Cloud Certificate Manager

FAQs

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Contents

1 Certificate Consulting

1.1 What Are the Differences Between SSL Certificate Manager and Private Certificate Authority?

Concepts

SCM is a platform to centrally manage your Secure Sockets Layer (SSL) certificates. Working with trusted Certificate Authorities (CAs) around the world, SCM enables one-stop SSL certificate lifecycle management and helps you improve trust and secure data transmission for your websites.

Private Certificate Authority (PCA) is a private certificate and CA management platform. You can use CCM to set up a complete CA hierarchy and use it to issue and manage private certificates for your organization. It is used to authenticate application identities and encrypt and decrypt data within your organization.

Differences Between SCM and PCA

Table 1-1 describes the differences between SCM and PCA.

Table 1-1 Differences between SCM and PCA

Service Name	Function	Application Scenario	Security Level	Apply to Internal Network
SSL Certificate Manager (SCM)	After an SSL certificate is deployed on a server, HTTPS is enabled on the server. The server uses HTTPS to establish encrypted links to the client, ensuring data transmission security. • Authenticate websites and ensure that data is sent to the correct clients and servers. • Set up encrypted connections between clients and servers, preventing data from being stolen or tampered with during transmission.	• Authenticating websites An SSL certificate validates the identity of a website on the Internet. If a website is not installed with an SSL certificate, the browser considers the website as insecure so that the website is hardly trusted by users and have few visitors. Visitors are more likely to explore a website secured with an SSL certificate because they believe the website is secure enough. Especially the websites that use OV or EV certificates, the CA validates the domain name ownership and enterprise identity before issuing a certificate, which effectively improves the website credibility. • Website data encryption The data transmitted over HTTP always faces high risks of being disclosed, eavesdropped, or tampered with as	High	Not supported. SSL certificates can be used only for public domain names.

Service Name	Function	Application Scenario	Security Level	Apply to Internal Network
		HTTP cannot encrypt data in transit. SSL certificates covert your HTTP website to an HTTPS one. An HTTPS-secured website enables encrypted communication and effectively improves data transmission security. ● Enabling of HTTPS on Huawei Cloud Services such as WAF, ELB, and CDN CCM enables you to quickly deploy SSL certificates to your Huawei Cloud services, such as WAF, ELB, and CDN. ● Website loading speed acceleration SSL certificates are compatible with HTTP/2 and can be used to quickly and dynamically load web page content.		

Service Name	Function	Application Scenario	Security Level	Apply to Internal Network
PCA	• Allows you to set up a complete CA hierarchy, including root CAs and multi-level intermediate CAs. • Provides high-availability and high-security private CA hosting capabilities. • Allow you to create and manage private certificates. These private certificates are used to identify and protect the resources of your organization, including applications, services, devices, and users.	• Internal application data security control You can use PCA to establish an internal certificate management system for your enterprise and issue and manage self-signed private certificates to authenticate identities, encrypt and decrypt data, and secure data transmission within the enterprise. • IoV applications Telematics Service Providers (TSPs) can use PCA to issue a certificate to each vehicle terminal, thereby providing security capabilities such as authentication and encryption during vehicle-vehicle, vehicle-cloud, and vehicle-road interaction. • IoT applications The Internet of Things (IoT) platform can use PCA to issue a certificate to each IoT device to implement IoT device identity verification and authentication, ensuring device access security in IoT scenarios.	Low	Supported. Private certificates can be deployed on the intranet.

1.2 Which Websites Require HTTPS?

HTTPS is adopted by more and more websites in today's world where information security is increasingly important. Currently, HTTPS is strongly recommended for the following websites:

- E-commerce platforms and their payment systems
- Banking systems and high-privacy websites of financial institutions
- Websites of governments, universities, research institutes
- Websites whose visitors are mostly brought by search engines
- Enterprises' email-based internal communication platforms

In the long run, HTTPS is an inevitable trend. Enabling HTTPS encryption is a key point of today's website construction. In addition to the websites listed earlier, users are advised to enable HTTPS for other types of websites to prepare their companies for development.

1.3 What Are the Differences Between HTTPS and HTTP?

Differences Between HTTPS and HTTP

Hypertext Transfer Protocol (HTTP) was commonly used for a long time. HTTP does not encrypt the data that it transmits, which means that confidential information, such as passwords, accounts, and transaction records, is plaintext and may be leaked, stolen, or tampered with anytime. Therefore, HTTP is regarded as an insecure protocol for private information.

Based on the Secure Sockets Layer (SSL) protocol, Hypertext Transfer Protocol Secure (HTTPS) activates an SSL encrypted channel between a web browser and a website server for a user to visit the website where an SSL certificate has been installed. The channel allows high-strength bidirectional encrypted transmission to prevent leakage or tampering of the data being transmitted. Simply put, HTTPS is HTTP plus SSL or a secure version of HTTP.

How Do I Change the Website Protocol from HTTP to HTTPS?

If you want to implement HTTPS for a website, you can purchase an SSL certificate and deploy it on the server corresponding to the website.

After an SSL certificate is deployed on a server, HTTPS is enabled on the server. The server uses HTTPS to establish encrypted links to the client, ensuring data transmission security.

1.4 What Is a Public Key and a Private Key?

A pair of public and private keys are used in the encryption method commonly known as the asymmetric encryption method. The key pair, consisting of a public

key and a private key, is generated based on an algorithm. The public key is open while the private key is not. The public key is usually used to encrypt session keys, verify digital signatures, or encrypt data that can be decrypted using the corresponding private key.

The public and private key pair is unique across the whole world. If one key is used to encrypt a piece of data, the other key must be used to decrypt the data. If you use either key to encrypt a piece of data, the encrypted data can only be decrypted using the other key or the decryption fails.

NOTE

Due to the privacy of a private key, you are advised to generate and keep it properly by yourself. Loss of the private key may cause website information leakage. If the private key is lost, revoke the certificate immediately and apply for a new SSL certificate for the domain name.

Working Principles of a Digital Certificate

A digital certificate uses the public key system which consists of a pair of matched keys to encrypt and decrypt data. Each user sets a specific private key that is known only to himself or herself and uses it for decryption and signature. At the same time, the user sets a public key and shares it with a group of other users for encryption and signature verification.

Because only the owner has the key, the owner can use it to generate a digital signature that no other users can generate.

A digital certificate is a file digitally signed by a CA and contains information about the owner of a public key and the public key. The simplest certificate contains a public key, name, and digital signature of the CA. Another important feature of a digital certificate is that it is valid only within a specific period of time.

Creating a Private Key

HUAWEI CLOUD SCM has the following requirements on the encryption algorithm and length of your private key:

- RSA
- At least 2048 bits

  NOTE

  The 2048-bit SHA256 digest algorithm is recommended.

You can use either of the following methods to create your private key:

- Using OpenSSL

  OpenSSL is a powerful and widely used security library tool. You can download the latest OpenSSL installation package from **http://www.openssl.org/source/**.

  NOTE

  The OpenSSL version must be 1.0.1g or later.

  After installing OpenSSL, run the **openssl genrsa -out** *myprivate.pem* **2048** command in the command-line interface (CLI).

  - *myprivate.pem* indicates your private key.
  - **2048** indicates the encryption length.

- Using Keytool

  Keytool is a key management tool coming with JDK. You can use it to create a KEYSTORE (JKS) certificate file. Obtain Keytool by downloading a JDK package from **http://www.oracle.com/technetwork/java/javase/downloads/index.html**.

  By default, the public key and private key created using Keytool cannot be exported. You need to export the private key from the created KEYSTORE file.

  In the exported file, the following part is the private key:

  ```
  -----BEGIN RSA PRIVATE KEY-----
  ......
  -----END RSA PRIVATE KEY-----
  ```

  or

  ```
  -----BEGIN PRIVATE KEY-----
  ......
  -----END PRIVATE KEY-----
  ```

NOTICE

No matter which method you use to generate a private key, you need to keep it properly because once it is lost or damaged the corresponding public key and digital certificate will be unusable.

1.5 What Are the Relationships Between a Public Key, Private Key, and Digital Certificate?

According to the principle of asymmetric cryptography, each certificate holder has a pair of public and private keys, which can be used to encrypt and decrypt each other.

The public key is public and does not need to be kept confidential. The private key is unique to the certificate holder and must be properly kept and kept confidential. A digital certificate is a digital file generated after the CA verifies the identity of a certificate applicant and signs the basic information and public key of the applicant with the root certificate of the CA (equivalent to stamping the official seal of the CA).

A digital certificate is a public key authenticated by the CA. Therefore, a digital certificate and a public key are both public.

A digital certificate is a public key authenticated by the CA. A private key is generated by the certificate holder locally or by a trusted third party. The certificate holder or a trusted third party can keep the private key.

If you select **System generated CSR** for **CSR** when applying for a certificate in HUAWEI CLOUD SCM, the private key and certificate file are stored in the certificate folder after the certificate is issued. You can download the certificate to obtain the private key and certificate file.

If you select **Upload a CSR** for **CSR** when applying for a certificate, the downloaded certificate contains only one file named **server.pem** after the certificate is issued successfully. The file **server.pem** contains two segments of certificate code, that is, the server certificate and CA intermediate certificate. HUAWEI CLOUD SCM does not store your private keys. Keep them safe.

1.6 Why Is a Non-Password-Protected Private Key Required?

When using your certificate, other Huawei Cloud services will require its private key from you. If the key is password-protected, the services will fail to use the certificate, which will cause certificate decryption failure and HTTPS failure. Therefore, you need to provide a private key that is not password protected.

When you generate a private key, remove its password protection before uploading the certificate.

How Do I Remove Password Protection for a Private Key?

You can run the following command using OpenSSL to remove password protection for a protected private key:

openssl rsa -in encryedprivate.key -out unencryed.key

encryedprivate.key indicates the private key with password protection. **unencryed.key** indicates the private key with password protection removed. The extension name can be **.key** or **.pem**.

If your certificate uses a private key that is not password protected, the system checks the format of the certificate file when you deploy it on CDN. CDN requires that a certificate file must be encrypted using RSA. That is, the private key of the certificate starts with **-----BEGIN RSA PRIVATE KEY-----** and ends with **-----END RSA PRIVATE KEY-----**. If the certificate is not in this format, use a tool to convert the certificate format. For details, see **What Are Mainstream Formats of Digital Certificates?**

How Do I Determine Whether a Private Key Is Password Protected?

Use the text editor to open a private key file. If the private key file is in the following format, then it is password protected:

- Password-protected private keys in PKCS#8 format
  ```
  -----BEGIN ENCRYPTED PRIVATE KEY-----
  ......BASE64 Private key content.....
  -----END ENCRYPTED PRIVATE KEY-----
  ```
- Password-protected private keys in OpenSSL ASN format
  ```
  -----BEGIN RSA PRIVATE KEY-----
  Proc-Type: 4,ENCRYPTED
  DEK-Info:DES-EDE3-CBC,4D5D1AF13367D726
  ......BASE64 Private key content.....
  -----END RSA PRIVATE KEY-----
  ```


NOTE

All keys generated using Keytool are protected by passwords. You can convert them into key files that are not password protected. For details, see **What Are Mainstream Formats of Digital Certificates?**

1.7 What Are Mainstream Formats of Digital Certificates?

Mainstream web service software uses a basic password library provided by OpenSSL or Java.

- Tomcat, WebLogic, and JBoss use the password library provided by Java. Java Keystore (JKS) certificate files are generated with the Keytool tool in the Java Development Kit (JDK) tool package.
- Apache and Nginx use the password library provided by OpenSSL to generate PEM, KEY, or CRT certificate files.
- IBM web service products, such as WebSphere and IBM HTTP Server (IHS), use the built-in iKeyman tool to generate KDB certificate files.
- The Internet Information Services (IIS) service of Microsoft Windows Server uses the built-in certificate library to generate PFX certificate files.

Checking the Format of a Certificate File

- You can determine whether a certificate file is text or binary based on its name extension:
  - A DER or CER file is binary and contains only the certificate information.
  - A CRT file can be either binary or text. Most CRT files are text and have the same function as DER or CER files.
  - A PEM file is text typically and contains a certificate or private key or both. If a PEM file contains only a private key, it is usually replaced by a KEY file.
  - A PFX or P12 file is binary. Containing both a certificate and a private key, it is password protected typically.
- You can also use Notepad to open the certificate file. If strings of digits and letters are displayed in the file, the certificate file is in text format.

  Examples:

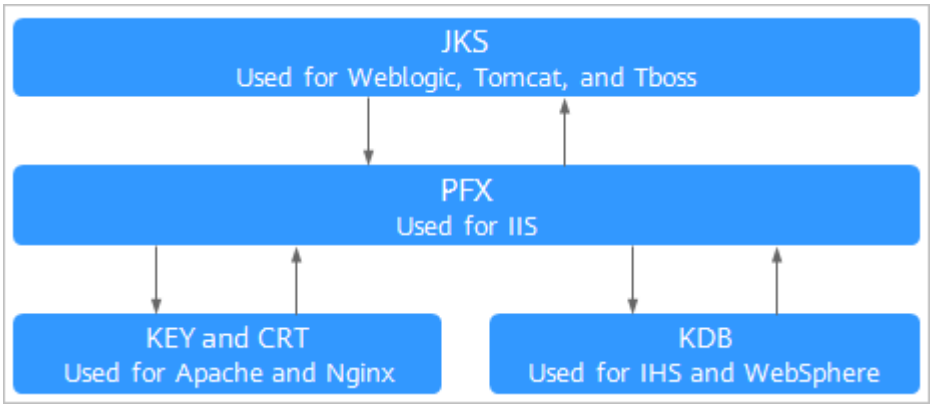
  ```
  —–BEGIN CERTIFICATE—–
  MIIE5zCCA8+gAwIBAgIQN+whYc2BgzAogau0dc3PtzANBgkqh.....
  —–END CERTIFICATE—–
  ```

  - If **--BEGIN CERTIFICATE--** is displayed, the file contains a certificate.
  - If **--BEGIN RSA PRIVATE KEY--** is displayed, the file contains a private key.

Certificate Format Conversion

Certificate formats as listed in **Figure 1-1** can be converted mutually.

Figure 1-1 Certificate Format Conversion



You can use the following methods to convert certificate formats:

- Converting from JKS into PFX

  You can use the built-in Keytool of JDK to convert a JKS certificate file into PFX.

  For example, you can run the following command to convert **server.jks** into **server.pfx**:

  keytool -importkeystore -srckeystore D:\server.jks -destkeystore D:\server.pfx -srcstoretype JKS -deststoretype PKCS12

- Converting from PFX into JKS

  You can use the built-in Keytool of JDK to convert a PFX certificate file into JKS.

  For example, you can run the following command to convert **server.pfx** into **server.jks**:

  keytool -importkeystore -srckeystore D:\server.pfx -destkeystore D:\server.jks -srcstoretype PKCS12 -deststoretype JKS

- Converting from PEM/KEY/CRT into PFX

  You can use the **OpenSSL** tool to convert a KEY key file and CRT public key file into a PFX certificate file.

  For example, copy the **server.key** key file and **server.crt** public key file to the OpenSSL tool installation directory and run the following command to convert the certificate into the **server.pfx** certificate file:

  openssl pkcs12 -export -out server.pfx -inkey server.key -in server.crt

- Converting from PFX into PEM/KEY/CRT

  You can use the **OpenSSL** tool to convert a PFX certificate file into a PEM certificate file, KEY key file, and CRT public key file.

  For example, copy your PFX certificate file to the OpenSSL tool installation directory, and use the OpenSSL tool to run the following command to convert it into the **server.pem** certificate file, **server.key** key file, and **server.crt** public key file:

  openssl pkcs12 -in server.pfx -nodes -out server.pem

  openssl rsa -in server.pem -out server.key

  openssl x509 -in server.pem -out server.crt

NOTICE

This conversion method is used only for scenarios where OpenSSL is used to generate private keys and CSRs for applying for certificate files. Using this method, you can separate the private keys when you have obtained PEM public keys. When deploying a digital certificate, use the private key separated with this method to match the public key certificate issued to you.

1.8 What Information Does an SSL Certificate Contain?

A certificate contains the following information after it is successfully issued and deployed:

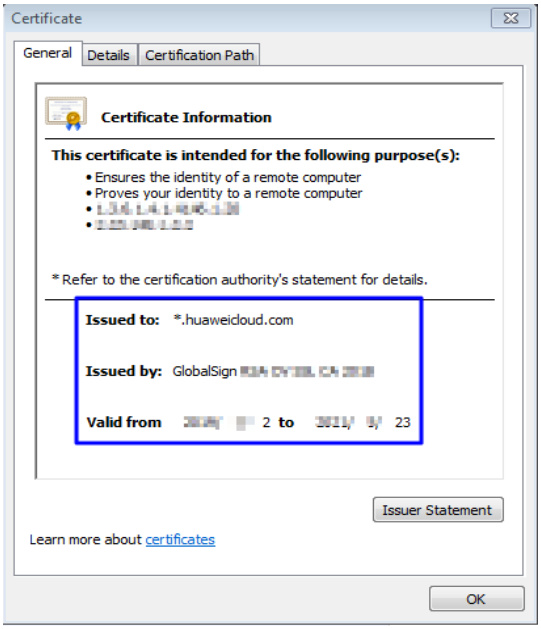
1. Address bar: security padlock, HTTPS flag, and enterprise name (only for EV certificates)

   Example: Display effect of an EV certificate on the Google Chrome browser

2. General: user, issuer, and validity period of a certificate

   Figure 1-2 Certificate general information example

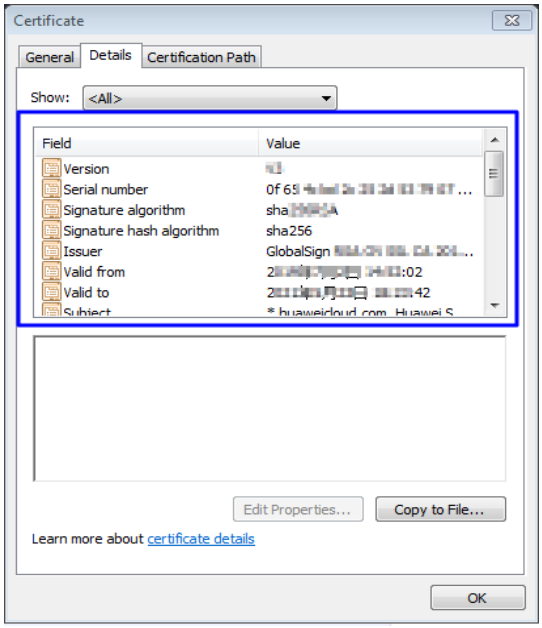
   

3. Details: certificate version, serial number, signature algorithm, encryption algorithm, public key, validity period, and user information (such as the province, city, enterprise name, and department)

   NOTE

   When applying for a certificate, enter the company contact or authorizing person information (contact name and mobile phone number). The information that involves personal information is not included in the certificate after the certificate is issued.

Figure 1-3 Certificate details example



1.9 Can I Use SSL Certificates for Other Regions, Accounts, or Platforms?

Can I Use an SSL Certificate for Other Regions?

Yes.

SCM is a global service. You can use your SSL certificates in all regions after you purchase them in a certain region.

Can I Use an SSL Certificate for Different Accounts?

Yes.

After an SSL certificate is issued, it can be used under different account regardless whether it is purchased under the account.

- Example 1:

  The SSL certificate purchased under account A can be used on the servers under account B.

  SSL certificates are associated with domain names. Therefore, the domain name you want to protect must be the same as the domain name bound to the certificate. Otherwise, a message will be reported indicating that the request is insecure.

- Example 2:

  An SSL certificate under account A can be directly deployed on other cloud products, such as WAF, ELB, and CDN under account A.

  To use an SSL certificate under account A for services under account B, download the certificate first.

  Then deploy it for services under account B.

Can I Use an SSL Certificate for Other Platforms?

Yes.

SSL certificates purchased in SCM can be used on any platforms.

After an SSL certificate is issued, you can download the certificate file in SCM.

After you obtain the certificate file, deploy it on a server corresponding to your websites or cloud products based on your needs.

The server can be a Huawei Cloud server or a non-Huawei Cloud server.

1.10 Can I Use an Unused SSL Certificate Anytime I Want?

A certificate takes effect upon issuance. The certificate issuance time refers to the time when the certificate is officially issued by the CA.

If an additional domain name is added for a multi-domain certificate, the certificate validity period starts from the date when the certificate is issued for the first time.

Check whether the certificate is available.

- If you have purchased a certificate but have not applied for the certificate and the certificate has not been issued:

  The certificate can be used.

  The validity period of a certificate starts from the date when the certificate is issued. Therefore, you can use the certificate after applying for it. For details about how to apply for a certificate, see **Submitting an SSL Certificate Application to the CA**.
- If you have purchased a certificate that has been issued and is still within the validity period:

  The certificate can be used within the validity period.
- If you have purchased a certificate and the certificate is issued, but it expires:

  The certificate cannot be used.

