hangzhou ",
  " image_name ": " CLIENT_I MA GE_WIN08_0 1 ",
  " system_dis k_size ": 50 ,
  " platform ": " Windows  Server  2008 ",
  " architectu re ": " x86_64 ",
}
```

```

    " data_disks ": [ {
        " data_disk_ index ": 1 ,
        " data_disk_ size ": 100 ,
        " src_path ": " D : "
    }, {
        " data_disk_ index ": 2 ,
        " data_disk_ size ": 150 ,
        " src_path ": " E : "
    }
  ],
  " bandwidth_ limit ": 0
}

```

### Scenario 3: Migrate a Linux server without data disk

- The source server is configured as follows:
  - Operating system: CentOS 7.2
  - System architecture: 64-bit
  - System disk size: 30 GiB
- Migration destination:
  - Image name: CLIENT\_IMAGE\_CENTOS72\_01
  - System disk setting: 50 GiB

```

{
  " access_id ": " YourAccess KeyID ",
  " secret_key ": " YourAccess KeySecret ",
  " region_id ": " cn - hangzhou ",
  " image_name ": " CLIENT_IMA GE_CENTOS7 2_01 ",
  " system_dis k_size ": 50 ,
  " platform ": " CentOS ",
  " architectu re ": " x86_64 ",
  " data_disks ": [],
  " bandwidth_ limit ": 0
}

```

### Scenario 4: Migrate a Linux server with data disks

In this scenario, two more data disks are attached to the Linux server that was used in Scenario 1. The drive letters and sizes of the data disks are as follows:

- Partitions of the source data disk:
  - /mnt/disk1: 50 GiB
  - /mnt/disk2: 100 GiB
- Partitions of the target data disk:
  - /mnt/disk1: 100 GiB
  - /mnt/disk2: 150 GiB

```

{

```

```

" access_id ": " YourAccess KeyID ",
" secret_key ": " YourAccess KeySecret ",
" region_id ": " cn - hangzhou ",
" image_name ": " CLIENT_IMA GE_CENTOS7 2_01 ",
" system_disk_size ": 50 ,
" platform ": " CentOS ",
" architecture ": " x86_64 ",
" data_disks ": [ {
    " data_disk_index ": 1 ,
    " data_disk_size ": 100 ,
    " src_path ": "/ mnt / disk1 "
  }, {
    " data_disk_index ": 2 ,
    " data_disk_size ": 150 ,
    " src_path ": "/ mnt / disk2 "
  }
],
" bandwidth_limit ": 0
}

```

### Step 3: (Optional) Exclude files or directories from migration

The configuration files are located in the `Excludes` directory, including:

- A system disk configuration file: `rsync_excludes_win.txt` or `rsync_excludes_linux.txt`
- A data disk configuration file: named by adding the suffix `disk [ disk index number ]` to the system disk, for example, `rsync_excludes_win_disk1.txt` or `rsync_excludes_linux_disk1.txt`



#### Note:

If the configuration file is lost or is accidentally deleted, you can create another one.

### Example 1: Exclude files or directories from migration of a Windows server

- System disk:
  - Specify the files or directories to be excluded:

```

C :\ MyDirs \ Docs \ Words
C :\ MyDirs \ Docs \ Excels \ Report1 . xlsx

```

- Add the information to the `rsync_excludes_win.txt` file:

```

/ MyDirs / Docs / Words /
/ MyDirs / Docs / Excels / Report1 . xlsx

```

- Data disk:
  - Specify the files or directories to be excluded:

```

D :\ MyDirs2 \ Docs2 \ Words2

```

```
D :\ MyDirs2 \ Docs2 \ Excels \ Report2 . xlsxx
```

- Add the following information to the `rsync_excludes_win_disk1 . txt` file:

```
/ MyDirs2 / Docs2 / Words2 /
/ MyDirs2 / Docs2 / Excels2 / Report2 . xlsx
```



#### Note:

If you want to exclude a Windows directory, you need to remove the prefix of the directory ( `scr_path` ). In the preceding example, you need to remove `D : \`.

### Example 2: Exclude files or directories from migration of a Linux server

- System disk (root directory /):

- Specify the files or directories to be excluded:

```
/ var / mydirs / docs / words
/ var / mydirs / docs / excels / report1 . shx
```

- Add the following information to the `rsync_excludes_linux . txt` file:

```
/ var / mydirs / docs / words /
/ var / mydirs / docs / excels / report1 . sh
```

- Data disk:

- Specify the files or directories to be excluded:

```
/ mnt / disk1 / mydirs2 / docs2 / words2
/ mnt / disk1 / mydirs2 / docs2 / excels2 / report2 . shx
```

- Add the following information to the `rsync_excludes_linux _disk1 . txt` file:

```
/ mydirs2 / docs2 / words2 /
/ mydirs2 / docs2 / excels2 / report2 . sh
```



#### Note:

If you want to exclude a Linux directory, you need to remove the prefix of the directory ( `scr_path` ). In the preceding example, you need to remove `/ mnt / disk1` .

## Step 4: Run the Cloud Migration tool

### For Windows servers

- If you use the [Windows GUI](#), in the directory where the Cloud Migration tool is located, run `go2aliyun_ gui . exe .`
- If you use the Windows CLI, run `go2aliyun_ client . exe .`

**Note:**

When you run the program, you need to confirm your administrator privileges by clicking OK.

**For Linux servers**

- In the directory where the Cloud Migration tool is located, run the following command as the `root` user:

```
chmod + x ./ go2aliyun_ client
./ go2aliyun_ client
```

- For users with lower privileges, run the following command:

```
sudo chmod + x ./ go2aliyun_ client
sudo ./ go2aliyun_ client
```

**Note:**

After you run the Cloud Migration tool, you do not need to perform any other operation.

After you run the Cloud Migration tool, it automatically obtains source server information (the number of CPU cores, CPU usage, memory size, memory usage, disk size, and disk usage) and prints the information on the terminal. Additionally, the migration status is also printed on the terminal as a log stream.

**What to do next**

When the `Go to Aliyun Finished !` message is displayed, it means that the migration is completed.

**Figure 2-2: Successful server migration**

You can then perform the following operations:

1. Log on to the [ECS console](#), and then select the target region to view the generated custom image.

2. [Use the custom image to create a Pay-As-You-Go ECS instance](#) or [replace the system disk](#) to check whether the custom image runs normally.



Note:

You can use a custom image without data disks to replace the system disk of the instance.

3. Start the target instance. For more information, see [How can I check my system after migrating a Windows server?](#) or [How can I check my system after migrating a Linux server?](#)

## Troubleshooting

If the `Go to Aliyun Not Finished !` message is displayed, it means that the migration failed.

Figure 2-3: Failed server migration

You need to perform the following operations:

1. Check the error message in the log file of the `Logs` folder in the same directory, and then follow the instructions in [#unique\\_26](#) and [#unique\\_25](#) to fix the error.
2. Run the Cloud Migration tool again.



Note:

If the intermediate instance is released, a new migration is required. For more information, see [What do I do if I released an intermediate instance by mistake?](#) and [When do I need to clear the client\\_data file?](#)

## 2.3 Migrate to the cloud through Alibaba Cloud VPC

This topic describes how to connect source servers to Alibaba Cloud VPC to achieve seamless migration of your services to the cloud.

### Prerequisites

Access to the target source servers is established by using either the [physical connection](#) feature of Express Connect, or [VPN gateways](#) that correspond to the target VPC.

**Note:**

Fees are incurred for the usage of Express Connect and VPN Gateway. For more information, see [#unique\\_28](#) and [VPN Gateway billing method](#).

**Client\_data description****Warning:**

Only modify the `client_data` configuration file if you want to migrate services by using Alibaba Cloud VPC. Do not modify the file otherwise, because any modification may affect normal cloud migration and running processes.

If you want to migrate to the cloud by using Alibaba Cloud VPC, you must modify the values of parameters that correspond to the following items in the `client_data` file:

- The source system: System platform architecture.
- VPC: VPC ID, VSwitch ID, and security group ID.
- The intermediate instance: Instance ID, instance type, IP address, and intermediate disk.
- The target image: Target image ID.
- Migration tool configuration: Data transfer parameter configuration, network configuration, and API service configuration.

The following table details the specific parameters in the `client_data` file that you need to configure to achieve migration to the cloud through Alibaba Cloud VPC.

Name	Type	Required?	Description
extra.net.net_mode	Integer	No	<p>Sets data transmission mode. Valid values:</p> <ul style="list-style-type: none"> <li>• 0 (default): Data is transmitted through the Internet. The source server must be able to access the Internet.</li> <li>• 1: Data is transmitted through Alibaba Cloud VPC. The source server must be able to access the target VPC.</li> <li>• 2: Data is transmitted through Alibaba Cloud VPC. The source server must be able to access both the Internet and target VPC.</li> </ul> <p>To achieve cloud migration through VPC, you must set <code>net_mode</code> to 1 or 2.</p>
transition.vpc.vpc_id	String	No	<p>Specifies the ID of the VPC that is configured with the Express Connect service or VPN Gateway service. The parameter is required in the case of <code>net_mode = 1</code> or <code>net_mode = 2</code>.</p>
transition.vswitch.vswitch_id	String	No	<p>Specifies the ID of the VSwitch in the specified VPC. The parameter is required in the case of <code>net_mode = 1</code> or <code>net_mode = 2</code>.</p>
transition.security_group.security_group_id	String	No	<p>Specifies the ID of the security group within the VPC.</p>
extra.net.proxy.ip_port	String	No	<p>Specifies the IP address and port of the proxy service, in the format of IP:Port (for example "10.0.0.100:1080").</p>

Name	Type	Require ?	Description
extra.net.proxy.user_pwd	String	No	Specifies the username and password of the proxy service, in the format of User:Password (for example "admin:123456").

For more information, [download the migration tool](#) to view the `client_data` file.

### Procedure for migrating the source server that cannot access the Internet

The following procedure is applicable when `net_mode = 1`. The cloud migration is divided into three stages. Stage 1 and Stage 3 are completed on a backup server that must be able to access the Internet, whereas data transmission at Stage 2 is completed on the source server.

#### 1. Log on to the backup server and complete the following steps:

- a. Download and install the Cloud Migration tool. For more information, see [Migrate your server to Alibaba Cloud by using the Cloud Migration tool](#).
- b. Edit the `client_data` file of the Cloud Migration tool. Specifically, set `net_mode = 1`, set `vpc_id` to the ID of the VPC that is configured with the Express Connect service or the VPN Gateway, and set the `vswitch_id` parameter.
- c. (Optional) Configure the parameter `security_group_id` in the `client_data` file. Note that the security group must be configured with a rule that permits inbound traffic through ports 8080 and 8703. For more information, see [Add security group rules](#).
- d. Run the Cloud Migration tool on the backup server as described in [Migrate your server to Alibaba Cloud by using the Cloud Migration tool](#) until the notification `Stage 1 Is Done !` is displayed.

```
[2018-04-10 20:43:16] [Info] Server ECS Is Running!
[2018-04-10 20:43:16] [Done] Stage 1 is Done!
[2018-04-10 20:43:16] [Info] Goto Aliyun Not Finished, Rea
Enter any key to Exit...
```

2. Log on to the source server and complete the following steps:

- a. Copy the `user_config.json`, `Rsync`, and `client_data` configuration files of the Cloud Migration tool from the backup server to the source server.
- b. Run the Cloud Migration tool on the source server as described in [Migrate your server to Alibaba Cloud by using the Cloud Migration tool](#) until the notification `Stage 2 Is Done !` is displayed.

```
[2018-04-10 20:47:43] [Info] Do Grub...
[2018-04-10 20:48:20] [Done] Stage 2 is Done!
[2018-04-10 20:48:20] [Info] Goto Aliyun Not Finished, Rea
Enter any key to Exit...
```

3. Log on to the backup server and complete the following steps:

- a. Copy the `user_config.json`, `rsync`, and `client_data` configuration files of the Cloud Migration tool from the source server to the backup server.
- b. Run the Cloud Migration tool on the source server as described in [Migrate your server to Alibaba Cloud by using the Cloud Migration tool](#) until the notification `Stage 3 Is Done !` is displayed.

```
[2018-04-10 20:55:52] [Done] Create Image Successfully!
[2018-04-10 20:55:53] [Info] Server ECS Is Released!
[2018-04-10 20:55:53] [Done] Stage 3 is Done!
[2018-04-10 20:55:53] [Done] Goto Aliyun Finished!
Enter any key to Exit...
```

### Procedure for migrating a source server that can access the Internet

The following procedure is applicable when `net_mode = 2` and the steps are the same as cloud migration through the Internet (when `net_mode = 0`). When `net_mode = 2`, data is automatically migrated to Alibaba Cloud through VPC and the rest of the process is completed through the Internet.

1. Log on to the source server.
2. Download and install the Cloud Migration tool. For more information, see [Migrate your server to Alibaba Cloud by using the Cloud Migration tool](#).

3. Edit the `client_data` file of the Cloud Migration tool. Specifically, set `net_mode = 2`, set `vpc_id` to the ID of the VPC that is configured with the Express Connect service or the VPN Gateway, and set the `vswitch_id` parameter.
4. (Optional) Configure the parameter `security_group_id` in the `client_data` file. However, you must permit inbound traffic through proxy ports 8080 and 8703 in the security group. For more information, see [Add security group rules](#).
5. Run the Cloud Migration tool as described in [Migrate your server to Alibaba Cloud by using the Cloud Migration tool](#).

#### Procedure for migrating a source server that can access the proxy

The following procedure is applicable when `net_mode = 2` and the steps are the same as cloud migration through the Internet (when `net_mode = 0`). When `net_mode = 2`, data is automatically migrated to Alibaba Cloud through VPC and the rest of the process is completed by accessing the Internet through the LAN proxy.

1. Log on to the source server.
2. Download and install the Cloud Migration tool. For more information, see [Migrate your server to Alibaba Cloud by using the Cloud Migration tool](#).
3. Edit the `client_data` file of the Cloud Migration tool as follows:
  - a. Set `net_mode = 2`, set `vpc_id` to the ID of the VPC that has configured the Express Connect service or the VPN Gateway, and set `vswitch_id`.
  - b. Configure the network proxy service. Prepare the network proxy server in the LAN of the source server and fill in the following configuration information:
    - A. Enter the IP address and port of the network proxy server in `extra.net.proxy.ip_port`.
    - B. Enter the username and password (if they are configured) in `extra.net.proxy.user_pwd`.



#### Note:

For more information about `extra.net.proxy.ip_port` and `extra.net.proxy.user_pwd`, see the above table.

4. (Optional) Configure the parameter `security_group_id` in the `client_data` file. However, you must permit inbound traffic through proxy ports 8080 and 8703 in the security group. For more information, see [Add security group rules](#).

5. Run the Cloud Migration tool as described in [Migrate your server to Alibaba Cloud by using the Cloud Migration tool](#).

## Troubleshooting

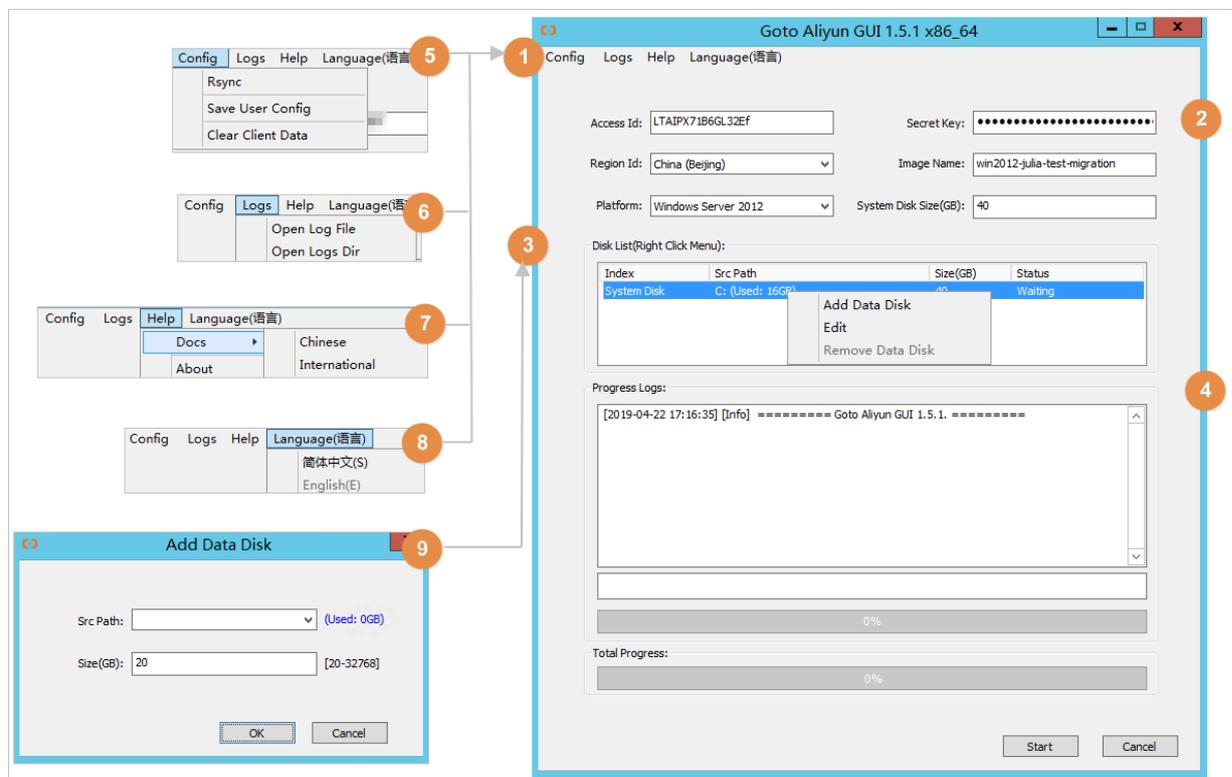
If you experience an issue during the cloud migration, we recommend that you check the [Cloud Migration tool FAQ](#) for common troubleshooting issues, or [join the Cloud Migration tool DingTalk group](#) for technical support.

## 2.4 GUI of Cloud Migration tool (Windows)

The Cloud Migration tool of v1.2.9 and later supports a GUI for Windows. You can run the file `go2aliyun_gui.exe` to access the GUI of Cloud Migration tool. The settings available for the Cloud Migration tool on the GUI are the same as those in the command line interface. If your version of the Cloud Migration tool is earlier than v1.2.9, we recommend that you [download](#) the latest version of the tool.

### GUI overview

An overview of the Cloud Migration tool GUI for Windows, and different interface areas within the GUI, are shown in the following figure.



1. Menu bar: Includes the drop-down menu items Config, Logs, Help, and Language.

2. **Configurations (user\_config.json) editor:** The text fields where a user enters configuration parameters for the source server. Such parameters include the AccessKey, the source server operating system, the size of the system disk, the ID of the Alibaba Cloud region to which the source server is being migrated, and the name of the generated ECS image. For more information, see [Edit user\\_config.json](#).
3. **Disk list:** A list of the system disk and data disks that are to be migrated. In this area, you can right-click to add disks to be migrated, and double click on a target disk to access its disk information editing page.
4. **Task progress and log:** After you run the Cloud Migration tool, you can check the task progress in this area and perform troubleshooting tasks according to the logs.
5. **The Config menu,** where you can click Rsync to set the bandwidth upper limit in KB/s for data transfer, click Save User Config to save the current page configuration for batch operation, or click Clear Client Data to initialize the client configuration file. For more information, see [Use the Cloud Migration tool](#).
6. **The Log menu,** where you can click Open Log File to open the log file, or click Open Log Dir to open the directory where the log file is located.
7. **The Help menu,** where you can find detailed help documentation or Cloud Migration tool version information.
8. **The Language menu,** where you can change the languages settings of the GUI.
9. **Add data disks:** The Cloud Migration tool automatically queries the available data disks attached to your source server and displays occupied disk space. The size of the target data disk must be greater than the space currently occupied by the data on the source data disk. For example, if the source data disk has a total of 500 GiB of space, but only 100 GiB is occupied by data, you must specify a disk size that is larger than 100 GiB.

## Procedure

1. Open the GUI of the Cloud Migration tool for Windows.
2. Configure the required server information.
3. Click Start.

#### 4. Check the migration result.

- If the message `Goto Aliyun Finished !` appears in the task progress and log area, you can go to the image details page in the [ECS console](#) to view the results.
- If the message `Goto Aliyun Not Finished !` appears, select `Logs` from the menu and view the corresponding logs to [troubleshoot the issue](#). Then, run the Cloud Migration tool again to resume the migration from where the task stopped.

## 2.5 CLI parameters

The Cloud Migration tool supports command line interface (CLI) parameters for version 1.2.8 and later. Run the `-- help` command in the path of the Cloud Migration tool to view the list of the parameters. You can configure the Cloud Migration tool, adjust user-defined usage habits, and clear the `client_data` file with one click. No need to open the various JSON files. If you are using a version earlier than 1.2.8 of the Cloud Migration tool, [download the compressed package file](#) for a better experience. To use CLI parameters, you must have some prior knowledge of the migration tool. To learn more about the tool, see the usage of the [Cloud Migration tool](#).

### Cloud Migration tool parameters for Windows

A complete list of CLI parameters of the Cloud Migration tool for Windows is as follows:

