



# Computing Cloud Service – Image Management Service



# Foreword

- This course introduces Image Management Service (IMS), a computing service provided by HUAWEI CLOUD for creating and managing images.



# Objectives

- After completing this course, you will:
  - Understand basic concepts, functions and application scenarios of IMS.
  - Be able to create and manage private images.



# Contents

- 1. Introduction**
2. Image Creation
3. Image Management
4. FAQs
5. Related Services



# Basic Concepts

## Image

An image provides information required for you to create an ECS, BMS, or disk.

IMS allows you to easily create and manage images. You can use a public, private, or shared image to create ECSs or BMSs, or an ECS or external image file to create a private image.



# Basic Concepts

## Image Type

- Images are classified as public, private, and shared images.
- Public images are provided by the cloud platform, private images are created by image owners, and shared images are created and shared by others.



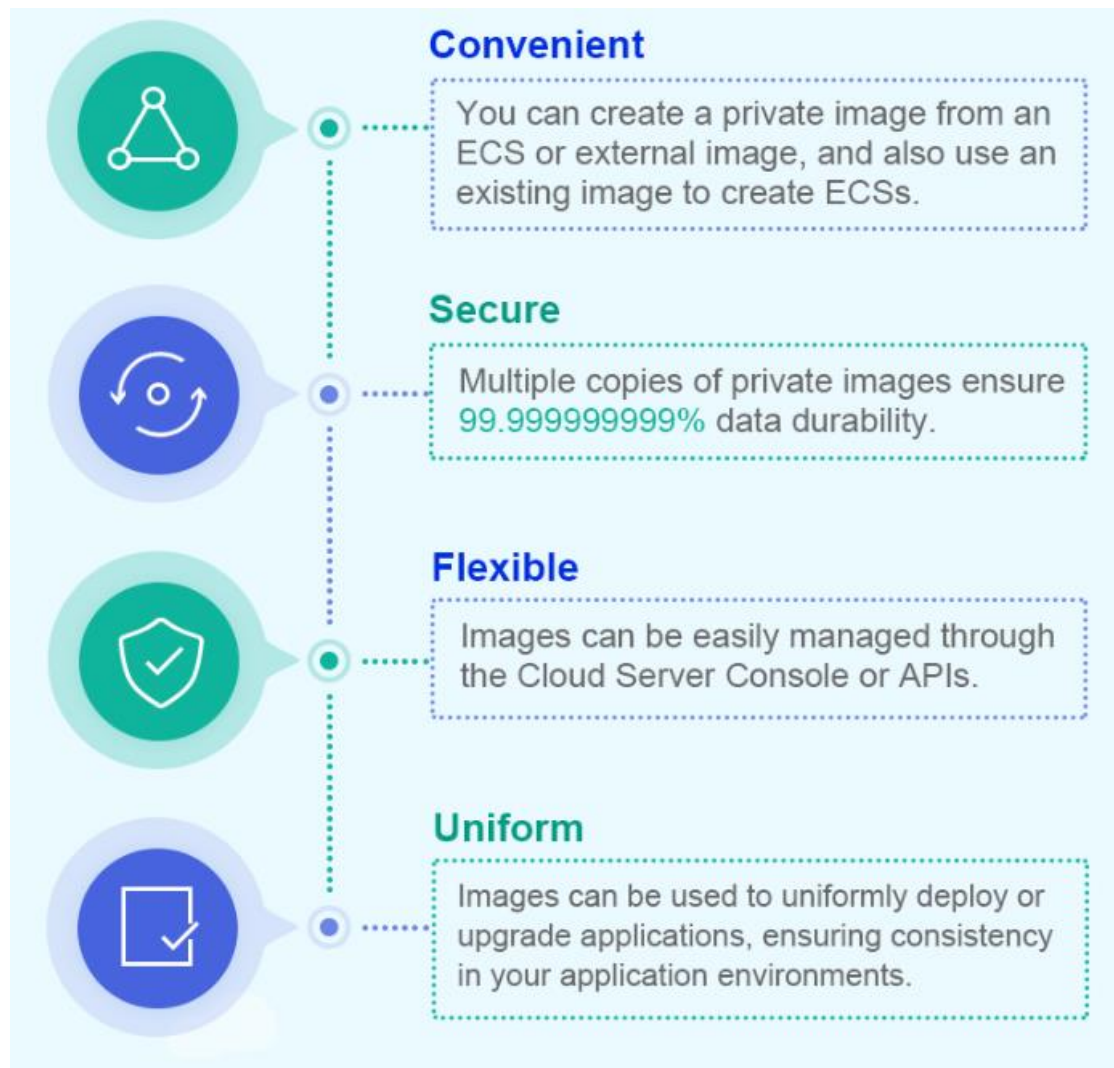
# Private Image

- Private images can be classified into three types as follows:
- System disk image: contains an OS and necessary applications, and is used to create ECSs for migrating services to the cloud.
- Data disk image: contains only service data, and can be used to create data disks for migrating data to the cloud.
- Full-ECS image: contains an OS, applications, and data.



# Product Advantages

- **Convenient**
- **Secure**
- **Flexible**
- **Uniform**







# Functions

- IMS provides public images supporting popular OSs.
- You can create system disk images, data disk images, and full-ECS images.
- Private images can be modified and deleted, and system and data disk images can be shared with others.
- Existing images can be used to create ECSs and BMSs.



