Cloud Bastion Host

Quick Start

Issue	03
Date	2024-11-12

HUAWEI TECHNOLOGIES CO., LTD.

Trademarks and Permissions

Notice

The purchased products, services and features are stipulated by the contract made between Huawei and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Huawei Technologies Co., Ltd.

Address: Huawei Industrial Base
Bantian, Longgang
Shenzhen 518129
People's Republic of China

Website: https://www.huawei.com

Email: support@huawei.com

Security Declaration

Vulnerability

Huawei's regulations on product vulnerability management are subject to the *Vul. Response Process.* For details about this process, visit the following web page:
https://www.huawei.com/en/psirt/vul-response-process
For vulnerability information, enterprise customers can visit the following web page:
https://securitybulletin.huawei.com/enterprise/en/security-advisory

Contents

1 Buying and Logging In to a Bastion Host........1
2 Before You Start........13
3 Step 1: Log In to a CBH System........16
4 Step 2: Create a CBH System User........22
5 Step 3: Add Resources to the CBH System........25
6 Step 4: Configure O&M Permissions........30
7 Step 5: Log In to a Resource You Want to Manage........32
8 Step 6: Audit O&M Sessions........33

1 Buying and Logging In to a Bastion Host

CBH is a unified security management and control platform. It provides accounting, authorization, authentication, and auditing management services that enable you to centrally manage cloud computing resources.

You can buy a CBH instance and use the **admin** account to add resources and policies to implement resource O&M and audit. In addition, you can use the **admin** account to create roles for permission management.

This topic walks you through how to buy a standard single-node instance with 10 assets, as well as how to quickly perform O&M and audit on Linux host resources.

- Edition: Standard
- Specifications: 10 assets
- Instance Type: Single node
- Managed resource type: Linux host resources

Procedure

This document describes how to quickly purchase and configure a CBH instance.

Figure 1-1 Process of quickly purchasing and configuring a CBH instance

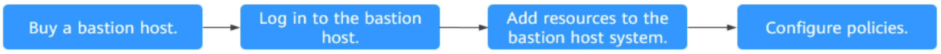

Buy a bastion host.
Log in to the bastion host.
Add resources to the bastion host system.
Configure policies.

Table 1-1 Process of purchasing and configuring a CBH instance

Step	Description
Preparations	Before using cloud services, sign up for a HUAWEI ID, enable Huawei Cloud services, complete real-name authentication, and top up your account.
Step 1: Buy a Bastion Host	On the CBH console, purchase a standard single-node bastion host with 10 assets.

Step	Description
Step 2: Log In to the Bastion Host	After you purchase a bastion host, the default **admin** account is used to log in to the bastion host.
Step 3: Add Resources to the Bastion Host System	Log in the bastion host as user **admin** and add Linux resources you want to manage to the bastion host so that resources can be accessed through the bastion host. You can use the **admin** account to create system users with different roles to implement refined permission management.
Step 4: Add an Access Control Policy	Log in to the bastion host as user **admin** and associate management roles with resources. You can configure the login time range, operation permissions, and access blacklist and whitelist, and create access control policies for resources.

Preparations

Before making a purchase, you need to sign up for a HUAWEI ID, enable Huawei Cloud services, complete real-name authentication, and top up your account. Ensure that your account has sufficient or has a valid payment method configured.

Step 1: Buy a Bastion Host

Step 1 Log in to the management console.

Step 2 Click ☰ in the upper left corner of the page, select a region, and choose **Security & Compliance** > **Cloud Bastion Host** to go to the CBH instance management console.

Step 3 Click **Buy CBH Instance** to go to the **Buy CBH Instance** page.

Step 4 Select **CBH Instance** for **Service Type** and specify other parameters as required. For more information, see **Table 1-2**.

Table 1-2 Parameters for purchasing a CBH instance

Parameter	Example Value	Description
Billing Mode	**Yearly/ Monthly**	The billing mode of the CBH instance. Currently, only **Pay-per-use** is supported. Pay-per-use billing is a postpaid mode in which you pay for what you use by the hour. **NOTE** After the pay-per-use billing mode is enabled, the billing stops only when the target instance is deleted, regardless of the instance running status.

Parameter	Example Value	Description
Region	**CN East-Shanghai 1**	Select the region where the bastion host is used. You are advised to select the region where you deploy ECSs and RDS database instances you want to manage. This can reduce network latency and improve access speed.
Instance Type	**Single-node**	Select a single-node or primary/standby instance type based on your service requirements. ● **Single-node**: Only one bastion host is available after the purchase. ● **Primary/Standby**: After the purchase, two bastion hosts are delivered to form a two-node cluster. If the primary bastion host is unavailable, the standby one takes over the job immediately. **NOTE** If you buy a primary/standby instance, do not disable HA, or logins will fail.
AZ	**Retain the default value.**	An AZ is the location where the purchased bastion host is deployed. **NOTE** If you buy an primary/standby instance, two bastion hosts will be deployed in different AZs. So, you need to select the primary and standby AZs. You can retain the default settings.
Instance Name	**CBH-shanghai-01**	Name of the CBH instance.
Specifications	**10 Assets**	Specifications of your CBH instance. CBH specifications: 50, 100, 200, 500, 1,000, 2,000, and 5,000 assets. Asset quantity indicates the maximum number of resources your instance can manage and the maximum number of concurrent requests your instance supports. The vCPUs and the size of data and system disks vary depending on the asset quantity.. For example, if you select 100 assets, the number of resources your instance can manage and the maximum number of concurrent connections your instance supports are both 100.
Edition	**Standard**	CBH provides **standard** and **professional** editions. The professional edition can manage database resources.
Storage Package	**0**	If you need more storage for a CBH instance, you can buy a storage package..

Parameter	Example Value	Description
VPC	**vpc-default(192.168.x.x/xx)**	The Virtual Private Cloud (VPC) where your instance is located. Select a VPC in the current region. If no VPC is available in the current region, click **View VPC** and create one. **NOTE** ● By default, networks in VPCs in different regions or even in the same region are not connected. Different networks are isolated from each other. This is not the case for different AZs in the same VPC. Two networks on the same VPC should be able to communicate with each other even if they are in different AZs. ● CBH can directly access and manage resources, such as ECSs, in the same VPC in the same region. To manage resources such as ECSs in different VPCs in the same region, establish a VPC peering connection or use a VPN to connect networks. For details, see **Creating a VPC Peering Connection**. Managing ECSs across regions is not recommended. For more details, see **VPC Planning**.
Assign IPv4 Address	**Auto**	Select **Auto** or **Manual**. If you select **Manual**, you can view the used IP addresses.
Security Group	**Sys-default**	The security group for your CBH instance. The default security group is **Sys-default** in the current region. If no security group is available, click **Manage Security Groups** to create a security group or configure a new one. **NOTE** ● A security group provides access rules for the CBH instances and resources that have the same security protection requirements and are mutually trusted in the same VPC. CBH instances are protected by these access rules after being added to the security group. . ● CBH instances and ECSs can be added to the same security groups. They do not affect each other when implementing security group rules. ● Before creating HA instances, ensure that the security group allows inbound traffic from ports 22, 31036, 31679, and 31873. ● When a bastion host instance is created, ports 80, 8080, 443, and 2222 are automatically enabled. If you do not need to use them, disable them immediately after the instance is created. ● During cross-version upgrade, ports 22, 31036, 31679, and 31873 are automatically enabled for the instance. After the upgrade, keep port 31679 enabled and disable other ports immediately if you do not need to use them. For more details about security groups, see **How Do I Configure a Security Group for a CBH Instance?**

Parameter	Example Value	Description
EIP	**100.x.x.x**	(Optional) Select an EIP in the current region. If no EIP is available in the current region, click **Buy EIP** to create one.
Enterprise Project	**default**	Select the enterprise project the CBH instance belongs to. The **default** enterprise project is selected by default.
Password	**Cbh@shanghai.10**	User-defined password of the **admin** user. **NOTE** ● The password must: – Contain 8 to 32 characters. – Contain at least three of the following types of characters: uppercase letters (A to Z), lowercase letters (a to z), digits (0 to 9), and following special characters: !@$%^-_=+[{}]:,./?~#* – Cannot contain the username or the username spelled backwards. – Cannot contain more than two consecutive identical characters. ● Enter the same password in the **Password** and **Confirm Password** text boxes. ● The CBH system cannot obtain the password of system administrator **admin**. Keep your account information secure. ● When you log in to your CBH system as **admin** for the first time, change the password and configure mobile phone number as prompted. Otherwise, you cannot log in to the CBH system. ● If you forget the password of user **admin** after a CBH instance is purchased, you can .
Required Duration	**1 month**	Required duration of the instance. You can buy a CBH instance on a monthly or yearly basis.