1.11 Can SSL Certificates Be Upgraded?

No.

After a certificate is issued, it cannot be upgraded. The certificate information, such as the domain name associated with the certificate, certificate validity period, and certificate authority, cannot be modified.

To associate a certificate with another domain name, change the certificate authority, or change the certificate validity period, apply for a new certificate.

1.12 Does the SSL Certificate Have Restrictions on the Server Port?

There is no limit. An SSL certificate is associated with a domain name and has nothing to do with the server port.

1.13 Why Is the Service Displayed as Inaccessible or the Button Displayed in Gray When I Access the SCM Service on the Console?

When you access SCM on the console and the service is displayed as inaccessible or the button displayed is in gray, perform the following operations:

In SCM, the system displays a message indicating that you do not have the permission to perform this operation regardless of whether your account has insufficient permissions or is in arrears.

- If you do not have the permission to perform this operation, contact the administrator to grant the permission. After the permission is granted, perform the corresponding operations.
- If your account is in arrears, top up your account. After your account is topped up, perform the corresponding operations.

2 Regions and AZs

2.1 What Are Regions and AZs?

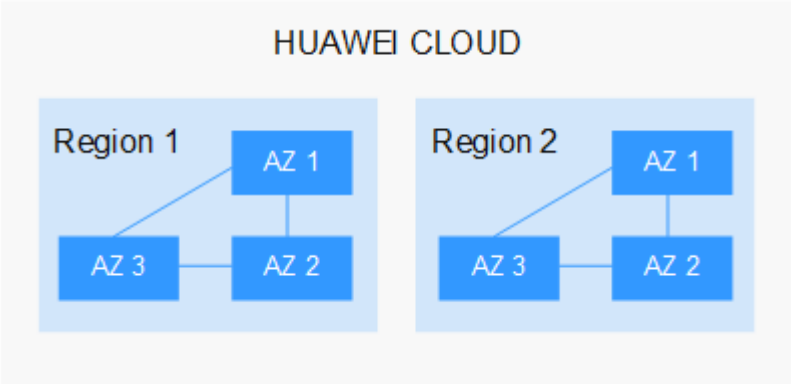
Concepts

A region and availability zone (AZ) identify the location of a data center. You can create resources in a specific region and AZ.

- Regions are divided from the dimensions of geographical location and network latency. Public services, such as Elastic Cloud Server (ECS), Elastic Volume Service (EVS), Object Storage Service (OBS), Virtual Private Cloud (VPC), Elastic IP (EIP), and Image Management Service (IMS), are shared within the same region. Regions are classified as universal regions and dedicated regions. A universal region provides universal cloud services for common tenants. A dedicated region provides services of the same type only or for specific tenants.
- An AZ contains one or more physical data centers. Each AZ has independent cooling, fire extinguishing, moisture-proof, and electricity facilities. Within an AZ, computing, network, storage, and other resources are logically divided into multiple clusters. AZs within a region are interconnected using high-speed optical fibers to allow you to build cross-AZ high-availability systems.

Figure 2-1 shows the relationship between the regions and AZs.

Figure 2-1 Region and AZ



Huawei Cloud provides services in many regions around the world. You can select a region and AZ as needed.

Selecting a Region

When selecting a region, consider the following factors:

- Location

  You are advised to select a region close to you or your target users. This reduces network latency and improves access rate.

  - If you or your users are in the Asia Pacific region and outside the Chinese mainland, select the **CN-Hong Kong**, **AP-Bangkok**, or **AP-Singapore** region.
  - If you or your users are in Africa, select the **AF-Johannesburg** region.
  - If you or your users are in Latin America, select the **LA-Santiago** region.

- Resource price

  Resource prices may vary in different regions. For details, see **Product Pricing Details**.

Selecting an AZ

When determining whether to deploy resources in the same AZ, consider your applications' requirements on disaster recovery (DR) and network latency.

- For high DR capability, deploy resources in different AZs in the same region.
- For low network latency, deploy resources in the same AZ.

Regions and Endpoints

Before using an API to call resources, specify its region and endpoint. For more details, see **Regions and Endpoints**.

2.2 In Which Regions Are SCM Available?

SCM is a global service and is available in all regions.

SSL certificates are not issued by HUAWEI CLOUD. They are issued by trusted certificate authorities (CAs). Therefore, the use of an SSL certificate is not restricted by the region where it is purchased. After a certificate is purchased, it can be used globally.

3 SSL Certificate Application and Purchase

3.1 SSL Certificate Selection

3.1.1 How Do I Select an SSL Certificate?

This topic describes all you want to know about how to select an SSL certificate that meets your business needs.

For more details, see **Differences Between Certificate Types**

Which Certificate Type Is Suitable for Me?

When you purchase SSL certificates, you can select **OV**, **OV Pro**, **EV**, **EV Pro**, or **DV (Basic)** for **Certificate Type**.

- EV certificates are recommended for finance and payment service businesses. For other enterprises, OV or higher-level certificates are recommended.
- For use on mobile devices or in interface invocation, OV or higher-level certificates are recommended.
- If you do not have a business license, you can apply for only basic DV certificates.

Which Certificate Authorities Are Available?

The following table lists the CAs supported by SCM and the certificate types each CA provides.

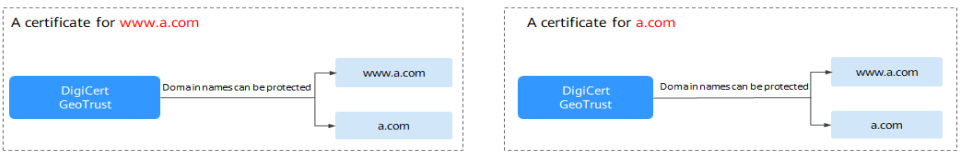
Table 3-1 Certificate authorities

Certificate Authority	Description	SSL DV Certificates Supported	SSL OV Certificates Supported	SSL EV Certificates Supported
DigiCert	DigiCert, formerly Symantec, is the world's largest CA. It provides services for more than 100,000 customers in over 150 countries and regions. Advantages: High security, stability, and compatibility. Suitable for digital transactions with high security requirements and widely used by financial institutions.	Yes Single-domain certificates supported	Yes Single-domain, multiple-domain, and wildcard-domain certificates supported	Yes Single-domain and multi-domain certificates supported
GeoTrust	GeoTrust, the world's second largest CA, is an industry-leading provider of identity and trust validation. It is committed to offering the best service at the lowest price possible to enterprises of all sizes. Advantages: Powered by DigiCert. High security, stability, and compatibility, cost-effective, and less know-how required for HTTPS protection	Yes Single-domain and wildcard-domain certificates supported	Yes Single-domain and wildcard-domain certificates supported	Yes Single-domain and multi-domain certificates supported

Promotion activities

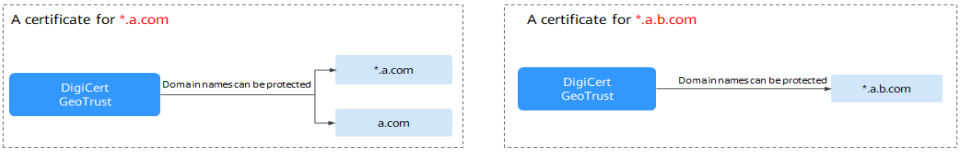
- Single domain names (using domain name www.a.com and root domain name a.com as an example)

  Figure 3-1 Promotion activities

- Wildcard domain name (using domain names *.a.com and *.a.b.com as an example)

Figure 3-2 Promotion activities



Which Domain Type Should I Select?

You need to confirm the types of domain names you want to protect. In SCM, options for **Domain Type** can be **Single domain**, **Multiple domains**, or **Wildcard**.

Table 3-2 Domain Type

Parameter	Description
Single domain	Single-domain certificates Only one common domain name can be associated. If you have only one domain name, select **Single domain**.
Multiple domains	Multi-domain certificate • Multiple domains can be added to a certificate. Multiple single domains can be set for domains. For example, you can use one multi-domain certificate to protect domains example.com, example.cn, and test.com. • You need to configure the domain quantity based on the number of domains you need to protect with a single multi-domain certificate. • Different promotion activities are offered by CAs for subdomain names, or www domain names. For details, see **Which Certificate Authorities Are Available?** The following uses subdomain name www.a.com and root domain name a.com as an example to show the differences. – For DigiCert and GeoTrust certificates, you can purchase a certificate for either the root domain or the subdomain to protect both domains at the same time. For example, if you plan to purchase a multi-domain certificate issued by DigiCert or GeoTrust and expect to use this certificate to protect www.a.com and a.com, just associate www.a.com or a.com with the certificate. • The number of domain names ranges from 2 to 250. A maximum of 250 domain names can be protected with a certificate. If you have multiple domain names, select **Multiple domains**. Purchase domain names of the required quantity on the purchase page.

Parameter	Description
Wildcard	Wildcard-domain certificates • Only one wildcard domain name can be associated. • A wildcard domain name is the one that starts with a wildcard (*), for example, *.huaweicloud.com or *.example.huaweicloud.com. • Only the same-level domain matching is supported. For example, a certificate associated with *.huaweicloud.com can protect p1.huaweicloud.com but not p2.p1.huaweicloud.com. If you need to protect p2.p1.huaweicloud.com, purchase a wildcard-domain certificate for *.p1.huaweicloud.com. For details about more level matching rules, see **Table 3-3**. If your domain names are of the same level, you can select **Wildcard** for **Domain Type**.

NOTE

You can use one SSL certificate to protect more than one wildcard domain name and more than one common domain name. For details, see **How Do I Apply for a Combination Certificate?**

To purchase a wildcard-domain certificate, you need to pay attention to the domain name matching rules. **Table 3-3** are some examples.

Table 3-3 Examples of wildcard-domain matching rules

Domain name	Matched Domain Name	Unmatched Domain Name
*.huaweicloud.com	test.huaweicloud.com, yun.huaweicloud.com, example.huaweicloud.com, and other domain names	abc.test.huaweicloud.com, yun.test.huaweicloud.com, example.test.huaweicloud.com, and other domain names
*.test.huaweicloud.com	abc.test.huaweicloud.com, yun.test.huaweicloud.com, example.test.huaweicloud.com, and other domain names	abc.huaweicloud.com, yun.huaweicloud.com, example.huaweicloud.com, and other domain names

NOTICE

- For wildcard-domain certificates, only those associated with root domain names support the domain names. For example:
  - A certificate associated with the wildcard domain *.huaweicloud.com (a root domain) protects huaweicloud.com and other domain names of the same level. No additional certificate needs to be purchased for this.
  - A certificate associated with the wildcard domain *.p1.huaweicloud.com (not a root domain) will not protect p1.huaweicloud.com (a different level domain). It can only protect domain names of the same level. To protect p1.huaweicloud.com, you would need to purchase a new certificate.
- If the www subdomain is associated with a certificate, the certificate also protects the root domain. For example:

  A certificate purchased for domain www.huaweicloud.com can also protect huaweicloud.com. There is no need to purchase another certificate.
- Once your digital certificate is issued, the associated domain cannot be changed.

Table 3-4 provides domain type selection examples.

Table 3-4 Domain type selection examples

Example Scenario	Example Domain Name	Domain Type Selection	Quantity Selected
You have only one domain.	huaweicloud.com	Single domain	Single-domain type. The value of **Quantity** is fixed at **1**.
	test.huaweicloud.com	Single domain	
	p1.test.huaweicloud.com	Single domain	
You have multiple domains.	Two domains huaweicloud.com and p1.huawei.com	Multiple domains	2
	Three domains huaweicloud.com, p1.huawei.com, and p1.test.huaweicloud.cn	Multiple domains	3
	Four domains huaweicloud.com, test.huaweicloud.cn, p1.test.huaweicloud.cn, and p1.test.yun.huaweicloud.com	Multiple domains	4

Example Scenario	Example Domain Name	Domain Type Selection	Quantity Selected
You have multiple domains at the same level.	test.huaweicloud.com, yun.huaweicloud.com, example.huaweicloud.com, and other domain names are the same level and are part of *.huaweicloud.com.	Wildcard domain	Wildcard domain type. The value of **Quantity** is fixed at **1**.

3.1.2 How Do I Apply for an Entry-Level SSL Certificate?

This topic describes how to apply for an entry-level DV certificate.

In Huawei Cloud SCM, GeoTrust provides entry-level SSL certificates.

Prerequisites

The account for purchasing a certificate has the SCM Administrator/SCM FullAccess and BSS Administrator permissions.

Step 1: Buy a Certificate

1. Log in to the **management console**.
2. Click  in the upper left corner of the page and choose **Security & Compliance** > **Cloud Certificate Management Service**. The service console is displayed.
3. In the navigation pane on the left, choose **SSL Certificate Manager**. In the upper right corner of the page, click **Buy Certificate**.
4. On the **Buy Certificate** page, set parameters as required. **Table 3-5** describes the parameters.

Table 3-5 Parameters for purchasing a certificate

Parameter	Description
Certificate Type	Certificate type Select **DV (Basic)**.
Certificate Authority	Certificate authorities Select **GeoTrust**.

Parameter	Description
Domain Type	Domain name type. You can select **Single domain** or **Wildcard** as needed. • **Single domain**: You can associate only one domain with a certificate. The domain can be a second-level domain like **domain.com** or a third-level domain like **example.domain.com**. Any subdomains of the domain cannot be protected. For example, if you associate **domain.com** with a certificate, the certificate does not protect any subdomains, such as **ssl.domain.com** or **ssl.ssl.domain.com**. • **Wildcard**: You can associate only one wildcard domain with a certificate. Only one wildcard character (*) can be contained in the wildcard domain, for example, ***.domain.com** or ***.example.domain.com**. ***.*.domain.com** is not supported. For details about the domain names supported by wildcard-domain certificates, see **What Domains Can Wildcard-Domain Certificates Support?**
Domain Quantity	Quantity of selected domain quantity selected You do not need to set this parameter. It is fixed at **1**.
Period of validity	Certificate validity period Currently, the validity period of a certificate can be set to **1 year**. A certificate takes effect upon issuance. The certificate issuance time refers to the time when the certificate is officially issued by the CA. You need to buy a new one after the certificate expires.
Quantity	Set the number of certificates. You can set the quantity as required.

5. Click **Next**.

   If you have any questions about the pricing, click **Pricing Details**.
6. Confirm the order information and agree to the CCM statement by selecting **I have read and agree to the Cloud Certificate Manager Statement**. Click **Pay**.
7. On the displayed page, select a payment method.

   After the payment is successful, you can go to the **SSL Certificate Manager** > **SSL Certificates** page to view certificates you purchased.

Step 2: Submit a Certificate Application to the CA

After you purchase a certificate, you need to associate a domain name, provide additional details, and then submit the application for approval.

For details, see **Submitting an SSL Certificate Application to the CA**.

NOTICE

In the **Domain Name Information** dialog box, select **DNS** for **Domain Name Verification Method**.

Step 3: Verify Domain Ownership by DNS

You are required to verify domain ownership on the platform hosting your domain name by resolving a specific DNS record.

After you submit the certificate application to a CA, complete the configuration of domain name verification based on the information displayed on the certificate list page. Otherwise, your certificate will remain in the **Pending domain name verification** state and will fail the verification.

For details about how to verify domain name ownership by DNS, see **Verifying Domain Ownership by Resolving the DNS Record**.

Step 4: Issue the Certificate

After the domain name ownership is verified using DNS, it takes some time for the CA to approve your application.

The CA will issue the certificate only after they validate your information. The certificate takes effect immediately upon issuance. You can deploy the certificate to other products on Huawei Cloud or download the certificate and deploy it on a server.

3.1.3 How Do I Apply for a Combination Certificate?

If you want to use a single certificate to protect multiple wildcard domains and common domains, buy a combination certificate by referring to the following operations.

For details about domain types, see **Domain-related Concepts**.

Before purchasing this certificate, you need to:

Confirm how many wildcard domains and common domains you will need to protect. You need to associate at least two domains to the certificate.

For details about the mapping between a domain name and a wildcard domain name, see **What Domains Can Wildcard-Domain Certificates Support?**

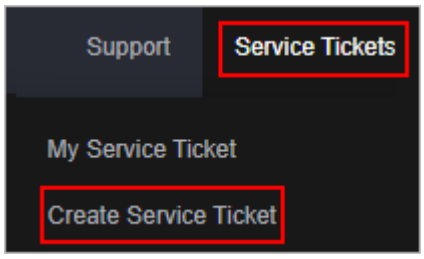
Procedure

The following uses one wildcard domain name and two common domain names as an example.

Step 1 Log in to the management console.

Step 2 In the upper right corner of the page, choose **Service Tickets** > **Create Service Ticket**. The **Create Service Ticket** page is displayed.

Figure 3-3 Creating a service ticket



Step 3 On the displayed page, fill in the form and submit the service ticket.

Fill out the **Problem Description** as follows:

Problem description: Describe your problem (if any).

Title: purchasing a combination certificate

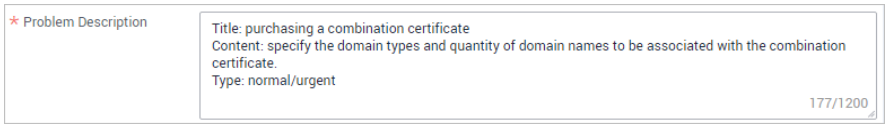
Content: Specify the domain types and quantity of domain names to be associated with the combination certificate.

Type: normal/urgent

Example:

If you want to associate one wildcard domain name and two common domain names, problem description might be something like the example in **Figure 3-4**.

Figure 3-4 Problem Description



We will contact you within three to five working days when we receive your service ticket. Make sure you can be reached by phone during this period.

----End

Follow-up Operations

After you buy a certificate, get it issued. To do so, **submit the certificate application to the CA**, **verify the domain ownership**, and **verify the organization**.

3.1.4 Can I Change the Certificate Authority, Type, or Bound Domain After A Certificate Is Purchased?

After you purchase a certificate in SCM, you cannot modify information such as the certificate authority, certificate type, bound domains, or validity period.

If you want to change the certificate authority or type, you need to purchase a new certificate.

3.2 About Required Domain Name Details

3.2.1 How Do I Enter a Domain Name for a Certificate When Applying for an SSL Certificate?

SSL certificates are associated with domains. When you purchase the certificate, you need to select a domain type based on site requirements.

To learn more about domain name, see **Domain-related Concepts**.

After you purchase a certificate, provide certificate details for approval on the SCM console to bind the domain name to the certificate. The first step for applying for a certificate is to enter a domain name and associate the domain name with the purchased certificate.

Enter the domain type as prompted by the SCM console based on the purchased certificate.

If the domain name associated with your DV certificate contains special words, such as edu, gov, bank, and live, the certificate may fail to pass the security review. In this case, select an OV or EV certificate. For details about known special words, see **Immoderate Words**.

Table 3-6 describes the domain types. For more information, see the examples.

Table 3-6 Domain Name

Parameter	Description
Single domain	Only one common domain name can be associated. When associating a domain name, you only need to associate a common domain name with a certificate.
Multiple domains	• You can associate multiple domain names with a certificate. The number of domain names that can be associated depends on how many domain names you purchase under a multi-domain certificate. • When applying for a certificate, set one of the domain names to the primary domain name and configure the rest as additional domain names. Configure the settings based on site requirements. For example, if you purchase three domain names, set one domain name as the primary domain name and the other two as additional domain names. **NOTICE** • A primary domain and additional domains can be equally protected.
Wildcard domain	Only one wildcard domain name can be associated. When associating a domain name, you can associate a wildcard domain name, which includes an asterisk (*).

Examples:

- Single-domain certificate

  If you purchase a single-domain certificate, only one common domain name can be associated.

  Example: huaweicloud.com

  Enter **huaweicloud.com** in the text box next to **Domain Name** when applying for a certificate. **Figure 3-5** shows an example.

  Figure 3-5 Associating a single domain name

- Multi-domain certificate

  If you purchase a multi-domain certificate, you can associate multiple domain names with the certificate. The number of domain names you can associate depends on the domain quantity you selected when purchasing the certificate.

  When applying for a certificate, set one of the domain names to the primary domain name and configure the rest as additional domain names. Configure the settings based on site requirements. You can add additional domain names in batches. For details, see **Adding an Additional Domain Name**.

  NOTICE

  - A primary domain and additional domains can be equally protected.

  Example: The domain quantity is set to **3** and your domain names are huaweicloud.com, test.huaweicloud.com, and huaweicloud.cn.

  Set **Primary Domain Name** to **huaweicloud.com**, and **Additional Domain Name** to **test.huaweicloud.com** and **huaweicloud.cn** when applying for a certificate. Enter one additional domain name per line. **Figure 3-6** shows an example.

  Figure 3-6 Associating multiple domain names

- Wildcard-domain certificate

  If you purchase a wildcard-domain certificate, only one wildcard domain name can be associated.