```
usage : go2aliyun_ client . exe [ options ]
options :
  -- help                show  usage .
  -- version             show  version .
  -- nocheckver sion    no   check  for  new  version
.
  -- noenterkey         no   enter  key  to  exit .
  -- progressfile      set   progress  file  path .
  -- cleardata         clear  client  data  and
server ecs .
  -- accesssid =< accesss_id >    set   access  id .
  -- secretkey  =< secret_key >   set   secret  key .
  -- regionid  =< region_id >     set   region  id .
  -- imagename  =< image_name >   set   image  name .
  -- systemdisk size =< sdsiz e >  set   system  disk  size .
  -- platform  =< platform >      set   platform .
  -- architectu re =< arch >       set   architectu re .
  -- datadisks =< data_disks >    set   data  disks .
  data_disks = data_disk_ index | data_disk_ size | src_path ;
  e . g . -- data_disks = 1 | 100 | D ; ; 2 | 150 | E :
```

```

-- bandwidthlimit =< limit >      set  bandwidth  limit .
-- netmode =< net_mode >          set  net  mode .
-- vpcid =< vpc_id >              set  vpc  id .
-- vswitchid =< vswitch_id >      set  vswitch  id .
-- zoneid =< zone_id >            set  zone  id .
-- securegroup pid =< sgid >      set  secure  group  id .

```

## Cloud Migration tool parameters for Linux

A complete list of CLI parameters of the Cloud Migration tool for Linux is as follows:

```

usage : ./ go2aliyun_ client [ options ]
options :
-- help                show  usage .
-- version             show  version .
-- nocheckversion     no  check  for  new  version .
-- noenterkey         no  enter  key  to  exit .
-- progressfile       set  progress  file  path .
-- cleardata          clear  client  data  and  server
ecs .
-- accessid =< access_id >      set  access  id .
-- secretkey =< secret_key >    set  secret  key .
-- regionid =< region_id >      set  region  id .
-- imagename =< image_name >    set  image  name .
-- systemdisk size =< sdsiz e >  set  system  disk  size .
-- platform =< platform >      set  platform .
-- architecture =< arch >      set  architectu re .
-- datadisks =< data_disks >    set  data  disks .
data_disks = data_disk_ index | data_disk_ size | src_path ;
e . g . -- data_disks = 1 | 100 || mnt / disk1 ; 2 | 150 || mnt /
disk2
-- bandwidthlimit =< limit >      set  bandwidth  limit .
-- netmode =< net_mode >          set  net  mode .
-- vpcid =< vpc_id >              set  vpc  id .
-- vswitchid =< vswitch_id >      set  vswitch  id .
-- zoneid =< zone_id >            set  zone  id .
-- securegroup pid =< sgid >      set  secure  group  id .

```

## General parameters

The general parameters of the Cloud Migration tool for both Windows and Linux are as follows: General parameters are usually used for adjusting usage habits and interactive interfaces of the Cloud Migration tool. They do not affect configurations of the tool or the cloud migration process.

Parameters	Description
nocheckversion	The migration tool stops version update reminds.
noenterkey	The migration tool does not give a prompt before completion. Instead, it exits directly.

Parameters	Description
<code>progressfile</code>	<p>Sets the migration progress output file. The file contains two rows in the following format:</p> <ul style="list-style-type: none"> <li>The first row contains one of the four progress indicators: <code>PrepareFor Rsync</code> (data transmission preparation stage), <code>DoRsync</code> (data transmission stage), <code>CreateImage</code> (image creation stage), and <code>Finished</code> (cloud migration finished stage).</li> <li>The second row contains the progress value, which shows the progress of each stage. The value is an Integer ranging from 0 to 100.</li> </ul>
<code>cleardata</code>	Clears the <code>client_data</code> file and releases the <code>Running</code> intermediate instance.

**Warning:**

Do not use the `cleardata` parameter before your cloud migration job is complete. Otherwise, the cloud migration are interrupted and the migration progress becomes invalid.

**User\_config parameters**

The relevant CLI parameters for `user_config` configuration are as follows. For more information about `user_config`, see [the usage of the Cloud Migration tool](#).

**Note:**

After you use CLI parameters to configure `user_config`, the Cloud Migration tool uses your new configuration and ignores the configuration file.

```
-- accessid =< access_id > # Sets AccessKey ID in
  user_config .
-- secretkey =< secret_key > # Sets AccessKey Secret in
  user_config .
-- regionid =< region_id > # Sets Region ID in
  user_config .
-- imagename =< image_name > # Sets user - defined image
  name in user_config .
-- systemdisk size =< sdsiz e > # Sets system disk capacity
  in user_config .
-- platform =< platform > # Sets the mapping image
  releasing platform in user_config .
-- architecture =< arch > # Sets the image architectu
  re in user_config .
-- datadisks =< data_disks > # Sets data disks in
  user_config . Disk values are separated by vertical
  bars (|) and semicolons (;), for example , data_disk_index
  | data_disk_size | src_path ;
```

```
-- bandwidthlimit =< limit > # Sets the upper limit of
the public network outbound bandwidth in user_config
.
```

## Client\_data parameters

The following section describes relevant parameters for cloud migration through VPC intranet. For more information, see [VPC Intranet Network Cloud Migration](#).