Step 5 Confirm details in the **Current Configuration** area and click **Next**.

NOTE

When receiving a network restriction notification, click **Enable** to eliminate the network restrictions so that the instance can be issued after purchase.

You can view the rules in the security group and firewall ACL and ensure that:

- Access to port 9443 is allowed in the outbound direction of the security group to which your CBH instance belongs.
- The subnet where the instance locates is not associated with the firewall ACL, or the ACL rule of the associated firewall allows the instance to access port 9443 in the outbound direction.

Step 6 On the **Confirm** page, confirm the details, read the privacy statement, select **Privacy Statement**, and click **Submit**.

Step 7 Make your purchase and return to the CBH console. Check the newly purchased instance in the CBH instance list.

After a CBH instance is purchased, a mapped CBH system is automatically created for you, which takes about 10 minutes.

NOTE

Do not unbind an EIP from a CBH instance before the mapped CBH system is created. If you unbind an EIP from an instance before its status changes to **Running**, the mapped CBH system may fail to be created.

----End

Step 2: Log In to the Bastion Host

You need to log in to the instance to perform operations such as bastion host management, O&M, and audit.

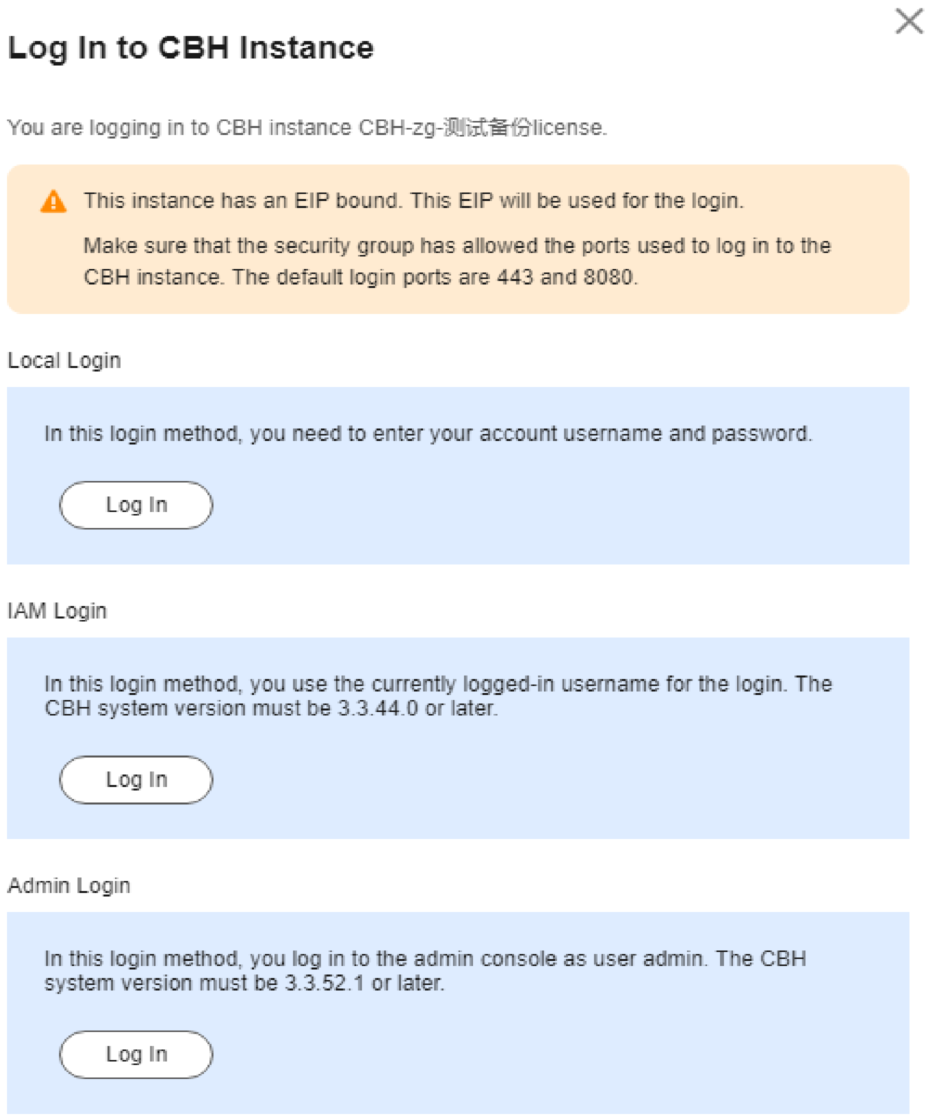
Step 1 Return to the CBH instance list page and check whether the status of the purchased CBH instance is **Running**.

Step 2 Click **Remote Login** in the **Operation** column. In the displayed dialog box, click **Log In** in the **Admin Login** bar to automatically log in to the bastion host.

NOTE

You need to change the initial password of the **admin** user upon the first login to access the bastion host instance.

Figure 1-2 Login to bastion host



Log In to CBH Instance

You are logging in to CBH instance CBH-zg-测试备份license.

⚠ This instance has an EIP bound. This EIP will be used for the login.

Make sure that the security group has allowed the ports used to log in to the CBH instance. The default login ports are 443 and 8080.

Local Login

In this login method, you need to enter your account username and password.

IAM Login

In this login method, you use the currently logged-in username for the login. The CBH system version must be 3.3.44.0 or later.

Admin Login

In this login method, you log in to the admin console as user admin. The CBH system version must be 3.3.52.1 or later.