  Example: Your domain names are test.huaweicloud.com, yun.huaweicloud.com, example.huaweicloud.com, and good.huaweicloud.com, which are at the same level.

Enter ***.huaweicloud.com** in the text box next to **Domain Name** when applying for a certificate. **Figure 3-7** shows an example.

Figure 3-7 Associating a wildcard domain name

3.2.2 What Are the Differences Between a Single-Domain Name, Multi-Domain Name, and Wildcard-Domain Name in SCM?

In SCM, options for **Domain Type** can be **Single domain**, **Multiple domains**, or **Wildcard**.

Table 3-7 Domain Type

Parameter	Description
Single domain	Only one common domain name can be associated. If you have only one domain name, select **Single domain**.
Multiple domains	• Multiple domains can be added to a certificate. Multiple single domains can be set for domains. For example, you can use one multi-domain certificate to protect domains example.com, example.cn, and test.com. • You need to configure the domain quantity based on the number of domains you need to protect with a single multi-domain certificate. • Different promotion activities are offered by CAs for subdomain names, or www domain names. For details, see **Which Certificate Authorities Are Available?** The following uses subdomain name www.a.com and root domain name a.com as an example to show the differences. – For DigiCert and GeoTrust certificates, you can purchase a certificate for either the root domain or the subdomain to protect both domains at the same time. For example, if you plan to purchase a multi-domain certificate issued by DigiCert or GeoTrust and expect to use this certificate to protect www.a.com and a.com, just associate www.a.com or a.com with the certificate. • The number of domain names ranges from 2 to 250. A maximum of 250 domain names can be protected with a certificate. If you have multiple domain names, select **Multiple domains**. Purchase domain names of the required quantity on the purchase page.

Parameter	Description
Wildcard domain	• Only one wildcard domain name can be associated. • A wildcard domain name is the one that starts with a wildcard (*), for example, *.huaweicloud.com or *.example.huaweicloud.com. • Only the same-level domain matching is supported. For example, a certificate associated with *.huaweicloud.com can protect p1.huaweicloud.com but not p2.p1.huaweicloud.com. If you need to protect p2.p1.huaweicloud.com, purchase a wildcard-domain certificate associated with *.p1.huaweicloud.com. For details about more level matching rules, see **Table 3-8**. If all of your domain names are at the same level, select **Wildcard**.

Before you purchase a wildcard-domain certificate, pay attention to the domain name matching rules. **Table 3-8** are some examples.

Table 3-8 Examples of wildcard-domain matching rules

Domain name	Matched Domain Name	Unmatched Domain Name
*.huaweicloud.com	test.huaweicloud.com, yun.huaweicloud.com, example.huaweicloud.com, and other domain names	abc.test.huaweicloud.com, yun.test.huaweicloud.com, example.test.huaweicloud.com, and other domain names
*.test.huaweicloud.com	abc.test.huaweicloud.com, yun.test.huaweicloud.com, example.test.huaweicloud.com, and other domain names	abc.huaweicloud.com, yun.huaweicloud.com, example.huaweicloud.com, and other domain names

NOTICE

- For wildcard-domain certificates, only those associated with root domain names support the domain names. For example:
  - A certificate associated with the wildcard domain *.huaweicloud.com (a root domain) protects huaweicloud.com and other domain names of the same level. No additional certificate needs to be purchased for this.
  - A certificate associated with the wildcard domain *.p1.huaweicloud.com (not a root domain) will not protect p1.huaweicloud.com (a different level domain). It can only protect domain names of the same level. To protect p1.huaweicloud.com, you would need to purchase a new certificate.
- If the www subdomain is associated with a certificate, the certificate also protects the root domain. For example:

  A certificate purchased for domain www.huaweicloud.com can also protect huaweicloud.com. There is no need to purchase another certificate.
- Once your digital certificate is issued, the associated domain cannot be changed.

Table 3-9 is given here for your reference.

Table 3-9 Domain type selection examples

Example Scenario	Example Domain Name	Domain Type Selection	Quantity Selected
You have only one domain.	huaweicloud.com	Single domain	Single-domain type. The value of **Quantity** is fixed at **1**.
	test.huaweicloud.com	Single domain	
	p1.test.huaweicloud.com	Single domain	
You have multiple domains.	Two domains huaweicloud.com and p1.huawei.com	Multiple domains	2
	Three domains huaweicloud.com, p1.huawei.com, and p1.test.huaweicloud.cn	Multiple domains	3
	Four domains huaweicloud.com, test.huaweicloud.cn, p1.test.huaweicloud.cn, and p1.test.yun.huaweicloud.com	Multiple domains	4

Example Scenario	Example Domain Name	Domain Type Selection	Quantity Selected
You have multiple domains at the same level.	test.huaweicloud.com, yun.huaweicloud.com, example.huaweicloud.com, and other domain names are the same level and are part of *.huaweicloud.com.	Wildcard domain	Wildcard domain type. The value of **Quantity** is fixed at **1**.

3.2.3 What Is the Relationship Between a Domain Name and an SSL Certificate?

An SSL certificate is used to protect a website. To make an SSL certificate work, bind it to the domain name of the website you want to protect. To that end, you need to confirm the certificate type, certificate authority, domain name type, and domain name when you make a purchase.

How Many Domain Names Can Be Protected with an SSL Certificate?

When you purchase a certificate, you will select domain type according to your business needs. The number of domain names that can be protected with a certificate varies depending on domain name type. For more details, see **Table 3-10**.

Table 3-10 Number of domain names that can be protected with a certificate

Certificate Types	Supported Domain Name Type	Number of Domain Names that Can Be Protected
OV and OV Pro	Single domain	One
	Multiple domains	The number of domain names ranges from 2 to 250. A maximum of 250 domain names can be protected with a certificate.
	Wildcard domain	One For details about the domain names supported by wildcard-domain certificates, see **What Domains Can Wildcard-Domain Certificates Support?**
EV and EV Pro	Single domain	One
	Multiple domains	The number of domain names ranges from 2 to 250. A maximum of 250 domain names can be protected with a certificate.

Certificate Types	Supported Domain Name Type	Number of Domain Names that Can Be Protected
DV (Basic) - GeoTrust entry-level SSL certificates	Single domain	One
	Wildcard domain	One For details about the domain names supported by wildcard-domain certificates, see **What Domains Can Wildcard-Domain Certificates Support?**
DV (Basic) - DigiCert free SSL certificate	Single domain	One

How Many SSL Certificates Can Be Used for a Domain Name?

There is no restriction. You can purchase multiple certificates for the same domain name. The certificates will take effect when you use them to applications or install them on servers.

A certificate is a one-off product. If the current certificate cannot meet your requirements or is about to expire, you can purchase a new certificate that matches the domain name type and use the new certificate to the target domain name.

Other Operations

- **How Do I Apply an SSL Certificate to Other Huawei Cloud Services?**
- **How Do I Install an SSL Certificate on a Server?**

3.2.4 What Domains Can Wildcard-Domain Certificates Support?

You can purchase wildcard-domain certificates in Huawei Cloud SCM to protect a single domain name of the server and all its subdomains of the same level. Wildcard domains are supported by OV, OV Pro, and Geo Trust entry-level DV (Basic) certificates.

If you have multiple subdomain names at the same level, you do not need to purchase and install certificates for each subdomain name when using a wildcard-domain certificate.

NOTICE

- For wildcard-domain certificates, only those associated with root domain names support the domain names. For example:
  - A certificate associated with the wildcard domain *.huaweicloud.com (a root domain) protects huaweicloud.com and other domain names of the same level. No additional certificate needs to be purchased for this.
  - A certificate associated with the wildcard domain *.p1.huaweicloud.com (not a root domain) will not protect p1.huaweicloud.com (a different level domain). It can only protect domain names of the same level. To protect p1.huaweicloud.com, you would need to purchase a new certificate.
- Once your digital certificate is issued, the associated domain cannot be changed.

To purchase a wildcard-domain certificate, you need to pay attention to the domain name matching rules. Only subdomain names of the same level can be matched. For details about the domain name levels, see **Domain-related Concepts**.

Table 3-11 provides matching examples.

Table 3-11 Examples of wildcard-domain matching rules

Domain name	Matched Domain Name	Unmatched Domain Name
*.example.com	Domain names, such as abc.example.com, sport.example.com, and good.example.com	Domain names, such as mycard.good.example.com and mycalc.good.example.com
*.good.example.com	Domain names, such as mycard.good.example.com and mycalc.good.example.com	Domain names, such as abc.example.com, sport.example.com, and good.example.com

3.2.5 What Domain Name Should I Use to Apply for an SSL Certificate?

This topic uses examples to describe what domain names should be used during certificate application.

Assume the following: your website is **www.domain.com**; it has a user login page, which is **http://www.domain.com/login.asp**; you want to apply for an SSL certificate to ensure the username and password security for your users against theft during data transmission; it has a user login information management page, which is **http://www.domain.com/oa/manage.asp**; you want to apply for an SSL certificate to ensure the security of confidential information on that page. In this case, you can use **www.domain.com** to apply for an SSL digital certificate to protect those pages.

If your website has large access traffic, you are advised to set an independent web server (HTTP server) for the pages that require SSL digital certificates and use an

independent domain name to apply for an SSL certificate, for example, secure.domain.com or ssl.domain.com.

NOTICE

The domain name used together with **https://** must be the same as that used for applying for an SSL digital certificate; otherwise, the browser may display a warning indicating that the name on the certificate is invalid or inconsistent with the site name. Use a proper domain name to apply for an SSL certificate for your website based on your conditions.

3.2.6 Can I Change the Primary Domain Name Associated with a Certificate?

That depends on the situation.

- If the certificate has not been issued:

  Yes.

  Revoke the certificate application, associate a new primary domain name with the certificate, and submit the certificate application again.
- If the certificate has been issued:

  No.

  The primary domain name associated with the certificate cannot be changed. To change the primary domain name, purchase a new certificate.

3.2.7 Does the Relationship Between the Primary Domain Name and Additional Domain Name Have Any Impact on Domain Names?

If **Domain Type** is set to **Multiple domains**, you can associate one primary domain name and at least one additional domain names with the certificate when applying for a certificate. One additional domain name per line.

For example, if you purchase three domain names, set one domain name as the primary domain name and the other two as additional domain names.

NOTICE

- A primary domain and additional domains can be equally protected.

For more details, see **How Do I Enter a Domain Name for a Certificate When Applying for an SSL Certificate?**

3.2.8 How Do I Make a CSR File?

Before applying for a digital certificate, you must generate a private key and a certificate signing request (CSR). The CSR file is the source file for your public key

certificate. It contains your server and company details and needs to be submitted to the CA for review.

NOTE

Select the **System generated CSR** option because manually generated certificates often include errors. For details about how to handle the failure in getting approved, see **What Can I Do When a Message Indicating Approval Failure Due to Blank Main Domain Name Is Displayed?**

A private key file will be generated when the CSR file is generated manually. Keep your private key stored safely.

The following describes how to generate a CSR file. You can select whichever method you prefer.

- **Generating a CSR File Using OpenSSL**

  If you need to enter Chinese characters, use Keytool to generate a CSR file.
- **Generating a CSR File Using Keytool**

NOTE

SCM has strict requirements on the key type and length of the CSR file. The key must be RSA and it must be 2,048 bits long.

Generating a CSR File Using OpenSSL

Step 1 Install the **OpenSSL** tool.

Step 2 Run the following command to generate a CSR file:

openssl req -new -nodes -sha256 -newkey rsa:2048 -keyout *myprivate.key* -out *mydomain.csr*

- **-new** specifies that a new CSR is generated.
- **-nodes** specifies that the private key file is not encrypted.
- **-sha256** specifies the digest algorithm.
- **-newkey rsa:2048** specifies the type and length of the private key.
- **-keyout** specifies that a private key file is generated. The file name can be customized.
- **-out** specifies that the name of the CSR file is generated. The name can be customized.

Step 3 Generate a CSR file named **mydomain.csr**.

Figure 3-8 Generating a CSR file

```
Generating a 2048 bit RSA private key
....+++
.....................................................................+++
writing new private key to 'myprivate.key'
-----
You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name (2 letter code) [CN]:CN
State or Province Name (full name) []:ZheJiang
Locality Name (eg, city) [Default City]:HangZhou
Organization Name (eg, company) [Default Company Ltd]:HangZhou xxx Technologies,Inc.
Organizational Unit Name (eg, section) []:IT Dept.
Common Name (eg, your name or your server's hostname) []:www.example.com
Email Address []:

Please enter the following 'extra' attributes
to be sent with your certificate request
A challenge password []:
An optional company name []:
```

The information to be entered is as follows:

Field	Description	Example Value
Country Name	Two-letter code of the country where your company is located. For example, enter **CN** for China.	CN
State or Province Name	The name of the province or state where your company is located.	ZheJiang
Locality Name	The name of the city where your company is located.	HangZhou
Organization Name	The legal name of your company.	HangZhou xxx Technologies, Inc.
Organizational Unit Name	The department of your company that the applicant belongs to	IT Dept.
Common Name	The website domain name you are applying for an SSL certificate for. **NOTE** • For a certificate with multiple domain names, enter the primary domain name to be associated with the certificate. • For a wildcard-domain certificate, enter the wildcard domain name. Example: *.example.com	www.example.com

Field	Description	Example Value
Email Address	Email of an applicant. The CSR file password does not need to be entered. Just press **Enter**.	-
A challenge password	CSR file password. The CSR file password does not need to be entered. Just press **Enter**.	-

NOTE

- Make sure that UTF8 encoding format is used for a Chinese character–based certificate with OpenSSL. In addition, enable the UTF8 support during OpenSSL compilation.
- SCM has strict requirements on the key type and length of the CSR file. The key must be RSA and it must be 2,048 bits long.

After you enter information as prompted, the **myprivate.key** (private key file) and **mydomain.csr** (CSR) files are generated in the current directory.

----End

Generating a CSR File Using Keytool

Step 1 Install Keytool, which is typically included in the Java Development Kit (JDK) tool package.

Step 2 Use Keytool to generate a Keystore certificate file.

NOTE

The Keystore file contains a key. For details about how to export the key, see **What Are Mainstream Formats of Digital Certificates?**

1. Run the following command to generate the **keystore** certificate file:

   keytool -genkey -alias mycert -keyalg RSA -keysize 2048 -keystore ./mydomain.jks

   - **-keyalg** specifies the key type, which must be **RSA**.
   - **-keysize** specifies the key length, which must be 2,048.
   - **-alias** specifies the certificate alias, which can be customized.
   - **-keystore** specifies the path for saving the certificate file. The certificate file name can be customized.

Figure 3-9 Generating the **keystore** certificate file

```
Enter keystore password:
Re-enter new password:
What is your first and last name?
  [Unknown]:  www.example.com
What is the name of your organizational unit?
  [Unknown]:  IT Dept.
What is the name of your organization?
  [Unknown]:  HangZhou xxx Technologies,Inc.
What is the name of your City or Locality?
  [Unknown]:  HangZhou
What is the name of your State or Province?
  [Unknown]:  ZheJiang
What is the two-letter country code for this unit?
  [Unknown]:  CN
Is CN=www.example.com, OU=IT Dept., O="HangZhou xxx Technologies,Inc.", L=HangZhou, ST=Zhe
Jiang, C=CN correct?
  [no]:  Y

Enter key password for <mycert>
        (RETURN if same as keystore password):
```

2. Enter the certificate password and enter information described in the following table:

Question	Description	Example Value
What is your first and last name?	Domain name for which you are applying for a certificate. **NOTE** – For a certificate with multiple domain names, enter the primary domain name to be associated with the certificate. – For a wildcard-domain certificate, enter the wildcard domain name. Example: *.example.com	www.example.com
What is the name of your organizational unit?	Name of the department that the applicant belongs to.	IT Dept
What is the name of your organization?	The name of the company to which the applicant belongs.	HangZhou xxx Technologies,Ltd
What is the name of your City or Locality?	The city where an applicant is located.	HangZhou
What is the name of your State or Province?	The state or province where an applicant is located.	ZheJiang

Question	Description	Example Value
What is the two-letter country code for this unit?	The country where the applicant belongs. Use a two-character ISO country code.	CN

After you enter the information, review the entered content for errors. If there are no errors, press **Y**.

3. Enter the key password as prompted. The password can be the same as the certificate password. If they are the same, press **Enter**.

Step 3 Use the certificate file to generate a CSR.

1. Run the following command to generate a CSR file:

   keytool -certreq -sigalg SHA256withRSA -alias mycert -keystore ./mydomain.jks -file ./mydomain.csr

   - **-sigalg** specifies the digest algorithm, which is **SHA256withRSA**.
   - **alias** specifies the alias, which must be the same as the certificate alias in the keystore file in **-alias**.
   - **-keystore** specifies the certificate file.
   - **-file** specify the CSR file. The file name can be customized.

2. Enter the certificate password as prompted to generate the **mydomain.csr** file.

----End

3.2.9 What Are the Differences Between the CSR Generated by the System and the CSR Made by Yourself?

To obtain an SSL certificate, a Certificate Signing Request (CSR) file needs to be submitted to the CA for review. A CSR contains a public key and a distinguished name (DN). Typically, a CSR is generated by a web server. A pair of public and private keys are created along with the CSR.

When you apply for a certificate, you can set **CSR** to **System generated CSR** or **Upload a CSR**. If you select the latter, copy the file content to the text box. **Table 3-12** describes the differences between two methods to provide the CSR file.

Table 3-12 Comparisons on CSR files generated by the system or made by yourself

CSR	Description	Differences
System generated CSR	The system automatically generates a certificate private key. Once the certificate is issued, you can download your certificate and private key on the certificate management page.	• If **System generated CSR** is selected, there are multiple formats available for download. • After you download the certificate, you can directly install and deploy certificate because certificate file **server.jks** and password file **keystorePass.txt** are automatically generated for you.
Upload a CSR	You need to manually generate a CSR file and paste the content of the CSR file generated into the text box. For details, see **How Do I Make a CSR File?**	• Certificates with CSR manually generated **cannot** be pushed to other HUAWEI CLOUD services. • If the CSR file is generated manually, HUAWEI CLOUD is not responsible for your private key. Back up your private key and keep it secure. If a private key is lost, the corresponding certificate becomes invalid. HUAWEI CLOUD is not responsible for keeping your private key. You need to buy a new certificate if the private key is lost. • After you download the certificate, use the OpenSSL tool to convert certificate format from PEM to PFX to obtain the **server.pfx** file. Then use the Keytool tool to convert the certificate format from PFX to JKS to obtain certificate file **server.jks** and password file **keystorePass.txt**. Then you can install and deploy your certificate.

System generated CSR is recommended, which can avoid certificate approval failures caused by incorrect CSR content.

3.2.10 Domain-related Concepts

- Wildcard domain

A wildcard domain is a domain name that contains only one * and starts with *..

For example, ***.a.com** is a correct wildcard domain name, but ***.*.a.com** is not.

NOTE

A wildcard domain name counts as one domain name. For details about the mapping between a domain name and a wildcard domain name, see **What Domains Can Wildcard-Domain Certificates Support?**

- Common domain name

  A common domain name is a specific domain name or a non-wildcard domain name.

  For example, **www.a.com** or **a.com** is a common domain name.

  The number of common domain names that can be associated depends on the number of domain names selected in your order.

  NOTE

  For example, **buy.example.com** counts as one domain name and **next.buy.example.com** would count as a separate domain name.

- Domain levels

  A domain name is composed of one or more domain levels separated by periods (.), for example, www.huaweicloud.com. The hierarchy of domains descends from the right to the left label in the name.

  A top-level domain is the highest level in the domain name hierarchy. A second-level domain is directly below a top-level domain. **Table 3-13** details the domain levels.

Table 3-13 Domain Level

Parameter	Description
Top-level domain	The highest level in the domain name hierarchy. All domain names include a top-level domain suffix. Top-level domains include generic top-level domains (such as .com, .net, and .org), international/regional top-level domains (such as .us, .cn, and .tk), and new generic top-level domains (such as .info and .biz).
Second-level domain	A second-level domain is directly below a top-level domain. For example, in **example.com**, **example** is the second-level domain.
Third-level domain	A third-level domain is directly below a second-level domain. For example, in **www.example.com**, **www** is the third-level domain.
You can add a new domain level to the left of the last level.	

The following uses **abc.huaweicloud.com** as an example to describe the domain name hierarchy:

.com is only a top-level domain.

huaweicloud.com is a domain name containing two domain levels.

abc.huaweicloud.com is a domain name containing three domain levels.

3.2.11 Problems Related to Domains

Can I Associate a Chinese Domain with an SSL Certificate?

A Chinese domain name can only be associated with a certificate when it is encoded with **Punycode**.

Example: A Punycode-encoded Chinese domain name is **xn--siq1ht8k.com**.

When you apply for a certificate, associate **xn--siq1ht8k.com** with the certificate.