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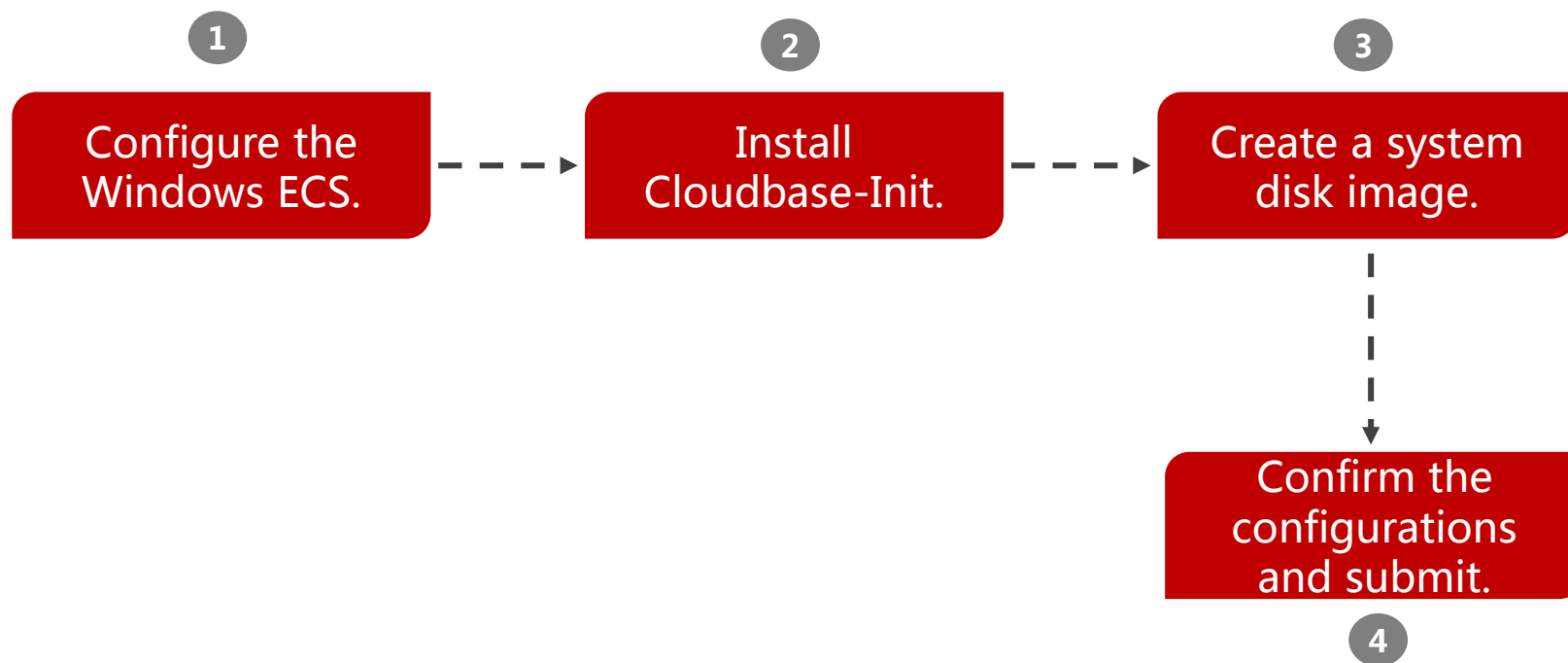


# Methods for Creating a Private Image

- Create a system disk image from a Windows ECS.
- Create a system disk image from a Linux ECS.
- Create a system disk image from an external image file containing a Windows OS.
- Create a system disk image from an external image file containing a Linux OS.
- Create a data disk image using an ECS data disk.
- Create a data disk image from an external image file.
- Create a full-ECS image from an ECS.
- Create a full-ECS image from a CSBS backup.



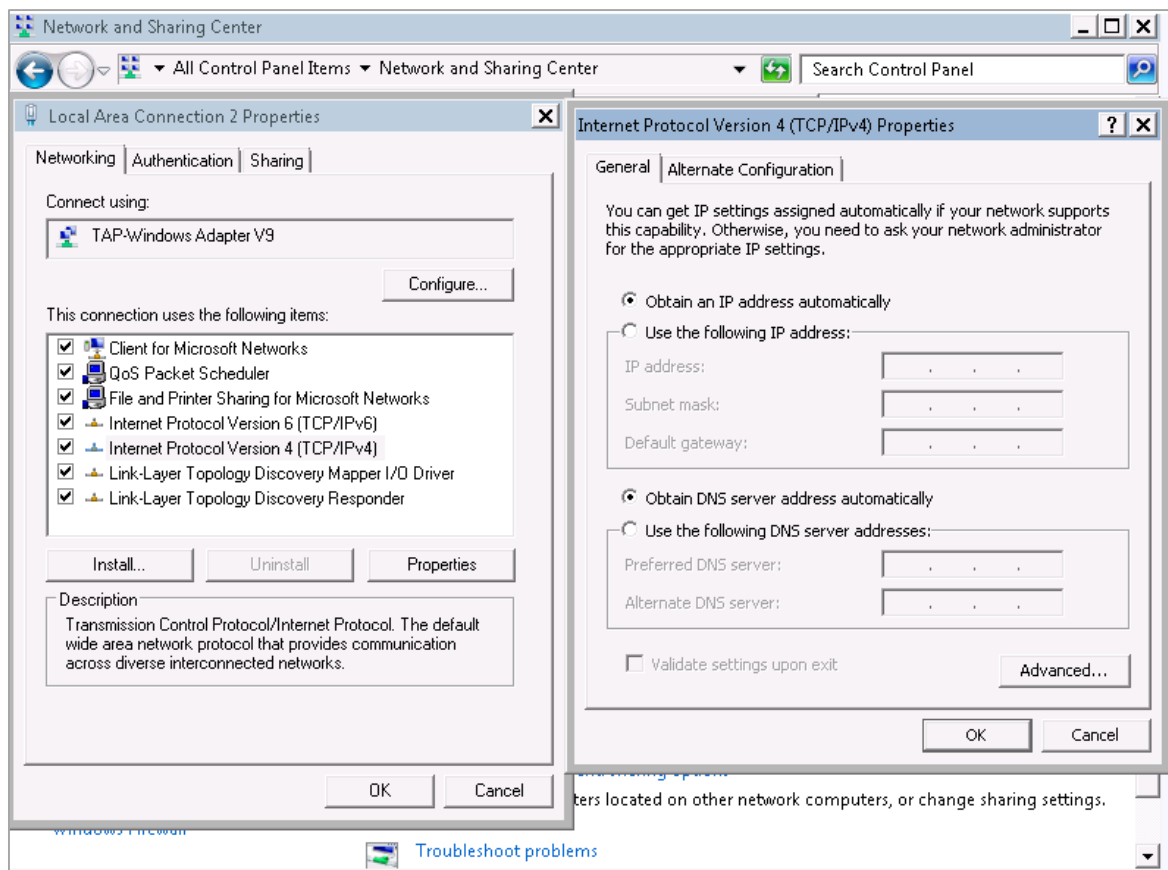
# Creating a System Disk Image from a Windows ECS