----End

Step 3: Add Resources to the Bastion Host System

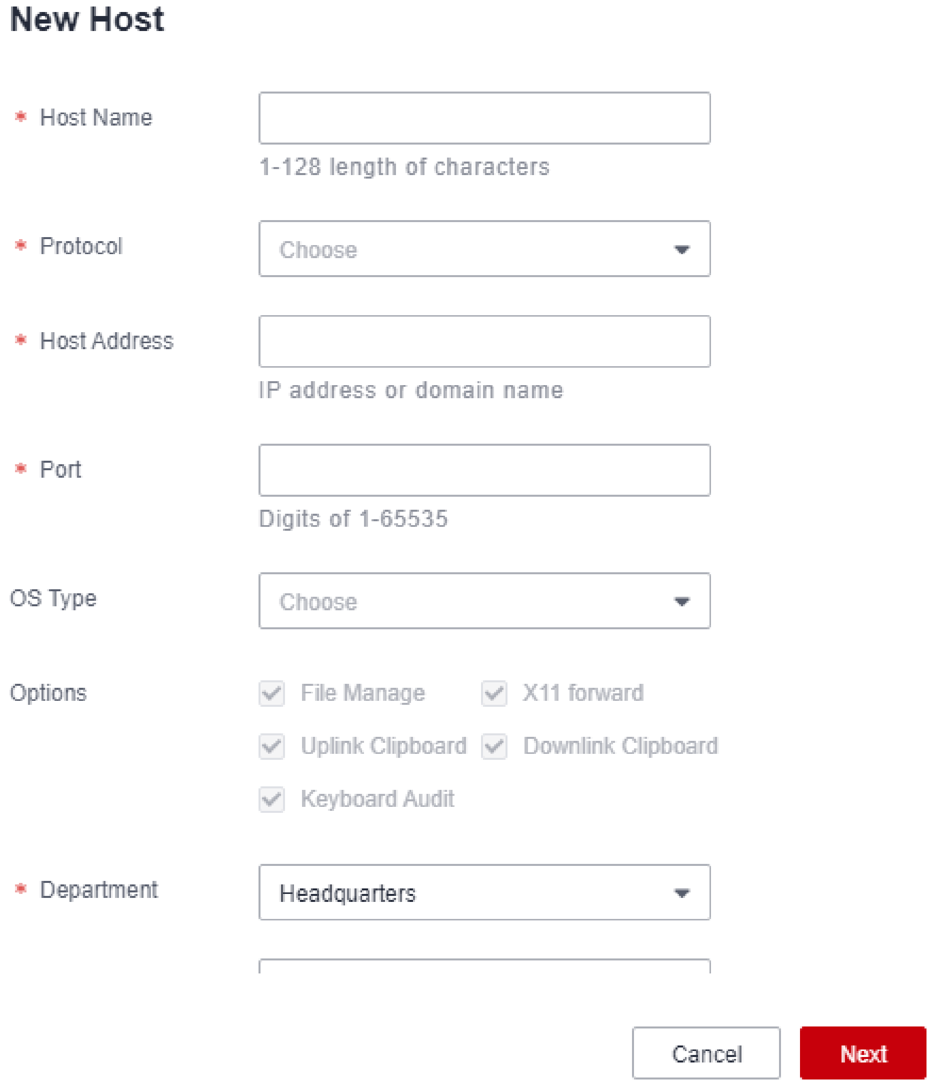
To use the bastion host to audit or maintain resources, you need to add resources to the bastion host first.

Step 1 On the CBH instance page, choose **Resource** > **Host**.

To add application resources, choose **Resource** > **Application**. For details, see .

Step 2 Click **New**. In the displayed dialog box, configure network parameters and basic information about the host.

Figure 1-3 New Host



New Host

* Host Name
1-128 length of characters

* Protocol: Choose

* Host Address
IP address or domain name

* Port
Digits of 1-65535

OS Type: Choose

Options: ☑ File Manage ☑ X11 forward ☑ Uplink Clipboard ☑ Downlink Clipboard ☑ Keyboard Audit

* Department: Headquarters

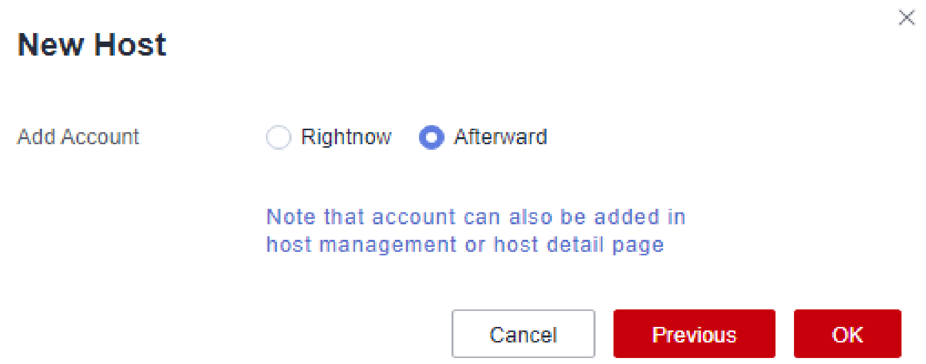
Table 1-3 Host resource network parameters

Parameter	Example Value	Description
Host Name	**host-shanghai-01**	Custom name of the host resource. A host name must be unique in a bastion host.
Protocol	**SSH**	Select a protocol based on the protocol type of the host you are adding.
Host Address	**100.x.x.x**	Host IP address that can be used to establish connection with your bastion host.

Parameter	Example Value	Description
Port	**22**	Enter the port number that can be used to access the host.
OS Type	**Linux**	(Optional) Type of the host OS or device OS. ● The default value is empty. You need to select an OS type based on the type of the added resources. ● 14 OS types are supported, including Linux, Windows, Cisco, Huawei, H3C, DPtech, Ruijie, Sugon, Digital China sm-s-g 10-600, Digital China sm-d-d 10-600, ZTE, ZTE5950-52tm, Surfilter, and ChangAn. ● In addition, system administrator **admin** can customize OS types.
Encode	**UTF-8**	If you select **SSH** or **TELNET** for Protocol, the Chinese character can be used on the O&M page. The options are **UTF-8**, **Big5**, and **GB18030**.
Terminal Type	**Linux**	If you select **SSH** or **TELNET** for Protocol, you can specify the O&M terminal you want. The options are **Linux** and **Xterm**.
Options	**Retain the default value.**	(Optional) Select **File Manage**, **X11 forward**, **Uplink Clipboard**, **Keyboard Audit**, and/or **Downlink Clipboard**. ● **File Manage**: This option is supported only by SSH, RDP, and VNC hosts. ● **Clipboard**: This option is supported only by SSH, RDP, and Telnet hosts. ● **X11 forward**: This option is supported only by SSH hosts. ● **Keyboard Audit**: Only RDP, VNC, and protocol hosts can be configured.
Department	**HQ**	Department to which the host resource belongs.

Step 3 Click **Next** to add an account for the managed host. Select **Afterward**.

Figure 1-4 Adding an account



New Host

Add Account ○ Rightnow ● Afterward

Note that account can also be added in host management or host detail page

Step 4 Click **OK**. After the account is verified, you can then view the new host resource under the **Host** tab.