Does the Domain Name Need to Be Registered Before Being Associated with an SSL Certificate?

- During the certificate application, the domain name associated with the SSL certificate can be unlicensed. However, the domain name that is not licensed will be blocked. As a result, the domain name cannot be accessed. Therefore, you are advised to license the domain name immediately after the website is set up.
- An SSL certificate can be bound to a domain name that is registered by an individual (the website is owned by an individual and does not contain any information of enterprises and institutions) or enterprise (the website is owned by enterprise or company).

Does Huawei Cloud SCM Provide Wildcard-Domain Certificates?

Yes.

Huawei Cloud SCM provides single-domain, multi-domain, and wildcard-domain certificates.

You can buy wildcard certificates, or wildcard-domain certificates, on Huawei Cloud SCM.

What Are the Rules for a Wildcard Certificate to Match a Domain Name? Can a Wildcard Certificate Match Domain Names Across Domain Levels?

You can purchase wildcard certificates on SCM.

A wildcard domain is a domain name that contains only one * and starts with *.

For example, ***.a.com** is a correct wildcard domain name, but ***.*.a.com** is not.

To purchase a wildcard-domain certificate, you need to pay attention to the domain name matching rules. Only the subdomain names of the same level can be matched. **Table 3-14** provides the examples.

Table 3-14 Examples of wildcard-domain matching rules

Domain name	Matched Domain Name	Unmatched Domain Name
*.huaweicloud.com	test.huaweicloud.com, yun.huaweicloud.com, example.huaweicloud.com, and other domain names	abc.test.huaweicloud.com, yun.test.huaweicloud.com, example.test.huaweicloud.com, and other domain names
*.test.huaweicloud.com	abc.test.huaweicloud.com, yun.test.huaweicloud.com, example.test.huaweicloud.com, and other domain names	abc.huaweicloud.com, yun.huaweicloud.com, example.huaweicloud.com, and other domain names

Which Domain Names Can Be Associated with A Single-Domain Certificate?

In SCM, options for **Domain Type** can be **Single domain**, **Multiple domains**, or **Wildcard**.

A single-domain certificate can be associated with only one common domain name, for example, example.com and test.example.com.

Note that example.com does not contain subdomain names such as test.example.com. If all level-2 and level-3 domain names need to be supported, purchase a wildcard-domain certificate.

Which Domain Names Can Be Protected with A Multi-Domain Certificate?

In SCM, options for **Domain Type** can be **Single domain**, **Multiple domains**, or **Wildcard**.

If you buy a multi-domain certificate, you can add multiple different domains, including multiple single domains. For example, you can use one multi-domain certificate to protect domains example.com, example.cn, and test.com.

You need to configure the domain quantity based on the number of domains you need to protect with a single multi-domain certificate.

The number of domain names ranges from 2 to 250. A maximum of 250 domain names can be protected with a certificate.

Which Domain Names Can Be Protected with A Wildcard-Domain Certificate?

In SCM, options for **Domain Type** can be **Single domain**, **Multiple domains**, or **Wildcard**.

A wildcard-domain certificate can protect only one wildcard domain name.

- A wildcard domain must start with an asterisk symbol and a dot (***.**) and contain only one asterisk symbol (*), for example, *.huaweicloud.com and *.example.huaweicloud.com.
- Only the same-level domain matching is supported. For example, a certificate associated with *.huaweicloud.com can protect p1.huaweicloud.com but not p2.p1.huaweicloud.com. If you need to protect p2.p1.huaweicloud.com, purchase a wildcard-domain certificate associated with *.p1.huaweicloud.com. For details about more level matching rules, see **Table 3-15**.

To purchase a wildcard-domain certificate, you need to pay attention to the domain name matching rules. Only the subdomain names of the same level can be matched. **Table 3-15** provides the examples.

Table 3-15 Examples of wildcard-domain matching rules

Domain name	Matched Domain Name	Unmatched Domain Name
*.huaweicloud.com	test.huaweicloud.com, yun.huaweicloud.com, example.huaweicloud.com, and other domain names	abc.test.huaweicloud.com, yun.test.huaweicloud.com, example.test.huaweicloud.com, and other domain names
*.test.huaweicloud.com	abc.test.huaweicloud.com, yun.test.huaweicloud.com, example.test.huaweicloud.com, and other domain names	abc.huaweicloud.com, yun.huaweicloud.com, example.huaweicloud.com, and other domain names

NOTICE

- For wildcard-domain certificates, only those associated with root domain names support the domain names. For example:
  - A certificate associated with the wildcard domain *.huaweicloud.com (a root domain) protects huaweicloud.com and other domain names of the same level. No additional certificate needs to be purchased for this.
  - A certificate associated with the wildcard domain *.p1.huaweicloud.com (not a root domain) will not protect p1.huaweicloud.com (a different level domain). It can only protect domain names of the same level. To protect p1.huaweicloud.com, you would need to purchase a new certificate.
- If the www subdomain is associated with a certificate, the certificate also protects the root domain. For example:

  A certificate purchased for domain www.huaweicloud.com can also protect huaweicloud.com. There is no need to purchase another certificate.
- Once your digital certificate is issued, the associated domain cannot be changed.

3.3 About Required Information

3.3.1 How Can I Provide the Organization Information as an Individual User During SSL Certification Application?

Organization details are required when you apply for an OV, OV Pro, EV, or EV Pro certificates on HUAWEI CLOUD. An individual user who does not belong to an organization cannot complete this type of application.

The organization details are not required if you purchase a basic DV certificate.

You can apply free certificates from some CAs. For details, see **How Can I Apply for a Free SSL Certificate?**

3.3.2 Do I Need to Upload the Bank Account Opening Permit and Business License When Applying for an SSL Certificate?

No.

Bank Account Opening Permit and **Business License** are optional. You can set them based on your needs

If you do not upload the bank account opening permit or business license, it may take longer to issue your certificate. The length of the delay depends on the CA.

When applying for an OV or EV certificate, you need to complete **Company Information**. You can complete **Bank Account Opening Permit** and **Business License** if you want.

Both **Bank Account Opening Permit** and **Business License** are optional. You can set them based on your needs.

- Bank Account Opening Permit

  Click **Upload** to upload the electronic copy of the bank account opening permit.

  NOTE

  - Only one file can be uploaded each time. It must be in .png or .jpg format, and cannot exceed 2 MB.
  - If the bank account opening permit is not uploaded, the certificate issuance period will be extended. The specific extension time depends on the verification time of CA.

    To avoid the unnecessary time extension, upload the required permit.

- Business License

  Click **Upload** to upload the electronic copy of the business license.

  – Chinese mainland: Upload your business license.

  – Other regions: Upload your business registration certificate.

  NOTE

  - Only one file can be uploaded each time. It must be in .png or .jpg format, and cannot exceed 2 MB.
  - If the business license is not uploaded, the certificate issuance period will be extended. The specific extension time depends on the verification time of CA.

    To avoid the unnecessary time extension, upload the required business license.

3.4 Troubleshooting

3.4.1 What Can I Do If I Encounter a Problem When Purchasing, Applying for, Installing, or Using a Free SSL Certificate?

A free certificate is issued automatically. You can obtain the certificate after completing the configuration as required. In addition, free certificates are recommended only for testing. If you want to establish more secure data transmission between your server and client, you are advised to purchase other types of certificates.

For more details, see the following topics:

- **How Can I Apply for a Free SSL Certificate?**
- **How Do I Verify the Domain Ownership Manually by DNS?**
- **How Do I Install an SSL Certificate on a Server?**
- **How Do I Apply an SSL Certificate to Other Huawei Cloud Services?**

3.4.2 What Can I Do If the Submit Button Is Unavailable?

Problem Description

When you apply for a certificate, the **Submit** button is unavailable.

Possible Causes

- Possible cause 1: arrears
- Possible cause 2: insufficient permission

Solution

Perform the following operations based on the possible cause:

- **Possible cause 1: arrears**

  Solution: Top up your account and then apply for a certificate.
- **Possible cause 2: insufficient permission**

  Solution: Contact your administrator to grant the permission to apply for a certificate. Perform operations after the permission is granted.

3.4.3 Can I Change Certificate Information After I Submit a Certificate Application?

What Information Changes or Incorrect Information Will Affect the Certificate Approval?

The certificate approval will be affected if all information except the contact name is incorrect.

Which of the Following Information Changes or Incorrect Information Will Affect the Certificate Use?

Table 3-16 Whether the certificate use will be affected by the information changes or incorrect information

Item	SSL Certificate Affected
Domain name	Yes
Contact name	No **NOTE** When you apply for a certificate, the company contact or authorizing person information entered in **Company Contact/Authorizing Person Information** is used for verification only and not included in the certificate after the certificate is issued. If the information is changed, the certificate use is not affected and no action is required.
Contact mobile number	
Address of the company	Yes
Business scope of the company	Yes

Can I Change Certificate Information After I Submit a Certificate Application?

1. Check whether the incorrect information affects the approval or use of the certificate.
   - If yes, go to **2**.
   - If no, performed the corresponding operations based on the actual situation.
     - If the certificate is not issued, perform the subsequent operations and wait for the certificate to be approved.
     - If the certificate is issued, no actions are required, and you can use the certificate.
2. Check whether the certificate is issued.
   - If the certificate has not been issued:

     If you have submitted a certificate application but then discover there are incorrect details included, you can withdraw the application.

     For details, see **Withdrawing an SSL Certificate Application**.
   - If the certificate has been issued:
     - For single-domain or wildcard-domain certificate, you can change certificate information within the specified period by reissuing certificates after the certificates are issued. The specified period varies depending on CAs and domain types. (DigiCert and GeoTrust: 25 days). For details, see **Reissuing an SSL Certificate**. For free and multi-domain certificates, certificate information cannot be changed after they are issued. In this case, buy another certificate. For details, see **Purchasing a Certificate**.
     - If your certificate has been issued and is out of the allowable reissue period, you need to purchase a new certificate if there is incorrect information in the certificate or the certificate information needs to be changed. The allowable reissue period varies depending on CAs. DigiCert and GeoTrust allow you to apply for a reissue within 25 days after the certificate is issued.

3.4.4 What Can I Do If I Encounter a Problem During SSL Certificate Application?

You may encounter the following problems when applying for a certificate:

May I Enter My Own Name in Company Contact When Applying for a Certificate?

Yes.

The contact details are used for communications purposes only. They are not officially reviewed.

Can I Delete the Records Added During DNS Verification?

The DNS resolution records are configured to verify the domain names. These records can be deleted only after the certificate domain name is verified. The approval and use of the certificate will not be affected after the TXT records are deleted.

Do I Need to Use Quotation Marks When Adding Records to a Record Set for Domain Name Resolution on Huawei Cloud DNS?

After the SSL certificate application is submitted, domain name ownership verification is required.

When you use Huawei Cloud DNS to resolve a domain name and add a record set, you need to enter the host record of the domain name. Use quotation marks when entering the record value

An example command is provided as follows:

"201807040000001v0p73k28ruec3am17s0wl6z7angvqlesyipf65k7347knjm7h"

For more details, see **Step 3: Performing Verification Using Huawei Cloud DNS**.

How Do I Select a CSR When Applying for a Certificate?

To obtain an SSL certificate, a Certificate Signing Request (CSR) file needs to be submitted to the CA for review. A CSR contains a public key and a distinguished name (DN). Typically, a CSR is generated by a web server. A pair of public and private keys are created along with the CSR.

When you apply for a certificate, you can select **System generated CSR** or **Upload a CSR** for **CSR**.

- **System generated CSR**: The system automatically generates a certificate private key. Once the certificate is issued, you can download your certificate and private key on the certificate management page.
- **Upload a CSR**: Manually make a CSR file. For details, see **How Do I Make a CSR File?**

NOTE

You are advised to select **System generated CSR** to avoid approval failure caused by incorrect content. For details about the differences between the two types of certificate, see **What Are the Differences Between the CSR Generated by the System and the CSR Made by Yourself?**

Which of the Enterprise Business Licenses Needs To Be Uploaded for Applying for A Certificate?

When applying for a certificate, you can determine whether to upload the enterprise business license based on site requirements.

If you need to upload the business license, upload the business license of the enterprise that uses the certificate. Be sure not to upload the business license of the organization who developed your system.

If you do not upload the business license, it may take longer to issue your certificate.

4 About Test Certificates

4.1 Does SCM Provide Free Certificates?

In Huawei Cloud SCM, you can get test certificates, which are single-domain basic DV certificates issued by DigiCert.

For more details, see **How Can I Apply for a Test Certificate?**

From November 15, 2023, DigiCert will shorten the validity period of single-domain basic DV certificates, or test certificates, from 12 months to 3 months.

- For free test certificates (basic single-domain DV certificates issued by DigiCert) created and issued on Huawei Cloud before November 15, 2023, their validity period is still 12 months.
- For free test certificates (basic single-domain DV certificates issued by DigiCert) created and issued on Huawei Cloud on and after November 15, 2023, their validity period will be 3 months.
- This rule does not apply to test certificates in the test certificate package you purchased. Their validity period is 12 months.

Notes on Using Test (Free) Certificates

- You can apply for a maximum of 20 test certificates under each account. In SCM, only one test certificate can be applied for at a time.

NOTICE

- Deleted certificates and revoked certificates are all counted towards the test certificate quota.
- Your account and the IAM users created under your account share the quota of the 20 test certificates. For example, if an account has applied for 20 test certificates, no test certificate quota can be used by this account or the IAM users created by it.
- If your Huawei Cloud account has used up the quota of 20 test SSL certificates but you still want to apply for more SSL test certificates, purchase the DigiCert DV (basic) single-domain certificate package to increase your test certificate quota. For details, see **What Can I Do If My Test Certificate Quota Is Used Up?**

- One test SSL certificate can be used for only one single domain name.
- Test certificates cannot be used to protect IP addresses or wildcard domain names.
- The trust and security level of test certificates are low. They are recommended only for testing.
- For DigiCert DV (Basic) free certificates, no free technical support or installation guide is provided.
- A test certificate cannot be renewed. After a test certificate expires, it cannot be used anymore. If you still need an SSL certificate, create one in CCM.

4.2 What Are Differences Between Test (Free) and Paid SSL Certificates?

All SSL certificates can be used to create an encrypted channel for visitors to access websites through HTTPS. If a website is secured with an SSL certificate, a security padlock will be displayed on the browser when visitors access the website.

This topic describes the differences between free and paid SSL certificates.

Table 4-1 Differences between test (free) and paid SSL certificates

Item	Free Certificate	Paid Certificate
Security Level	General	High
Compatibility with the certificate running environment	General	High
SSL certificate warranties from CAs	Not supported	Supported
Restrictions on certificate quantity	20 free certificates for each account, including its IAM users	Unlimited

Item	Free Certificate	Paid Certificate
Types of website domain names that can be associated with	One single domain	Single domain, multiple domains, and wildcard domains
Supported certificate types	DV	DV, OV, and EV
Technical support	Not supported	Supported
Online Certificate Status Protocol (OCSP)	There is no local OCSP. So there might be network delay or timeout.	All paid certificates except DV (Basic) support OCSP acceleration access.

Generally, free certificates are used only for personal websites or testing purposes. It is not recommended that you use free certificates for enterprise websites with mature services.

For enterprise websites, paid certificates are recommended. For governments, financial institutions, e-commerce platforms, and healthcare agencies, OV or EV certificates are recommended. These certificates make your website more trust while better protecting website data and identity authentication. For more details about paid certificate selection, see **How Do I Select an SSL Certificate?**

4.3 How Can I Apply for a Test SSL Certificate?

In Huawei Cloud SCM, you can get free single-domain basic DV certificates issued by DigiCert. The validity period of such free certificates is one year.

Prerequisites

The account for purchasing a certificate has the **SCM Administrator**/**SCM FullAccess**, **BSS Administrator**, and **DNS Administrator** permissions.

- BSS Administrator: has all permissions on account center, billing center, and resource center. It is a project-level role, which must be assigned in the same project.
- DNS Administrator: has full permissions for DNS.

For details, see **Permissions Management**.

Constraints

- You can apply for a maximum of 20 test certificates under each account. In SCM, only one test certificate can be applied for at a time.

NOTICE

- Deleted certificates and revoked certificates are all counted towards the test certificate quota.
- Your account and the IAM users created under your account share the quota of the 20 test certificates. For example, if an account has applied for 20 test certificates, no test certificate quota can be used by this account or the IAM users created by it.
- If your Huawei Cloud account has used up the quota of 20 test SSL certificates but you still want to apply for more SSL test certificates, purchase the DigiCert DV (basic) single-domain certificate package to increase your test certificate quota. For details, see **What Can I Do If My Test Certificate Quota Is Used Up?**

- One test SSL certificate can be used for only one single domain name.
- Test certificates cannot be used to protect IP addresses or wildcard domain names.
- By default, DNS verification is used to verify the domain ownership of a test certificate.
- The trust and security level of test certificates are low. They are recommended only for testing.
- For DigiCert DV (Basic) free certificates, no free technical support or installation guide is provided.
- A test certificate cannot be renewed. After a test certificate expires, it cannot be used anymore. If you still need an SSL certificate, create one in CCM.

Step 1: Creating a Free Certificate (Method 1)

1. Log in to the **management console**.
2. Click  in the upper left corner of the page and choose **Security & Compliance** > **Cloud Certificate Management Service**. The service console is displayed.
3. In the navigation pane, choose **SSL Certificate Manager** > **SSL Certificates**.
4. In the certificate list, click **Create Test Certificate**.

   The numbers displayed next to the **Create Test Certificate** button indicate the remaining quota and total quota of test certificates you can create. For example, if **13/20** is displayed, you can create 13 more test certificates and can create up to 20 test certificates.
5. Read and select **I have read and agree to the Cloud Certificate Manager Statement**. Then, click **OK**.
6. You can view the created test certificate on the **Test Certificates** tab on the **SSL Certificates** page.

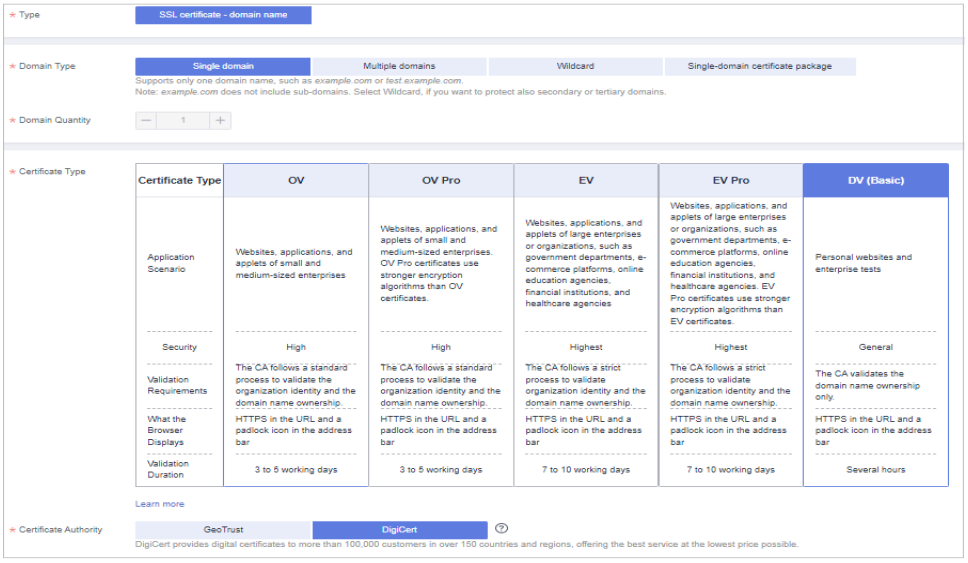
   NOTE

   If the test certificate is not displayed in the certificate list, refresh the page.

Step 1: Creating a Free Certificate (Method 2)

1. Log in to the **management console**.
2. Click ☰ in the upper left corner of the page and choose **Security & Compliance** > **Cloud Certificate Management Service**. The service console is displayed.
3. In the navigation pane, choose **SSL Certificate Manager** > **SSL Certificates**.
4. In the upper right corner of the page, click **Buy Certificate** to go to the certificate purchase page.
5. On the certificate purchase page, set parameters.
   - **Domain Type**: Select **Single domain**.
   - **Certificate Type**: Select **DV (Basic)**.
   - **Certificate Authority**: Select **DigiCert**.
   - After you select a certificate type and CA, other parameters, such as **Domain Quantity**, **Validity Period**, and **Quantity**, are configured automatically.

   Figure 4-1 Free certificate configuration



6. Click **Next**.
7. Confirm the order information and agree to the CCM statement by selecting **I have read and agree to the Cloud Certificate Manager Statement**. Click **Pay**.
8. On the displayed page, select a payment method.

   After you pay for the order, you can view the created test certificate on the **Test Certificates** tab on the **SSL Certificates** page.

Step 2: Submit a Certificate Application to the CA

After you create a test certificate, associate a domain name with the certificate, provide additional details, and then submit the application for approval.