# Configuring the Windows ECS

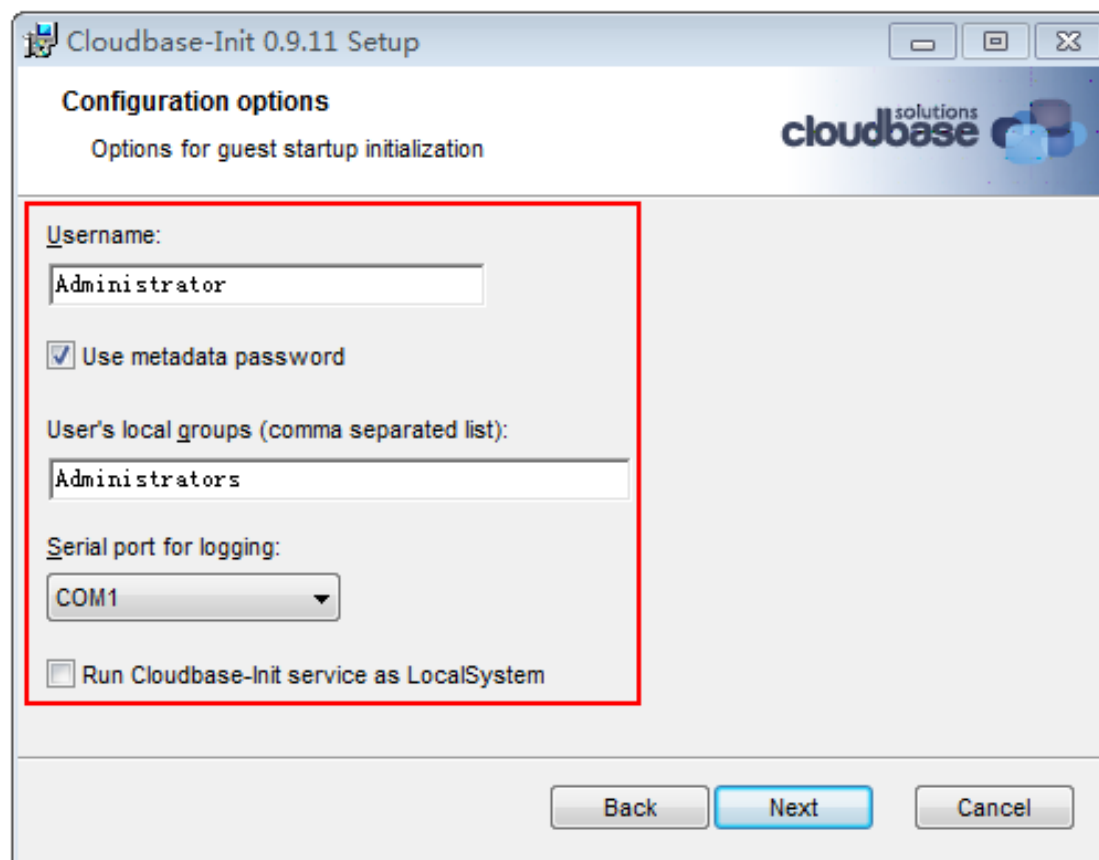
- If the ECS uses a static IP address, configure DHCP for the ECS, allowing it to dynamically obtain an IP address.





# Installing Cloudbase-Init

- You are advised to install Cloudbase-Init on the ECS that will be used to create the system disk image so that new ECSs created from this image are customizable.





# Optimizing Before Image Creation

- To ensure that the image created from an ECS supports both Xen and KVM, install the PV driver and UVP VMTools on the ECS.





# Creating a System Disk Image

- You can create a Windows system disk image from an ECS that runs a Windows OS.

Type

System disk imageFull-ECS imageData disk image

Source

ECSBMSImage File

- You can only use a running or stopped ECS to create a private image. Do not perform any operation on the selected ECS or associated resources while an image is being created.
- Before creating an image, ensure that the ECS has been configured and optimized, and that Cloud-Init has been installed if the ECS runs a Linux OS and Cloudbase-Init has been installed if the ECS runs Windows. [Learn more](#)

Refresh the page to obtain the latest ECS statuses.