----End

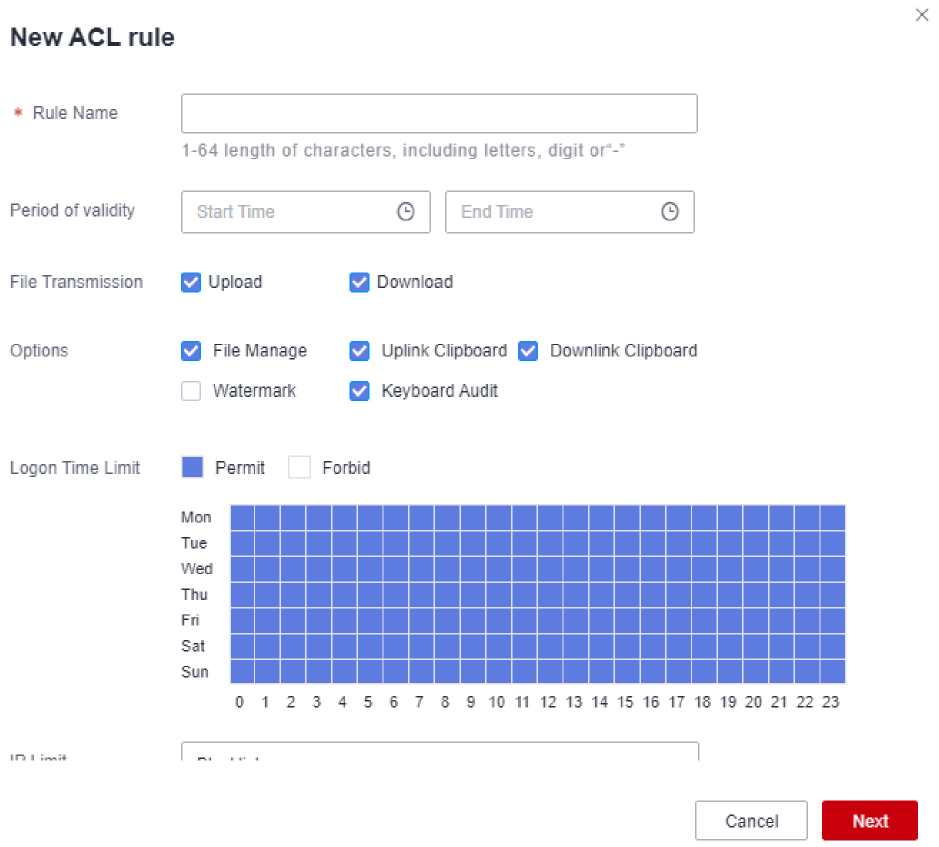
Step 4: Add an Access Control Policy

After a resource is added, you need to bind an account or IP address to the resource to ensure resource access security.

Step 1 Log in to the bastion host instance and choose **Policy** > **ACL Rules** to enter the ACL rule list page.

Step 2 Click **New**. In the dialog box displayed, configure basic policy information.

Figure 1-5 ACL Rules



New ACL rule

* Rule Name

1-64 length of characters, including letters, digit or"-"

Period of validity: Start Time | End Time

File Transmission: ☑ Upload ☑ Download

Options: ☑ File Manage ☑ Uplink Clipboard ☑ Downlink Clipboard
☐ Watermark ☑ Keyboard Audit

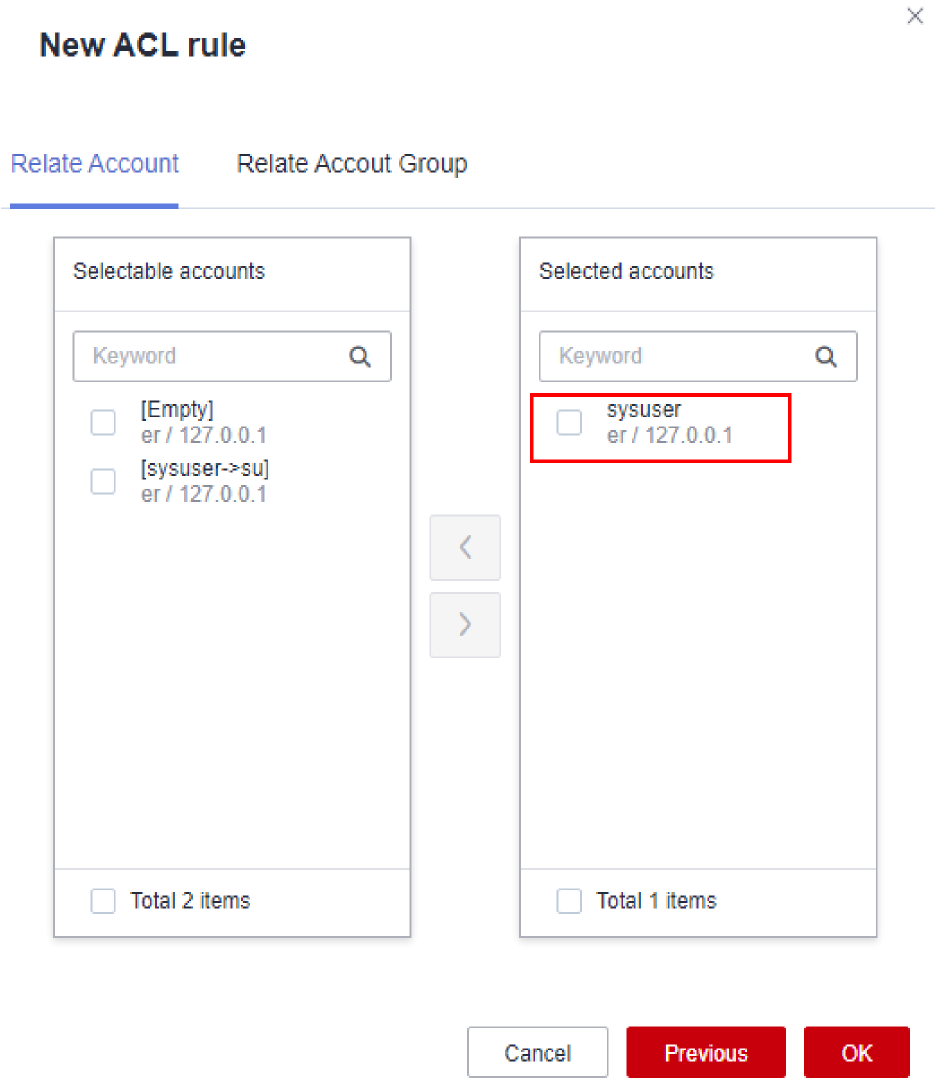
Logon Time Limit: ■ Permit □ Forbid

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Mon	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Tue	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Wed	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Thu	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Fri	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Sat	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Sun	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

IP Limit

Step 3 Click **Next** and select the **admin** user.

Figure 1-6 Selecting accounts



Selectable accounts:

□ [Empty]
er / 127.0.0.1

□ [sysuser->su]
er / 127.0.0.1

□ Total 2 items

Selected accounts:

□ sysuser
er / 127.0.0.1

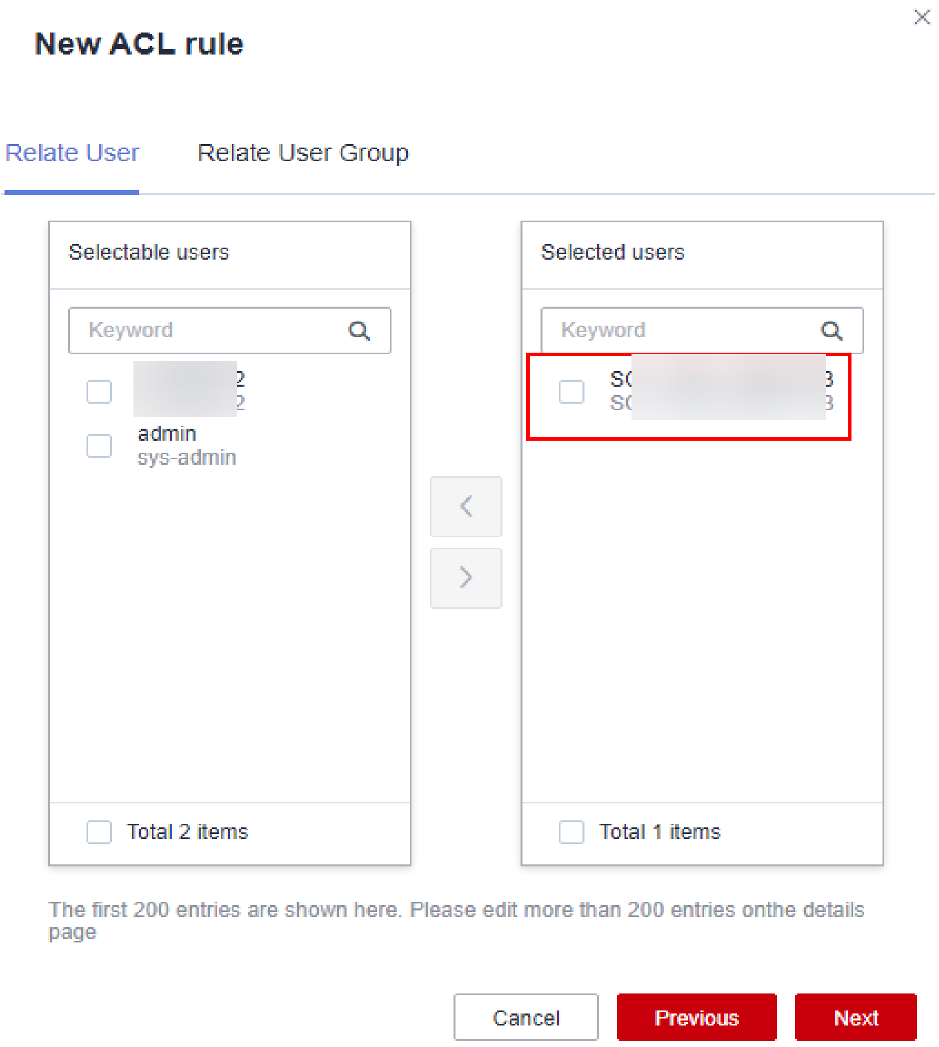
□ Total 1 items

Step 4 Click **Next** and select the resource account.