```
-- netmode =< net_mode > # Sets cloud migration method
in client_data. The values can be 0, 1, or 2.
-- vpcid =< vpc_id > # Sets the VPC that has
configured Express Connect or VPN Gateway in
client_data.
-- vswitchid =< vswitch_id > # Sets the VSwitch under the
VPC in client_data.
-- securegroupid =< sgid > # Sets the security group
under the VPC in client_data.
```

## 2.6 Cloud Migration tool FAQ

- [What scenarios can I use the Cloud Migration tool for?](#)
- [What is the migration process of the Cloud Migration tool?](#)
- [Does the Cloud Migration tool support resumable transfers?](#)
- [Does the migration tool support incremental migration?](#)
- [What are the results after the cloud migration is complete?](#)
- [What do I do when the migration is complete and a custom image is displayed?](#)
- [What can I do if the connection for cloud migration is closed or if migration fails?](#)
- [What do I need to know about the intermediate instance?](#)
- [What do I need to know about user\\_config.json?](#)
- [When do I need to filter a directory or file?](#)
- [What do I need to know about the client\\_data file?](#)
- [When do I need to clear the client\\_data file?](#)
- [After cloud migration has been completed, how do I perform a new cloud migration?](#)
- [What do I do if I released an intermediate instance by mistake?](#)
- [Why have I received “NotEnoughBalance” error message?](#)
- [Why have I received a “Forbidden.RAM” error message?](#)
- [Why have I received a “Forbidden.Subuser” error message?](#)
- [What Internet IP addresses and ports does my server need to access?](#)
- [How can I check my system after migrating a Windows server?](#)

- [Which Windows server licenses can Alibaba Cloud support activation for?](#)
- [Before migrating a Linux server, how can I check that all of the requirements for cloud migration are met?](#)
- [How can I check my system after migrating a Linux server?](#)

#### 1. What scenarios can I use the Cloud Migration tool for?

The tool can migrate data from physical servers, virtual machines, and other cloud platform hosts to Alibaba Cloud ECS for most Windows Server and Linux operating systems. For more information, see [What is the Cloud Migration tool and P2V](#).

#### 2. What is the migration process of the Cloud Migration tool?

- Checks whether the source server meets the requirements for migration or not.
- Creates an intermediate instance with a name `INSTANCE_FOR_GO_TOALIYUN`. The files and the data of source server system are transferred to the intermediate instance.
- Creates snapshots for the intermediate instance and then use the snapshots to create a custom image.

#### 3. Does the Cloud Migration tool support resumable transfers?

Yes. The Cloud Migration tool does support resumable transfers. If the data transfer has been interrupted, you can restart the migration tool to continue from the previous stopping point.

#### 4. Does the migration tool support incremental migration?

Not supported. Incremental data migration is not allowed. We recommend that applications such as databases and container services be paused, or related directories be [filtered](#) before migration to Alibaba Cloud. Synchronize any data related to those applications after the migration has been completed.

#### 5. What are the results after the cloud migration is complete?

After a custom image of the source server is created, you can log on to the [ECS console](#) and view the custom image from the image list in the corresponding region.

#### 6. What do I do after the migration is complete?

We recommend that you first create a Pay-As-You-Go instance and make sure that the system is operating normally. After confirming the image is functioning, select [instance types](#) and [create one or more ECS instances](#).

#### 7. What can I do if the connection for cloud migration is closed or if migration fails?

- If the migration tool suddenly closes or becomes frozen, you can try restarting the operation to restore cloud migration.
- If cloud migration fails and the prompt `Not Finished` is displayed, you can check the log files and directory, and look up the reported errors in the [Cloud Migration tool troubleshooting](#) or [API Error Center](#).

If the issue is still not resolved, we recommend you join the [Cloud Migration Tool Support group on DingTalk](#), an enterprise communication and collaboration platform Developed by Alibaba Group. You can also collect the log file and [open a ticket](#) to contact after-sales customer support for assistance.

#### 8. What do I need to know about the intermediate instance?

- The Cloud Migration tool automatically creates, starts, stops, and releases intermediate instance. To make sure the cloud migration completes successfully, do not interfere with the status of the intermediate instance.
- The default security group for the intermediate instance is on ports 8080 and 8703 in the inbound direction. As these are the cloud migration service ports, do not modify or delete the security group rules.
- After cloud migration is complete, the intermediate instance is released automatically. If migration fails, you have to manually [release the instance](#).

#### 9. What do I need to know about user\_config.json?

If cloud migration has already started and the intermediate instance has already been created, do not change the system disk size or data disk size specified in the user\_config.json. If you still need to modify these parameters, you must first clear the client\_data file and then restart migration to cloud.

#### 10. When do I need to filter a directory or file?

When the source server has data directories or files that do not need to be uploaded, they can be filtered out by configuring the “Excludes” file to improve the efficiency of cloud migration.

In particular, you can filter out databases, Docker containers, and other active data directories and files which cannot be paused to improve the stability of data transmission during migration.

#### 11. What do I need to know about the client\_data file?

The client\_data file records data from the cloud migration process, including the intermediate instance information and migration progress. Do not manually modify or delete the client\_data file unless necessary, otherwise cloud migration may fail.

#### 12. When do I need to clear the client\_data file?

To clear the client\_data file, you can use the **CLI command** `-- cleardata` , or through the **Windows GUI** Client Data menu.

- If you want to restart cloud migration after it has begun, you can clear the current client\_data file or use the default client\_data file to override the current file.
- In cases where cloud migration fails, such as when the intermediate instance, VPC , VSwitch, or other security groups do not exist, you can try clearing the client\_data operation to resolve the issue.

#### 13. After cloud migration has been completed, how do I perform a new cloud migration?

Clear the client\_data file, and then run the Cloud Migration tool again to perform a new cloud migration.

#### 14. What do I do if I released an intermediate instance by mistake?

Clear the client\_data file, and then run the Cloud Migration tool again to perform a new cloud migration.

#### 15. Why have I received “NotEnoughBalance” error message?

The Cloud Migration tool itself is free, but a **Pay-As-You-Go** intermediate instance is created by default during cloud migration. Creating a Pay-As-You-Go instance requires the balance of any of your payment methods to be no less than 100 RMB to complete.

#### 16. Why have I received a “Forbidden.RAM” error message?

The AccessKey created by your RAM user account does not have the permissions to manage ECS and VPC resources. We recommend that you contact the Alibaba

Cloud user to grant `AliyunECSFullAccess` and `AliyunVPCFullAccess` permissions.

#### 17. Why have I received a “Forbidden.Subuser” error message?

The Cloud Migration tool must use the account AccessKeyID and AccessKeySecret to create an intermediate instance. If the RAM account does not have permission to create instances, a Forbidden.SubUser error occurs. We recommend that you use the Alibaba Cloud account to perform the cloud migration.

#### 18. What Internet IP addresses and ports does my server need to access?

The on-premises server must be able to reach the following network address and communication port to access the related Alibaba Cloud services, uninterruptedly:

- The nearest ECS endpoint: `https://ecs.aliyuncs.com:443`. For other regional endpoints, see *API Reference Request structure*.
- Virtual Private Cloud (VPC): `http://vpc.aliyuncs.com:443`.
- Security Token (STS): `https://sts.aliyuncs.com:443`.
- The intermediate instance: `https://xxx.xx.xxx.xx:8080` and `https://xxx.xx.xxx.xx:8703`. The `xxx.xx.xxx.xx` indicates the Internet IP address of the intermediate instance.



#### Note:

The source server does not need to open any inbound ports, but it needs to have access in the outbound direction to the Internet IP addresses and ports.

#### 19. How can I check my system after migrating a Windows server?

When you first start an instance of Windows after migration:

1. Check whether the system disk data is complete or not.
2. Go to the disc manager to check whether the disk is missing.
3. If you are using Windows Server 2008 or a later system, wait for a moment while the automatic recovery of the file system access permission is processing.



#### Note:

If the Goto Aliyun Restore Tool is not started at the first startup attempt, you can run the `C:\go2aliyun_prepare\go2aliyun_restore.exe` to

manually invoke the automatic recovery process. However, make sure that your ECS instance have mounted the same number of disks as the source server does.

4. Check whether the network service is normal.
5. Check that other system application services are operating normally.

#### 20. Which Windows server licenses does Alibaba Cloud allow to activate?

Alibaba Cloud allows you to activate licenses on Windows Server 2003, 2008, 2012, and 2016. For other versions of Windows, if you migrate them to ECS, you must [apply for a licensed mobility certificate](#).

#### 21. Before migrating a Linux server, how can I check that all of the requirements for cloud migration are met?

You can use the `client_check` tool that comes with the Cloud Migration tool. Run the `./client_check --check` when ready, if the test prompt displays `OK`, all the cloud migration requirements are met.

#### 22. How can I check my system after migrating a Linux server?

When you first start a Linux instance after migration:

- Check whether the system disk data is complete or not.
- If a data disk exists, you must [mount the data disk](#).
- Check whether the network service is running normally.
- Check whether other system services are operating normally.

## 2.7 Troubleshooting

After you fix the error, run `go2aliyun_client` of the Cloud Migration Tool again. The migration resumes from where it was suspended.



### Note:

- If you are using the 1.3.0 or later version of Cloud Migration tool, after the migration job is finished for an on-premises server running Windows Server 2008 and later version of Windows Server, please wait for the automatic recovery of file system access permission at the first instance startup attempt. For more information, see [FAQ 19 How can I check my system after migrating a Windows server](#).

- If you are using the 1.3.0 or earlier version of Cloud Migration tool, to avoid abnormal components and service failure, run the [Reset File Permission](#) tool to restore the file system permission of Windows Server 2008 and later operating system.
- Keyword “IllegalTimestamp” appears in the migration logs.
- Keyword “UnKnownError” appears in the migration logs.
- Keyword “OperationDenied” appears in the migration logs.
- Keyword “InvalidAccountStatus.NotEnoughBalance” appears in the migration logs.
- Keyword “Forbidden.RAM” appears in the migration logs.
- Keyword “InvalidImageName.Duplicated” appears in the migration logs.
- Keyword “InvalidAccountStatus.SnapshotServiceUnavailable” appears in the migration logs.
- Keyword “Connect to Server Failed” appears in the migration logs.
- Keyword “Do Rsync Disk x Failed” appears in the migration logs.
- Windows server migration stops at the "Prepare For Rsync Disk 0" stage.
- What can I do if the Windows requires me to activate Microsoft license after the Windows server migration?
- What can I do if the drive letters of data disks are missing or wrong after the Windows server migration?
- Keyword “check rsync failed” or "rsync not found" appears in the migration logs of a Linux server.
- Keyword “check virtio failed” appears in the migration logs of a Linux server.
- Keyword “check selinux failed” appears in the migration logs of a Linux server.
- Keyword “Do Grub Failed” appears in the migration logs of a Linux server.
- Why no data is found in the original data disk directory in the started Linux ECS instances?
- Why cannot I start the created ECS instances after Linux server migration?
- What can I do if network service is abnormal when I start the migrated Others Linux instances?

Keyword "IllegalTimestamp" appears in the migration logs.

Check whether the system time is correct or not.

Keyword "UnKnownError" appears in the migration logs.

Check whether the value of the `platform` parameter is correct in file `user_config.json`.

Keyword "OperationDenied" appears in the migration logs.

If `rsync : send_files failed to open "...": Permission denied ( 13 )` is displayed in the log, Alibaba Cloud Migration Tool has no access permission on the directory or folder, which leads to rsync failure. In this case, you can configure `rsync_excludes_linux.txt` or `Rsync/etc/rsync_excludes_win.txt` to filter this directory or folder and try again.

Keyword "InvalidAccountStatus.NotEnoughBalance" appears in the migration logs.

The default billing method of the intermediate instance is [Pay-As-You-Go](#). You must make sure that no credit limit is set to your credit card and it allows the payment to go through.

Keyword "Forbidden.RAM" appears in the migration logs.

The RAM user is not granted with operation permission and cannot access the APIs.

If the AccessKey that you create belongs to a RAM user, you must make sure that the specified RAM user is authorized the permission of `AliyunECSF ullAccess` and `AliyunVPCF ullAccess` to operate the ECS and VPC resources. For more information, see [#unique\\_17](#).

Keyword "InvalidImageName.Duplicated" appears in the migration logs.

The specified parameter `image_name` cannot be the same as an existing image name.

Keyword "InvalidAccountStatus.SnapshotServiceUnavailable" appears in the migration logs.

It indicates that you have not signed up for the ECS snapshot services. You can go to the [ECS console](#) to sign up the ECS snapshot service and try cloud migration again.

Keyword "Connect to Server Failed" appears in the migration logs.

It indicates that the tool is unable to connect the intermediate instance. Follow these steps:

1. View the migration log for any migration exception.

**2. Before you proceed, check the following:**

- Whether the status of the intermediate instance is abnormal or not in the ECS console.
- Whether the network service of the on-premises server is abnormal or not. The TCP port 80, 443, 8703, and 8080 have been enabled because the Cloud Migration Tool needs the access permission of those ports.

**3. After the error is fixed, run the go2aliyun\_client again.**

Keyword "Do Rsync Disk x Failed" appears in the migration logs.

It indicates that the data transmission is interrupted. Follow these steps:

**1. View the migration log for any migration exception. Specifically, if the return:**

3072 or return: 7680 is displayed in the log file, you must make sure the database or container service in the on-premises server has been disabled, such as Oracle, MySQL, MS SQL Server, MongoDB, and Docker. In that case, you can disable the service or filter out the related directory before you start the migration again.

**2. Before you proceed, check the following:**

- Whether the status of the intermediate instance is abnormal or not in the ECS console.
- Whether the network service of the on-premises server is abnormal or not. The TCP port 80, 443, 8703, and 8080 have been enabled because the Cloud Migration Tool needs the access permission of those ports.

**3. After the error is fixed, run the go2aliyun\_client again.**

Windows server migration stops at the "Prepare For Rsync Disk 0" stage.

Windows server migration stops at the "Prepare For Rsync Disk 0" stage, meanwhile, the log file record that "VssSnapshotul::VssSnapshotul GetSnapshotul Failed: 0x80042308". Follow these steps:

**1. To enable the Volume Shadow Copy Service, for example, in Windows Server 2016:**

- a. Log on to your on-premises server, and click Start, enter Services and select the gadget icon.
- b. Locate the Volume Shadow Copy Service, and click Start the service.

2. To uninstall the qemu guest agent software:
  - a. Log on to your on-premises server, and click Start, enter Services and select the gadget icon.
  - b. Check that whether the QEMU Guest Agent VSS Provider service is running or not. And if this service is not available, you can run the Cloud Migration tool directly.
  - c. Find the uninstall program, possibly in the C:\Program Files (x86)\virtio\monitor\uninstall.bat directory, execute the program to uninstall the QEMU Guest Agent.
3. Run the Cloud Migration tool again.

What can I do if the Windows requires me to activate Microsoft license after the Windows server migration?

You can activate Windows service via KMS after reinstalling Windows KMS Client Key

.

- Log on to the Windows instance.
- On the Microsoft [Appendix A: KMS Client Setup Keys](#) page, find your relevant KMS Client Key, here, it is assumed to be xxxx-xxxx-xxxx-xxxx-xxxx.
- Open the command-line tool with administrative permission, and run the following command:

```
slmgr / upk  
slmgr / ipk  xxxx - xxxx - xxxx - xxxx - xxxx
```

What can I do if the drive letters of data disks are missing or wrong after the Windows server migration?

If the drive letters are missing, you can add the drive letters in the Disk Management.

1. Choose Control Panel > System and Security > Administrative Tools > Computer Management.
2. Locate and right-click the target data disk in Disk Management module, and click Change Drive Letters and Path....
3. Click Add and specify a drive letter.

If the drive letter is in disorder, you can open the Disk Management and change it again.

1. Select Control Panel > System and Security > Administrative Tools > Computer Management.
2. Locate and right-click the target data disk in Disk Management module, and click Change Drive Letters and Path....
3. Click Change and assign a drive letter.

Keyword "check rsync failed" or "rsync not found" appears in the migration logs of a Linux server.

Check whether the rsync component is installed. For more information, see *Preparations* in [#unique\\_8](#).

The keyword "check virtio failed" appears in the migration logs.

Check whether the [virtio driver](#) is installed or not.

The keyword "check selinux failed" appears in the migration logs.

Check whether SELinux is deactivated or not.

You can temporarily deactivate SELinux by running `setenforce 0`.

Keyword "Do Grub Failed" appears in the migration logs of a Linux server.

Check whether the on-premises server has correctly installed the GRUB (GRand Unified Bootloader) or not when `Do Grub Failed` is received. You can [install a GRUB with the version newer than 1.9 and try again](#) and try again.

Why no data is found in the original data disk directory in the started Linux ECS instances?

After you migrate an on-premises Linux server, the data disks are not mounted by default. You can run the command `ls / dev / vd *` to view the data disk devices. You may mount the data disks manually as needed, and edit configuration file `/ etc / fstab` to configure the mounting file systems.

Why cannot I start the created ECS instances after Linux server migration?

- Check the driver. Before creating the I/O optimized instances, make sure that the [virtio driver](#) is installed on the on-premises server.
- Check whether the boot configurations of the on-premises server are normal.

- Connect to the ECS instance by using the [Management Terminal](#) in the ECS console, if the following output appears:

Perhaps the kernel of your on-premises Linux servers is the earlier version, and the version of GRUB (GRand Unified Bootloader) is earlier than 1.9. You may [update the boot loader GRUB to a version later than 1.9](#).

What can I do if network service is abnormal when I start the migrated Others Linux instances?

When an image of Others Linux type is imported, Alibaba Cloud performs no configuration, including network configuration and SSH configuration, on ECS instances created by custom images. You can manually modify the network service configurations.

After the migration job is finished, we provide the created instance a single virtual network interface that uses DHCP to assign addresses. If network configuration still fails, [open a ticket](#) to contact Alibaba Cloud.

If the problem persists, [join the dedicated DingTalk Migration Tool group chat](#) or [open a ticket](#) to contact Alibaba Cloud.

## 2.8 Feedback and support

This article provides options for access to technical support and additional server migration support.

Feedback channels specific to the migration to Alibaba Cloud are as follows.

- In the ECS console, [open a ticket](#).
- Business hours access to cloud support via email of [server-migration@alibabacloud.com](mailto:server-migration@alibabacloud.com).
- [Join the dedicated DingTalk Migration Tool group chat](#), share us your cloud migration experiences, and consult the experts for advice. DingTalk is an enterprise communication and collaboration platform developed by Alibaba Group. You can navigate to the official website of [DingTalk](#) to download an appropriate client.

## 3 Migration service

---

### 3.1 Migration overview

This topic describes how you can easily migrate your services to Alibaba Cloud.

#### Background information

In response to the rapid rise of cloud computing services, Alibaba Cloud has launched a comprehensive server migration service. This migration service is a one-click solution that provides easy-to-use server system migration tools, helping to reducing costs while streamlining the server migration process.

For more information, see [Cloud Migration tool for P2V and V2V](#).

#### Workflow

1. Practice using the migration tools by performing trial migrations.
2. Estimate the costs and time of migration and make a migration plan.
3. Migrate your systems. For technical support, contact Alibaba Cloud.
4. Create Pay-As-You-Go instances and debug the system services.
5. Switch over all systems to the cloud and upgrade your instances to Subscription instances.

### 3.2 Supported systems and scopes of migration

Service migration depends on such factors as operating systems, source platforms, and general scope of migration. This topic describes the systems and migration scenarios supported by the Alibaba Cloud migration service.

#### Supported operating systems

Previously, a standard server system migration typically experienced the following issues:

- **Complicated configurations:** Advanced IT knowledge is required for virtualized driver configurations, system boot configurations, and disk configurations.
- **High migration costs:** An equivalent amount of local storage space needs to be used for the migration process, which may therefore take a long time and can be disrupted easily.

- **Different migration methods:** Because of different OSs involved, there is no unified method to migrate Windows or Linux operating systems.

To resolve the preceding issues, the Alibaba Cloud migration service provides:

A one-click automatic system configuration function that includes resumable upload/download and compressed transfer features. Additionally, the service does not occupy local storage, and supports the following Windows and Linux operating systems:

- Windows Server 2003/2008/2012/2016
- CentOS 5/6/7
- Ubuntu 10/12/14/16/17/18
- Debian 7/8/9
- Red Hat 5/6/7
- SUSE 11.4/12.1/12.2
- Amazon Linux 2014 or later
- Oracle Linux 5/6/7

#### Supported server platforms

Previously, a standard server platform migration typically encountered the following compatibility issues:

- **Incompatible underlying server environments** between physical machines and virtual machines.
- **Incompatible file systems**, including different file formats, partition types, and disk types.
- **Incompatible system services**, for example, Cloud-Init and SELINUX.

To resolve the preceding issues, the Alibaba Cloud migration service provides:

Support for P2V/V2V migration (physical machine/virtual machine migration) without a dependency on the underlying environment. The service is also compatible with multiple file formats, partition types, and disk types, and can automatically process specified system services. Currently, the following server platforms are supported:

- On-premises IDCs
- Local virtual machines (VMware/Virtual Box/XEN/KVM)
- Alibaba Cloud (across accounts or regions)

- AWS EC2
- Azure VM
- Google VM
- Huawei ECS
- Tencent Cloud (CVM)
- Other mainstream cloud vendors (for example, UCloud, e-Surfing Cloud, and QingCloud)

### Supported scopes of migration

Previously, service migrations that were performed manually typically experienced the following issues :

- Extensive operation and deployment preparations
- Excessive consumption of resources
- Lengthy migration process

To resolve the preceding issues, the Alibaba Cloud migration service provides:

- Automatic on-demand migration resource responses, using the elastic computing resources of Alibaba cloud, which enable flexible service expansion.
- Concurrent processing of massive migration tasks
- Easy batch migration. You can call the easy-to-distribute migration service tool through the CLI by running automated scripts that you create.

The scope of migration that the Alibaba Cloud migration service supports ranges from tens of servers (small-scale migration) to thousands of servers (large-scale migration).

## 3.3 Migration assessment

Before you perform a system migration, you need to assess your service contents, the time required for migration, and related costs, and create a migration plan accordingly. This topic describes the key assessment factors that you need to consider when planning a system migration.

### Operating system requirements

- **Kernel version:** CentOS/Red Hat 5 or later, Ubuntu 10 or later, and Windows Server 2003 or later. If your kernel version is earlier than the preceding versions listed, you need to upgrade your kernel to a supported version.

- **Virtualized driver:** The KVM virtio driver must be installed.
- **Service software:** For Linux systems, rsync is required and curl is recommended. For Windows systems, the Volume Shadow Services (VSSs) must be operating properly.
- **Grand Unified Bootloader (GRUB):** For operating systems with earlier kernel versions, such as CentOS/Red Hat 5 and Debian 7, GRUB must be upgraded to V1.99 or later.
- **Disk size:** The system disk must be 40 to 500 GiB, and the data disk must be 20 to 32768 GiB.

### Service applications

- **Service suspension:** If you are running large service applications, such as Oracle , SQLServer, MongoDB, MySQL, and Docker databases, we recommend that you suspend them before performing the service migration. If such service applications cannot be suspended, we recommend that you exclude the corresponding data directories from being migrated, and then synchronize the database data after the server migration is completed.
- **Large data volume:** If there are a massive number of data files, we recommend that you migrate only the server application environment, and then decide whether to migrate these data files by using a physical connection or Lightning Cube for faster transfer.
- **Software licensing:** You need to assess whether the software that must be licensed in the source system requires a new license after migration.
- **Network configuration:** The Internet IP address changes after migration. You need to assess whether this will affect the original services.

### Network transfer modes

You need to assess the network transfer mode required for the server system to be migrated.

Server migration is divided into three phases:

1. Migration resource preparation
2. Data transfer
3. Migration closing

All three phases are conducted through the Internet. Therefore, the server to be migrated must have access to the following Alibaba Cloud service addresses and ports :

- Phase 1 and phase 3
  - ECS service: <https://ecs.aliyuncs.com>, port 443. For more addresses, see [Request structure](#).
  - VPC service: <https://vpc.aliyuncs.com>, port 443.
  - STS service: <https://sts.aliyuncs.com>, port 443.
- Phase 2: IP address (the Internet address by default) of the temporary intermediate instance, port 8080 and port 8703.

If the preceding migration method cannot be conducted through the Internet entirely , the Alibaba Cloud migration service supports the following transfer modes for specific network environments:

- Default Internet transfer: The Internet is used by default in phases 1, 2, and 3.
- Manual intranet transfer: The Internet is used in phases 1 and 3 and the VPC is used in phase 2. Manual intranet transfer applies to the server systems that can access the VPC but cannot access the preceding Alibaba Cloud service addresses. In this case, you need to prepare an additional system of the same type that can access the preceding Alibaba Cloud service addresses to cooperate with the operation. For more information, see [#unique\\_86](#).
- Automatic intranet transfer: The Internet is used in phases 1 and 3. The VPC is used in phase 2. Automatic intranet transfer applies to the server systems that can access the preceding Alibaba Cloud service addresses and the specified VPC. This mode also applies to the server systems whose data is transferred through the VPC in phase 2. Compared with Manual intranet transfer, this mode is simpler. For more information, see [#unique\\_86](#).

### Migration quantity

The following information is recommended if you want to migrate your servers in batches.

1. Before a batch migration, you need to:
  - Contact your local network operator to confirm the traffic limits, or set the upper limit of the transmission bandwidth by using the Cloud Migration tool.
  - Open a ticket to cancel the limits on the number of Alibaba Cloud images and the quota of Pay-As-You-Go resources (for example, vCPU).
2. During a batch migration, you need to:
  - Check whether the server system supports automated batch O&M to run commands in batches and run the Cloud Migration tool.
  - Check whether you need to analyze the statistics of batch migration progress logs.
3. After a batch migration, you need to:
  - Create and configure the server systems.
  - Validate the server systems.

#### Migration period

The migration period is determined by the number of servers and the actual data volume. We recommend that you assess how much migration time is required by conducting tests in advance.

The migration period is divided into three parts: pre-migration, migration, and post-migration.

- Pre-migration time = migration preparation time

The migration preparation time varies with the actual conditions.

- Migration time = data transfer time + image production time (optional)

Data transfer time = actual data volume / actual transfer rate

Image production time = actual data volume / snapshot service speed



#### Note:

By default, the Cloud Migration tool enables the compression transfer function during data transfer. This results in an transfer rate increase by 30% to 40%. The image production time depends on the snapshot service of Alibaba Cloud (the current speed is approximately 10 to 30 MB/s).

- Post-migration time = incremental system synchronization time after migration ( optional) + system configuration validation time

Incremental system synchronization time = actual incremental data volume / actual transfer rate

The system configuration validation time varies according to actual conditions.



**Note:**

By default, the migration service generates a full image. If you want to minimize the migration period, you can also migrate data directly to the target instance. For more support, contact the migration service engineers of Alibaba Cloud.

### Migration costs

The Cloud Migration tool is provided free of charge. However, an ECS instance named `INSTANCE_FOR_GOTOALIYUN` is created by default under your Alibaba Cloud account during the migration to act as an intermediate station. The ECS instance is a Pay-As-You-Go instance. You need to ensure that the credit card associated with your account has a sufficient balance.



**Note:**

After the migration, the intermediate instance resources (including the cloud disks) are automatically released. If the migration fails, the intermediate instance remains in the ECS console so that you can re-migrate data. If you do not need to continue with the migration, we recommend that you manually release the instance to avoid incurring unnecessary fees.

## 3.4 Migration solutions

### 3.4.1 Full migration

This topic describes how to perform a full migration. When you migrate a server from an on-premises IDC or a static application environment to Alibaba Cloud for the first time, you need to perform a full migration. During the full migration, you do not need to stop your current services, but you do need to perform an incremental migration later.

#### Full migration of a Windows server

##### Preparations

1. Verify that the Windows VSS service is enabled.
2. Check whether you have installed the qemu-agent tool. If so, uninstall it. For more information, see [Cloud Migration tool FAQ](#).

#### Procedure

1. [Download and install the Cloud Migration tool](#) onto the server to be migrated.
2. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

3. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).
4. Run the main program of the Cloud Migration tool.

Run `go2aliyun_client.exe` or `go2aliyun_gui.exe` as the administrator. If the main program is a GUI version, click the Start button to start the migration.

#### Full migration of a Linux server

The following procedure uses CentOS 7.6 as an example to describe how to perform a full migration of a Linux server.

#### Preparations

1. Run the following command to download the Cloud Migration tool to the server to be migrated:

```
wget http://p2v-tools.oss-cn-hangzhou.aliyuncs.com/Alibaba_Cloud_Migration_Tool.zip
```

2. Run the following command to decompress the Cloud Migration tool:

```
unzip Alibaba_Cloud_Migration_Tool.zip
```

3. Run the following command to view the hardware architecture of the Linux server to be migrated and decompress the Cloud Migration tool package that applies to this hardware architecture:

```
uname -a
unzip < the Cloud Migration tool package that applies
to the hardware architecture of the Linux system
to be migrated >
```

In this example, the Linux hardware architecture is `x86_64`. Therefore, the Cloud Migration tool package that applies to this hardware architecture is `go2aliyun_client1.3.2.3_linux_x86_64.zip`.

4. Run the following command to access the directory where the decompressed Cloud Migration tool is located:

```
cd < the directory where the decompressed Cloud
Migration tool is located >
```

In this example, the command is `cd go2aliyun_client1.3.2.3_linux_x86_64`.

5. Run the following command to check whether the Linux server meets the migration conditions:

```
chmod +x ./Check/client_check
./Check/client_check --check
```

If all check items are `OK`, it means that the Linux server meets the migration conditions and you can start the migration.

## Procedure

1. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

2. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).
3. Run the following command as the root user to grant the execution permission to the main program, and then run this program.

```
chmod +x go2aliyun_client
./go2aliyun_client
```

4. Wait until the main program of the Cloud Migration tool has been completely executed. When the message `Go to Aliyun Finished!` is displayed, the migration is successfully completed.

#### What to do next

Go to the image details page in the ECS console to view the result. The OS, applications, and relevant data of your source system are displayed in the ECS console in the format of a custom image.

For the incremental data that is generated during the full migration, you need to perform an [Incremental migration](#).

### 3.4.2 Incremental migration

After you perform a full migration, we recommend that you suspend your services and perform an incremental migration to synchronize any data changes from the source server to the target ECS instance.

If you want to synchronize the incremental data online, we recommend that you use the [Alibaba Cloud Data Transmission Service \(DTS\)](#).

## Prerequisite

A [full migration](#) is created and a custom image (that is, a full image) is generated in the ECS console.

## Procedure

1. Suspend your services.
2. Use the full image to [create a Pay-As-You-Go instance](#), and configure the network to connect to the source system.
3. Using an incremental synchronization tool to synchronize the incremental data from the source system to the target ECS instance.

We recommend that you use the rsync or goodsync synchronization tool. In this example, rsync is used to describe how to synchronize incremental data from the source system to the target ECS instance. If the IP address of your target ECS instance is 10.0.0.11 and the directory that you need to synchronize is `/ disk1`, then the example code of the rsync command is `rsync - azvASX -- partial -- progress - e " ssh " / disk1 / root @ 10 . 0 . 0 . 11 :/ disk1 /.` For more information, see the [parameter descriptions on the rsync official website](#).



### Note:

For incremental database synchronization, you can use the Alibaba Cloud DTS service.

## 3.4.3 Batch migration

This topic describes how to perform a batch migration of servers by running scripts. Batch server migration is useful when you need to migrate a large amount of servers at a time.

### Context

Automated O&M tools (for example, Ansible) are generally used to manage a large group of server systems. With Ansible, you can easily complete repetitive work. For example, you can copy the same file to 100 servers or install and start the Apache service on 100 servers simultaneously.

Automated O&M tools allow you to distribute and run scripts in batches. The Cloud Migration tool provided by Alibaba Cloud is a client program that can be used without any installation or complicated configurations required.

## Procedure

1. Prepare an automated batch O&M tool.
2. Use command lines to call the Cloud Migration tool.

The Cloud Migration tool provides a series of command line parameters that apply to scenarios where you want to call the Cloud Migration tool. For example:

- `--noenterkey`: disables interaction.
- `--nocheckversion`: disables version update notification.
- `--progressfile`: sets the progress log file.

3. Create scripts for batch migration.

Create scripts for automated batch migration task as needed. The scripts include the following operations:

- a. Distribute the Cloud Migration tool to the servers to be migrated.
- b. Configure the Cloud Migration tool.
- c. Run the Cloud Migration tool and obtain the migration task result.

## Example scripts

```
# Send the Cloud Migration tool program to all
servers .

ansible -f 6 -i host . file all -m copy -a
" src = go2aliyun_ client1 . 2 . 9 . 1_linux_x8 6_64 . zip dest =/
temp "

# Decompress the program .

ansible -f 6 -i host . file all -m shell -a " cd /
temp &&
unzip \
go2aliyun_ client1 . 2 . 9 . 1_linux_x8 6_64 . zip "

# Run the scripts that modifies the configurat ion
file .

ansible -f 6 -i host . file all -m shell -a " cd
/ temp / go2aliyun_ client1 . 2 . 9 . 1_linux_x8 6_64 && ./ config
. sh "

sleep 120

# The configurat ion file script ". / config . sh " is
used to configure the target image name according to
```

```

the subnet IP address . ( Other items such as AK ,
zone , and disk informatio n have been configured )

#! / bin / bash

image_name = ` ip a | grep inet | grep eth0 | grep brd
| awk '{ print
$ 2 }' | awk - F '/' '{ print $ 1 }'| awk - F '.' '{ print
" move_ "$ 1 " _ "$ 2 " _ "$ 3 " _ "$ 4 }'`

sed - i " s / IMAGE_NAME /${ image_name }/" user_confir g . json

# Run six migration scripts at the same time .

ansible - f 6 - i host . file all - m shell - a " cd
/ temp / go2aliyun_ client1 . 2 . 9 . 1_linux_x8 6_64 && chmod +
x go2aliyun_ client
&&./ go2aliyun_ client -- nocheckver sion -- noenterkey "

# Obtain the cloud migration result by obtaining the
generated image ID and the migration status from
client_data .

# Check the status displayed in client_data . If the
status is Finished , it means that the cloud migration
is completed . The image_id field is the generated
image ID .

```

### 3.4.4 VPC-based migration

If you can directly access a VPC from your on-premises IDC, virtual machine, or cloud host, but want to fully migrate your services to Alibaba Cloud, you can connect your source server with your target VPC to easily migrate your services. Compared with migrating your cloud services through the Internet, migrating your cloud services using Alibaba Cloud VPC transfers data at faster speeds and with greater stability.

You can use [Express Connect](#) or [VPN](#) to connect to the target VPC, and then use the Cloud Migration tool to perform a VPC-based migration.

#### Background information

The Cloud Migration tool v1.2.8 and later versions support VPC-based migration.

To perform a VPC-based migration, you need to set the `net_mode` field of `client_data` to 1 or 2 .

```

"extra": {
  "net_mode": 0,
  "p2v_stage": 0
},

```

The options of the `net_mode` parameter are described as follows:

- **0:** the default value, which indicates Internet-based migration. The system to be migrated must support data transfer through the Internet.
- **1:** indicates that the system to be migrated can access the specified VPC. The migration process is divided into phase 1, phase 2, and phase 3. In phase 2, data is transferred in the current system. In phase 1 and phase 3, data is transferred in other Internet environments.
- **2:** indicates that the system to be migrated can access the Internet and the specified VPC. Data is transferred through the specified VPC.

Different parameter settings apply to different migration methods.

### Method 1

If you set `net_mode` to `1`, follow these steps to migrate the system:

1. Create an intermediate instance in the Internet environment.
  - a. Log on to the target system (system A, in this example) that has access to the Internet, and then download the Cloud Migration tool. For more information, see [Migrate your server to Alibaba Cloud by using the Cloud Migration tool](#).
  - b. Configure the `user_config.json` file.
  - c. Set the target `vpc_id` and `vswitch_id` in the `client_data` file. For more information, see [Configure the client\\_data file to the specified VPC](#).
  - d. Run the Cloud Migration tool until the message `Stage 1 is done!` is displayed.

```
[2018-04-10 20:43:16] [Info] Server ECS Is Running!  
[2018-04-10 20:43:16] [Done] Stage 1 is Done!  
[2018-04-10 20:43:16] [Info] Goto Aliyun Not Finished, Ready To Next Stage!  
Enter any key to Exit...
```

2. Transfer system data in the VPC.
  - a. Log on to the system to be migrated to the VPC (system B, in this example).
  - b. Copy the Cloud Migration tool from system A to system B.



Note:

The `user_config.json` file and the `client_data` file in system B must be the same as those in the Cloud Migration tool in system A.

- c. Run the Cloud Migration tool until the message `Stage 2 is done!` is displayed.

```
[2018-04-10 20:47:43] [Info] Do Grub...
[2018-04-10 20:48:20] [Done] Stage 2 is Done!
[2018-04-10 20:48:20] [Info] Goto Aliyun Not Finished, Ready To Next Stage!
Enter any key to Exit...
```

3. Create an image in the Internet environment.

- a. Go back to system A, and then copy the Cloud Migration tool from system B to system A.



Note:

The `user_config.json` file and the `client_data` file must be the same as those in the Cloud Migration tool in system A.

- b. Run the Cloud Migration tool until the message `Stage 3 is done!` is displayed, which indicates the cloud migration is finished.

```
[2018-04-10 20:55:52] [Done] Create Image Successfully!
[2018-04-10 20:55:53] [Info] Server ECS Is Released!
[2018-04-10 20:55:53] [Done] Stage 3 is Done!
[2018-04-10 20:55:53] [Done] Goto Aliyun Finished!
Enter any key to Exit...
```

## Method 2

If you set `net_mode` to `2`, follow these steps to migrate the system:

1. Log on to the system to be migrated, and then download the Cloud Migration tool.  
For more information, see [Migrate your server to Alibaba Cloud by using the Cloud Migration tool](#).
2. Configure the `user_config.json` file.
3. Set the target `vpc_id` and `vswitch_id` in the `client_data` file. For more information, see [Configure the client\\_data file to the specified VPC](#).
4. Run the Cloud Migration tool until the migration is completed.



Note:

During the migration, data is transferred through the VPC in the data migration phase, or through the Internet in other phases.

Configure the `client_data` file.

To configure the `client_data` file to the specified VPC, follow these steps:

1. Set `vpc_id` to the ID of the specified VPC.

```
"vpc": {  
  "vpc_id": "",  
  "vpc_name": "GOTOALIYUN_VPC",  
  "description": "VPC FOR GOTOALIYUN.",  
  "status": ""  
},
```

2. Set `vswitch_id` to the ID of the specified VSwitch.

```
"vswitch": {  
  "vswitch_id": "",  
  "vswitch_name": "GOTOALIYUN_VSWITCH",  
  "description": "VSWITCH FOR GOTOALIYUN.",  
  "status": ""  
},
```

3. (Optional) Set `security_group_id` to the ID of the specified security group. If you do not set this parameter, it will be automatically created.



Note:

The specified security group must enable port 8080 and port 8703 in the inbound direction.

```
"security_group": {  
  "security_group_id": "",  
  "security_group_name": "GOTOALIYUN_SECURITY_GROUP",  
  "description": "SECURITY GROUP FOR GOTOALIYUN."  
},
```

### 3.4.5 Migrate a source instance to a target instance

Generally, the Cloud Migration tool migrates ECS instances by creating snapshots and generating custom images. If you have created the corresponding target ECS instances, you can migrate the source instances directly to the target instances.

This speeds up the instance migration process because you do not need to create snapshots or generate custom images.

### Preparations

- [Contact technical support](#) to obtain the related permissions.
- Prepare one or more target ECS instances in the target Alibaba Cloud region. The number of target ECS instances is the same as the number of source instances. The source ECS instances must be in stopped state.
- Back up the data in the system disks of the target instances. This is recommended because the system disks will be replaced after the migration.

### Procedure

To migrate a source instance to its target instance, follow these steps: If you want to migrate multiple instances, you can repeat the steps detailed in this procedure as needed until all instances are migrated.

1. Download the Cloud Migration tool (V1.2.9.7 or later).
2. Configure the `client_data` file and set `target_instance_id` in `extra`.