All statuses

Enter a name.

Name	OS	Status	Created
<a href="#">ecs-s2</a>	CentOS 7.5 64bit	Stopped	Sep 15, 2018 18:14:33 GMT+08:00
<a href="#">ecs-9cab</a>	CentOS 7.5 64bit	Stopped	Sep 15, 2018 11:01:00 GMT+08:00
<a href="#">ecs-zyl-c3-memcache-0003</a>	CentOS 7.5 64bit	Running	Sep 15, 2018 10:41:19 GMT+08:00
<a href="#">ecs-106b</a>	Redhat Linux Enterprise 7.4 64bit	Stopped	Sep 14, 2018 01:52:57 GMT+08:00
<a href="#">ecs-cxh-az1</a>	CentOS 7.5 64bit	Stopped	Sep 13, 2018 23:55:13 GMT+08:00
<a href="#">ecs-cxh-az2</a>	CentOS 7.5 64bit	Stopped	Sep 13, 2018 23:53:20 GMT+08:00

6

Total Records: 25

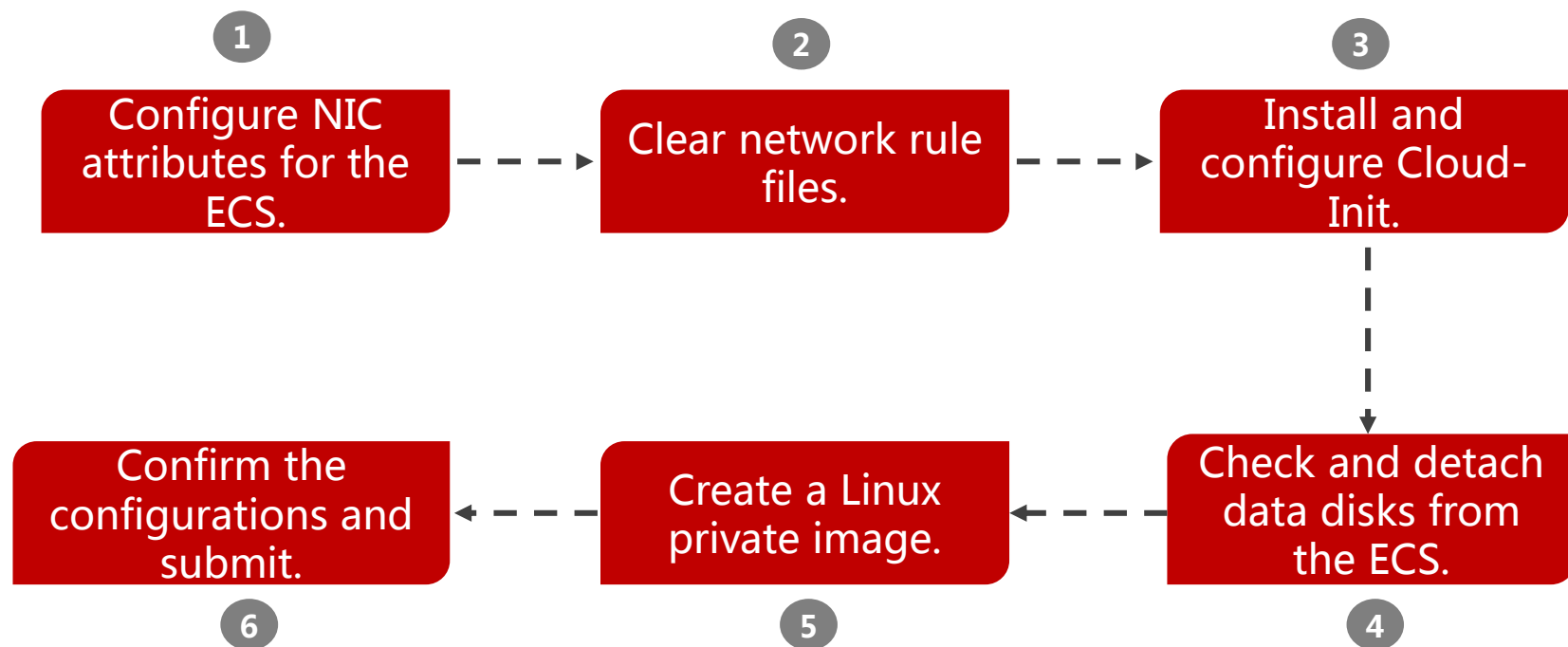
< 1 2 3 4 5 >

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# Creating a System Disk Image from a Linux ECS





# Configuring NIC Attributes for the ECS

- **If the ECS uses a static IP address, configure DHCP for the ECS, allowing it to dynamically obtain an IP address.**



# Deleting Network Rule Files

- Before creating an image, delete network rule files on the ECS to ensure that the image will not contain them.
- Do not restart the ECS after network rule files are deleted. Otherwise, these network rules will be regenerated and included in the image.



# Installing Cloud-Init

- Install Cloud-Init on the ECS before using it to create an image so that new ECSs created from the image support customization. Without Cloud-Init, ECSs are accessible only with the image password. You can perform the following steps to install Cloud-Init:
  - Check whether Cloud-Init has been installed.
  - Install Cloud-Init.
  - Configure user permissions on the ECS based on the user role.
  - Check whether Cloud-Init is successfully configured.