1. Log in to the **management console**.
2. Click ☰ in the upper left corner of the page and choose **Security & Compliance** > **Cloud Certificate Management Service**. The service console is displayed.
3. In the navigation pane, choose **SSL Certificate Manager** > **SSL Certificates**.
4. In the certificate list, locate the row that contains the free certificate, and click **Apply for Certificate** in the **Operation** column.
5. On the displayed page, enter the domain name and contact information.
   a. Enter the domain name information. **Table 4-2** describes the parameters.

Figure 4-2 Domain name configuration

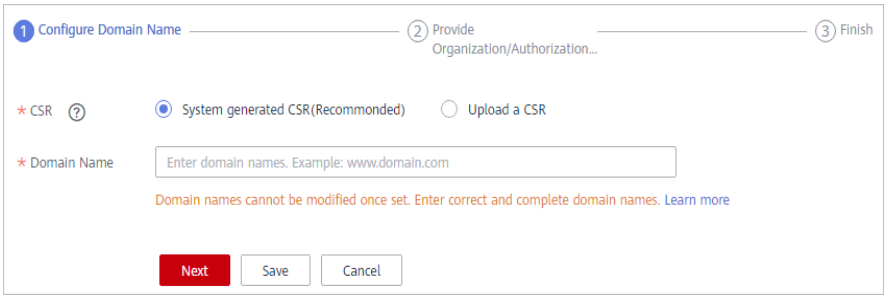


Table 4-2 Domain name parameters

Parameter	Description	Example Value
CSR	To obtain an SSL certificate, a Certificate Signing Request (CSR) file needs to be submitted to the CA for review. A CSR contains a public key and a distinguished name (DN). Typically, a CSR is generated by a web server. A pair of public and private keys are created along with the CSR. Options: • **System generated CSR**: The system automatically generates a certificate private key. Once the certificate is issued, you can download your certificate and private key on the certificate management page. • **Upload a CSR**: You need to manually generate a CSR file and paste the content of the CSR file generated into the text box. For more details, see **How Do I Make a CSR File?**	System generated CSR

Parameter	Description	Example Value
Domain Name	The domain name for which the certificate is used Example: If your domain is *www.domain.com*, enter ***www.domain.com*** for **Domain Name**. To associate a Chinese domain name with a certificate, use encoding tool **Punycode** to encode the Chinese domain name and then enter the encoded data. For example, if the encoded data is **xn--siq1ht8k.com**, set this parameter to **xn--siq1ht8k.com**.	www.domain.com

b. Click **Next**. The **Provide Organization/Authorization Details** page is displayed.

c. Enter the company contact information. **Table 4-3** describes the parameters.

Figure 4-3 Configuring authorization information

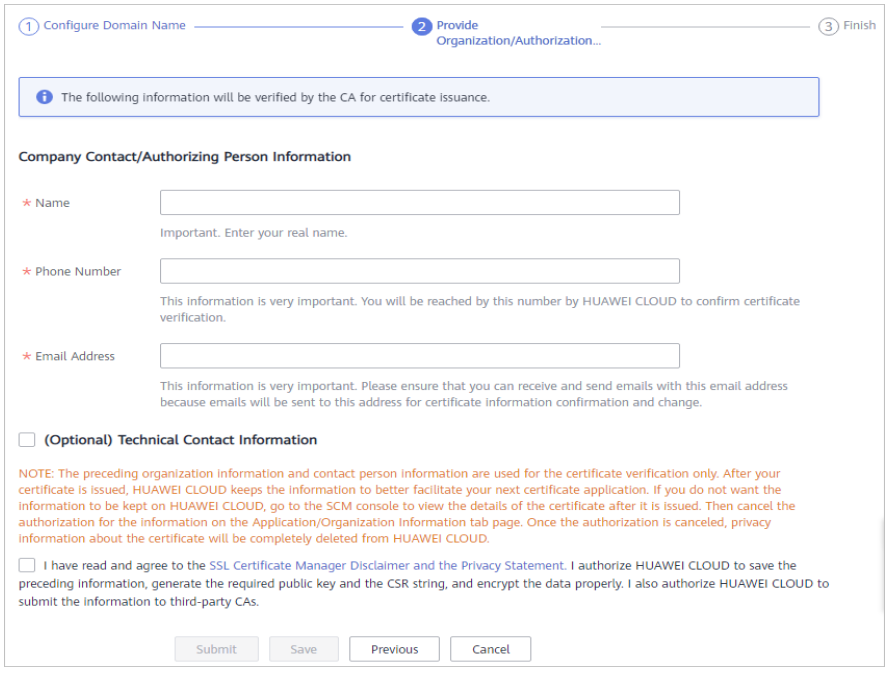


Table 4-3 Parameter description

Parameter	Description	Example Value
Company Contact/ Authorizing Person Information	You only need to enter the name, phone number, and email address of the contact. To get your certificate issued quickly, the phone number and email address entered must be valid.	None
(Optional) Technical Contact Information	The parameter is optional. You can skip it.	None

6. After confirming that the entered information is correct, read through the *Cloud Certificate Manager Statement*, *Privacy Statement*, and the authorization statement, and check the box to agree to the disclaimer and statements
7. Click **Submit**.

   The system will submit your application to the CA. During the approval process, make sure that you can be reached by phone and that you regularly check for emails from the CA.

Step 3: Verify Domain Ownership by DNS

Domain name ownership verification by DNS is to verify domain ownership by resolving a specific DNS record on the platform hosting the domain name. To this end, you need to add a DNS record for your domain name on the platform. For example, if you purchase a domain name from company A, you need to add a TXT DNS record for your domain name on the domain name management platform of company A. For details about how to verify domain name ownership by DNS, see **Verifying Domain Ownership by Resolving the DNS Record**.

- If you apply for a domain name on Huawei Cloud and the domain name has been resolved by Huawei Cloud DNS, the system automatically adds DNS records for verification.
- If your domain name is hosted on other platforms, such as www.net.cn, www.xinnet.com, and www.dnspod.cn, you need to go to the DNS service provider of the domain name to perform the verification.

  For more details, see **DNS Verification**.

NOTE

- After you submit the certificate application to a CA, complete the configuration of domain name verification based on the information displayed on the certificate list page, or your certificate will remain in the **Pending domain name verification** state and will fail the verification.
- After you complete the DNS verification on your side, it still takes a while for the CA to review your DNS verification results.

Step 4: Issue the Certificate

After the domain name ownership is verified using DNS, it takes some time for the CA to approve your application. The CA will issue the certificate only after they validate your information.

The certificate takes effect immediately upon issuance. You can deploy the certificate to other cloud products on Huawei Cloud or download the certificate and deploy it on a server.

NOTE

After you submit an application, the CA checks the domain ownership or organization verification status at the following frequency:

- 0 to 1 hour after the application is submitted: The CA checks the verification status every 15 minutes. Generally, if the configuration is correct, the certificate is issued within 10 to 20 minutes.
- 1 to 4 hours after the application is submitted: The CA checks the verification every 30 minutes.
- 4 to 24 hours after the application is submitted: The CA checks the verification every hour.
- 1 to 7 days after the application is submitted: The CA checks the verification every 4 hours.
- If you did not complete the required verification over 7 days after the application is submitted, the order times out and is automatically canceled. In this case, locate the causes and solve the problem by referring to **Why Does the Certificate Stay in the CA Verifying Status for a Long Time?**

4.4 How Do I Query the Remaining Quota for Free Test Certificates?

You can apply for a maximum of 20 free SSL certificates under each account. In SCM, only one free certificate can be applied for at a time.

NOTICE

- Deleted certificates and revoked certificates are all counted towards the test certificate quota.
- Your account and the IAM users created under your account share the quota of the 20 test certificates. For example, if an account has applied for 20 test certificates, no test certificate quota can be used by this account or the IAM users created by it.
- If your Huawei Cloud account has used up the quota of 20 test SSL certificates but you still want to apply for more SSL test certificates, purchase the DigiCert DV (basic) single-domain certificate package to increase your test certificate quota. For details, see **What Can I Do If My Test Certificate Quota Is Used Up?**

You can query the free Test certificate quota usage in either of the following ways:

Step 1 Log in to the **management console**.

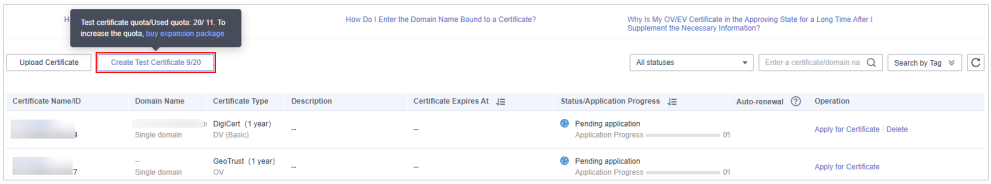
Step 2 Click ☰ in the upper left corner of the page and choose **Security & Compliance** > **Cloud Certificate Management Service**. The service console is displayed.

Step 3 In the navigation pane, choose **SSL Certificate Manager** > **SSL Certificates**.

Step 4 Hover the cursor over the **Create Test Certificate** button above the SSL certificate list and view your available SSL test certificate quota.

If the quota of 20 test certificates has been used up, click the **buy expansion package** link to purchase an expansion package. The package includes another 20 test certificates.

Figure 4-4 Free SSL certificate quota



----End

4.5 What Can I Do If My Test Certificate Quota Is Used Up?

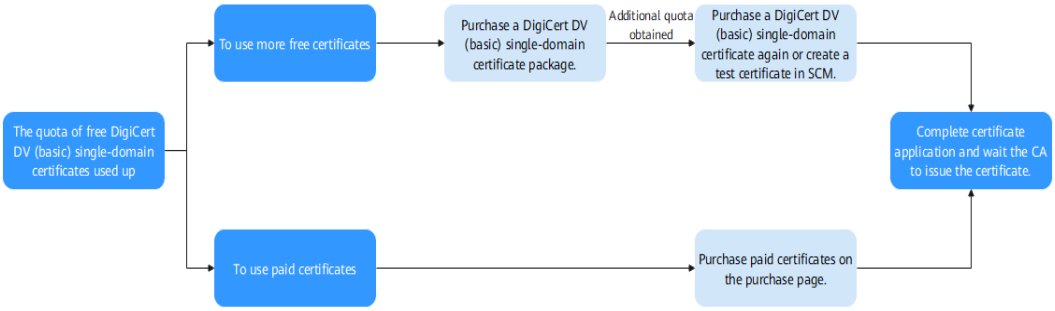
The following provides some methods to handle issues you may encounter when you apply for a test certificate:

- The **Create Test Certificate** button on the CCM console is grayed out, and you cannot create a free DigiCert DV (Basic) certificate.
- When you purchase a DigiCert DV (Basic) single-domain certificate (free certificate) on the CCM console, a message is displayed indicating that the number of free certificates has reached the maximum and no more free certificates can be added.

Test Certificate Quota

Each Huawei Cloud account has a quota of 20 test SSL certificates. If this quota is used up, follow the procedure shown in **Figure 4-5**. You can make your choice to meet your needs.

Figure 4-5 Quota description



- If you still want to use more test certificates, you can purchase a DigiCert DV (basic) single-domain certificate package to increase the quota of DigiCert DV (basic) single-domain certificates.

  Follow the procedure below to increase the quota.
- If you want to use a paid certificate, buy one on the purchase page.

Restrictions on Purchasing and Using a Single-domain Certificate Package

- The DigiCert DV (basic) single-domain certificate package is billed at an additional cost. This means if you have applied for the quota of 20 free certificates under your account for free, you will be billed for this package.
- You will receive the invoice with the amount equal to how much you pay when you purchase a DigiCert DV (basic) single-domain certificate package. No separate invoice will be issued for the free certificates you apply for using the DigiCert DV (basic) single-domain certificate package.
- Once purchased, the DigiCert DV (basic) single-domain certificate package cannot be refunded, returned, or replaced.

Procedure

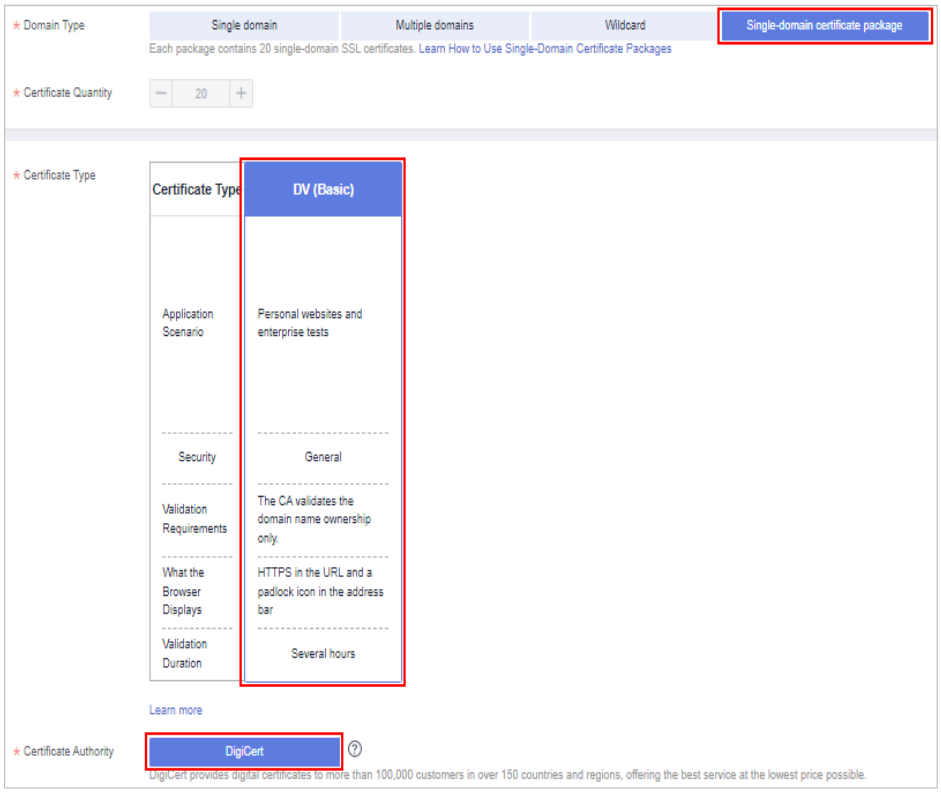
This procedure is intended for test certificates. For paid certificates, see **Purchasing an SSL Certificate**.

Step 1 Purchase a single-domain certificate package.

1. Log in to the **management console**.
2. Click  in the upper left corner of the page and choose **Security & Compliance** > **Cloud Certificate Management Service**. The service console is displayed.
3. In the navigation pane on the left, choose **SSL Certificate Manager**. In the upper right corner of the page, click **Buy Certificate**.
4. On the certificate purchase page, specify parameters.
   - **Certificate Type**: Select **DV (Basic)**.
   - **Certificate Authority**: Select **DigiCert**.
   - **Domain Type**: Select **Single-domain certificate package**

   After you specify **Certificate Type**, **Certificate Authority**, and **Domain Type**, **Validity Period** and **Quantity** are automatically configured.

Figure 4-6 Certificate package



5. Click **Next**.
6. Confirm the order information and agree to the CCM statement by selecting **I have read and agree to the Cloud Certificate Manager Statement**. Click **Pay**.
7. On the displayed page, select a payment method.

Step 2 Apply for a test certificate.

For details, see **How Can I Apply for a Test SSL Certificate?**

----End

5 Domain Name Ownership Verification

5.1 How Do I Verify Domain Ownership?

You need to work with the CA to complete the domain name ownership verification for your SSL certificate.

After your ownership of the domain name is verified by you and approved by the CA, the CA will issue the certificate.

Table 5-1 describes available methods to verify domain name ownership on SCM. Perform operations based on the verification method you selected.

Table 5-1 Domain ownership verification

Parameter	Description
Automatic DNS Verification	You are required to verify domain ownership on the platform hosting your domain name by resolving a specific DNS record. Automatic DNS verification: The system automatically adds DNS records for verification. The system performs automatic DNS verification only when all the following conditions are met: • Your certificate is a DV (for domain name) certificate. • Your certificate is used for a domain name that you apply for on Huawei Cloud and is hosted on Huawei Cloud DNS.
Manual DNS Verification	In this method, you need to verify the domain ownership by resolving a specific DNS record on the domain name management platform. Manual DNS verification: You need to go to the DNS service provider of the domain name to perform the verification. For more details, see **How Do I Verify the Domain Ownership Manually by DNS?**

Parameter	Description
Email	In the method, you need to reply an email from the CA to complete the domain ownership verification. For more details, see **How Do I Perform Verification by Email?**
File	In this method, you are required to verify domain name ownership by creating a specified file on the server. For more details, see **How Do I Perform Verification by File?**

NOTE
• By default, DV (domain name) certificates are verified by DNS.
  • If you apply for a domain name on Huawei Cloud and the domain name has been resolved by Huawei Cloud DNS, the system automatically verifies the domain.
  • If your domain name is hosted on other platforms, such as www.net.cn, www.xinnet.com, and www.dnspod.cn, you need to manually verify your domain name.	

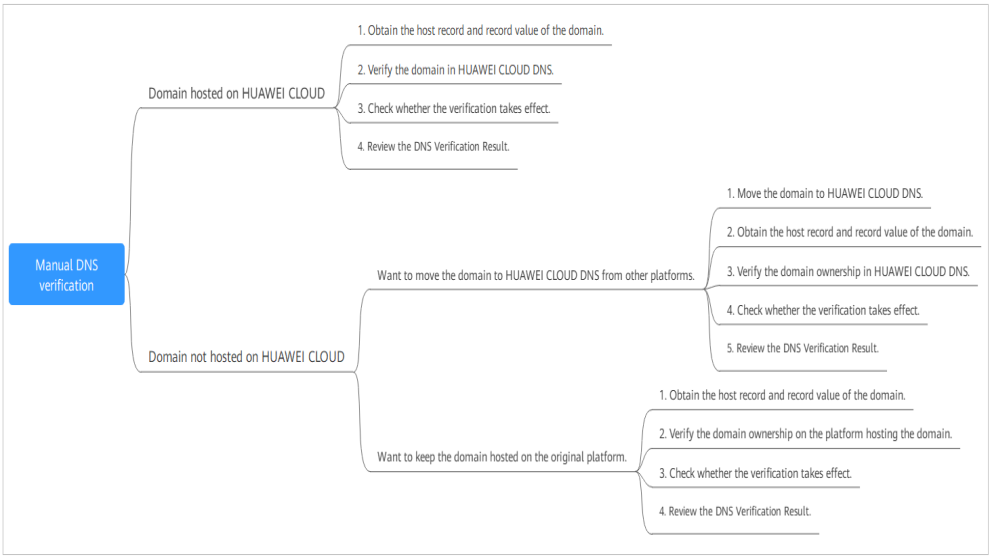
5.2 How Do I Verify the Domain Ownership Manually by DNS?

Domain name ownership verification by DNS is to verify domain ownership by resolving a specific DNS record on the platform hosting the domain name. SCM supports automatic and manual DNS verification.

This topic uses our platform as an example to describe how to verify domain name ownership manually by DNS.

Manual DNS verification: You need to go to the DNS service provider of the domain name to perform the verification.

Figure 5-1 Manual DNS verification



Constraints

Manual DNS verification can be performed only on your domain name management platform by following the instructions provided by the domain name service provider.

Step 1: Confirm the Verification Procedure

When you use DNS to verify your domain ownership, the DNS records can be resolved only on the platform managing your domain name. Perform the verification steps based on the domain name management platform.

Domain Name Management Platform	Verification Procedure
Our platform	Complete all subsequent steps.
Platforms other than our platform	Are you sure you want to migrate the domain name from another service provider to Huawei Cloud DNS? • If your answer is "Yes", perform the following steps: 1. Migrate the domain name from another DNS service provider to Huawei Cloud DNS. 2. Complete all subsequent steps. • If your answer is "No", perform the verification on the corresponding platform. For example, if your domain is hosted on Alibaba Cloud, perform the verification on Alibaba Cloud.

Step 2: Obtaining Verification Information

Step 1 Log in to the **management console**.

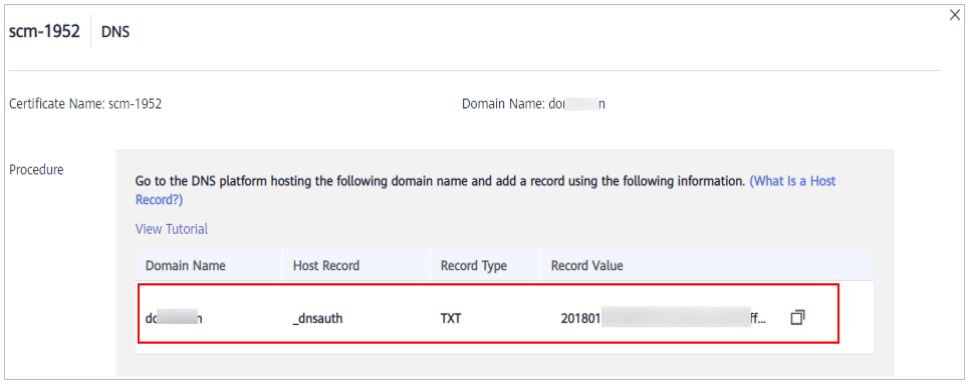
Step 2 Click ☰ in the upper left corner of the page and choose **Security & Compliance** > **Cloud Certificate Management Service**. The service console is displayed.