NOTE

Resource account **Empty** is the account automatically created when a resource is added. It can be used to log in to resources.

Figure 1-7 Relate Account



New ACL rule

The first 200 entries are shown here. Please edit more than 200 entries onthe details page

Step 5 Click **OK**. You can view the new policy in the policy list.

NOTE

After policies are configured, you can choose **Operation** > **Host Operations**, select the target host, and use the **Empty** account to log in to the host. After the login, you can perform O&M operations. Then, you can choose **Audit** > **System Log** and view the login logs and operation logs.

----End

Follow-up Operations

- If you need to distinguish management roles, log in to the bastion host as user **admin** and add different roles to the bastion host instance for refined permission management..
- If you need to customize settings for login, account, session, gateway, router, port, authentication, and alarm parameters, choose **System** > **Sysconfig**.

2 Before You Start

This document provides instructions for getting started with Cloud Bastion Host (CBH). CBH gives you the ability to:

- Log in to the CBH system using a web browser or SSH client, create system users, add resources, configure permission policies, and grant O&M permissions to system users based on their responsibilities.
- Log in to the managed resources within granted permissions.
- Audit O&M sessions, logins, and system operations by resource and/or user.

Figure 2-1 shows how to configure a CBH instance and use the mapped CBH system for secure O&M.

Figure 2-1 Process

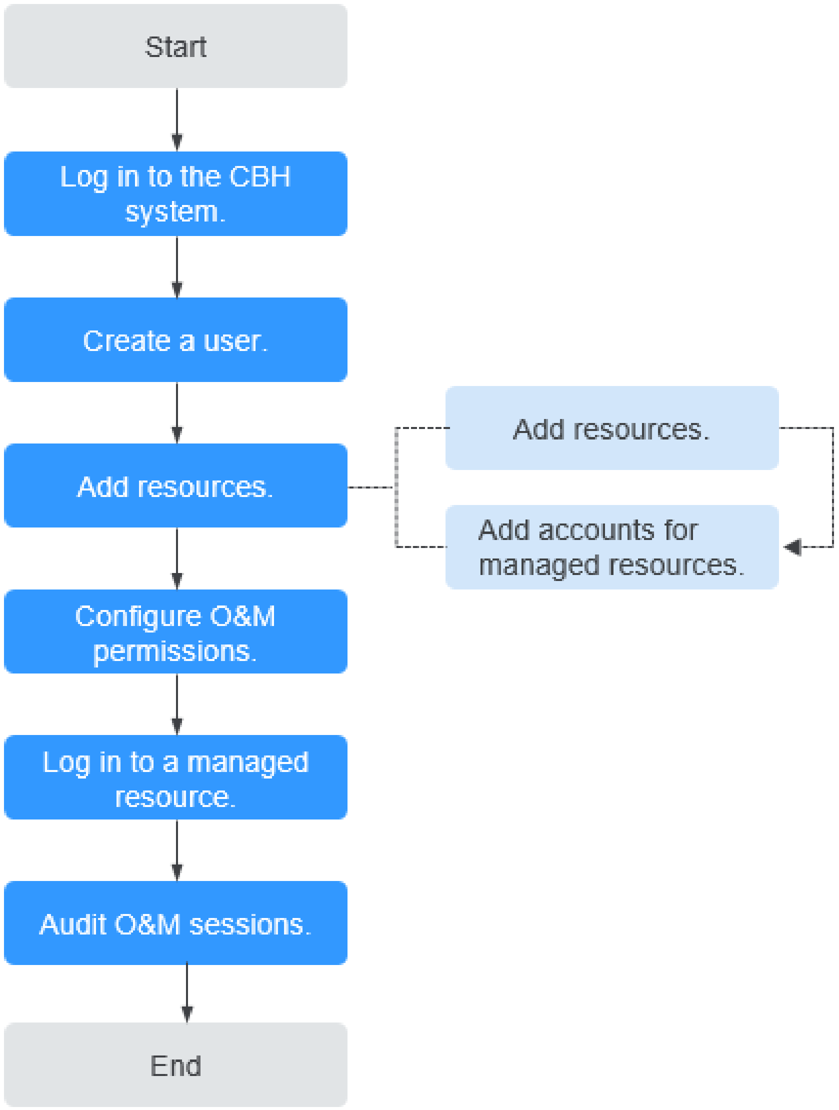

Start
Log in to the CBH system.
Create a user.
Add resources.
Add resources.
Add accounts for managed resources.
Configure O&M permissions.
Log in to a managed resource.
Audit O&M sessions.
End

Table 2-1 Process overview

Procedure	Description
Logging in to a CBH system	After you enable a CBH instance, obtain the IP address to log in to the CBH system that maps to the CBH instance. The **admin** user is the first user that can log in to the CBH system. The password of the **admin** user is the one you set when you purchase the CBH instance.
Creating a user	Create a CBH system user. Each user corresponds to an account for logging in to the CBH system.

Procedure	Description
Adding resources	Add resources and their accounts to the CBH system. ● Linux hosts, Windows hosts, databases, and applications can be added. ● After you add resources to CBH, add the accounts of the added resources to the CBH system so that you can directly access the managed resources through CBH for O&M.
Configuring O&M permissions	Create access control rules. You can grant permissions to each system user based on their responsibilities to determine which users can perform O&M on a specific resource.
Logging in to a managed resource	Multi-factor authentication can be configured for different types of resources.
Auditing O&M sessions	You can audit logins, operations on managed resources, and O&M sessions in the CBH system.

3 Step 1: Log In to a CBH System

Scenarios

You can log in to your bastion host through a web browser, MSTSC client, or SSH client.

- Web browser login: In this method, you can use the system management and resource O&M modules in CBH. This method is recommended for system user **admin** or administrators to manage the CBH system and audit authorization.
- SSH client login: You can use an SSH client to directly log in to the authorized resources for O&M without changing your original login methods.
- MSTSC client login: With CBH, your current MSTSC-based O&M experience is still useful. You can use an MSTSC client to directly log in to the CBH system for resource O&M.

Prerequisites

- You have purchased a CBH instance. If you want to access the CBH instance over the Internet, bound an EIP to it. For details, see **Purchasing a CBH Instance**.
- The CBH instance is in the **Running** state, and the CBH system is within the authorization period.
- You have obtained the address and credentials for logging in to the CBH system.

Using a Web Browser to Log In to a Bastion Host

Step 1 Enter the IP address of the CBH system in the address box of your browser to access the login page.