# Detaching Data Disks from the ECS

- If the ECS used to create the image has multiple data disks, new ECSs created using the image may be unusable. To prevent this, detach all data disks from the ECS before image creation.

# Creating the System Disk Image

- You can create a Linux system disk image from an ECS that runs a Linux OS.

\* Type

System disk imageFull-ECS imageData disk image

\* Source

ECSBMSImage File

- You can only use a running or stopped ECS to create a private image. Do not perform any operation on the selected ECS or associated resources while an image is being created.
- Before creating an image, ensure that the ECS has been configured and optimized, and that Cloud-Init has been installed if the ECS runs a Linux OS and Cloudbase-Init has been installed if the ECS runs Windows. [Learn more](#)

Refresh the page to obtain the latest ECS statuses.

All statusesEnter a name.

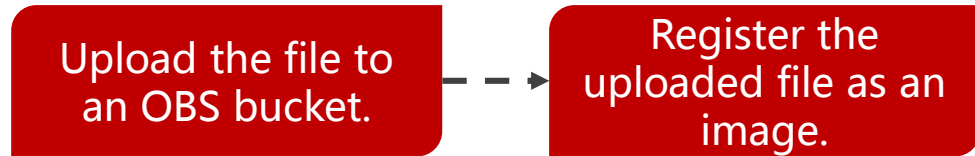
Name	OS	Status	Created
ecs-s2	CentOS 7.5 64bit	Stopped	Sep 15, 2018 18:14:33 GMT+08:00
ecs-9cab	CentOS 7.5 64bit	Stopped	Sep 15, 2018 11:01:00 GMT+08:00
ecs-zyl-c3-memcache-0003	CentOS 7.5 64bit	Running	Sep 15, 2018 10:41:19 GMT+08:00
ecs-106b	Redhat Linux Enterprise 7.4 64bit	Stopped	Sep 14, 2018 01:52:57 GMT+08:00
ecs-cxh-az1	CentOS 7.5 64bit	Stopped	Sep 13, 2018 23:55:13 GMT+08:00
ecs-cxh-az2	CentOS 7.5 64bit	Stopped	Sep 13, 2018 23:53:20 GMT+08:00

6Total Records: 2512345

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# Creating a Windows System Disk Image from an External Image File

- If the image file has been initialized:



- If the image file has not been initialized:



# Uploading the Image File

- Use OBS browser to upload the external image file to an OBS bucket.
- The external image file is either unencrypted or encrypted using SSE-KMS.
- The storage type of the OBS bucket must be Standard.



# Registering an Image File as a Private Image

- Register an uninitialized image file as an uninitialized private image.
- Register an initialized image file as a normal private image.

### Image Information

☒ Enable automatic configuration [Learn more](#)

★ Function

ECS system disk image

BMS system disk image

OS

--Select--

If no OS is specified, IMS automatically detects the OS in the image file. For Linux, Other Linux(64 bit) or Other(64 bit) will be selected for the image if an OS cannot be detected or the detected OS is not supported. For Windows, Other Windows(64 bit) or Other(64 bit) will be selected for the image if an OS is not detected or the detected OS is not supported. [View supported OSs](#)

★ System Disk (GB)

-

40-1,024

+

Ensure that the system disk size is larger than the image file size.

★ Name

Encryption

☐ KMS encryption [?](#)

Tag

It is recommended that you use TMS's predefined tag function to add the same tag to different cloud resources. [View predefined tags](#)

Tag key

Tag value

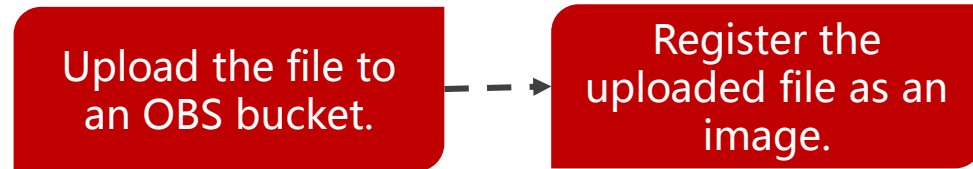
You can add 10 more tags.

Description

0/1024

# Creating a Linux System Disk Image from an External Image File

- If the image file has been initialized:



- If the image file has not been initialized:



# Creating a Data Disk Image from a Data Disk

- Before creating a data disk image from a data disk, ensure that the ECS has a system disk and the data disk is not empty.
- A data disk image can be used by only one data disk.

Type

System disk imageFull-ECS imageData disk image

Source

Image FileECS

You can only use a running or stopped ECS to create a private image. Do not perform any operation on the selected ECS or associated resources while an image is being created.

Refresh the page to obtain the latest ECS statuses.

All statuses

Enter a name.

Q

C

Name	OS	Status	Created	
ecs-s2	CentOS 7.5 64bit	Stopped	Sep 15, 2018 18:14:33 GMT+08:00	
Disk Information				
Name	Capacity (GB)	Disk Type	Function	Encrypted
ecs-s2	40	High I/O	System disk	No
ecs-9cab	CentOS 7.5 64bit	Stopped	Sep 15, 2018 11:01:00 GMT+08:00	
ecs-zyl-c3-memcache-0003	CentOS 7.5 64bit	Running	Sep 15, 2018 10:41:19 GMT+08:00	
ecs-106b	Redhat Linux Enterprise 7.4 64bit	Stopped	Sep 14, 2018 01:52:57 GMT+08:00	
ecs-cxh-az1	CentOS 7.5 64bit	Stopped	Sep 13, 2018 23:55:13 GMT+08:00	
ecs-cxh-az2	CentOS 7.5 64bit	Stopped	Sep 13, 2018 23:53:20 GMT+08:00	