Step 3 In the navigation pane on the left, choose **SSL Certificate Manager**. In the row containing the desired certificate, click **Verify Domain Name** in the **Operation** column. The **Verify Domain Name** page is displayed.

Step 4 On the **Verify Domain Name** page, view the content for **Host Record**, **Record Type**, and **Record Value**. **Figure 5-2** shows an example.

If **Host Record**, **Record Type**, and **Record Value** are not displayed, log in to the mailbox to view. The mailbox is the one you provide during certificate application.

Figure 5-2 Viewing a host record



----End

Step 3: Performing Verification Using Huawei Cloud DNS

Step 1 Log in to the **management console**.

Step 2 Choose **Networking** > **Domain Name Service**. In the navigation pane on the left, choose **Public Zones** to go to the **Public Zones** page.

Step 3 In the public zone list, click the domain name you want to add a record set for. In the upper right corner of the page, click **Add Record Set**.

NOTE

- Different types of record sets should be added for DNS verification of different domain name types.
  - For a single-domain certificate, if the domain name does not contain www, add a record set for the domain name. If the domain name contains www, add a record set for the corresponding higher level domain name. For example, if your certificate is used for domain name www.example.com, add a record set for example.com.
  - For a multi-domain certificate, add record sets for all domain names associated with the certificate.
  - For a wildcard-domain certificate, add a record set for the higher level domain name corresponding to the wildcard domain.

    For example, if your certificate is used for domain name *.example.com, add a record set for example.com.
- If there is a DNS record of the corresponding type in the domain name list, click **Modify** in the **Operation** column. Modify the record in the displayed **Modify Record Set** dialog box.

Figure 5-3 Adding a record set

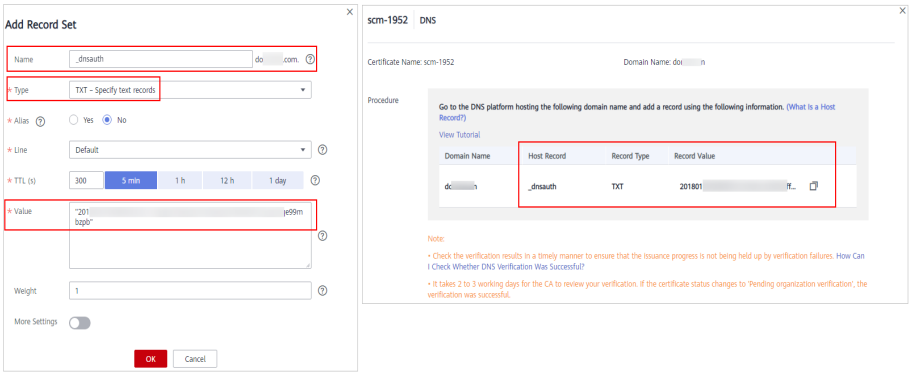


Table 5-2 Parameters for adding a record set

Parameter	Description
Name	Host record returned by the domain name service provider on the domain name verification page of the certificate.
Type	Record type returned by the domain name service provider on the domain name verification page.
Alias	Select **No**.
Line	Select **Default**.
TTL (s)	Set this parameter to **5 min**. A larger TTL value indicates less frequency of DNS record synchronization and update.
Value	Record value returned by the domain name service provider on the domain name verification page of the certificate. **NOTE** Record values must be quoted with quotation marks and then pasted in the text box.
Keep other settings unchanged.	

Step 4 Click **OK**.

If the status of the record set is **Normal**, the record set is added successfully.

NOTE

The record set can be deleted only after the certificate is issued.

----End

Step 4: Checking Whether Domain Ownership Verification Takes Effect

Step 1 On the Windows menu, click **Start** and enter **cmd** to start the command dialog box.

Step 2 Check whether the DNS configuration takes effect by running the corresponding command listed in **Table 5-3**.

Table 5-3 Verification commands

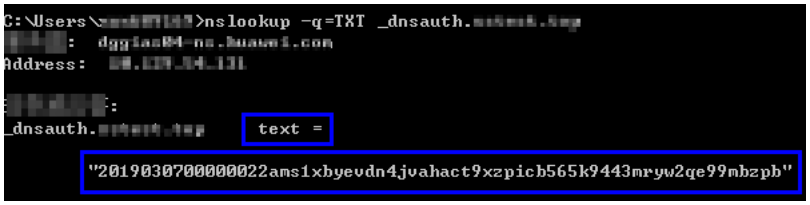
Record Type	Verification commands
TXT	**nslookup -q=TXT** *xxx*
CNAME	**nslookup -q=CNAME** *xxx*

NOTE

xxx indicates the **Host Record** value returned by the domain name service provider.

- If the record value in the command output (value of **text**) is the same as that returned by the domain name service provider, the configuration of domain name ownership verification has taken effect. **Figure 5-4** shows an example.

  Figure 5-4 Effective configuration of domain name ownership verification

- If the command output does not contain any records and **Non-existent domain** is displayed, the configuration does not take effect.

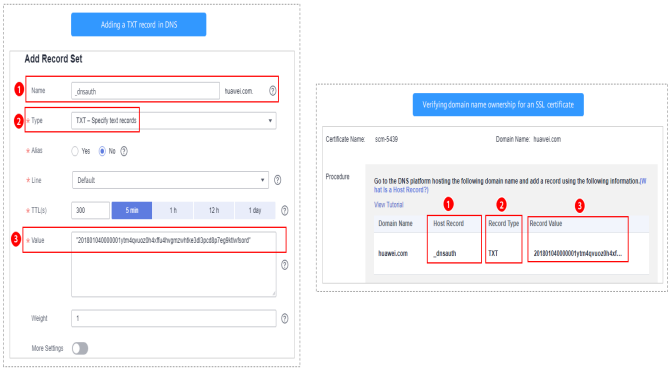
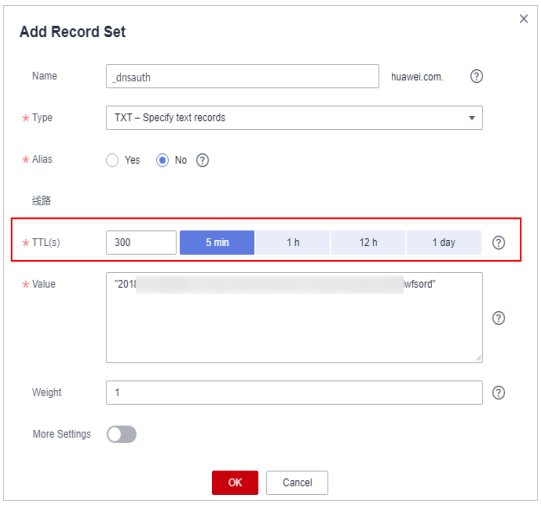
  Figure 5-5 Non-effective domain name verification configuration

Step 3 If the configuration of DNS verification does not take effect, rectify the fault based on the following possible causes until the verification takes effect:

Table 5-4 Possible causes

Possible Cause	Procedure
A wrong domain name management platform was selected.	DNS verification can be performed only on the platform where your domain name is hosted. Check whether the platform you select is the right one.
The old record set is not deleted.	The record added can be deleted once the current certificate is issued. If the record added for the previous certificate is not deleted, the record added for the current certificate will not take effect. Check whether the record added last time is deleted.

Possible Cause	Procedure
The record configuration is incorrect.	Check settings of **Host Record**, **Type** or **Value**. **Figure 5-6** Adding a record 
It requires a long period of time for the configuration to take effect.	Check whether the effective time (TTL) is too long. It is recommended that you set the TTL to 5 minutes. This value varies depending on the DNS service provider. In our DNS platform, the default value is 5 minutes, so the configuration takes effect in 5 minutes by default. If the configured effective time does not arrive, verify after the time is right. **Figure 5-7** Setting TTL 

----End

Step 5: Review the DNS Verification Result

- **OV and EV certificates**

After you complete the verification, it still takes 2 to 3 working days for the CA to validate your DNS verification. The CA will not issue the certificate until they validate your DNS verification.

If the verification fails or other problems occur, contact the CA using the information provided in the CA's validation email.

- **DV certificates**

  You can manually verify the result on the domain name verification page.

  a. Log in to the **management console**.

  b. In the navigation pane on the left, choose **SSL Certificate Manager**. In the row containing the desired certificate, click **Verify Domain Name** in the **Operation** column. The **Verify Domain Name** page is displayed.

  c. Click **Verify** to verify the DNS resolution configuration.

     - If the system displays "Verification succeeded. Your certificate is on the way.", the certificate will be issued within 1 minute. Refresh the page to view the certificate status then.
     - If the verification fails, fix issues by referring to "**Why Did the DNS Verification for a DV Certificate Fail?**" Then, perform the verification again 3 to 5 minutes later.

Why Did the DNS Verification for a DV Certificate Fail?

Failure Message	Solution
Too many verification requests. Try again later.	You may submit too many verification requests in a short time. Wait for 3 to 5 minutes and then perform the verification.
DNS records do not match.	The DNS record you configured is incorrect. Obtain the correct record by referring to **Step 2 Obtaining Verification Information** and configure the DNS record again.

Failure Message	Solution
DNS verification failed. Try again later.	Check whether the following problems exist: • Problem 1: The DNS record does not take effect. Solution: The configured DNS record does not take effect immediately, which depends on the TTL time set on your DNS server. So, wait for 3 to 5 minutes and then perform the verification again. • Problem 2: DNS records are correctly configured, but the verification still fails. Solution: The CA verification server is located outside China. There might be network errors sometimes. Try again about 1 to 2 hours later. • Problem 3: The domain name has not been licensed or passed the real-name authentication. Solution: Have the domain name licensed and complete real-name authentication first. Then, verify the domain name ownership again. • Problem 4: The domain name has a CAA record set. Solution: Delete all CAA records from the domain name resolution record sets. • Problem 5: The CA verification server does not find the DNS resolution record. Solution: The CA verification server is located outside China. So, you need to allow servers outside China to access the domain name temporarily.

5.3 How Do I Perform Verification by File?

In this method, you are required to verify domain name ownership by creating a specified file on the server.

After CA approves your application, you need to verify your domain ownership as described in the order, or your certificate will remain in the **Pending domain name verification** state and will not be approved.

Verification by file is usually performed by your server administrator. This topic describes how to perform verification by file.

NOTE

The verification file can be deleted only after the certificate is issued or revoked.

Prerequisites

Port 80 or 443 is enabled on the server.

NOTE

CAs send authentication requests only to port 80 or 443.

Step 1: Obtaining Verification Information

Step 1 Log in to the **management console**.

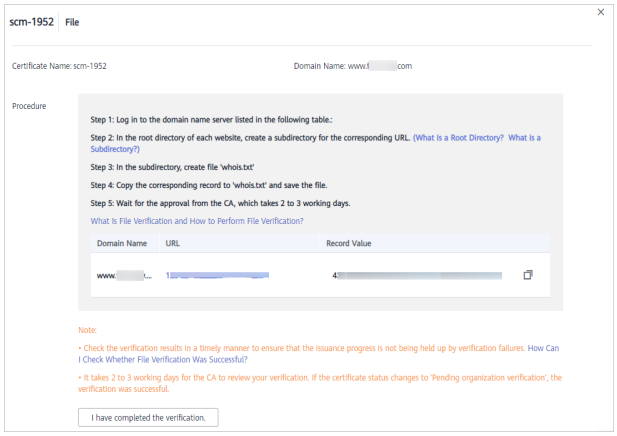
Step 2 Click ☰ in the upper left corner of the page and choose **Security & Compliance** > **Cloud Certificate Management Service**. The service console is displayed.

Step 3 In the navigation pane on the left, choose **SSL Certificate Manager**. In the row containing the desired certificate, click **Verify Domain Name** in the **Operation** column. The **Verify Domain Name** page is displayed.

Step 4 On the **Verify Domain Name** page, view the **Record Value**.

If the page is not displayed, log in to your email (the one specified during certificate application) to view the recorded value.

Figure 5-8 File verification



----End

Step 2: Creating the Required File

Step 1 Log in to your server and ensure that the domain name points to the server and the website is enabled.

Step 2 Create a specified file in the root directory of the website. You need to specify the file directory, file name, and content.

NOTE

The root directory of the website refers to the folder where the website programs are stored on the server. The root directory has the following names: **wwwroot**, **htdocs**, **public_html**, **webroot**, and more. Perform operations as required.

The following uses Windows servers as an example. Assume that the root directory of the website is **/www/htdocs**.

1. On the Windows menu, click **Start** and enter **cmd** to start the command dialog box.
2. Run the following command to go to the disk where the root directory of the website is located. In this example, drive **D** is such a disk.

   d:

3. Run the commands below to create the **.well-known/pki-validation** subdirectory in the root directory of the website.

   In this case, create the subdirectory in the **/www/htdocs** directory.

   ```
   cd /www/htdocs
   mkdir .well-known
   cd .well-known
   mkdir pki-validation
   cd pki-validation
   ```

4. Run the command below to create the **whois.txt** file in the **.well-known/pki-validation** subdirectory.

   echo off>whois.txt

5. Run the following commands to open the **whois.txt** file:

   start whois.txt

6. Put the record you obtained in **Step 1: Obtaining Verification Information** into the **whois.txt** file and choose **File** > **Save** in the upper left corner.

----End

Step 3: Checking Whether the Verification Configuration Takes Effect

Step 1 Open a browser and access the URL address: **https://*your domain*/.well-known/pki-validation/whois.txt** or **http://*your domain*/.well-known/pki-validation/whois.txt**.

Replace *your domain* in the URL address with the domain name bound during certificate application.

- If your domain name is a common domain name, perform the following operations:

  For example, if your domain name is **example.com**, the access URL address is **https://example.com/.well-known/pki-validation/whois.txt** or **http://example.com/.well-known/pki-validation/whois.txt**.

- For a wildcard domain name, perform the following operations:

  For example, if your domain name is ***.domain.com**, the access URL address is **https://domain.com/.well-known/pki-validation/whois.txt** or **http://domain.com/.well-known/pki-validation/whois.txt**.

Step 2 Check whether the verification URL address can be properly accessed in the browser and whether the record value displayed on the page is the same as that on the order progress page.

- If the record value displayed on the page is the same as that displayed on the domain name verification page of the SCM console, the configuration of domain name verification has taken effect.
- If they are different, the configuration of domain name verification does not take effect.

Step 3 If the configuration does not take effect, check and handle the issue from the following aspects:

- Check whether the verification URL address exists in HTTPS accessible addresses. If yes, use HTTPS to re-access the URL address in the browser. If the browser displays a message indicating that the certificate is untrusted or

the displayed content is incorrect, disable the HTTPS service for the domain name temporarily.

- Ensure that the verification URL address can be accessed at any place. Detection servers of some CAs are located outside China. Check whether your site has images outside China or whether the smart DNS service is used.
- Check whether the verification URL address contains 301 or 302 redirection. If such redirection exists, cancel the related settings to disable the redirection.

  You can run the **wget -S** *URL address* command to check whether the verification URL address is redirected.

----End

5.4 How Do I Perform Verification by Email?

Verification by email indicates that the domain name ownership is verified by replying to an email.

After you submit the certificate to the CA, verify your domain ownership as described in the order, or your certificate will remain in the **Pending domain name verification** state and will not be validated by the CA.

Procedure

Step 1 Log in to the mailbox of the domain name administrator.

Step 2 Open the domain name confirmation email from the CA.

Step 3 Click the confirmation link in the email to complete the domain name verification.

After the verification is complete, additional time is required for the CA to verify your domain name. During this period, the certificate is in the **Pending domain name verification** state.

If you have verified the domain name, the CA will take 2 to 3 working days to verify your information. The certificate enters the **Pending organization verification** state only after the CA has confirmed your domain ownership.

----End

5.5 How Do I Check Whether Domain Name Verification Takes Effect?

SCM can help you check the domain name verification result. This topic walks you through how to check the domain name verification results.

Procedure

- For DNS verification see **Checking Verification by DNS**.
- For file verification, see **Checking Verification by File**.

Prerequisites

- Domain name verification has been configured. For details, see **Verify the Domain Ownership**.
- The domain name has been licensed. Obtain the license for the domain name because the domain name verification will fail if the domain name has not been licensed.

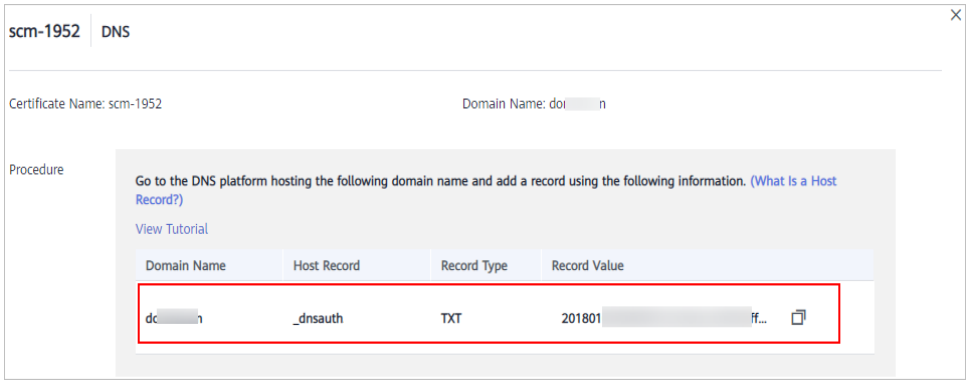
Checking Verification by DNS

Step 1 Obtain the host record and record value.

1. Log in to the **management console**.
2. Click ☰ in the upper left corner of the page and choose **Security & Compliance** > **Cloud Certificate Management Service**. The service console is displayed.
3. In the navigation pane, choose **SSL Certificate Manager** > **SSL Certificates**.
4. In the **Operation** column of the certificate for which domain name verification is to be performed, click **Verify Domain Name**.
5. On the **Verify Domain Name** page, view the content for **Host Record**, **Record Type**, and **Record Value**. **Figure 5-9** shows an example.

   If **Host Record**, **Record Type**, and **Record Value** are not displayed, log in to the mailbox to view. The mailbox is the one you provide during certificate application.

Figure 5-9 Viewing a host record



Step 2 Select a method based on the record type and OS and check whether the DNS configuration takes effect.

Use TXT record **_dnsauth.domain.com** as an example.

- For TXT records
  - Windows OSs
    i. On the Windows menu, click **Start** and enter **cmd** to start the command dialog box.
    ii. Enter the **nslookup -q=TXT _dnsauth.domain.com** command.
  - Linux OSs

i. Right-click the desktop and choose **terminal** to go to the command prompt dialog box.
ii. Enter the **dig TXT _dnsauth.domain.com** command.

– macOS OSs
i. Choose **Go** >**Utilities**, and click **Terminal** to open the command prompt dialog box.
ii. Enter the **dig TXT _dnsauth.domain.com** command.

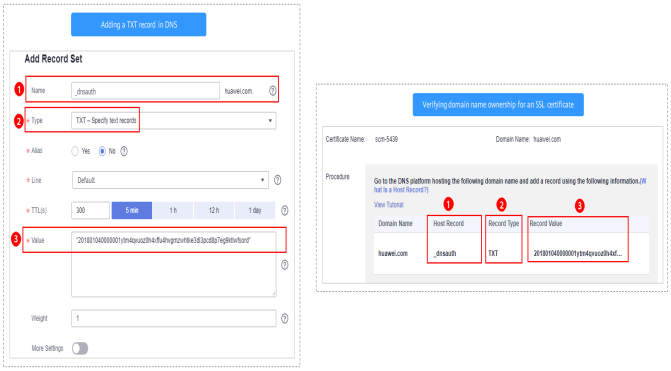
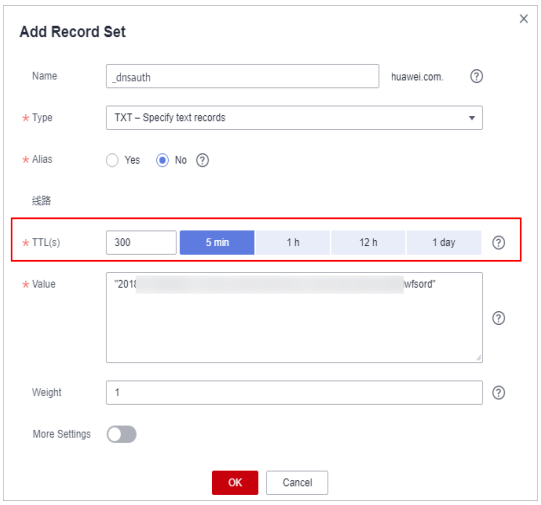
- For CNAME records
  – For Windows OSs:
    i. On the Windows menu, click **Start** and enter **cmd** to start the command dialog box.
    ii. Enter the **nslookup -q=CNAME _dnsauth.domain.com** command.
  – For Linux OSs:
    i. Right-click the desktop and choose **terminal** to go to the command prompt dialog box.
    ii. Enter the **dig CNAME _dnsauth.domain.com** command.
  – For macOS OSs:
    i. Choose **Go** >**Utilities**, and click **Terminal** to open the command prompt dialog box.
    ii. Enter the **dig CNAME _dnsauth.domain.com** command.