```
"extra": {  
  "net_mode" : 0,  
  "p2v_stage" : 0,  
  "target_instance_id" : "i-xxxxxxxxxxxxxxxxxxxx"  
},
```



#### Note:

By default, the disk of the target instance is an ultra disk. If the disk is an SSD disk, you need to configure the `client_data` file by set `instance_disk_cloud_ssd` to `true`.

3. Configure the `user_config.json` file. For more information, see [Full migration](#).
4. Run the Cloud Migration tool until the migration is completed.

### What to do next

Start the target ECS instance to verify that the system runs normally.

### 3.4.6 Other migration solutions

If you are using an earlier server OS, or your server OS is not in the list of supported systems, you can contact Alibaba Cloud technical support for applicable cloud migration solutions.

#### Migrate earlier server OSs to Alibaba Cloud

Some earlier server OSs, for example, OSs earlier than CentOS 5.5 and Red Hat 5.5, cannot be migrated to Alibaba Cloud directly because their kernels do not support the necessary virtualization drivers, such as virtio. The following procedure takes CentOS 5.1 (old version, kernel version: 2.6.18-53.el5) and CentOS 5.5 (new version, kernel version: 2.6.18-194.el5) as example OSs to describe how to upgrade the kernel version and migrate such systems to Alibaba Cloud.

#### Procedure

1. Run the following command to confirm that the system version is CentOS 5.1 and the kernel version is 2.6.18-53.el5:

```
cat / etc / redhat - release
uname - r
```

2. Run the following command to download and install the kernel installation package of CentOS 5.5:

```
wget http :// vault . centos . org / 5 . 5 / os / x86_64 / CentOS
/ kernel - 2 . 6 . 18 - 194 . el5 . x86_64 . rpm
rpm - ivh ./ kernel - 2 . 6 . 18 - 194 . el5 . x86_64 . rpm
```



#### Note:

If an error occurs during the installation of the new kernel, you need to check the error log for details. If the error is caused by a conflict between the existing software and the new kernel, you need to manually uninstall the existing software and then reinstall the new kernel. After you install the new kernel successfully, you can reinstall the previous software.

3. Upgrade the GRUB of your system to version 1.99. For more information, see [Update GRUB 1.99 for a Linux server](#).



#### Note:

We recommend that you mask the old GRUB 0.97 program so that you do not mistake it for the new version.

#### 4. Run GRUB 1.99 as follows:

- a. Run the `grub - mkconfig - o / boot / grub / grub . cfg` command to update the GRUB configuration file.
- b. Run the `cat / boot / grub / grub . cfg` command to check whether the configuration file contains the old kernel 2.6.18-53.el5 and the new kernel 2.6.18-194.el5.
- c. Run the `fdisk - l` command to find the system disk.
- d. If your system disk is `/ dev / sda`, run the `grub - install -- no - floppy -- modules = part_msdos -- boot - directory = / boot / dev / sda` command.
- e. Set the new kernel as a default startup item:
  - A. Run the `cat / boot / grub / grub . cfg | grep menuentry` command to check the startup item list of the kernel.
  - B. Find the label of the new kernel, and then run the following command to set the new kernel as a default startup item:

```
mkdir /usr/local/etc/default -p
echo "GRUB_DEFAULT LT =< label of the new kernel >"
>> /usr/local/etc/default/grub
grub - mkconfig - o / boot / grub / grub . cfg
```

For example, if the new kernel is GNU/Linux (with Linux 2.6.18-194.el5) and the corresponding label is 2, run the following command:

```
mkdir /usr/local/etc/default -p
echo "GRUB_DEFAULT LT = 2 " >> /usr/local/etc/default
/grub
grub - mkconfig - o / boot / grub / grub . cfg
```

5. Restart the OS. The GRUB menu page is displayed and the system is restarted using the new kernel 2.6.18-194.el5.
6. [Download and install the Cloud Migration tool](#) to conduct the migration.

#### Migrate other systems to Alibaba Cloud

If your system is not listed in [#unique\\_101](#), for example, Oracle Linux, Amazon Linux, and XenServer, [contact technical support](#) for custom system tests and migration solutions.

## 3.5 Migration scenarios

## 3.5.1 Migrate your physical server to Alibaba Cloud ECS

This topic describes how to migrate your physical server to Alibaba Cloud ECS.

### Migrate your Windows physical server to Alibaba Cloud

#### Preparations

1. Create a snapshot to back up your data.
2. Make sure that the system time is the same as the standard time of the local region.
3. Ensure that your physical server can access the following websites and ports:

- a. ECS: `https://ecs.aliyuncs.com:443`.



Note:

For information about ECS API endpoints of other regions, see [Endpoints](#).

- b. VPC: `https://vpc.aliyuncs.com:443`.
- c. STS: `https://sts.aliyuncs.com:443`.
- d. Intermediate instance: port 8080 and port 8703.



Note:

An intermediate instance is a temporary instance that is automatically created during the running of the Cloud Migration tool. If a network connection error occurs during the migration, you need to ensure that the physical server to be migrated has access to port 8080 and port 8703 of the intermediate instance by running the following commands:

```
telnet xxx.xx.xxx.xx 8080 # where, xxx.xx
.xxx.xx is the Internet IP address of the
intermediate instance. When you perform the
migration through VPC, xxx.xx.xxx.xx is the
private IP address of the intermediate instance.
telnet xxx.xx.xxx.xx 8703 # where, xxx.xx
.xxx.xx is the Internet IP address of the
intermediate instance. When you perform the
migration through VPC, xxx.xx.xxx.xx is the
private IP address of the intermediate instance.
```

4. Check your virtualized applications.



Note:

Generally, Alibaba Cloud ECS instances do not support built-in virtualized applications. Therefore, VMware Workstation, Virtual Box, and Hyper-V, which

can only be used in a physical machine environment, will no longer be supported after the migration.

5. Ensure that the Windows VSS service is enabled.
6. Check whether you have installed the qemu-agent tool. If so, uninstall it. For more information, see [Cloud Migration tool FAQ](#).
7. Check the validity of your application licenses.



**Note:**

After your physical server is migrated to Alibaba Cloud, the underlying hardware devices of the system will change, which may result in the associated application licenses becoming invalid.

8. We recommend that you use a test machine to conduct migration tests before completing the actual procedure to ensure the migration is successful.

### Procedure

1. [Download and install the Cloud Migration tool](#) onto the server to be migrated.
2. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

3. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).
4. Run the main program of the Cloud Migration tool.

Run `go2aliyun_client.exe` or `go2aliyun_gui.exe` as the administrator. If the main program is a GUI version, click the Start button to start the migration.

## Migrate your Linux physical server to Alibaba Cloud

### Preparations

1. Create a snapshot to back up your data.

2. Make sure that the system time is the same as the standard time of the local region.
3. Ensure that your physical server can access the following websites and ports:

a. ECS: `https://ecs.aliyuncs.com:443`.



Note:

For information about ECS API endpoints of other regions, see [Endpoints](#).

b. VPC: `https://vpc.aliyuncs.com:443`.

c. STS: `https://sts.aliyuncs.com:443`.

d. Intermediate instance: port 8080 and port 8703.



Note:

An intermediate instance is a temporary instance that is automatically created during the running of the Cloud Migration tool. If a network connection error occurs during the migration, you need to ensure that the physical server to be migrated has access to port 8080 and port 8703 of the intermediate instance by running the following commands:

```
telnet xxx.xx.xxx.xx 8080 # where, xxx.xx
.xxx.xx is the Internet IP address of the
intermediate instance. When you perform the
migration through VPC, xxx.xx.xxx.xx is the
private IP address of the intermediate instance.
telnet xxx.xx.xxx.xx 8703 # where, xxx.xx
.xxx.xx is the Internet IP address of the
intermediate instance. When you perform the
migration through VPC, xxx.xx.xxx.xx is the
private IP address of the intermediate instance.
```

4. [Download and install the Cloud Migration tool](#).
5. Go to the directory where the Cloud Migration tool is located. Run the `./check/client_check --check` command to check whether the physical server to be migrated meets the migration conditions.



Note:

If all check items are `OK`, you can start the migration. Otherwise, you need to conduct the following additional checks:

- a. Check SELinux. For CentOS or Red Hat systems, check whether SELinux is disabled. If SELinux is enabled, disable it by using either of the following methods:
    - A. Run the `setenforce 0` command to disable SELinux temporarily.
    - B. Modify the `/etc/selinux/config` file to set `SELINUX = disabled` to disable SELinux permanently.
  - b. Check the virtualization driver. For more information, see [Install the virtio driver](#).
  - c. Check the GRUB bootloader and upgrade GRUB to 1.99 or a later version for systems with earlier kernel versions (such as CentOS 5, Red Hat 5, and Debian 7). For more information, see [Update GRUB 1.99 for a Linux server](#).
6. Check your virtualized applications.



Note:

Generally, Alibaba Cloud ECS instances do not support built-in virtualized applications. Therefore, VMware Workstation, Virtual Box, and Hyper-V, which can only be used in a physical machine environment, will no longer be supported after the migration.

7. Check the validity of your application licenses.



Note:

After your physical server is migrated to Alibaba Cloud, the underlying hardware devices of the system will change, which may result in the associated application licenses becoming invalid.

8. We recommend that you use a test machine to conduct migration tests before completing the actual procedure to ensure the migration is successful.

## Procedure

1. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

2. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).
3. Run the following command as the root user to grant the execution permission to the main program, and then run this program.

```
chmod +x go2aliyun_client
./go2aliyun_client
```

4. Wait until the main program of the Cloud Migration tool has been completely executed. When the message `Go to Aliyun Finished!` is displayed, the migration is successfully completed.

## 3.5.2 Migrate your VMware VM to Alibaba Cloud ECS

This topic describes how to migrate your VMware Virtual Machine (VM) to Alibaba Cloud ECS.

### Migrate your VMWare Windows VM to Alibaba Cloud

#### Preparations

1. Create a snapshot to back up your data.
2. Make sure that the system time is the same as the standard time of the local region.
3. Ensure that your VM can access the following websites and ports:
  - a. ECS: `https://ecs.aliyuncs.com:443`.



Note:

For information about ECS API endpoints of other regions, see [Endpoints](#).

- b. VPC: `https://vpc.aliyuncs.com:443`.
- c. STS: `https://sts.aliyuncs.com:443`.
- d. Intermediate instance: port 8080 and port 8703.



**Note:**

An intermediate instance is a temporary instance that is automatically created during the running of the Cloud Migration tool. If a network connection error occurs during the migration, you need to ensure that the VM to be migrated has access to port 8080 and port 8703 of the intermediate instance by running the following commands:

```
telnet xxx.xx.xxx.xx 8080 # where, xxx.xx
.xxx.xx is the Internet IP address of the
intermediate instance. When you perform the
migration through VPC, xxx.xx.xxx.xx is the
private IP address of the intermediate instance.
telnet xxx.xx.xxx.xx 8703 # where, xxx.xx
.xxx.xx is the Internet IP address of the
intermediate instance. When you perform the
migration through VPC, xxx.xx.xxx.xx is the
private IP address of the intermediate instance.
```

- 4. Ensure that the Windows VSS service is enabled.
- 5. Check whether you have installed the qemu-agent tool. If so, uninstall it. For more information, see [Cloud Migration tool FAQ](#).
- 6. Check the validity of your application licenses.



**Note:**

After your VM is migrated to Alibaba Cloud, the underlying hardware devices of the system will change, which may result in the associated application licenses becoming invalid.

- 7. We recommend that you use a test machine to conduct migration tests before completing the actual procedure to ensure the migration is successful.

## Procedure

- 1. [Download and install the Cloud Migration tool](#) onto the server to be migrated.

## 2. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

3. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).
4. Run the main program of the Cloud Migration tool.

Run `go2aliyun_client.exe` or `go2aliyun_gui.exe` as the administrator. If the main program is a GUI version, click the Start button to start the migration.

## Migrate your VMWare Linux VM to Alibaba Cloud

### Preparations

1. Create a snapshot to back up your data.
2. Make sure that the system time is the same as the standard time of the local region.
3. Ensure that your VM can access the following websites and ports:

- a. ECS: `https://ecs.aliyuncs.com:443`.



Note:

For information about ECS API endpoints of other regions, see [Endpoints](#).

- b. VPC: `https://vpc.aliyuncs.com:443`.
- c. STS: `https://sts.aliyuncs.com:443`.
- d. Intermediate instance: port 8080 and port 8703.



Note:

An intermediate instance is a temporary instance that is automatically created during the running of the Cloud Migration tool. If a network connection error occurs during the migration, you need to ensure that the VM to be migrated has

access to port 8080 and port 8703 of the intermediate instance by running the following commands:

```
telnet xxx . xx . xxx . xx 8080 # where , xxx . xx . xxx . xx is the Internet IP address of the intermediate instance . When you perform the migration through VPC , xxx . xx . xxx . xx is the private IP address of the intermediate instance .
telnet xxx . xx . xxx . xx 8703 # where , xxx . xx . xxx . xx is the Internet IP address of the intermediate instance . When you perform the migration through VPC , xxx . xx . xxx . xx is the private IP address of the intermediate instance .
```

4. [Download and install the Cloud Migration tool](#).
5. Go to the directory where the Cloud Migration tool is located. Run the `./ Check / client_check -- check` command to check whether the VM to be migrated meets the migration conditions.



Note:

If all check items are `OK` , you can start the migration. Otherwise, you need to conduct the following additional checks:

- a. Check SELinux. For CentOS or Red Hat systems, check whether SELinux is disabled. If SELinux is enabled, disable it by using either of the following methods:
    - A. Run the `setenforce 0` command to disable SELinux temporarily.
    - B. Modify the `/ etc / selinux / config` file to set `SELINUX = disabled` to disable SELinux permanently.
  - b. Check the virtualization driver. For more information, see [Install the virtio driver](#).
  - c. Check the GRUB bootloader and upgrade GRUB to 1.99 or a later version for systems with earlier kernel versions (such as CentOS 5, Red Hat 5, and Debian 7). For more information, see [Update GRUB 1.99 for a Linux server](#).
6. Check the validity of your application licenses.



Note:

After your VM is migrated to Alibaba Cloud, the underlying hardware devices of the system will change, which may result in the associated application licenses becoming invalid.

## Procedure

### 1. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

- (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).
- Run the following command as the root user to grant the execution permission to the main program, and then run this program.