6

Total Records: 25

<

1

2

3

4

5

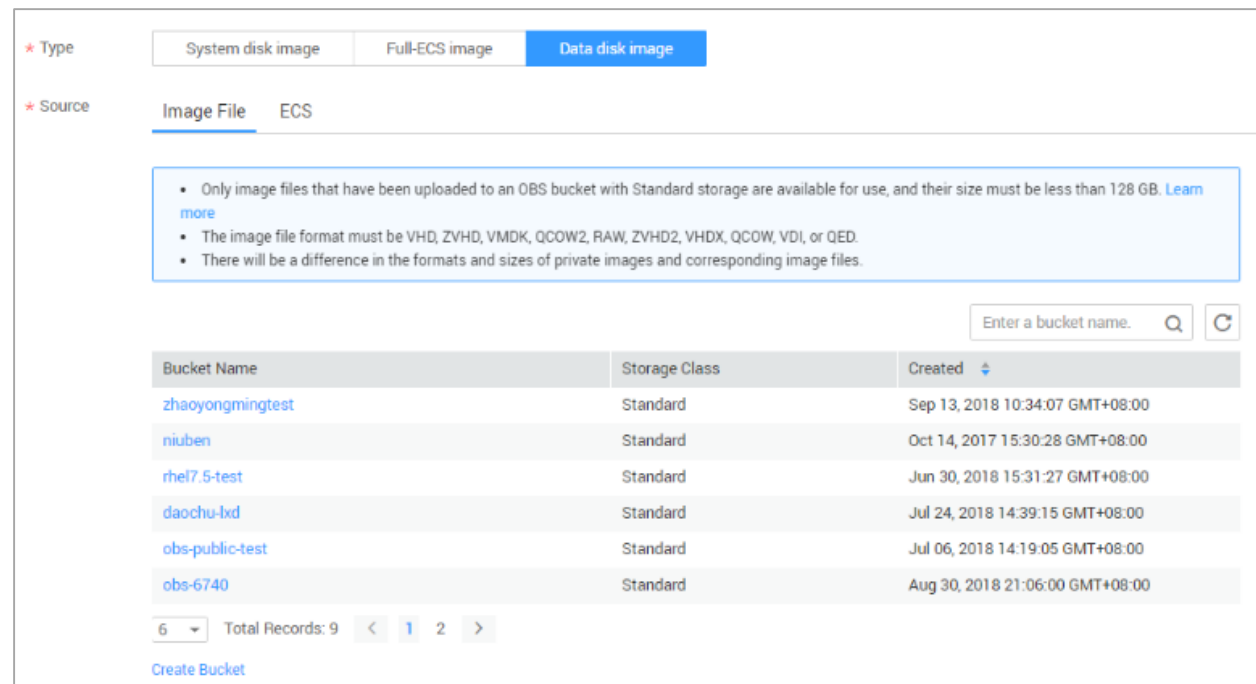
>

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Buy HANA ECS

# Creating a Data Disk Image from an External Image File

- The image file OS type must be Windows or Linux.
- The disk capacity ranges from 40 GB to 2048 GB.
- The image file must be uploaded to an OBS bucket, and the storage class of the OBS bucket must be Standard.
- A data disk image can be used by only one data disk.



# Creating a Full-ECS Image from an ECS

- You can use an ECS with data disks to create a full-ECS image containing both an OS and your service data, and this image can be used to quickly create ECSs

**Type**

System disk image **Full-ECS image** Data disk image

**Source**

ECS CSBS Backup

• When an ECS is used to create a full-ECS image, a CSBS backup will be generated. [Learn more about CSBS backups.](#)

• Before creating an image, ensure that the ECS has been configured and optimized, and that Cloud-Init has been installed if the ECS runs a Linux OS and Cloudbase-Init has been installed if the ECS runs Windows. [Learn more](#)

All statuses Enter a name. 🔍 ↻

Name	OS	Status	Created
ecs-s2	CentOS 7.5 64bit	Stopped	Sep 15, 2018 18:14:33 GMT+08:00
ecs-9cab	CentOS 7.5 64bit	Stopped	Sep 15, 2018 11:01:00 GMT+08:00
ecs-zyl-c3-memcache-0003	CentOS 7.5 64bit	Running	Sep 15, 2018 10:41:19 GMT+08:00
ecs-106b	Redhat Linux Enterprise 7.4 64bit	Stopped	Sep 14, 2018 01:52:57 GMT+08:00
ecs-cxh-az1	CentOS 7.5 64bit	Stopped	Sep 13, 2018 23:55:13 GMT+08:00
ecs-cxh-az2	CentOS 7.5 64bit	Stopped	Sep 13, 2018 23:53:20 GMT+08:00

6 Total Records: 25 < 1 2 3 4 5 >

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# Creating a Full-ECS Image from a CSBS Backup

- If you have backed up an ECS, you can use the backup to create a full-ECS image and use the image to create identical ECSs.

★ Type

System disk imageFull-ECS imageData disk image

★ Source

ECSCSBS Backup

• A CSBS backup can be used to create only one full-ECS image.

• Before creating an image, ensure that the ECS used to create the CSBS backup has been configured and optimized, and that Cloud-Init has been installed if the ECS runs a Linux OS and Cloudbase-Init has been installed if the ECS runs Windows. [Learn more](#)

All statuses

Enter a name.