If the record value in the command output (value of **text**) is the same as that returned by the domain name service provider, the configuration of domain ownership verification has taken effect.

Step 3 If the configuration of DNS verification does not take effect, rectify the fault based on the following possible causes until the verification takes effect:

Table 5-5 Possible causes

Possible Cause	Procedure
A wrong domain name management platform was selected.	DNS verification can be performed only on the platform where your domain name is hosted. Check whether the platform you select is the right one.
The old record set is not deleted.	The record added can be deleted once the current certificate is issued. If the record added for the previous certificate is not deleted, the record added for the current certificate will not take effect. Check whether the record added last time is deleted.

Possible Cause	Procedure
The record configuration is incorrect.	Check settings of **Host Record**, **Type** or **Value**. **Figure 5-10** Adding a record 
It requires a long period of time for the configuration to take effect.	Check whether the effective time (TTL) is too long. It is recommended that you set the TTL to 5 minutes. This value varies depending on the DNS service provider. In our DNS platform, the default value is 5 minutes, so the configuration takes effect in 5 minutes by default. If the configured effective time does not arrive, verify after the time is right. **Figure 5-11** Setting TTL 

----End

Checking Verification by File

Step 1 Log in to the **management console**.

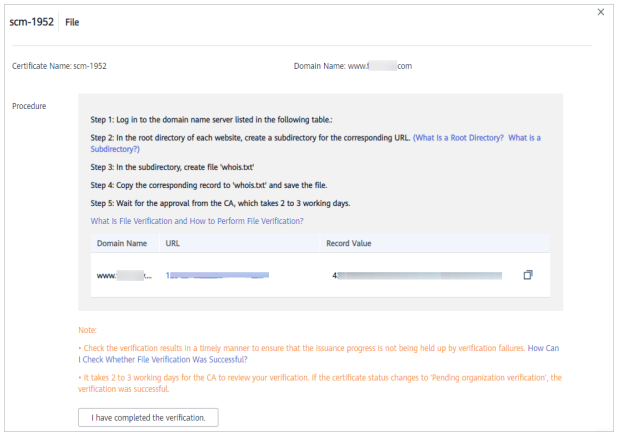
Step 2 Click ☰ in the upper left corner of the page and choose **Security & Compliance** > **Cloud Certificate Management Service**. The service console is displayed.

Step 3 In the navigation pane on the left, choose **SSL Certificate Manager**. In the row containing the desired certificate, click **Verify Domain Name** in the **Operation** column. The **Verify Domain Name** page is displayed.

Step 4 On the **Verify Domain Name** page, view the **Record Value**.

If the page is not displayed, log in to your email (the one specified during certificate application) to view the recorded value.

Figure 5-12 File verification



Step 5 Open a browser and access the URL address: **https://*your domain*/.well-known/pki-validation/whois.txt** or **http://*your domain*/.well-known/pki-validation/whois.txt**.

Replace *your domain* in the URL address with the domain name bound during certificate application.

- If your domain name is a common domain name, perform the following operations:

  For example, if your domain name is **example.com**, the access URL address is **https://example.com/.well-known/pki-validation/whois.txt** or **http://example.com/.well-known/pki-validation/whois.txt**.

- For a wildcard domain name, perform the following operations:

  For example, if your domain name is ***.domain.com**, the access URL address is **https://domain.com/.well-known/pki-validation/whois.txt** or **http://domain.com/.well-known/pki-validation/whois.txt**.

Step 6 Check whether the verification URL address can be properly accessed in the browser and whether the record value displayed on the page is the same as that on the order progress page.

- If the record value displayed on the page is the same as that displayed on the domain name verification page of the SCM console, the configuration of domain name verification has taken effect.
- If they are different, the configuration of domain name verification does not take effect.

Step 7 If the configuration does not take effect, check and handle the issue from the following aspects:

- Check whether the verification URL address exists in HTTPS accessible addresses. If yes, use HTTPS to re-access the URL address in the browser. If the browser displays a message indicating that the certificate is untrusted or the displayed content is incorrect, disable the HTTPS service for the domain name temporarily.
- Ensure that the verification URL address can be accessed at any place. Detection servers of some CAs are located outside China. Check whether your site has images outside China or whether the smart DNS service is used.
- Check whether the verification URL address contains 301 or 302 redirection. If such redirection exists, cancel the related settings to disable the redirection.

  You can run the **wget -S** *URL address* command to check whether the verification URL address is redirected.

----End

5.6 How Can I Check Whether DNS Verification Takes Effect for Windows OSs?

This topic describes how to check whether domain ownership DNS verification takes effect on Windows OSs.

After you submit a certificate application to the CA, complete the domain ownership verification by DNS.

Step 1 On the Windows menu, click **Start** and enter **cmd** to start the command dialog box.

Step 2 Check whether the DNS configuration takes effect by running the corresponding command listed in **Table 5-6**.

Table 5-6 Verification commands

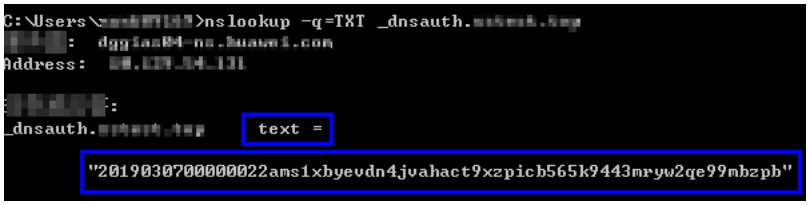
Record Type	Verification commands
TXT	**nslookup -q=TXT** *xxx*
CNAME	**nslookup -q=CNAME** *xxx*

NOTE

xxx indicates the **Host Record** value returned by the domain name service provider.

- If the record value in the command output (value of **text**) is the same as that returned by the domain name service provider, the configuration of domain name ownership verification has taken effect. **Figure 5-13** shows an example.

Figure 5-13 Effective configuration of domain name ownership verification

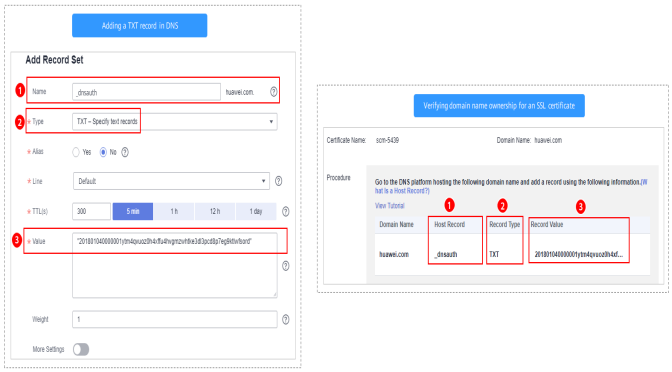


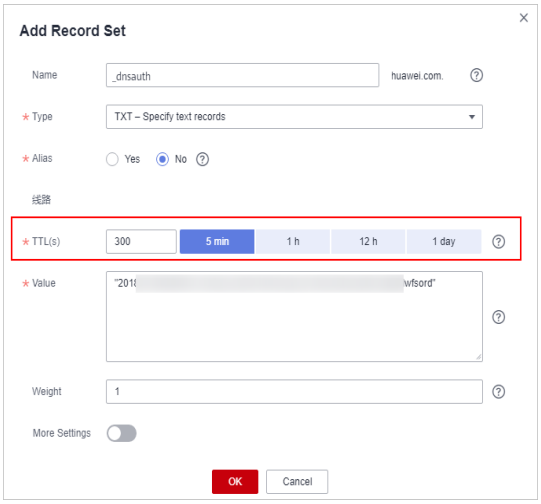
- If the command output does not contain any records and **Non-existent domain** is displayed, the configuration does not take effect.

Figure 5-14 Non-effective domain name verification configuration

Step 3 If the configuration of DNS verification does not take effect, rectify the fault based on the following possible causes until the verification takes effect:

Table 5-7 Possible causes

Possible Cause	Procedure
A wrong domain name management platform was selected.	DNS verification can be performed only on the platform where your domain name is hosted. Check whether the platform you select is the right one.
The old record set is not deleted.	The record added can be deleted once the current certificate is issued. If the record added for the previous certificate is not deleted, the record added for the current certificate will not take effect. Check whether the record added last time is deleted.
The record configuration is incorrect.	Check settings of **Host Record**, **Type** or **Value**. **Figure 5-15** Adding a record 

Possible Cause	Procedure
It requires a long period of time for the configuration to take effect.	Check whether the effective time (TTL) is too long. It is recommended that you set the TTL to 5 minutes. This value varies depending on the DNS service provider. In our DNS platform, the default value is 5 minutes, so the configuration takes effect in 5 minutes by default. If the configured effective time does not arrive, verify after the time is right. **Figure 5-16** Setting TTL 

----End

5.7 What Can I Do If Domain Ownership Verification Does Not Take Effect?

If you have completed domain name verification but the configuration does not take effect, perform the operations described in this section.

Procedure

- If **Domain Name Verification Method** is set to **DNS**, perform the operations described in **Configuration Does Not Take Effect After DNS Verification**.
- If **Domain Name Verification Method** is set to **File**, perform the operations described in **Configuration Does Not Take Effect After File Verification**.

Prerequisites

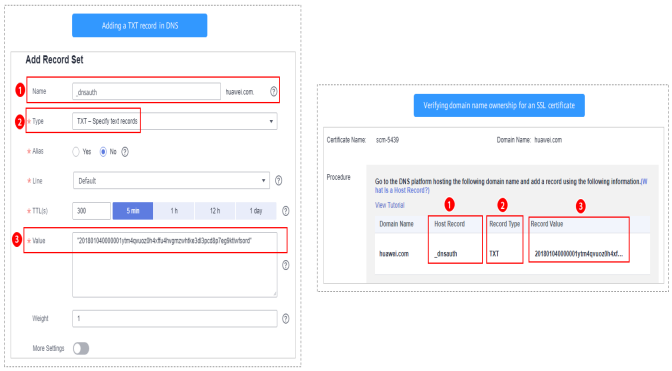
- The domain name has been licensed. Obtain the license for the domain name because the domain name verification will fail if the domain name has not been licensed.
- Domain name verification has been configured. For details, see **Verify the Domain Ownership**.

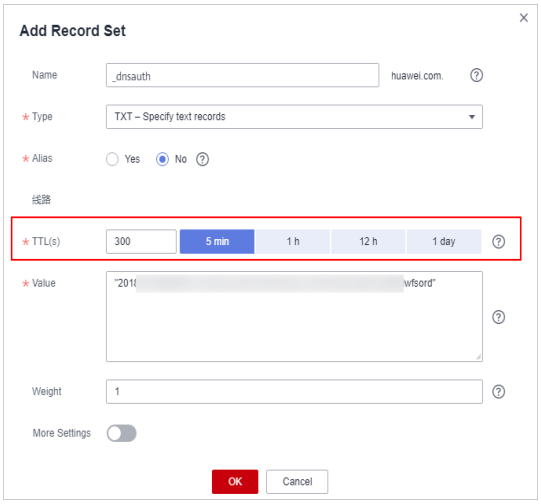
- Check whether the domain name verification takes effect. For more details, see **How Do I Check Whether Domain Name Verification Takes Effect?**

Configuration Does Not Take Effect After DNS Verification

Locate the failure cause and fix the issue by referring to the following table.

Table 5-8 Possible causes

Possible Cause	Procedure
A wrong domain name management platform was selected.	DNS verification can be performed only on the platform where your domain name is hosted. Check whether the platform you select is the right one.
The old record set is not deleted.	The record added can be deleted once the current certificate is issued. If the record added for the previous certificate is not deleted, the record added for the current certificate will not take effect. Check whether the record added last time is deleted.
The record configuration is incorrect.	Check settings of **Host Record**, **Type** or **Value**. **Figure 5-17** Adding a record 

Possible Cause	Procedure
It requires a long period of time for the configuration to take effect.	Check whether the effective time (TTL) is too long. It is recommended that you set the TTL to 5 minutes. This value varies depending on the DNS service provider. In our DNS platform, the default value is 5 minutes, so the configuration takes effect in 5 minutes by default. If the configured effective time does not arrive, verify after the time is right. **Figure 5-18** Setting TTL 

Configuration Does Not Take Effect After File Verification

If the DNS verification configuration does not take effect, perform the following checks:

- If the record value displayed on the page is the same as that displayed on the domain name verification page of the SCM console or in the email, the configuration of domain name verification has taken effect.
- If they are different, the configuration of domain name verification does not take effect.

  If the configuration does not take effect, check and handle the issue from the following aspects:

  - Check whether the verification URL address exists in HTTPS accessible addresses. If yes, use HTTPS to re-access the URL address in the browser. If the browser displays a message indicating that the certificate is untrusted or the displayed content is incorrect, disable the HTTPS service for the domain name temporarily.
  - Ensure that the verification URL address can be accessed at any place. Detection servers of some CAs are located outside China. Check whether your site has images outside China or whether the smart DNS service is used.

- Check whether the verification URL address contains 301 or 302 redirection. If such redirection exists, cancel the related settings to disable the redirection.

  You can run the **wget -S** *URL address* command to check whether the verification URL address is redirected.

5.8 How Do I Query a Domain Name Provider?

By querying domain registration information, you can confirm the information about the DNS servers of a domain name and then perform authentication by DNS based on the DNS server information.

Procedure

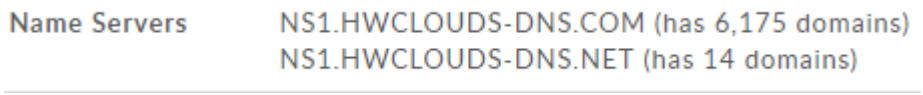
Step 1 Open a browser and visit **https://whois.domaintools.com/**.

Step 2 Enter the domain name to be queried and click **Search**. The domain name registration details page is displayed.

Step 3 In the displayed information, check **Name Servers** to determine the DNS servers of the domain name.

If the value of **Name Servers** similar to **Figure 5-19** is displayed, the DNS servers of the domain name are provided by HUAWEI CLOUD.

Figure 5-19 Name Servers



Perform the verification based on the DNS servers of the domain name as follows:

- If the domain name is hosted on a Huawei Cloud DNS server, perform the verification on Huawei Cloud by referring to **How Do I Verify Domain Ownership by DNS?**
- If the domain name is not hosted on Huawei Cloud, you can migrate it to Huawei Cloud DNS.
  - If yes, perform the following operations:
    i. Migrate the domain name from another DNS service provider to Huawei Cloud DNS.
    ii. Perform the verification on Huawei Cloud by referring to **How Do I Verify the Domain Ownership Manually by DNS?**
  - If not, perform the verification on the corresponding platform. For example, if your domain is hosted on Alibaba Cloud, perform the verification on Alibaba Cloud.

----End

5.9 How Do I Query and Verify the Email Address of the Domain Administrator?

This topic describes how to query the email address of the domain administrator during certificate approval and perform confirmation as prompted.

Procedure

Step 1 Visit **http://whois.domaintools.com/** and enter the domain name whose administrator email address you want to query.

Step 2 In the query result, view the email address of the domain administrator.

Step 3 If the email address is correct, the CA will send a confirmation email to the email address after you apply for a certificate. Click the confirmation link in the email received and perform the confirmation as prompted.

----End

5.10 How Do I Use DNS to Verify Domains Not Hosted on Huawei Cloud?

If domain names are not hosted on Huawei Cloud, are you willing to migrate them to Huawei Cloud?

- If yes, perform the following operations:
  a. Migrate the domain name from another DNS service provider to Huawei Cloud DNS.
  b. Perform the verification on Huawei Cloud by referring to **How Do I Verify the Domain Ownership Manually by DNS?**
- If not, perform the verification on the corresponding platform. For example, if your domain is hosted on Alibaba Cloud, perform the verification on Alibaba Cloud.

5.11 Why Does the SSL Certificate Remain in the Pending Domain Name Verification State (Application Progress Is 40%) After Domain Name Verification Is Complete?

If domain name verification is complete but the certificate remains in the **Pending domain name verification** state, perform the following steps:

1. Check whether the ownership of the domain name for which the certificate is used is verified.
   – If domain ownership is verified, go to 2.

- If domain ownership has not been verified, go to your domain name service provider to complete the verification.

2. Check whether the domain name verification has been completed.
   - If you have completed domain name verification, go to **3**.
   - If you have not completed domain ownership verification and organization verification, perform operations as prompted.

     For details, see **Verify the Domain Ownership**.
3. Check whether the domain name verification takes effect.

   For details, see **How Do I Check Whether Domain Name Verification Takes Effect?**
   - If domain name verification takes effect, go to **4**.
   - If the verification still does not take effect, perform the required operations in **What Can I Do If Domain Ownership Verification Does Not Take Effect?**

   For details about how to make the verification take effect, see **DNS Verification Configuration Does Not Take Effect**.
4. The review may take a while.

   After the verification is complete, additional time is required for the CA to verify your domain name. During this period, the certificate is in the **Pending domain name verification** state.

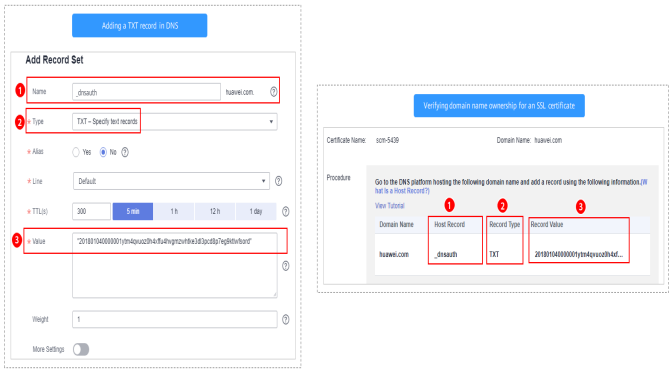
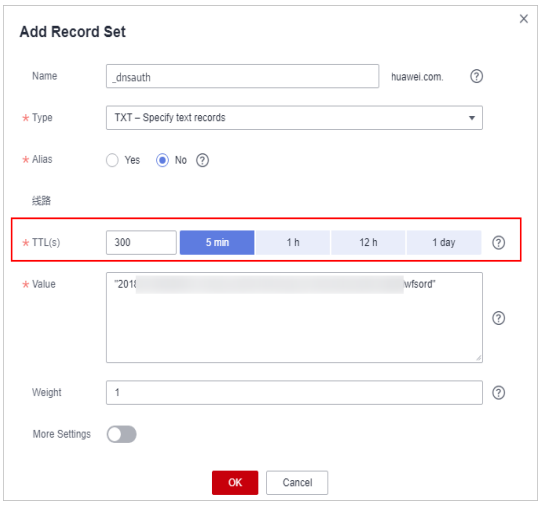
   If you have verified the domain name, the CA will take 2 to 3 working days to verify your information. The CA will issue the certificate only after they validate your information.

DNS Verification Configuration Does Not Take Effect

Locate the failure cause and fix the issue by referring to the following table.

Table 5-9 Possible causes

Possible Cause	Procedure
A wrong domain name management platform was selected.	DNS verification can be performed only on the platform where your domain name is hosted. Check whether the platform you select is the right one.
The old record set is not deleted.	The record added can be deleted once the current certificate is issued. If the record added for the previous certificate is not deleted, the record added for the current certificate will not take effect. Check whether the record added last time is deleted.

Possible Cause	Procedure
The record configuration is incorrect.	Check settings of **Host Record**, **Type** or **Value**. **Figure 5-20** Adding a record 
It requires a long period of time for the configuration to take effect.	Check whether the effective time (TTL) is too long. It is recommended that you set the TTL to 5 minutes. This value varies depending on the DNS service provider. In our DNS platform, the default value is 5 minutes, so the configuration takes effect in 5 minutes by default. If the configured effective time does not arrive, verify after the time is right. **Figure 5-21** Setting TTL 

5.12 How Do I Change the Domain Name Verification Mode When the SSL Certificate Status Is Pending domain name verification?

If your SSL certificate is in the **Pending domain name verification** state, the domain name is to be verified based on the verification mode selected during certificate application.

If you need to change the domain name verification mode during this stage, withdraw the certificate application, change the domain name verification mode, and submit the application again.