```
chmod +x go2aliyun_client
./go2aliyun_client
```

- Wait until the main program of the Cloud Migration tool has been completely executed. When the message `Go to Aliyun Finished!` is displayed, the migration is successfully completed.



#### Note:

After your VMware VM is successfully migrated to Alibaba Cloud ECS, you no longer need VMtools to manage the relevant instance in Alibaba Cloud.

## 3.5.3 Migrate your Xen/KVM/Hyper-V VM to Alibaba Cloud ECS

This topic describes how to migrate your Xen/KVM/Hyper-V Virtual Machine (VM) to Alibaba Cloud ECS.

### Migrate your Windows VM to Alibaba Cloud

#### Preparations

- Create a snapshot to back up your data.
- Make sure that the system time is the same as the standard time of the local region.

### 3. Ensure that your VM can access the following websites and ports:

- a. ECS: `https://ecs.aliyuncs.com:443`.

**Note:**

For information about ECS API endpoints of other regions, see [Endpoints](#).

- b. VPC: `https://vpc.aliyuncs.com:443`.
- c. STS: `https://sts.aliyuncs.com:443`.
- d. Intermediate instance: port 8080 and port 8703.

**Note:**

An intermediate instance is a temporary instance that is automatically created during the running of the Cloud Migration tool. If a network connection error occurs during the migration, you need to ensure that the VM to be migrated has access to port 8080 and port 8703 of the intermediate instance by running the following commands:

```
telnet xxx.xx.xxx.xx 8080 # where, xxx.xx
.xxx.xx is the Internet IP address of the
intermediate instance. When you perform the
migration through VPC, xxx.xx.xxx.xx is the
private IP address of the intermediate instance.
telnet xxx.xx.xxx.xx 8703 # where, xxx.xx
.xxx.xx is the Internet IP address of the
intermediate instance. When you perform the
migration through VPC, xxx.xx.xxx.xx is the
private IP address of the intermediate instance.
```

4. Ensure that the Windows VSS service is enabled.
5. Check whether you have installed the qemu-agent tool. If so, uninstall it. For more information, see [Cloud Migration tool FAQ](#).
6. Check the validity of your application licenses.

**Note:**

After your VM is migrated to Alibaba Cloud, the underlying hardware devices of the system will change, which may result in the associated application licenses becoming invalid.

7. We recommend that you use a test machine to conduct migration tests before completing the actual procedure to ensure the migration is successful.

### Procedure

1. [Download and install the Cloud Migration tool](#) onto the server to be migrated.
2. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

3. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).
4. Run the main program of the Cloud Migration tool.

Run `go2aliyun_client.exe` or `go2aliyun_gui.exe` as the administrator. If the main program is a GUI version, click the Start button to start the migration.

## Migrate your Linux VM to Alibaba Cloud

### Preparations

1. Create a snapshot to back up your data.
2. Make sure that the system time is the same as the standard time of the local region.
3. Ensure that your VM can access the following websites and ports:

- a. ECS: `https://ecs.aliyuncs.com:443`.



Note:

For information about ECS API endpoints of other regions, see [Endpoints](#).

- b. VPC: `https://vpc.aliyuncs.com:443`.
- c. STS: `https://sts.aliyuncs.com:443`.
- d. Intermediate instance: port 8080 and port 8703.



Note:

An intermediate instance is a temporary instance that is automatically created during the running of the Cloud Migration tool. If a network connection error occurs during the migration, you need to ensure that the VM to be migrated has

access to port 8080 and port 8703 of the intermediate instance by running the following commands:

```
telnet xxx . xx . xxx . xx 8080 # where , xxx . xx
. xxx . xx is the Internet IP address of the
intermedia te instance . When you perform the
migration through VPC , xxx . xx . xxx . xx is the
private IP address of the intermedia te instance .
telnet xxx . xx . xxx . xx 8703 # where , xxx . xx
. xxx . xx is the Internet IP address of the
intermedia te instance . When you perform the
migration through VPC , xxx . xx . xxx . xx is the
private IP address of the intermedia te instance .
```

4. [Download and install the Cloud Migration tool](#).
5. Go to the directory where the Cloud Migration tool is located. Run the `./ Check / client_cke ck -- check` command to check whether the VM to be migrated meets the migration conditions.



Note:

If all check items are `OK` , you can start the migration. Otherwise, you need to conduct the following additional checks:

- a. Check SELinux. For CentOS or Red Hat systems, check whether SELinux is disabled. If SELinux is enabled, disable it by using either of the following methods:
    - A. Run the `setenforce 0` command to disable SELinux temporarily.
    - B. Modify the `/ etc / selinux / config` file to set `SELINUX = disabled` to disable SELinux permanently.
  - b. Check the virtualization driver. For more information, see [Install the virtio driver](#).
  - c. Check the GRUB bootloader and upgrade GRUB to 1.99 or a later version for systems with earlier kernel versions (such as CentOS 5, Red Hat 5, and Debian 7). For more information, see [Update GRUB 1.99 for a Linux server](#).
6. Check the validity of your application licenses.



Note:

After your VM is migrated to Alibaba Cloud, the underlying hardware devices of the system will change, which may result in the associated application licenses becoming invalid.

## Procedure

### 1. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

2. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).
3. Run the following command as the root user to grant the execution permission to the main program, and then run this program.

```
chmod +x go2aliyun_client
./go2aliyun_client
```

4. Wait until the main program of the Cloud Migration tool has been completely executed. When the message `Go to Aliyun Finished!` is displayed, the migration is successfully completed.

## 3.5.4 Migrate your AWS EC2 instance to Alibaba Cloud ECS

This topic describes how to migrate your AWS EC2 instance to Alibaba Cloud ECS.

### Migrate your EC2 Windows instance to Alibaba Cloud

#### Preparations

1. Create a snapshot to back up your data.
2. Check the validity of your application licenses.



#### Note:

After your instance is migrated to Alibaba Cloud, the underlying hardware devices of the system will change, which may result in the associated application licenses becoming invalid.

3. Check your network environment.
  - If your network uses international regions, see [Cloud migration across international regions](#).
  - If your network can connect to VPC, see [VPC-based migration](#).
4. Verify that the Windows VSS service is enabled.
5. Check whether you have installed the qemu-agent tool. If so, uninstall it. For more information, see [Cloud Migration tool FAQ](#).
6. We recommend that you use a test machine to conduct migration tests before completing the actual procedure to ensure the migration is successful.

#### Procedure

1. [Download and install the Cloud Migration tool](#) onto the server to be migrated.
2. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

3. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).
4. Run the main program of the Cloud Migration tool.

Run `go2aliyun_client.exe` or `go2aliyun_gui.exe` as the administrator. If the main program is a GUI version, click the Start button to start the migration.

#### Migrate your EC2 Linux instance to Alibaba Cloud

##### Preparations

1. Create a snapshot to back up your data.
2. Check the validity of your application licenses.



Note:

After your instance is migrated to Alibaba Cloud, the underlying hardware devices of the system will change, which may result in the associated application licenses becoming invalid.

3. Check your network environment.

- If your network uses international regions, see [Cloud migration across international regions](#).
- If your network can connect to VPC, see [VPC-based migration](#).

4. [Download and install the Cloud Migration tool](#).

5. Go to the directory where the Cloud Migration tool is located. Run the `./check_client_check --check` command to check whether the EC2 instance to be migrated meets the migration conditions.



Note:

If all check items are `OK`, you can start the migration. Otherwise, you need to conduct the following additional checks:

- Check the cloud-init service. cloud-init is a service used by multiple cloud platforms to automatically initialize the configuration system. However, the cloud-init service configuration of AWS is incompatible with that of Alibaba Cloud. Therefore, the system migrated from AWS may fail to start normally due to a cloud-init startup failure, and the network cannot be connected. We recommend that you use the cloud-init configuration of Alibaba Cloud before migrating your AWS EC2 instance. For more information, see [Install cloud-init](#). Alternatively, you can uninstall the cloud-init service of your AWS EC2 instance.
- Check the GRUB bootloader.
  - a. [Upgrade GRUB to 2.02 or a later version](#) for Amazon Linux systems as the root user.
  - b. [Upgrade GRUB to 1.99 or a later version](#) for systems with earlier kernel versions (such as CentOS 5, Red Hat 5, and Debian 7) as the root user.

6. We recommend that you use a test machine to conduct migration tests before completing the actual procedure to ensure the migration is successful.

## Procedure

1. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

2. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).
3. Run the following command as the root user to grant the execution permission to the main program, and then run this program.

```
chmod +x go2aliyun_client
./go2aliyun_client
```

4. Wait until the main program of the Cloud Migration tool has been completely executed. When the message `Go to Aliyun Finished!` is displayed, the migration is successfully completed.

#### Cloud migration across international regions

1. Migrate the AWS EC2 instance to the corresponding international region of Alibaba Cloud. For more information, see [Full migration](#). For example, if the EC2 instance to be migrated is located in a region in the United States (such as US East (N. Virginia)), you can migrate it to an Alibaba Cloud region that is also in the United States (such as US East 1). For information about regions and their corresponding IDs, see [Regions and zones](#).
2. Copy the newly created image to the target Alibaba Cloud region. For more information, see [Copy images](#).
3. Use this image to create an instance in the target Alibaba Cloud region.

## What to do next

By default, logon to your AWS EC2 instance using the root password is disabled by SSH. You can log on to your Alibaba Cloud instance by using your AWS username and SSH key.

### 3.5.5 Migrate your Azure VMs to Alibaba Cloud ECS

This topic describes how to migrate your Azure virtual machines (VMs) to Alibaba Cloud ECS.

#### Migrate your Azure Windows VMs to Alibaba Cloud

##### Preparations

1. Create a snapshot to back up your data.
2. Check the validity of your application licenses.



##### Note:

After your Azure VM is migrated to Alibaba Cloud, the underlying hardware devices of the system will change, which may cause the associated application licenses to become invalid.

3. Check your network environment.
  - If your network uses international regions, see [Cloud migration across international regions](#).
  - If your network can connect to VPC, see [VPC-based migration](#).
4. Ensure that the Windows VSS service is enabled.
5. Check whether you have installed the qemu-agent tool. If so, uninstall it. For more information, see [Cloud Migration tool FAQ](#).
6. We recommend that you use a test machine to conduct a pre-migration test to ensure successful migration.

##### Procedure

1. [Download and install the Cloud Migration tool](#) onto the server to be migrated.

## 2. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

3. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).
4. Run the main program of the Cloud Migration tool.

Run `go2aliyun_client.exe` or `go2aliyun_gui.exe` as the administrator. If the main program is a GUI version, click the Start button to start the migration.

## Migrate your Azure Linux VMs to Alibaba Cloud

### Preparations

1. Create a snapshot to back up your data.
2. Check the validity of your application licenses.



#### Note:

After your Azure VM is migrated to Alibaba Cloud, the underlying hardware devices of the system will change, which may cause the associated application licenses to become invalid.

3. Check your network environment.
  - If your network uses international regions, see [Cloud migration across international regions](#).
  - If your network can connect to VPC, see [VPC-based migration](#).
4. [Download and install the Cloud Migration tool](#).

5. Go to the directory where the Cloud Migration tool is located. Run the `./ Check / client_check -- check` command to check whether the Azure VM to be migrated meets the migration conditions.

**Note:**

If all check items are `OK`, you can start the migration. Otherwise, you need to perform the following additional checks:

- Check the cloud-init service. For more information, see [Install cloud-init](#).
- Check the GRUB bootloader. [Upgrade GRUB to 1.99 or a later version](#) for systems with earlier kernel versions (such as CentOS 5, Red Hat 5, and Debian 7) as the root user.

6. We recommend that you use a test machine to conduct a pre-migration test to ensure successful migration.

**Procedure**

1. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

2. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).
3. Run the following command as the root user to grant the execution permission to the main program, and then run this program.

```
chmod +x go2aliyun_client
```

```
./ go2aliyun_ client
```

4. Wait until the main program of the Cloud Migration tool has been completely executed. When the message `Go to Aliyun Finished !` is displayed, the migration is successfully completed.

#### Cloud migration across international regions

1. Migrate the Azure VM to the corresponding international region of Alibaba Cloud. For more information, see [Full migration](#). For example, if the Azure VM is located in a region in the United States (such as US East (N. Virginia)), you can migrate it to an Alibaba Cloud region that is also in the United States (such as US East 1). For information about regions and their corresponding IDs, see [Regions and zones](#).
2. Copy the newly created image to the target Alibaba Cloud region. For more information, see [Copy images](#).
3. Use this image to create an instance in the target Alibaba Cloud region. For more information, see [Create an instance by using a custom image](#).

### 3.5.6 Migrate your HUAWEI CLOUD ECS instance to Alibaba Cloud ECS

This topic describes how to migrate your HUAWEI CLOUD ECS instance to Alibaba Cloud ECS.

#### Migrate your HUAWEI CLOUD ECS Windows instance to Alibaba Cloud

##### Preparations

1. Create a snapshot to back up your data.
2. Ensure that your ECS instance can access the following websites and ports:

a. ECS: `https://ecs.aliyuncs.com:443`.



Note:

For information about ECS API endpoints of other regions, see [Endpoints](#).

b. VPC: `https://vpc.aliyuncs.com:443`.

c. STS: `https://sts.aliyuncs.com:443`.

d. Intermediate instance: port 8080 and port 8703.



Note:

An intermediate instance is a temporary instance that is automatically created during the running of the Cloud Migration tool. If a network connection error occurs during the migration, you need to ensure that the ECS instance to be migrated has access to port 8080 and port 8703 of the intermediate instance by running the following commands:

```
telnet xxx . xx . xxx . xx 8080 # where , xxx . xx . xxx . xx is the Internet IP address of the intermediate instance . When you perform the migration through VPC , xxx . xx . xxx . xx is the private IP address of the intermediate instance .
telnet xxx . xx . xxx . xx 8703 # where , xxx . xx . xxx . xx is the Internet IP address of the intermediate instance . When you perform the migration through VPC , xxx . xx . xxx . xx is the private IP address of the intermediate instance .
```

3. Check whether you have installed QEMU Guest Agent VSS Provider. If so, go to the installation directory (for example, `C :\ Program Files ( x86 )\ virtio \ monitor` ), and then locate and run the `uninstall . bat` script to uninstall QEMU Guest Agent.
4. Ensure that the Windows VSS service is enabled.
5. Check whether you have installed the `qemu-agent` tool. If so, uninstall it. For more information, see [Cloud Migration tool FAQ](#).
6. Check the validity of your application licenses.



**Note:**

After your instance is migrated to Alibaba Cloud, the underlying hardware devices of the system will change, which may result in the associated application licenses becoming invalid.

7. We recommend that you use a test machine to conduct migration tests before completing the actual procedure to ensure the migration is successful.

### Procedure

1. [Download and install the Cloud Migration tool](#) onto the server to be migrated.

## 2. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

## 3. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).

## 4. Run the main program of the Cloud Migration tool.

Run `go2aliyun_client.exe` or `go2aliyun_gui.exe` as the administrator. If the main program is a GUI version, click the Start button to start the migration.

Migrate your HUAWEI CLOUD ECS Linux instance to Alibaba Cloud

### Preparations

1. Create a snapshot to back up your data.
2. Ensure that your ECS instance can access the following websites and ports:

- a. ECS: `https://ecs.aliyuncs.com:443`.



Note:

For information about ECS API endpoints of other regions, see [Endpoints](#).

- b. VPC: `https://vpc.aliyuncs.com:443`.
- c. STS: `https://sts.aliyuncs.com:443`.
- d. Intermediate instance: port 8080 and port 8703.



Note:

An intermediate instance is a temporary instance that is automatically created during the running of the Cloud Migration tool. If a network connection error occurs during the migration, you need to ensure that the ECS instance to be

migrated has access to port 8080 and port 8703 of the intermediate instance by run the following commands:

```
telnet xxx . xx . xxx . xx 8080 # where , xxx . xx
. xxx . xx is the Internet IP address of the
intermedia te instance . When you perform the
migration through VPC , xxx . xx . xxx . xx is the
private IP address of the intermedia te instance .
telnet xxx . xx . xxx . xx 8703 # where , xxx . xx
. xxx . xx is the Internet IP address of the
intermedia te instance . When you perform the
migration through VPC , xxx . xx . xxx . xx is the
private IP address of the intermedia te instance .
```

3. Ensure that Rsync is installed. If not, run one of the following commands to install it according to your operating system:

- CentOS: `yum - y install rsync .`
- Ubuntu: `apt - get - y install rsync .`
- Debian: `apt - get - y install rsync .`
- SUSE: `zypper install rsync .`
- Other platforms: See the relevant document on the website of your platform.

4. Check the validity of your application licenses.



Note:

After your instance is migrated to Alibaba Cloud, the underlying hardware devices of the system will change, which may result in the associated application licenses becoming invalid.

5. We recommend that you use a test machine to conduct migration tests before completing the actual procedure to ensure the migration is successful.

## Procedure

1. Download and decompress the Cloud Migration tool.

2. Run the `client_check` script of the tool to check whether the ECS instance to be migrated meets the migration conditions.

a. Run the following command to download the Cloud Migration tool to the server to be migrated:

```
wget http://p2v-tools.oss-cn-hangzhou.aliyuncs.com/Alibaba_Cloud_Migration_Tool.zip
```

b. Run the following command to decompress the Cloud Migration tool:

```
unzip Alibaba_Cloud_Migration_Tool.zip
```

c. Run the following command to view the hardware architecture of the Linux server to be migrated and decompress the Cloud Migration tool package that applies to this hardware architecture:

```
uname -a  
unzip < the Cloud Migration tool package that applies to the hardware architecture of the Linux system to be migrated >
```

In this example, the Linux hardware architecture is `x86_64`. Therefore, the Cloud Migration tool package that applies to this hardware architecture is `go2aliyun_client1.3.2.3_linux_x86_64.zip`.

d. Run the following command to access the directory where the decompressed Cloud Migration tool is located:

```
cd < the directory where the decompressed Cloud Migration tool is located >
```

In this example, the command is `cd go2aliyun_client1.3.2.3_linux_x86_64`.

e. Run the following command to check whether the Linux server meets the migration conditions:

```
chmod +x ./Check/client_check  
./Check/client_check --check
```

If all check items are `OK`, it means that the Linux server meets the migration conditions and you can start the migration.

3. Set the migration parameters as needed, and then run the Cloud Migration tool.
  - a. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

- b. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).
- c. Run the following command as the root user to grant the execution permission to the main program, and then run this program.