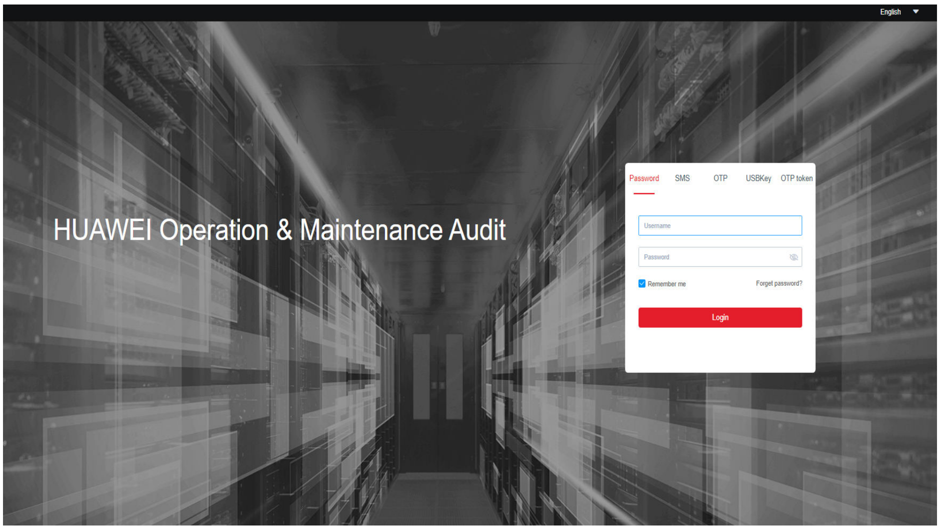
URL: https:// *EIP or private IP address of your bastion host*, for example, *https://10.10.10.10*.

NOTE

- If no EIP is bound to your CBH instance, use the private network IP address to log in to the CBH system. Ensure that your local network and the private network of the CBH system are connected.
- If a browser incompatible with the CBH system is used, the login verification message may fail to be sent to you, or exceptions may occur after the login. For recommended browsers, see **Restrictions on Using CBH**.

Step 2 Select a login authentication method.

Figure 3-1 Bastion host login page



- Multi-factor Authentication (MFA) can be enabled for all CBH users. CBH supports **SMS**, **OTP**, **USBKey**, and **OTP Token**. For details, see **Configuring Multifactor Verification**.
- After multi-factor authentication is configured, **Password** authentication becomes invalid.

Table 3-1 Web browser login authentication

Authentication Method	How to Log In	Configuration Description
Password	Enter the username and password of your bastion host account.	Default login method. The login passwords in the **AD**, **RADIUS**, **LDAP**, or **Azure AD** authentication are the passwords of users on the remote server. For details, see **System Configuration Overview**.

Authentication Method	How to Log In	Configuration Description
SMS	Enter the username and password of your bastion host account, click **Send code**, and enter the SMS verification code you will receive.	A valid phone number has been configured for the account.
OTP	Enter the username and password of your bastion host account and enter the mobile phone one-time password (OTP), which changes periodically. **NOTE** Ensure that the CBH system time is the same as the mobile phone time (accurate to the second). Otherwise, a message indicating that the verification code is incorrect will be reported.	Bind your system user account to a mobile OTP and contact the administrator to configure multi-factor authentication for this account. For details, see **Mobile OTP**.
USBKey	Insert and select an issued USB key and enter the corresponding PIN.	A USB key has been issued to the user. For details, see **Issuing a USB Key**.
OTP token	Enter the username and password of your bastion host account, and enter the dynamic password of the OTP device, which changes periodically.	An OTP token has been issued to the user. For details, see **Issuing an OTP Token**.

Step 3 Click **Login** to log in to your bastion host for O&M.

NOTE

- The **admin** user is a system administrator account that is used to log in to the CBH system for the first time. The **admin** account has the highest level of authority. Permissions for the **admin** account cannot be modified. Keep the account information secure.
- After you log in to the CBH system for the first time, change the passwords and configure the phone number as prompted. Otherwise, the system cannot be further loaded. The phone number can be changed on the profile page in the **Dashboard** module.

----End

Using an SSH Client to Log In to Your Bastion Host

CBH allows you to use an SSH client to log in to your CBH system for authorized resource O&M.

- Only host resources configured with the SSH, Telnet, or Rlogin protocols can be logged in through an SSH client.
- SecureCRT 8.0 or later and Xshell 5 or later are recommended.

Step 1 Start the local SSH client tool and choose **File** > **New** to create a user session.

Step 2 Configure user session connection.

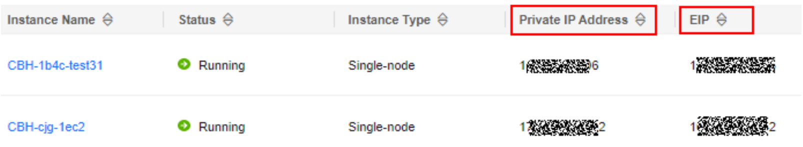
- Method 1

  In the displayed dialog box, select a protocol type, enter the EIP address and port number (2222) of the CBH instance, and click **OK**. Enter the login name of your CBH system account and click **Connect**.

- Method 2
  - In the newly opened blank session window, run a command in the following format: ***Protocol type User login name@System login IP address Port number***, for example, ssh admin@10.10.10.10 2222. After the login, select the target server.
  - In a newly opened blank session window, run a login command: ***{Protocol type} {Bastion host user login name}@{Host account username}@{Linux host IP address}@{Bastion host IP address} {Port}***. For example, you can run **ssh admin@10.10.10.10@10.10.10.101 2222** to log in to the target server.
- Method 3
  - In a newly opened blank session window, run a login command: ***{Protocol type} {User login name}@{System login IP address}* -p *{Port number}***, for example, **ssh admin@10.10.10.10 2222**. After the login, select the target server.
  - In a newly opened blank session window, run a login command: ***{Protocol type} {Bastion host user login name}@{Host account username}@{Linux host IP address}@{Bastion host IP address}* -p *{Port}***. For example, you can run **ssh admin@10.10.10.10@10.10.10.101 -p 2222** to log in to the target server.

NOTE

system login IP address indicates the private IP address or EIP of your bastion host. Make sure the network connection between the local PC and the IP address is normal.



Instance Name	Status	Instance Type	Private IP Address	EIP
CBH-1b4c-test31	Running	Single-node	[redacted]	[redacted]
CBH-cjg-1ec2	Running	Single-node	[redacted]	[redacted]

Step 3 Authenticate user identities.

Enter your identity credentials as prompted.

When an SSH client is used for establishing connections, you can use the **Password**, **SSH Pubkey**, **SMS**, **Mobile OTP**, and/or **OTP Token** authentication. To use **SMS**, **Mobile OTP**, and **OTP token**, configure multifactor verification. For details, see **Configuring Multifactor Verification**.

Table 3-2 SSH client login authentication

Authentication Method	Login Description	Configuration Description
Password	Enter the username and password of your bastion host account.	Default login mode. The login passwords in the **AD**, **RADIUS**, **LDAP**, or **Azure AD** authentication are the passwords of users on the remote server. For details, see **Remote Authentication Management**.
SSH Pubkey	Enter the private key and private key password for login authentication. After the login authentication is successful, next time the user can log in to the system over the SSH client without entering the password.	You need to generate a public and private key pair for login verification and add the SSH public key to your bastion host in the **Profile** center. For details, see **Adding an SSH Public Key**.
SMS	In **SMS** authentication, enter the **Password** or **SSH Pubkey** and the SMS verification code you will receive to complete the login authentication.	An available phone number has been configured for the account.
Mobile OTP	In **Mobile OTP** authentication, enter the **Password** or **SSH Pubkey** and the OTP token to complete the login authentication. **NOTE** Ensure that the CBH system time is the same as the mobile phone time (accurate to the second). Otherwise, a message indicating that the verification code is incorrect will be reported.	Bind your system user account to a mobile OTP and contact the administrator to configure multi-factor authentication for this account. For details, see **Mobile OTP**.
OTP token	After the **Password** or **SSH Pubkey** login is authenticated, select **OTP token** and enter the verification code.	An OTP token has been issued to the user. For details, see **Issuing an OTP Token**.