Backup Name	Backup Status	ECS Name	Created
<input type="radio"/> backup_for_image_89bc9e46-e22...	<input checked="" type="checkbox"/> Available	<a href="#">ecs-cxh-az1</a>	Sep 14, 2018 00:59:06 GMT+08:00
<input type="radio"/> backup_for_image_39228b35-739...	<input checked="" type="checkbox"/> Available	<a href="#">redhat75-kvm</a>	Sep 13, 2018 09:40:05 GMT+08:00
<input type="radio"/> backup_for_image_ad7e4f3a-fc09...	<input checked="" type="checkbox"/> Available	<a href="#">ecs-667b</a>	Aug 18, 2018 01:31:24 GMT+08:00
<input type="radio"/> backup_for_image_bc38c9e3-ee3...	<input checked="" type="checkbox"/> Available	<a href="#">ecs-5c62</a>	Aug 15, 2018 10:43:00 GMT+08:00
<input type="radio"/> backup_for_image_234ff6d1-c387...	<input checked="" type="checkbox"/> Available	<a href="#">ecs-eda8</a>	Jul 27, 2018 02:04:22 GMT+08:00
<input type="radio"/> backup_for_image_0ed9d07d-398...	<input checked="" type="checkbox"/> Available	<a href="#">ecs-4f4c</a>	Jul 27, 2018 01:42:40 GMT+08:00

6

Total Records: 13

< 1 2 3 >

Create CSBS Backup



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# Modifying Images

- Only private images in Normal state can be modified. You can modify the image name, description, minimum memory, maximum memory, and NIC multi-queue.

×

Modify Image

★ Name

Image

Description

test

4/1024

Minimum Memory

If the minimum memory size of an image has been increased, it must be set back to the original size before you reinstall OSs of the ECSs that were created using the image.

0 MB	1 GB	2 GB	4 GB	8 GB
16 GB	32 GB	64 GB	128 GB	

Select 0 MB for unlimited memory size.

NIC Multi-Queue

Supported

Not supported

?

OK

Cancel





# Creating ECSs from an Image

- You can use a public or private image to create an ECS.
- The only difference is that an ECS created from a public image contains an OS and pre-installed applications, and you need to install personal applications as needed. An ECS created from a private image contains an OS, pre-installed applications, and some personal applications.



# Creating ECSs from an Image

- You can delete unneeded images.

Image Management Service ? + Create Image

Public Images Private Images Shared Images Go to [Marketplace](#) to launch images. For details about how to publish images, click [Help](#).

You can create 493 more private images. For details about the cost of private images, see [IMS pricing](#).

Delete Share Task Status 1 203 All images All OSs Name Search Search by Tag Refresh Share

<input type="checkbox"/>	Name	Status	OS Type	OS	Image Type	Disk Capacity (GB)	Encrypted	Created	Operation
<input type="checkbox"/>	DONOTDEL_OpsADM_IMS...	Normal	Linux	CentOS 7.2 64bit	Full-ECS image	40	No	Nov 09, 2018 1...	<a href="#">Apply for Server</a> <a href="#">Modify</a> <a href="#">More</a>
<input type="checkbox"/>	DONOTDEL_ims_openstac...	Normal	Linux	Other(64 bit)	ECS system disk i...	40	No	Apr 28, 2018 10...	<a href="#">Apply for Server</a> <a href="#">Mod</a> <a href="#">Delete</a>
<input type="checkbox"/>	DONOTDEL-OpsSonar-EC...	Normal	Linux	EulerOS 2.2 64bit	ECS system disk i...	40	No	Apr 13, 2018 11...	<a href="#">Apply for Server</a> <a href="#">Mod</a> <a href="#">more</a>



# Creating ECSs from an Image

- IMS allows you to share your private images.

×

Share Image

Image Details

Image Name

DONOTDEL-OpsSonar-ECS-Template

OS Type

Linux

OS

EulerOS 2.2 64bit

Image Size

842 MB

Shared Images

Stop Sharing

Enter an account name of the recipient. [Learn how](#) to obtain a account name and a project name.

\*

Add

Account Name	Project Name	Project ID	Operation
<div><div>!</div><div>No data available.</div></div>			

This image can be shared with a maximum of 128 tenants. You can share this image with 126 more

OK

Cancel



# Exporting Images

- IMS allows you to export your private images to a specified storage device or other cloud platform.
- Currently, you can export only private images that are in Normal state and download them from the OBS bucket. When exporting an image, you can specify its format.
- The size of exported images varies by format, and you will be charged for image storage space used.



# Encrypting Images

- You can create an encrypted private image to ensure image data security.

### Image Information

☒ Enable automatic configuration [Learn more](#)

★ Function

ECS system disk image

BMS system disk image

OS

--Select--

If no OS is specified, IMS automatically detects the OS in the image file. For Linux, Other Linux(64 bit) or Other(64 bit) will be selected for the image if an OS cannot be detected or the detected OS is not supported. For Windows, Other Windows(64 bit) or Other(64 bit) will be selected for the image if an OS is not detected or the detected OS is not supported. [View supported OSs](#)

★ System Disk (GB)

—

40–1,024

+

Ensure that the system disk size is larger than the image file size.

★ Name

Encryption

☐ KMS encryption [?](#)

Tag

It is recommended that you use TMS's predefined tag function to add the same tag to different cloud resources. [View predefined tags](#)

Tag key

Tag value

You can add 10 more tags.

Description

0/1024



# Replicating Images Within a Region

- This function helps convert an encrypted image to an unencrypted image, or the reverse.