```
chmod +x go2aliyun_client
./go2aliyun_client
```

- d. Wait until the main program of the Cloud Migration tool has been completely executed. When the message `Go to Aliyun Finished!` is displayed, the migration is successfully completed.

### 3.5.7 Migrate your Tencent Cloud CVM instance to Alibaba Cloud ECS

This topic describes how to migrate your Tencent Cloud CVM instance to Alibaba Cloud ECS.

Migrate your Tencent Cloud CVM Windows instance to Alibaba Cloud

#### Preparations

1. Create a snapshot to back up your data.
2. Verify that your CVM instance can access the following websites and ports:
  - a. ECS: `https://ecs.aliyuncs.com:443`.



Note:

For information about ECS API endpoints of other regions, see [Endpoints](#).

- b. VPC: `https://vpc.aliyuncs.com:443`.
- c. STS: `https://sts.aliyuncs.com:443`.
- d. Intermediate instance: port 8080 and port 8703.



**Note:**

An intermediate instance is a temporary instance that is automatically created during the running of the Cloud Migration tool. If a network connection error occurs during the migration, you need to verify that the CVM instance to be migrated has access to port 8080 and port 8703 of the intermediate instance by running the following commands:

```
telnet xxx.xx.xxx.xx 8080 # where, xxx.xx
.xxx.xx is the Internet IP address of the
intermediate instance. When you perform the
migration through VPC, xxx.xx.xxx.xx is the
private IP address of the intermediate instance.
telnet xxx.xx.xxx.xx 8703 # where, xxx.xx
.xxx.xx is the Internet IP address of the
intermediate instance. When you perform the
migration through VPC, xxx.xx.xxx.xx is the
private IP address of the intermediate instance.
```

3. Verify that the Windows VSS service is enabled.
4. Check whether you have installed the qemu-agent tool. If so, uninstall it. For more information, see [Cloud Migration tool FAQ](#).
5. Check the validity of your application licenses.



**Note:**

After your instance is migrated to Alibaba Cloud, the underlying hardware devices of the system will change, which may result in the associated application licenses becoming invalid.

6. We recommend that you use a test machine to conduct migration tests before completing the actual procedure to ensure the migration is successful.

## Procedure

1. [Download and install the Cloud Migration tool](#) onto the server to be migrated.

## 2. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

## 3. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).

## 4. Run the main program of the Cloud Migration tool.

Run `go2aliyun_client.exe` or `go2aliyun_gui.exe` as the administrator. If the main program is a GUI version, click the Start button to start the migration.

## Migrate your Tencent Cloud CVM Linux instance to Alibaba Cloud

### Preparations

1. Create a snapshot to back up your data.
2. Verify that your CVM instance can access the following websites and ports:

- a. ECS: `https://ecs.aliyuncs.com:443`.



#### Note:

For information about ECS API endpoints of other regions, see [Endpoints](#).

- b. VPC: `https://vpc.aliyuncs.com:443`.
- c. STS: `https://sts.aliyuncs.com:443`.
- d. Intermediate instance: port 8080 and port 8703.



#### Note:

An intermediate instance is a temporary instance that is automatically created during the running of the Cloud Migration tool. If a network connection error occurs during the migration, you need to verify that the CVM instance to be

migrated has access to port 8080 and port 8703 of the intermediate instance by running the following commands:

```
telnet xxx.xx.xxx.xx 8080 # where, xxx.xx
.xxx.xx is the Internet IP address of the
intermediate instance. When you perform the
migration through VPC, xxx.xx.xxx.xx is the
private IP address of the intermediate instance.
telnet xxx.xx.xxx.xx 8703 # where, xxx.xx
.xxx.xx is the Internet IP address of the
intermediate instance. When you perform the
migration through VPC, xxx.xx.xxx.xx is the
private IP address of the intermediate instance.
```

### 3. Check the validity of your application licenses.



#### Note:

After your instance is migrated to Alibaba Cloud, the underlying hardware devices of the system will change, which may result in the associated application licenses becoming invalid.

### 4. We recommend that you use a test machine to conduct migration tests before completing the actual procedure to ensure the migration is successful.

#### Procedure

1. Download and decompress the Cloud Migration tool.
2. Run the `client_check` script of the tool to check whether the ECS instance to be migrated meets the migration conditions.
  - a. Run the following command to download the Cloud Migration tool to the server to be migrated:

```
wget http://p2v-tools.oss-cn-hangzhou.aliyuncs.com/Alibaba_Cloud_Migration_Tool.zip
```

- b. Run the following command to decompress the Cloud Migration tool:

```
unzip Alibaba_Cloud_Migration_Tool.zip
```

- c. Run the following command to view the hardware architecture of the Linux server to be migrated and decompress the Cloud Migration tool package that applies to this hardware architecture:

```
uname -a
```

```
unzip < the Cloud Migration tool package that  
applies to the hardware architecture of the Linux  
system to be migrated >
```

In this example, the Linux hardware architecture is `x86_64`. Therefore, the Cloud Migration tool package that applies to this hardware architecture is `go2aliyun_client1.3.2.3_linux_x86_64.zip`.

- d. Run the following command to access the directory where the decompressed Cloud Migration tool is located:

```
cd < the directory where the decompressed Cloud  
Migration tool is located >
```

In this example, the command is `cd go2aliyun_client1.3.2.3_linux_x86_64`.

- e. Run the following command to check whether the Linux server meets the migration conditions:

```
chmod +x ./Check/client_check  
./Check/client_check --check
```

If all check items are `OK`, it means that the Linux server meets the migration conditions and you can start the migration.

3. Set the migration parameters as needed, and then run the Cloud Migration tool.
  - a. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

- b. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).
- c. Run the following command as the root user to grant the execution permission to the main program, and then run this program.

```
chmod +x go2aliyun_client
./go2aliyun_client
```

- d. Wait until the main program of the Cloud Migration tool has been completely executed. When the message `Go to Aliyun Finished!` is displayed, the migration is successfully completed.

## 3.5.8 Migrate your UCloud host to Alibaba Cloud ECS

This topic describes how to migrate your UCloud host to Alibaba Cloud ECS.

### Migrate your UCloud Windows host to Alibaba Cloud

#### Preparations

1. Create a snapshot to back up your data.
2. Verify that your UCloud host can access the following websites and ports:
  - a. ECS: `https://ecs.aliyuncs.com:443`.



Note:

For information about ECS API endpoints of other regions, see [Endpoints](#).

- b. VPC: `https://vpc.aliyuncs.com:443`.
- c. STS: `https://sts.aliyuncs.com:443`.
- d. Intermediate instance: port 8080 and port 8703.



**Note:**

An intermediate instance is a temporary instance that is automatically created during the running of the Cloud Migration tool. If a network connection error occurs during the migration, you need to verify that the UCloud host to be migrated has access to port 8080 and port 8703 of the intermediate instance by running the following commands:

```
telnet xxx.xx.xxx.xx 8080 # where, xxx.xx
.xxx.xx is the Internet IP address of the
intermediate instance. When you perform the
migration through VPC, xxx.xx.xxx.xx is the
private IP address of the intermediate instance.
telnet xxx.xx.xxx.xx 8703 # where, xxx.xx
.xxx.xx is the Internet IP address of the
intermediate instance. When you perform the
migration through VPC, xxx.xx.xxx.xx is the
private IP address of the intermediate instance.
```

- 3. Verify that the Windows VSS service is enabled.
- 4. Check whether you have installed the qemu-agent tool. If so, uninstall it. For more information, see [Cloud Migration tool FAQ](#).
- 5. Check the validity of your application licenses.



**Note:**

After your UCloud host is migrated to Alibaba Cloud, the underlying hardware devices of the system will change, which may result in the associated application licenses becoming invalid.

- 6. We recommend that you use a test machine to conduct migration tests before completing the actual procedure to ensure the migration is successful.

## Procedure

- 1. [Download and install the Cloud Migration tool](#) onto the server to be migrated.

## 2. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

## 3. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).

## 4. Run the main program of the Cloud Migration tool.

Run `go2aliyun_client.exe` or `go2aliyun_gui.exe` as the administrator. If the main program is a GUI version, click the Start button to start the migration.

## Migrate your UCloud Linux host to Alibaba Cloud

### Preparations

1. Create a snapshot to back up your data.
2. Verify that your UCloud host can access the following websites and ports:

- a. ECS: `https://ecs.aliyuncs.com:443`.



Note:

For information about ECS API endpoints of other regions, see [Endpoints](#).

- b. VPC: `https://vpc.aliyuncs.com:443`.
- c. STS: `https://sts.aliyuncs.com:443`.
- d. Intermediate instance: port 8080 and port 8703.



Note:

An intermediate instance is a temporary instance that is automatically created during the running of the Cloud Migration tool. If a network connection error occurs during the migration, you need to verify that the UCloud host to be

migrated has access to port 8080 and port 8703 of the intermediate instance by running the following commands:

```
telnet xxx.xx.xxx.xx 8080 # where, xxx.xx
.xxx.xx is the Internet IP address of the
intermediate instance. When you perform the
migration through VPC, xxx.xx.xxx.xx is the
private IP address of the intermediate instance.
telnet xxx.xx.xxx.xx 8703 # where, xxx.xx
.xxx.xx is the Internet IP address of the
intermediate instance. When you perform the
migration through VPC, xxx.xx.xxx.xx is the
private IP address of the intermediate instance.
```

### 3. Check the validity of your application licenses.



#### Note:

After your UCloud host is migrated to Alibaba Cloud, the underlying hardware devices of the system will change, which may result in failure of some application licenses associated to the hardware.

### 4. We recommend that you use a test machine to conduct migration tests before completing the actual procedure to ensure the migration is successful.

#### Procedure

1. Download and decompress the Cloud Migration tool.
2. Run the `client_check` script of the tool to check whether the UCloud host to be migrated meets the migration conditions.
  - a. Run the following command to download the Cloud Migration tool to the server to be migrated:

```
wget http://p2v-tools.oss-cn-hangzhou.aliyuncs.com/Alibaba_Cloud_Migration_Tool.zip
```

- b. Run the following command to decompress the Cloud Migration tool:

```
unzip Alibaba_Cloud_Migration_Tool.zip
```

- c. Run the following command to view the hardware architecture of the Linux server to be migrated and decompress the Cloud Migration tool package that applies to this hardware architecture:

```
uname -a
```

```
unzip < the Cloud Migration tool package that  
applies to the hardware architecture of the Linux  
system to be migrated >
```

In this example, the Linux hardware architecture is `x86_64`. Therefore, the Cloud Migration tool package that applies to this hardware architecture is `go2aliyun_client1.3.2.3_linux_x86_64.zip`.

- d. Run the following command to access the directory where the decompressed Cloud Migration tool is located:

```
cd < the directory where the decompressed Cloud  
Migration tool is located >
```

In this example, the command is `cd go2aliyun_client1.3.2.3_linux_x86_64`.

- e. Run the following command to check whether the Linux server meets the migration conditions:

```
chmod +x ./Check/client_check  
./Check/client_check --check
```

If all check items are `OK`, it means that the Linux server meets the migration conditions and you can start the migration.

3. Set the migration parameters as needed, and then run the Cloud Migration tool.
  - a. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

- b. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).
- c. Run the following command as the root user to grant the execution permission to the main program, and then run this program.

```
chmod +x go2aliyun_client
./go2aliyun_client
```

- d. Wait until the main program of the Cloud Migration tool has been completely executed. When the message `Go to Aliyun Finished!` is displayed, the migration is successfully completed.

## FAQ

Why am I unable to start or stop the newly migrated Linux instance in the Alibaba Cloud ECS console?

Because some Linux system kernels are customized on the UCloud platform, the customized kernels may be incompatible with Alibaba Cloud ECS. To resolve this issue, you can replace the Linux system kernels. For example, you can replace a customized CentOS kernel with an [official CentOS kernel](#). Alternatively, you can contact [Alibaba Cloud technical support](#).

### 3.5.9 Migrate your instance within Alibaba Cloud ECS

This topic describes how to migrate your instance within Alibaba Cloud ECS.

If you want to migrate your ECS instance within Alibaba Cloud ECS, we recommend that you [Copy images](#) and [Share images](#). If these two methods do not apply, you can use the following procedures as needed.

#### Migrate your ECS instance within the same VPC

This method applies to scenarios where you need to shrink your ECS disk volume. For more information, see [Shrink disk volume](#).

In these scenarios, we recommend that you migrate your instance through VPC to maximize transfer efficiency. For more information, see [VPC-based migration](#).

#### Migrate your ECS Windows instance between different VPCs

This method applies to scenarios where you need to migrate your ECS Windows instance between different accounts, regions, or VPCs.

##### Preparations

1. Create a snapshot to back up your data.
2. Check the validity of your application licenses.



##### Note:

After your ECS instance is migrated between different Alibaba Cloud VPCs, the underlying hardware devices of the system will change, which may result in the associated application licenses becoming invalid.

3. Check your network environment.
  - If your network uses international regions, the migration may be slow due to unstable network connections.
  - If your network can connect to VPC, see [VPC-based migration](#).
4. Verify that the Windows VSS service is enabled.
5. Check whether you have installed the qemu-agent tool. If so, uninstall it. For more information, see [Cloud Migration tool FAQ](#).
6. We recommend that you use a test machine to conduct migration tests before completing the actual procedure to ensure the migration is successful.

##### Procedure

1. [Download and install the Cloud Migration tool](#) onto the server to be migrated.
2. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

3. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).
4. Run the main program of the Cloud Migration tool.

Run `go2aliyun_client.exe` or `go2aliyun_gui.exe` as the administrator. If the main program is a GUI version, click the Start button to start the migration.

#### Migrate your ECS Linux instance between different VPCs

This method applies to scenarios where you need to migrate your ECS Linux instance between different accounts, regions, or VPCs.

#### Preparations

1. Create a snapshot to back up your data.
2. Check the validity of your application licenses.



#### Note:

After your ECS instance is migrated between different Alibaba Cloud VPCs, the underlying hardware devices of the system will change, which may result in the associated application licenses becoming invalid.

3. Check your network environment.
  - If your network uses international regions, the migration may be slow due to unstable network connections.
  - If your network can connect to VPC, see [VPC-based migration](#).
4. [Download and install the Cloud Migration tool](#).

5. Go to the directory where the Cloud Migration tool is located. Run the `./ Check / client_check -- check` command to check whether the EC2 instance to be migrated meets the migration conditions.

**Note:**

If all check items are `OK`, you can start the migration. Otherwise, you need to check the GRUB bootloader and [Upgrade GRUB to 1.99 or a later version](#) (applicable to systems with earlier kernels (such as CentOS 5, Red Hat 5, and Debian 7)) as the root user.

6. We recommend that you use a test machine to conduct migration tests before completing the actual procedure to ensure the migration is successful.

### Procedure

1. Configure the `user_config.json` file.

The `user_config.json` file contains the following configuration items:

- The AccessKey information of your Alibaba Cloud account
- The target zone of migration and the name of the target image
- (Optional) The size of the target system disk and the configuration of the target data disks
- The platform and architecture of the source system to be migrated

For the configuration methods of these items, see [Configure the user\\_config.json file](#).

2. (Optional) Configure the directories or files that do not need to be migrated. For more information, see [Exclude files or directories from migration](#).
3. Run the following command as the root user to grant the execution permission to the main program, and then run this program.