Step 4 After logging in to your bastion host, you can view system information and start O&M operations.

NOTE

You can also use APIs to log in to resources managed by a bastion host. To do so, you need to obtain the specific URL.

----End

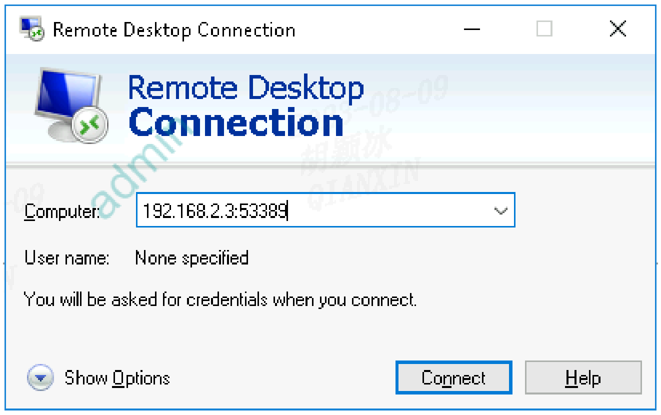
Accessing Your Bastion Host through MSTSC

CBH allows you to use a Microsoft Terminal Services Client (MSTSC) client to log in to authorized resources for O&M.

Step 1 Open the MSTSC dialog box.

Step 2 In the displayed dialog box, enter your bastion host information in the **Computer** text box in the format of *Bastion host IP address*: **53389**.

Figure 3-2 Configuring the computer



Computer: 192.168.2.3:53389

User name: None specified

You will be asked for credentials when you connect.

Step 3 Click **Connect** and provide the following information to complete the login:

- Username: Enter *Login Name of the CBH user@Windows host resource account@Windows host resource IP address:Windows remote port* (3389 by default), for example, admin@Administrator@192.168.1.1:3389.

  NOTE

  The *Windows host resource account* must be a resource account that has been added to CBH and the login mode must be automatic login, or the resource account cannot be identified and O&M audit files cannot be generated. Real-time session O&M is not supported.

- **Password**: Enter the password of the CBH user.

----End

4 Step 2: Create a CBH System User

Scenarios

Before using your bastion host for O&M, administrators need to create system users in the bastion host and assign different system roles to them based on their responsibilities.

System users then can access the modules within the permissions.

Only the **admin** user has the permissions to manage system roles.

Procedure

Table 4-1 Different user creation methods

Creation Method	Description
Creating a User	Create system users one by one. This method applies to create an administrator.
Batch Importing Users Using an Excel File	Configure user information in the Excel template and import the generated Excel file to the CBH system. This feature enables you to add system users in batches.
Synchronizing AD Domain Users	Synchronize system users from the AD domain server. You can use the username and password of a user synchronized from the AD domain to log in to the CBH system, and the login is authenticated by the AD domain server.

Configuration Description

Table 4-2 User information description

Parameter	Description
LoginName	Specifies the username for system users to log in to the CBH system. The **LoginName** must be unique in the CBH system and cannot be changed after it is created.
Verification Type	Specifies the identity authentication methods for logging in to the CBH system. ● **Local**: (default method) The user is verified against the account management system of the CBH system. ● **AD**: The user is verified against the Windows AD domain server. ● **LDAP**: The user is verified against the third-party authentication server through the LDAP protocol. ● **RADIUS**: The user is verified against the third-party authentication server through the RADIUS protocol. ● **Azure AD**: The user is verified against the Azure platform based on Security Assertion Markup Language (SAML) configuration.
Password/ Confirm Password	Specifies the password for the user to log in to the CBH system.
UserName	Specifies the user-defined name used to differentiate CBH system users.
Mobile	Specifies the phone number of the user. This phone number is used by the user to receive SMS messages for identity authentication or get the password back.
Email	Specifies the email address of the user. This email address can be used to receive system notifications.

Parameter	Description
Role	Specifies the role to be assigned to the user. Only one role can be selected for each user. Only the **admin** user can customize roles or edit the permissions granted to default roles. By default, system roles include **DepartmentManager**, **PolicyManager**, **AuditManager**, and **User**. ● **DepartmentManager**: responsible for managing the department system. This role has permissions to configure all modules except the **User** and **Role** modules. ● **PolicyManager**: responsible for configuring policy permissions. This role has the configuration permissions for the **User Group**, **Account Group**, and **ACL Rules** modules. ● **AuditManager**: responsible for auditing system and maintenance data. This role has the configuration permission for **Live Session**, **History Session**, and **System Log** modules. ● **User**: common system users and resource operators. This role has the permissions for the **Host Operation**, **App Operation**, and **Ticket approval** modules.
Department	Specifies the department to which the user belongs.
Remarks	(Optional) Provides supplementary information about the user.

5 Step 3: Add Resources to the CBH System

Scenarios

A bastion host allows you to centrally manage cloud resources as well as their accounts and permissions. Before you start, ensure resources are added to the CBH system for centralized O&M management.

A host or application resource may have multiple accounts for login. CBH allows you to log in to managed resources through managed accounts without having to repeatedly enter the usernames and passwords.

The default account for each managed resource is **Empty**. If you use the **Empty** account, enter the account username and password for accessing the host resource.

Prerequisites

- The network between the hosts to be added and the CBH is normal.
- Before adding application resources, you need to add application servers to the CBH system. For details, see **Adding an Application Resource to CBH** or **Importing Application Resources from an Excel File**.

Procedure

Table 5-1 Methods of adding resources

Resource Type	How to Add	Description
Host resources	**Adding a Host Resource**	Add host resources one by one. After you add the basic information of the host resource, add accounts to the host resource. If no account is added, account **Empty** is generated for the host resource by default.

Resource Type	How to Add	Description
	Importing Host Resources from an Excel File	Configure basic information as well as accounts of a host based on the Excel template. If an account is configured for a host resource, the CBH system will no longer generate the **Empty** account for the host resource.
	Importing Host Resources from a Cloud Platform	Select a cloud platform that can communicate with the CBH system and import the basic information and account information of the hosts on the cloud platform into the CBH system. All accounts of the hosts in the cloud platform will be imported into the CBH system. The CBH system will no longer generate the **Empty** account.
	Automatic Host Discovery	The CBH system automatically discovers hosts that can communicate with the CBH system through IP addresses or IP address ranges. In this method, only basic information of discovered hosts is added to the CBH system. You are required to add the accounts to them manually.
Application resources	**Adding An Application Resource to CBH**	Add application resources one by one. After you add the basic information of the application resource, add an account to the application resource. If no account is added, Account **Empty** is generated for the application resource by default.
	Importing Application Resources from an Excel File	Configure basic information as well as accounts of application resources using the Excel template. If an account is configured for an application resource, the CBH system will no longer generate the **Empty** account for the application resource.

Configuration Description

The settings of **Protocol** and **Host Address** must be unique. So, the host resource managed in the CBH system must be unique.