×

Replicate Image

• For details, see [IMS pricing](#). Replicated images will incur additional storage fees.

Image Details

Name	DONOTDEL_ims_openstack_update
Image Type	ECS system disk image
Image Size	12 MB
OS Type	Linux
OS	Other(64 bit)
Created	Apr 28, 2018 10:32:37 GMT+08:00

Replication Mode

Within Region

Across Regions

★ Name

copy\_DONOTDEL\_ims\_openstack\_update

Description

0/1024

Encryption

☒ KMS encryption [?](#)

Key Name

ims/default

[View KMS key](#)

OK

Cancel



# Replicating Images Across Regions

- If you have created a private image in a region, you can replicate it to other regions. This enables you to duplicate ECSs and migrate services across regions.

×

• The image to be replicated across regions cannot be larger than 128 GB.

• For details, see [IMS pricing](#). Replicated images will incur additional storage fees.

Image Details

Name

DONOTDEL\_ims\_openstack\_update

Image Type

ECS system disk image

Image Size

12 MB

OS Type

Linux

OS

Other(64 bit)

Created

Apr 28, 2018 10:32:37 GMT+08:00

Replication Mode

Within Region

Across Regions

★ Name

opy\_cn-south-1\_DONOTDEL\_ims\_openstack\_update

★ Destination Region

--Select--

★ Destination Project

★ IAM Agency

--Select--

View Agency

?

OK

Cancel



# Tagging Images

- You can assign tags to private images to simplify management.

System disk image > DONOTDEL-OpsSonar-ECS-Template

Apply for Server Modify Export ↺

Name	DONOTDEL-OpsSonar-ECS-Template	ID	b55c81e3-163b-4348-bfc4-8b97a36b9794
Disk Capacity (GB)	40	OS	EulerOS 2.2 64bit
Status	✓ Normal	Minimum Memory	--
Image Size	842 MB	Published ?	No
Created	Apr 13, 2018 11:43:15 GMT+08:00	Source	Image File <a href="#">obs-south1:OpsSonar-ECS-Template.zvhd</a>
Description	--	Encrypted	No
OS Type	Linux	NIC Multi-Queue	Not supported

Shared with Tenants **Tags**

Add Tag You can add 10 more tags.

Key	Value	Operation
-----	-------	-----------



# Exporting Image Information

- Information about all public and private images, such as image name, type, OS, creation time, and disk capacity, can be exported as a CSV file.

Image Management Service ⓘ

+ Create Image

Public ImagesPrivate ImagesShared Images

Go to [Marketplace](#) to launch images. For details about how to publish images, click [Help](#).

You can create 492 more private images. For details about the cost of private images, see [IMS pricing](#).

DeleteShareTask Status 203

All imagesAll OSsNameSearch by Tag

<input type="checkbox"/>	Name	Status	OS Type	OS	Image Type	Disk Capacity (GB)	Encrypted	Created	Operation
<input type="checkbox"/>	<a href="#">Extranet_upload_image</a>	Creating 0%	Linux	SUSE Linux Enterprise Ser...	ECS system disk i...	80	No	Nov 24, 2018 0...	<a href="#">Apply for Server</a> <a href="#">Modify</a> <a href="#">More</a>
<input type="checkbox"/>	<a href="#">DONOTDEL_OpsADM_IMS...</a>	Normal	Linux	CentOS 7.2 64bit	Full-ECS image	40	No	Nov 09, 2018 1...	<a href="#">Apply for Server</a> <a href="#">Modify</a> <a href="#">More</a>



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## FAQs

- **How many private images can be created under an account?**
- Currently, you can create up to 50 private images under an account within a region. If you require more, submit a service ticket to request a quota increase.
- **How can I change an unencrypted image to an encrypted one?**
- You can replicate the unencrypted image and specify a key for encrypting the replicated image.
- **Must ECSs be stopped before using them to create a private image?**
- Not necessarily. IMS now allows you to create private images from running ECSs.



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## Related Services

- **Elastic Cloud Server (ECS):** An ECS can be made into an image or created from an image.
- **Bare Metal Server (BMS):** A BMS can be made into an image or created from an image.
- **Object Storage Service (OBS):** Images are stored in OBS buckets.
- **Data Encryption Workshop (DEW):** provides keys for encrypting private images.
- **Elastic Volume Service (EVS):** Data disks created from data disk images can be attached to ECSs.
- **Cloud Server Backup Service (CSBS):** A CSBS backup can be used to create full-ECS images, which can be used to create ECSs.
- **Cloud Trace Service (CTS):** records IMS operations for query, auditing, and backtracking.



# Quiz

1. What image types does IMS support?
  - A. Public image
  - B. Private image
  - C. Encrypted image
  - D. Shared image



# Quiz

1. What image types does IMS support?
  - A. Public image
  - B. Private image
  - C. Encrypted image
  - D. Shared image



# Summary

- This course:
- Described what IMS is.
- Introduced basic concepts and functions of IMS.
- Discussed image creation and management.





# Recommendations

- Huawei Learning
  - <http://support.huawei.com/learning/Index!toTrainIndex>
- HUAWEI CLOUD Help Center
  - <https://support-intl.huaweicloud.com/ims/index.html>

The background of the image shows silhouettes of several groups of business professionals in a modern office environment. They are standing on a highly reflective floor, and their reflections are clearly visible. The entire scene is overlaid with a semi-transparent blue filter. The text "Thank You" and the website address "www.huawei.com" are centered in the middle of the image in a white, sans-serif font.

Thank You

[www.huawei.com](http://www.huawei.com)