```
chmod +x go2aliyun_client
./ go2aliyun_client
```

4. Wait until the main program of the Cloud Migration tool has been completely executed. When the message `Go to Aliyun Finished!` is displayed, the migration is successfully completed.

## 3.6 Subsequent operations

This topic describes the subsequent operations that you need to perform after you migrate your servers to Alibaba Cloud. The purpose of these operations is to ensure that the system can operate normally.

### Create an instance

After you migrate a number of servers to Alibaba Cloud, you obtain the same number of custom images. You need to use these custom images to create instances and test the system. We recommend the following use scenarios based on the relative number of instances that you create.

- Create a small number of instances

If you need to create only a small number of instances, then we recommend that you use custom images to create the instances on the ECS instance purchase page in the ECS console. When you create an instance, you can select Pay-As-You-Go as the billing method, and specify the VPC, VSwitch, and security group, among other network parameters. Then, you can modify the IP address to the specified intranet IP address.

- Create a large number of instances

If you need to create a large number of instances, make sure that you do the following:

- Create Pay-As-You-Go instances for testing, and then convert these instances to Subscription instances.
- Maintain the subnet IP address of the original system to maintain the previous service scenario.
- Use an appropriate tool to create instances in batches.

To write a script to call the Alibaba Cloud CLI and use the CLI to call the relevant API, follow these steps:

1. [Download](#) Alibaba Cloud CLI and configure an AccessKeyId and AccessKeySecret.
2. Call the API [RunInstances](#) to create one or more instances.

For example, if the region in which you want to create an instance is `cn - qingdao`, the image ID is `m - xxxxxxxxxx`, the VSwitch is `vsw - xxxxxxxx`,

the subnet IP address is 10 . 0 . 0 . 10 , and the instance type is ecs . n1 . samll . Then, call the API by using the following code:

```
aliyun ecs CreateInstance -- RegionId ' cn - qingdao '
-- ImageId ' m - xxxxxxxxxx ' -- VSwitchId ' vsw - xxxxxxxx ' --
PrivateIP ' 10 . 0 . 0 . 10 ' -- InstanceType ' ecs . n1 .
samll '
```

3. Write a script that contains the image ID and the subnet IP address generated by the Cloud Migration tool, and then call the Alibaba Cloud CLI to automatically read the information and create instances in batches.



**Note:**

After you create instances in batches and start these instances, you can use the [Cloud assistant](#) to manage and configure the instances.

#### Check a migrated Linux server

1. Ensure that the system disk data is complete.
2. If you have a data disk, attach it to an ECS instance. For more information, see [#unique\\_59](#).
3. Ensure that the network operates normally.
4. Ensure that other systems operate normally.

#### Check a migrated Windows server

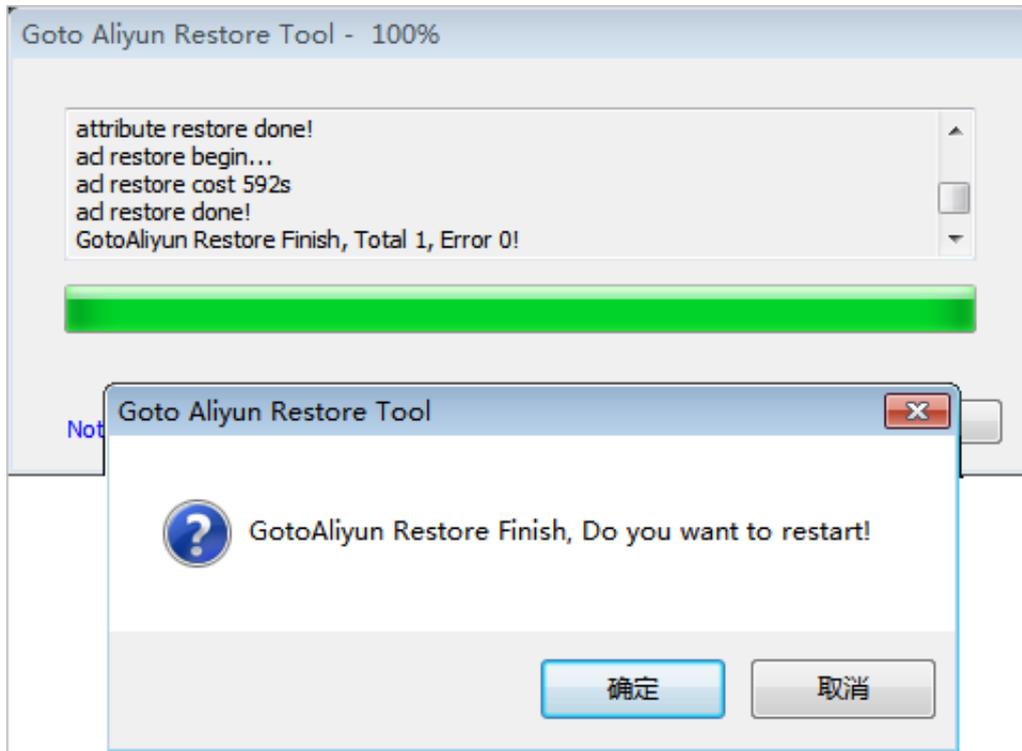
1. Ensure that the system disk data is complete.
2. If any data disk is lost, start the disk management tool to check whether any driver letter is lost.
3. Wait until the restoration process is finished, and then restart the instance.



**Note:**

The restoration process is used to repair the permissions of the file system. If the file system does not start the restoration process automatically after you start an ECS instance for the first time, you can run the `C : \ go2aliyun_ prepare \ go2aliyun_ restore . exe` command to conduct a manual repair. Before you

run the command, you need to ensure that the number and path of the disks in the instance is the same as those in the original system.



4. Ensure that the network operates normally.
5. Ensure that other systems operate normally.

## 4 Databases in ECS instances

### 4.1 Migrate a database between two ECS instances

Alibaba Cloud Data Transmission Service (DTS) allows you to exchange data between various data sources such as RDBMS, NoSQL, and OLAP. By taking the MySQL database as an example, this topic introduces how to configure a DTS migration task to migrate data in a database between two ECS instances.

#### Prerequisites

- In the security group of the target ECS instance, allow inbound access to the port on which the MySQL server listens. The default MySQL port is 3306.
- Create a non-root account for the MySQL databases on the source and target ECS instances.

For example, you can run the following command to create an account for the MySQL database, with the name as `dts` and the password as `123456`.

```
grant all on *.* to 'dts'@'%' IDENTIFIED BY '123456';
```

#### Procedure

1. Log on to the [DTS console](#).
2. In the left-side navigation pane, select Data Migration.
3. Select the region of the target ECS instance, and click Create Migration Task.



#### 4. Configure a migration task.

##### a) Specify a task name.

You can use the default name or specify one.

##### b) Configure the source database.

Parameter	Value
Instance Type	The database in the ECS instance.
Instance Region	The region to which the source ECS instance belongs.
ECS Instance ID	The ID of the source ECS instance. DTS supports ECS instances in classic networks or VPCs.
Database Engine	The type of the database in the source ECS instance, MySQL in this example.
Port	The port on which the MySQL server listens.
Database Account	<p>The non-root account for accessing the MySQL database in the source ECS instance.</p> <div style="background-color: #f0f0f0; padding: 5px;">  <b>Note:</b>            The database account cannot be a root account. Otherwise, errors will occur during the connection test.         </div>
Database Password	The password for the non-root account.

##### c) Click Test the Connection in the lower right corner of the Source Database area.

If the result Test Passed is returned, the source database has connected.

##### d) Configure the target database.

Parameter	Value
Instance Type	The database in the ECS instance.
Instance Region	The region to which the target ECS instance belongs .
ECS Instance ID	The ID of the target ECS instance. DTS supports ECS instances in classic networks or VPCs.
Database Engine	The same as the database in the source ECS instance , MySQL in this example.
Port	The port on which the MySQL server listens.

Parameter	Value
Database Account	<p>The non-root account for accessing the MySQL database in the target ECS instance.</p> <div style="background-color: #f0f0f0; padding: 5px;">  <b>Note:</b>            The database account cannot be a root account. Otherwise, errors will occur during the connection test.         </div>
Database Password	The password for the non-root account.

e) Click **Test the Connection** in the lower right corner of the **Target Database** area.

If the result **Test Passed** is returned, the target database has connected.

f) Click **Authorize Whitelist** and **Enter into Next Step**.

## 5. Configure the migration type and migration object.

a) Configure the migration type.

- **Zero downtime migration:** Select **Structure migration + Full data migration + Incremental data migration**.
- **Full data migration:** Select **Structure migration + Full data migration**.

b) Configure the migration object.

In the **Migration Object** box, click the database object to migrate, such as a database, table, or column. Then click **>** to add it to the **Selected Objects** box.



**Note:**

By default, after a database object is migrated to a MySQL database in your ECS instance, the object name remains the same as that in the local MySQL database. If the migrated database object has different names on the source and target instances, you need to use the object name mapping function provided by DTS to meet the requirements. For more information, see [Object name mapping](#).

## 6. Click Pre-Check and Start.

Before migration begins, DTS pre-checks the connectivity, authority, and log format of the database.

After the pre-check is successful, you can view the status and progress of your tasks in the Migration Task List.

The screenshot shows the 'Migration Tasks' page in the Alibaba Cloud console. The left sidebar contains navigation items: Data Transmission Service, Overview, Data Migration, Data Subscription, Data Synchronization, File Import and Export, Operation Log, Data backup, Help Documentation, and DTS Solution. The main content area has a grid of region filters: China (Hangzhou), China (Shanghai), China (Qingdao), China (Beijing), China (Shenzhen), China (Zhangjiakou-Beijing Winter Olympics), Hong Kong, US (Silicon Valley), US (Virginia), Singapore, UAE (Dubai), Germany (Frankfurt), Malaysia (Kuala Lumpur), Australia (Sydney), India (Mumbai), UK(London), Japan (Tokyo), Indonesia (Jakarta), and China (Hohhot). Below the filters are buttons for 'DTS FAQ', 'Refresh', 'Import File', and 'Create Migration Task'. A search bar is present with a 'Task Name' dropdown and a search input field. A status filter is set to 'All'. A task entry is displayed with a checkbox, task ID 'dtsr1lfhwanml9u / migration-db-test', and a 'Status: Completed' label. Below the task name, it shows '2019-02-21 13:32:32 Created' and '2019-02-21 13:42:54 Completed'. Two progress bars are shown: 'Schema Migration 100%' and 'Full Data Migration 100%(Migrated 1 rows)'. Action links 'View Details', 'Create Similar Task', and 'Alarms' are also visible.

## 4.2 Migrate a local database to ECS

Alibaba Cloud Data Transmission Service (DTS) allows you to exchange data between various data sources, such as RDBMS, NoSQL, and OLAP. This topic provides an example scenario that describes how to configure a DTS migration task to migrate data from a MySQL database in your on-premises data center to an ECS instance on Alibaba Cloud.

### Prerequisites

- Create an ECS instance. For more information, see [#unique\\_121](#).
- In the security group of the ECS instance, allow inbound access to the port on which the MySQL server listens. The default MySQL port is 3306.
- Install the MySQL server on the ECS instance.

- Create a non-root account for the MySQL database on the ECS instance.

For example, you can run the following command to create an account for the MySQL database, with the name as `dts` and the password as `123456`.

```
grant all on *.* to 'dts'@'%' IDENTIFIED BY '123456';
```

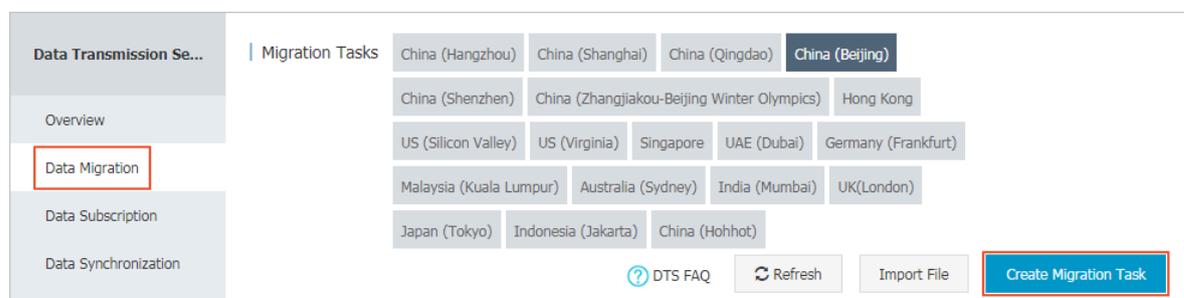
- Create a non-root account for the local MySQL database.

## Context

DTS allows you to migrate data between heterogeneous and homogeneous data sources. It also provides multiple ETL features such as three-level object mapping (for databases, tables, and columns) and data filtering. You can use DTS for zero-downtime migration. During the migration process, the source database continues to provide services, minimizing the impact of migration on your business. For information about the databases supported by DTS, see [Data migration](#).

## Procedure

1. Log on to the [DTS console](#).
2. In the left-side navigation pane, select Data Migration.
3. Select the target region, and click Create Migration Task.



4. Configure a migration task.
  - a) Specify a task name.

You can use the default name or specify one.

- b) Configure the source database.

DTS supports databases accessed through the Internet, leased lines, VPN gateways, and intelligent gateways. The following configurations are described

in terms of a database accessed through the Internet. For the migration scheme of other types of databases, see the DTS user manual.

Parameter	Description
Instance Type	The database with a public IP address.
Instance Region	The region to which the database belongs.
Database Engine	The type of the local database, MySQL in this example.
Host Name or IP Address	The host name or IP address of the server where the local database exists.
Port	The port number on which the MySQL server listens .
Database Account	<p>The non-root account for accessing the local MySQL database.</p> <div style="background-color: #f0f0f0; padding: 5px;">  <b>Note:</b>            The database account cannot be a root account. Otherwise, errors will occur during connection tests.         </div>
Database Password	The password for the non-root account.

c) Click **Test the Connection** in the lower right corner of the Source Database area.

If the result **Test Passed** is returned, the source database has connected.

d) Configure the target database.

Parameter	Description
Instance Type	The database in the ECS instance.
Instance Region	The region to which the ECS instance belongs.
ECS Instance ID	The ID of the ECS instance. DTS supports ECS instances in classic networks or VPCs.
Database Engine	The same as the local database, MySQL in this example.
Port	The port number on which the MySQL server listens .

Parameter	Description
Database Account	<p>The non-root account for accessing the MySQL database in the ECS instance.</p> <div style="background-color: #f0f0f0; padding: 5px;">  <b>Note:</b>            The database account cannot be a root account. Otherwise, errors will occur during connection tests.         </div>
Database Password	The password for the non-root account.

e) Click **Test the Connection** in the lower right corner of the **Target Database** area.

If the result **Test Passed** is returned, the target database has connected.

f) Click **Authorize Whitelist** and **Enter into Next Step**.

## 5. Configure the migration type and migration object.

a) Configure the migration type.

- **Zero downtime migration:** Select **Structure migration + Full data migration + Incremental data migration**.
- **Full data migration:** Select **Structure migration + Full data migration**.

b) Configure the migration object.

In the **Migration Object** box, click the database object to migrate, such as a database, table, or column. Then click **>** to add it to the **Selected Objects** box.



**Note:**

By default, after a database object is migrated to a MySQL database in your ECS instance, the object name remains the same as that in the local MySQL database. If the migrated database object has different names on the source and target instances, you need to use the object name mapping function provided by DTS to meet the requirements. For more information, see [Object name mapping](#).

## 6. Click Pre-Check and Start.

Before migration begins, DTS pre-checks the connectivity, authority, and log format of the database.

After the pre-check is successful, you can view the status and progress of your tasks in the Migration Task List.

## 4.3 Manage user-created databases hosted on an ECS instance

This topic describes how to use Alibaba Cloud Data Management Service (DMS) to manage user-created MySQL databases hosted on an ECS instance.

### Prerequisites

1. [Purchase DMS](#).
2. Create an ECS instance. For more information, see [#unique\\_121](#).
3. Add an inbound security group rule to the ECS instance to enable the default port (port 3306) on which MySQL is listening.
4. Install a MySQL database on the ECS instance.
5. Create a non-root account for the MySQL database.



Note:

By default, MySQL does not allow remote access from the root account. If you have changed the default settings to allow remote access from the root account, you can skip this step.

In this example, run the following command to create an account named `dms` for the MySQL database and set the password to `123456`.

```
grant all on *.* to 'dms' '@%' IDENTIFIED BY '123456';
```

## Context

DMS is a Web terminal developed by Alibaba Cloud to help manage your databases hosted on ECS instances that run Windows or Linux. You can use DMS by adding your databases through the SMS console. For example, you can create databases and tables. DMS supports such databases as MySQL, SQLServer, PostgreSQL, MongoDB, and Redis. For more information, see [DMS features](#).

## Procedure

1. Log on to the [Data Management Service console](#).
2. In the left-side navigation pane, click User-created Databases (ECS, Internet).
3. Click Add Database.
4. Set the database parameters as needed.

The following table describes the database parameters.

Parameter	Description
Database Type	The type of the database hosted on the ECS instance. In this example, select <code>MySQL</code> .
undefinedInstance Source	Valid values: Internet-based User-Created; ECS-based User-Created. In this example, select ECS-based User-Created.
Region	The region to which the ECS instance belongs.
ECS InstanceID	The ID of the ECS instance.
Port	The number of the port used for listening to the database hosted on the ECS instance. In this example, the port configured for MySQL is <code>3306</code> .

Parameter	Description
Databases Username	<p>The username of the database hosted on the ECS instance. In this example, the username of the MySQL database is <code>dms</code> .</p> <div style="background-color: #f0f0f0; padding: 5px;">  <b>Note:</b> We recommend that you use a non-root account. </div>
Password	<p>The password corresponding to the username of the database hosted on the ECS instance. In this example, the password of <code>dms</code> is <code>123456</code> .</p>

#### 5. Click Logon.

After you log on, the data management page is displayed.

#### What's next

You can manage the database by using the following menus in the top navigation bar:

- **Create:** creates databases, tables, database users, procedures, functions, views, triggers, and events. For more information, see [Database development](#).
- **SQL Operations:** opens the SQL window to run database management commands, including the ability to edit command results. For more information, see [SQL operations](#).
- **Data Operation:** imports, exports, automatically generates, traces, backs up, and restores data, and clones databases and compares table structures. For more information, see [Data management](#).
- **Instance Management:** manages the `binlog` file of the database and calculates the table data volume.
- **Monitoring Alarm & Diagnosis Optimization:** manages database diagnosis, slow SQL analysis, space diagnosis, instance sessions, real-time performance, and diagnosis reports through the Performance menu.
- **Tools:** manages databases, users, ER diagrams, and batch operations, and generates documents (Word/Excel/PDF).