Table 5-2 Basic information about managed host resources

Parameter	Description
Host Name	User-specified name of a host resource. The host name must be unique in the CBH system.
Protocol	Type of the protocol used for the host. In CBH professional editions, you can configure SSH, RDP, VNC, Telnet, FTP, SFTP, DB2, MySQL, SQL Server, Oracle, SCP, and Rlogin for a host. In the CBH standard editions, you can configure SSH, RDP, VNC, Telnet, FTP, SFTP, SCP, and Rlogin for a host.
Host Address	Host IP address that can be used to establish connection with the bastion host. ● Select the EIP or private IP address of the host. A Private IP address is recommended. ● By default, the IPv4 address of a host is required. ● You can enter either an IPv4 address or IPv6 address of a host as long as an IPv6 address is enabled for the host and the IPv6 network interface is enabled in **system configuration** in the CBH system. **NOTE** ● CBH manages host resources on the same VPC network. Therefore, private IP addresses are not restricted by external security policies or access control policies based on network stability and proximity. It is recommended that you set the **Host Address** to a private IP address on the same VPC network. ● Using an EIP of a host may result in login failure because EIP is an independent public IP address, which may be blocked by the access restrictions on the port.
port	Port number of the managed host.
OS Type	(Optional) Type of the host OS or device OS. ● The following OS types are supported by default: Linux, Windows, Cisco, Huawei, H3C, DPtech, Ruijie, Sugon, Digital China sm-s-g 10-600, Digital China sm-d-d 10-600, ZTE, ZTE5950-52tm, Surfilter, and ChangAn. ● In addition, system administrator **admin** can customize OS types. ● For details, see **OS Type**.
Terminal Speed	Terminal rate. Different terminal speeds can be selected for Rlogin hosts.
Encode	Code used on the host O&M UI. SSH and Telnet hosts support Chinese code. You can select **UTF-8**, **Big5**, or **GB18030**.

Parameter	Description
Terminal Type	Terminal type for O&M. For O&M of SSH and Telnet hosts, different terminal types are available. You can select **Linux** or **Xterm**.
Options	(Optional) You can select **File Manage**, **Clipboard**, or **X11 forward**. ● **File Manage**: This option is supported only by SSH, RDP, and VNC hosts. ● **Clipboard**: This option is supported only by RDP hosts. ● **X11 forward**: This option is supported only by SSH hosts.
Department	Department to which the host belongs.
Label	(Optional) You can customize a label or select an existing one.
Remarks	(Optional) Provides the description of the host.

Table 5-3 Basic information about managed application resources

Parameter	Description
App Name	Name of an application resource. The value of **App Name** must be unique in the CBH system.
AppServer	Select a created application publishing server.
Department	Select the department of the application.
APP Address	(Optional) Enter the address of the application. You can enter an IP address or domain name. ● If the application is released as a browser, enter the URL of the web page. If the address has a corresponding port, enter the address in the format of *URL:Port number*. ● If the application is released as a database or client, enter the address of the database server.
APP Port	(Optional) Enter the application access port. ● If the application is released as a database or client, enter the database access port. ● If the application is released as other resource types instead of a database, leave this parameter blank.

Parameter	Description
Param	(Optional) Set application parameters. - If the application is released as a database, enter the database instance name. - If the application is released as other resource types instead of a database, leave this parameter blank.
Options	(Optional) You can select **File Manage** or **Clipboard**.
Label	(Optional) You can customize a label or select an existing one.
Remarks	(Optional) Provides the description of the application.

6 Step 4: Configure O&M Permissions

Scenarios

To use a bastion host for resource O&M, you still need to **configure access control policies**, associate users with resources, and assign resource permissions to system users.

Procedure

Table 6-1 Parameters for configuring ACL rules

Step	Description
New ACL Rule	You can configure the file transfer permission, user login IP address restrictions, user login time restrictions, and policy validity period.
Associate ACL rules with users or user groups.	● Associate a user: Assign the permissions for the **Host Operation** and **App Operation** modules to a system user so that the user can have O&M permissions for resources. ● Associate a user group: Assign permissions to all members in the user group in batches. Each user will inherit the permissions granted to the user group when the user is added to the group.
Associate an account or account group with an ACL rule.	● Associate an account: Assign resource access permissions to an account. ● Associate an account group: Assign resource access permissions to an account group. Each account will inherit the resource access permissions granted to the account group when the account is added to the group.

Configuration Description

Table 6-2 Basic information about access control policies

Parameter	Description
Rule Name	User-defined name of an ACL rule. The rule name must be unique in the CBH system.
Period of validity	(Optional) Effective time and expiration time of a policy.
File Transmission	(Optional) Permissions to upload and download host files during O&M. ● If **Upload** and/or **Download** are selected, files can be uploaded and/or downloaded. ● If **Upload** and **Download** are deselected, files cannot be uploaded or downloaded.
Options	(Optional) Permissions to manage host resource files, use RDP clipboards, and displays watermarks during O&M. You can select **File Manage**, **Clipboard**, or **Watermark**. **NOTE** File management is available for the devices using SSH or Remote Desktop Protocol (RDP) protocols. For devices using the Virtual Network Computing (VNC) protocol, file management is available only after the application mapped to this device is released. File management is unavailable for the devices using the Telnet protocol.
Logon Time Limit	(Optional) Time period allowed or forbidden for the user to log in to the host.
IP Limit	(Optional) Restricts or allows users from specified IP addresses to access resources. ● Select **Blacklist** and configure the IP addresses or IP address ranges to restrict users from these IP addresses from logging in to the resources. ● Select **Whitelist** and configure the IP addresses or IP address ranges to allow users from these IP addresses to log in to the resources. ● If no IP addresses are entered in the field, there is no login restriction on the resource.

7 Step 5: Log In to a Resource You Want to Manage

Scenarios

After you obtain required permissions, you can log in to a managed resource through the CBH system. The entire O&M process will be monitored and logged.

You can select different login methods based on resource types.

Procedure

Table 7-1 Methods to log in to managed resources

Login Type	Resource Type
Using a Web Browser for Logging In	● Host resources configured with the SSH, RDP, VNC, or Telnet protocol. ● All application resources.
Using an SSH Client for Logging In	Host resources configured with the SSH, Telnet, or Rlogin protocol.
Using an FTP/SFTP/SCP Client for Logging In	Host resources configured with any type of transmission protocols. Host resources configured with the FTP or SFTP protocol.
Using an SSO Client for Logging In	Host resources configured with any type of database protocols. ● Host resources configured with the MySQL, SQL Server, Oracle, or DB2 protocol.

8 Step 6: Audit O&M Sessions

Scenarios

You can log in to the managed resources with granted permissions through your bastion host for further O&M. You can also manage system configurations of your bastion host.

The CBH system makes it easier for the administrators to audit logins, operations on managed resources, and O&M sessions performed by other system users.

Procedure

Table 8-1 Description about the **System** and **Audit** modules

Audit Object	Audit Content
Live Session	Monitor on-going O&M sessions, view the session details of system users and resources, and interrupt sessions with high risks.
History Session	● O&M session videos: The entire process of O&M sessions is automatically recorded by screencasting. You can play the screencasts online or download them. ● O&M session details: O&M session details generated for different system users can be viewed online or exported as an Excel file. Session details include detailed operation records of resource sessions, system sessions, O&M records, file transfer, and collaboration sessions.
Operation Report	Display the trend of O&M operations over time in a line chart and generate a comprehensive O&M analysis report. This area includes O&M time distribution, resource access times, session duration, number of access times from source IP addresses, session collaboration, two-person authorization, command interception, number of character commands, and number of transferred files.

Audit Object	Audit Content
System Log	● System login logs: record detailed information about user login to the system. System login logs can be viewed online or exported as Excel files. ● System operation logs: record detailed system operations. System operation logs can be viewed online or exported as an Excel file.
System Report	Collect statistics on user logins and system operations in a bar chart and generate a comprehensive system management analysis report. This area includes information about user control, user and resource operations, number of user source IP addresses, user login mode, abnormal login, session control, and user status.