NOTE

- For basic DV certificates (GeoTrust entry-level SSL certificates and DigiCert free SSL certificates), only DNS verification is available.

Step 1 Withdraw the certificate application.

1. Log in to the **management console**.
2. Click ☰ in the upper left corner of the page and choose **Security & Compliance** > **Cloud Certificate Management Service**. The service console is displayed.
3. In the navigation pane, choose **SSL Certificate Manager** > **SSL Certificates**.
4. In the row containing the desired certificate, click **Withdraw Application** in the **Operation** column.

   Figure 5-22 Withdrawing an application

5. In the **Cancel Application** dialog box that is displayed, click **Submit**. When "Request for canceling the application submitted successfully" is displayed in the upper right corner, the request has been submitted.

   At this time, the certificate is in the **CA verifying (application withdrawal)** state. After the application is withdrawn successfully, the certificate status changes to **Pending application**.

Step 2 Submit a certificate application to the CA.

If the withdrawal is successful, the certificate is in the **Pending application** state and you need to submit the application again. Change the domain name verification mode when submitting the application.

For details, see **Submitting an SSL Certificate Application to the CA**.

Step 3 Complete the certificate application procedure.

Apply for the certificate as prompted.

----End

5.13 What Do I Do If DNS Verification for a DV Certificate Fails?

If a DV certificate fails **DNS** verification through the CCM console, refer to the methods below to verify the DNS again.

Failure Message	Solution
Too many verification requests. Try again later.	You may submit too many verification requests in a short time. Wait for 3 to 5 minutes and then perform the verification.
DNS records do not match.	The DNS record you configured is incorrect. Obtain the correct record by referring to **Step 2 Obtaining Verification Information** and configure the DNS record again.
DNS verification failed. Try again later.	Check whether the following problems exist: • Problem 1: The DNS record does not take effect. Solution: The configured DNS record does not take effect immediately, which depends on the TTL time set on your DNS server. So, wait for 3 to 5 minutes and then perform the verification again. • Problem 2: DNS records are correctly configured, but the verification still fails. Solution: The CA verification server is located outside China. There might be network errors sometimes. Try again about 1 to 2 hours later. • Problem 3: The domain name has not been licensed or passed the real-name authentication. Solution: Have the domain name licensed and complete real-name authentication first. Then, verify the domain name ownership again. • Problem 4: The domain name has a CAA record set. Solution: Delete all CAA records from the domain name resolution record sets. • Problem 5: The CA verification server does not find the DNS resolution record. Solution: The CA verification server is located outside China. So, you need to allow servers outside China to access the domain name temporarily.

6 SSL Certificate Approval

6.1 How Long Does It Take to Approve an SSL Certificate?

The certificate approval time depends on how quickly you respond with requested information from the CA. Once you submit the certificate, the CA will contact you through the email address and phone number. Please monitor the approval email inbox and make sure to click the link contained in the email sent from the Certificate Authority.

The approval period varies according to certificate types. The CA needs to confirm the submitted information before issuing a certificate. A certificate takes effect immediately upon issuance.

For approval period of different certificate types, see **Table 6-1**.

Table 6-1 Certificate approval period

Certificate Type	Approval Period
Extended Validation (EV) and EV Pro	The CA usually takes seven to ten **working days** to review your information
Organization Validation (OV) and OV Pro	The CA usually takes three to five **working days** to review your information.
DV (Basic)	Generally, a basic DV certificate can be issued within several hours. Domains of basic DV certificates are verified by the CA automatically. Free certificates are included in certificates of this type. Generally, a basic DV certificate can be issued within several hours. Domains of basic DV certificates are verified by the CA automatically.

It will take less time to issue the certificate if you respond with the requested information from the CA correctly and quickly. To shorten the certificate issuance time, ensure that:

- The submitted information is correct to avoid repeated modification.
- Answer calls from the CA or confirm emails from the CA in a timely manner.

NOTICE

If you purchase a certificate again from the same CA within 13 months and the certificate information is not changed, organization verification is not required.

Related Questions

- **Why Does the SSL Certificate Remain in the Pending Domain Name Verification State (Application Progress Is 40%) After Domain Name Verification Is Complete?**
- **How Do I Check Whether Domain Name Verification Takes Effect?**
- **What Can I Do If Domain Ownership Verification Does Not Take Effect?**
- **Why Does the Certificate Stay in the CA Verifying Status for a Long Time?**

6.2 Why Does the Certificate Stay in the CA Verifying Status for a Long Time?

Upon completion of the certificate information, the Certificate Authority (CA) will review your domain name and the submitted certificate information. To ensure that your certificate can be issued as soon as possible, perform the following operations.

NOTE

The approval time may vary depending on certificate authorities. For details about approval time, see **How Long Does It Take to Approve an SSL Certificate?**

Procedure

Step 1 Check whether the ownership of the domain name for which the certificate is used is verified.

- If domain ownership is verified, go to **Step 2**.
- If domain ownership has not been verified, go to your domain name service provider to complete the verification.

Step 2 Check whether you have correctly filled in and submitted the certificate application.

- If yes, go to **Step 3**.
- If the entered information is incorrect, you can withdraw the application. After the original application is cancelled, submit a certificate application again. After the modification, go to **Step 3**.

  For details, see **Withdrawing a Certificate Application**.

For details, see **Submitting an SSL Certificate Application to the CA**.

Step 3 Ensure that you have completed domain name verification and organization verification according to the certificate status/application progress on the SCM console.

- If you have completed domain ownership verification and organization verification, go to **4**.
- If you have not completed domain ownership verification and organization verification, perform operations as prompted.

  For details, see **Verifying the Domain Ownership**. After the verification completes, check whether the verification takes effect.

  For details, see **Verifying the Organization**. Organization information check is required only for OV, OV Pro, EV, and EV Pro certificates.

Step 4 Check whether the domain name verification takes effect.

For details, see **How Do I Check Whether Domain Name Verification Takes Effect?**

- If domain name verification takes effect, go to **Step 5**.
- If the verification still does not take effect, perform the required operations in **What Can I Do If Domain Ownership Verification Does Not Take Effect?**

Step 5 Check whether Certification Authority Authorization (CAA) restricts the CA from issuing certificates.

- If yes, you can cancel the restriction or add a CAA resolution record by referring to **Setting CAA Records to Prevent Unauthorized HTTPS Certificate Issuing**.
- If the CA is not restricted by CAA, go to **Step 6**.

Step 6 The review may take a while.

After you apply for a certificate, the CA will review your information. The review may take a while.

The CA will contact you by the phone number you provided to guide you through necessary operations. Make sure that you can be reached by phone during the validation. If the CA cannot contact you in time, the order validation progress may be delayed.

- Validation duration for OV and EV certificates

  For OV or EV certificates, it takes three to seven **working days** for the CA to review your certificate order.

  During the validation, the CA will contact you using the phone number you provided to guide you through necessary operations. Make sure that you can be reached by phone. If the CA cannot contact you in time, the order validation progress may be delayed. Your timely response will effectively shorten the SSL certificate validation progress.

- Validation duration for DV certificates or free certificates

  After the domain ownership is verified, the CA will issue the certificate within one to two working days.

If your domain name contains some special words, such as bank, pay, or live, the manual review mechanism may be triggered, which takes a long time to issue the certificate.

NOTE

A free certificate will be issued within one to two working days after you apply for it. Your certificate may be issued within several hours or two working days, depending on the validation process of the CA.

----End

6.3 What Can I Do After I Submit an SSL Certificate Application?

After purchasing an SSL certificate, you need to apply for the certificate and submit it for approval. The certificate can be used only after it is approved.

After the certificate order is submitted for approval, you can view the next step in **Status/Application Progress** of the certificate in the certificate management list on the SCM console. The following are examples of some important operations:

- **Pending domain name verification**: Domain name verification needs to be completed for a certificate based on the requirements of the CA after a certificate application request is submitted. For details, see **Verify the Domain Ownership**. The certificate application progress is 40%.
- **Pending organization verification**: If you apply for an OV or EV certificate, the CA checks whether the organization has initiated the certificate application after domain name verification is complete. For details, see **Verify the Organization**. The certificate application progress is 70%.
- **To be issued**: Operations, such as domain name verification and organization verification, have been completed. It is waiting for the CA to approve the certificate. Please wait. The certificate application progress is 90%.

After all information is verified, the certificate status changes to **Issued**.

OV, OV Pro, EV, and EV Pro Certificates

If you have purchased an OV, OV Pro, EV, or EV Pro certificate, you need to apply for the certificate, verify a domain name, and verify the organization as prompted in **Status/Application Progress** of the certificate on the SCM console.

After the preceding operations are complete, you need to wait patiently. The CA (the issuer of the certificate) may need a period of time to approve the certificate. Your digital certificate will be issued after it is approved by the CA.

During the validation, the CA will contact you using the phone number you provided to guide you through necessary operations. Make sure that you can be reached by phone.

DV (Basic) Certificates

If you have purchased a basic DV certificate, you need to apply for the certificate, verify a domain name, and verify the organization as prompted in **Status/Application Progress** of the certificate on the SCM console.

After the domain name verification is complete, your SSL certificate will be issued within one to two working days.

If your domain name contains some special words, such as bank, pay, or live, the manual review mechanism may be triggered, which takes a long time to issue the certificate.

6.4 How Do I Handle the Email or Phone Call from the CA?

If you receive a certificate-related email or call during SSL certificate application, perform the processing according to the call or the instructions in the email as soon as possible after confirming that the certificate-related email or call is from the CA. This is to prevent the certificate approval progress from being affected.

The CA may send an email or make a call to you in the following cases:

- Verifying the domain name ownership
  - Cause: According to the specifications of the CA, you must complete domain name ownership verification to prove that you have the ownership of the bound domain name during SSL certificate application.
  - Solution: Verify the domain name ownership based on the email content. For details, see **Verify the Domain Ownership**.
- Organization Verification
  - Cause: The CA will contact you using the public phone number of the organization to check whether the organization initiates the certificate application, when you apply for an OV or EV certificate.
  - Solution: The CA will contact you using the public phone number of the organization. Please pay attention to and handle it in time.

6.5 Do I Need to Get a Newly Purchased SSL Certificate Approved?

Yes.

No matter whether you have applied for a certificate or not, you need to get a new certificate approved after purchasing it. The certificate application process is the same for each certificate. All certificates must be applied for and approved by the CA.

You can replace the old certificate with the new one once it is issued. The replacement does not affect services.

6.6 What Can I Do When I Fail to Pass the Security Review?

Problem Description

You may receive the following message if your application for a DV certificate fails to pass the order approval:

This domain name has not passed the security review by the CA and you cannot apply for the free testing DV certificate. Please use another domain name or purchase an OV or EV certificate.

Possible Causes

Your domain name contains immoderate words.

Known immoderate words that may lead to approval failure include:

- live (excluding top-level domain names ending with **.live**)
- bank
- banc
- ban.c
- alpha
- test
- example
- credit
- Intranet and Internet IP addresses
- Host name
- pw (including top-level domain names ending with **.pw**)
- apple
- ebay
- trust
- root
- amazon
- android
- visa
- google
- discover
- financial
- wordpress
- pal
- hp
- lv

- free
- SCP
- edu
- .edu.cn
- iran
- gov
- azure

Solution

Based on the suggestions from the CA, you can:

- Purchase an OV or EV certificate for the domain name.
- Associate your DV certificate with other domain names that do not contain any special words described earlier.

6.7 What Can I Do When a Message Indicating Approval Failure Due to Blank Main Domain Name Is Displayed?

Problem Description

A message indicating approval failure due to blank main domain name is displayed when I choose to upload my own CSR to apply for a certificate.

Possible Causes

You did not set the **Common Name** value properly when you created the CSR file.

Solution

Create and upload a CSR again. Ensure that the **Common Name** field is set correctly.

NOTICE

The **Common Name** value must be the primary domain name associated with the certificate.

To ensure that the CSR content is correct, you are advised to use the system-generated CSR file. The system-generated CSR file supports download of the issued certificate in different formats.

7 SSL Certificate Download, Installation, and Use

7.1 SSL Certificate Download

7.1.1 Can I Download and Use an Issued SSL Certificate for Multiple Times?

You can download and use the certificate repeatedly within its validity period. Upon downloading, you can install and deploy the certificate on your server on any platforms.

NOTE

The domain name to be run on the target server must be the same as the one associated with the certificate. Otherwise, the web browser will display a message indicating that the domain name is insecure.

If a certificate is re-downloaded and installed on another server, the original server is not affected. Your web browser should react normally when you access the associated domain name.

7.1.2 How Do I Obtain the SSL Certificate Private Key File server.key?

The methods for obtaining the certificate private key file **server.key** vary with CSR generation methods (system generated CSR or self-generated CSR) selected when applying for a certificate.

- System generated CSR

  If the CSR is generated by the system, download the certificate file again. For details, see **Downloading an SSL Certificate**.

- **Upload a CSR**

  If the CSR is generated by a user, **server.key** is kept by the user and cannot be downloaded or obtained from SCM.

7.1.3 What Can I Do If My SSL Certificate Fails to be Downloaded?

Problem Description

An issued SSL certificate cannot be downloaded in SCM.

Possible Causes

- Possible cause 1: The account is in arrears or has insufficient permission.
- Possible cause 2: The browser cache is large.

Solution

Perform the following operations based on the possible cause:

- **Possible cause 1: The account is in arrears or has insufficient permission.**

  Solution: If your account is in arrears, top up your account. If your permission is insufficient, contact your administrator to grant required permissions to you.
- **Possible cause 2: The browser cache is large.**

  Solution: Clear the browser cache or use another browser.

  If the fault still persists, submit a service ticket to contact us and describe it in the service ticket (for example, you cannot download a certificate that is not uploaded to SCM but has been issued, or you cannot download a certificate when your account is not in arrears and has the download permission).

7.2 SSL Certificate Installation

7.2.1 On Which Servers Can an SSL Certificate Be Deployed?

There are no restrictions on servers for deploying SSL certificates. You can deploy your SSL certificates on servers on any cloud platforms or on-premises servers.

After obtaining the certificate file, you can deploy it on the server hosting your website or use it in a cloud service, such as WAF, ELB, and CDN. For details about how to deploy, see the following topics:

- **How Do I Install an SSL Certificate on a Server?**
- **How Do I Apply an SSL Certificate to Other Huawei Cloud Services?**

7.2.2 How Do I Install an SSL Certificate on a Server?

Installation

When your SSL certificate is issued, download and install it on the target web server. **Table 7-1** is for your reference.

Table 7-1 Example for installing an SSL certificate

Server Type	Operation
Tomcat	**Installing an SSL Certificate on a Tomcat Server**
Nginx	**Installing an SSL Certificate on an Nginx Server**
Apache	**Installing an SSL Certificate on an Apache Server**
IIS	**Installing an SSL Certificate on an IIS Server**
WebLogic	**Installing an SSL Certificate on a WebLogic Server**
Resin	**Installing an SSL Certificate on a Resin Server**

NOTE

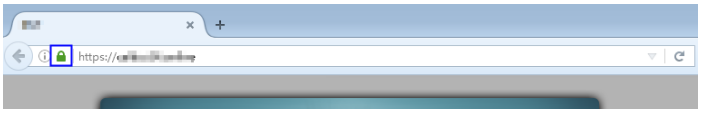
The installation procedure in this topic is for your reference only as the commands executed and configuration file modified during the installation may vary depending on OS types and server configurations.

Verifying the Result

Verify that the certificate is installed correctly.

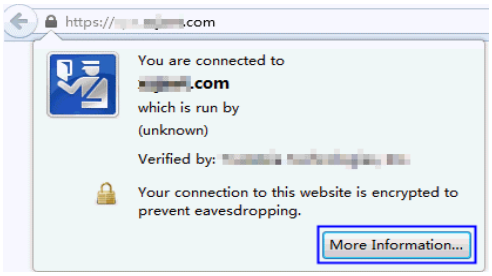
1. In the address box of the browser, enter **https://***Domain name* and press **Enter**.
2. Click  to view the certificate.

   Figure 7-1 Viewing a certificate

3. Click **More Information**.

   Figure 7-2 Clicking More Information

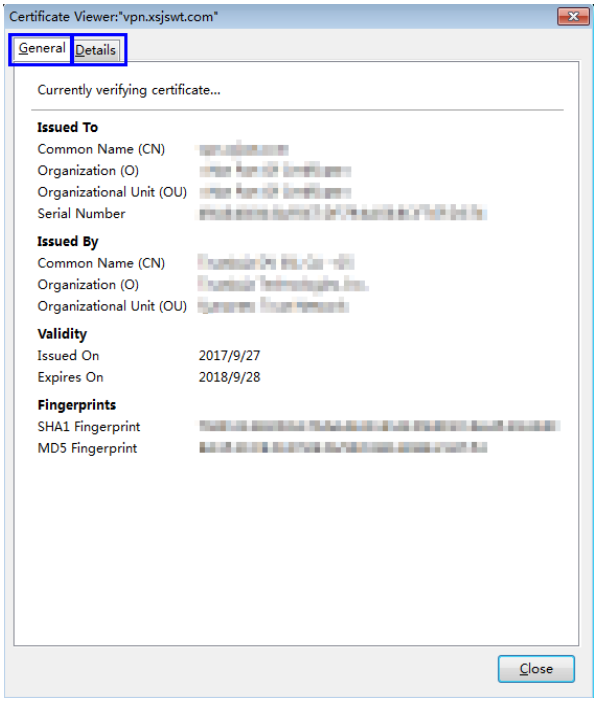
   

4. In the **Page Info** window, choose **Security** > **View Certificate**.

Figure 7-3 Viewing Certificate Information

5. In the displayed **Certificate Viewer** dialog box, click **General** or **Details** to view the general information or details about the certificate. Check whether the certificate is successfully installed based on the information.

Figure 7-4 Certificate information



If the preceding certificate information is correct, the certificate is correctly installed.

7.2.3 How Do I Check Whether the Deployed SSL Certificate Takes Effect?

An SSL certificate is not issued until the CA of the trusted root certificate in web browsers authenticates the server. Therefore, an SSL certificate has two functions: website authentication and transmission encryption.

If you can use **https://** to visit your website after you configure your SSL certificate, the certificate is working properly.

Procedure

In the address bar of the browser, enter **https://***domain name associated with your digital certificate* (for example, https://www.huaweicloud.com) to access your website through HTTPS.

If the website can be accessed and the security lock icon is displayed in the address bar of the browser, the SSL certificate is working properly.

Figure 7-5 SSL certificate working properly

7.2.4 Is the Original SSL Certificate Still Available After a Server IP Address Is Changed?

Yes.

SSL certificates are associated with domain names and are irrelevant to the IP address changes of the server.

They can be used as long as the domain names remain unchanged and can be resolved to the new IP address.

7.2.5 In Which Geographical Locations Can an SSL Certificate Be Used?

There are no restrictions on geographical locations for deploying SSL certificates. SSL certificates can be used for servers in anywhere.

After obtaining the certificate file, you can deploy it on the server hosting your website or use it in a cloud service, such as WAF, ELB, and CDN. For details about how to deploy, see the following topics:

- **How Do I Install an SSL Certificate on a Server?**
- **How Do I Apply an SSL Certificate to Other Huawei Cloud Services?**

7.2.6 How Do I Add an SSL Certificate to the Background of a Website Built by Baota?

Before installing a certificate, obtain the certificate file and password file. Perform the following operations based on the value selected for **CSR** when applying for a certificate:

- If you select **System generated CSR** for **CSR** when applying for a certificate, perform the operations according to the instructions in **System generated CSR**.
- If you select **Upload a CSR** for **CSR** when applying for a certificate, perform the operations according to the instructions in **Upload a CSR**.

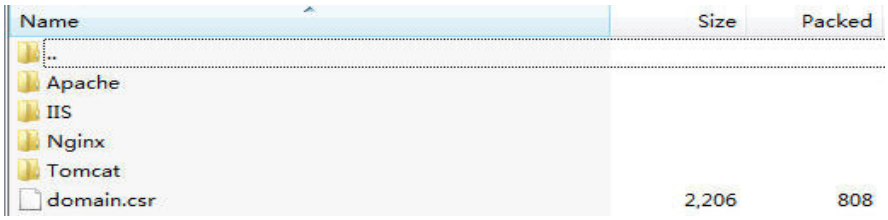
System generated CSR

The Pagoda panel contains the Apache environment and Nginx environment.

- Configuring the SSL Certificate in the Nginx Environment
  a. Decompress the downloaded certificate file on your local PC.

     The downloaded file contains the **Apache**, **IIS**, **Nginx**, and **Tomcat** folders as well as the **domain.csr** file. **Figure 7-6** shows an example.

     Figure 7-6 Decompressing an SSL certificate package on a local computer

  b. Obtain the certificate file ***Certificate ID_Domain name bound to the certificate*_server.crt** and private key file ***Certificate ID_Domain name bound to the certificate*_server.key** from ***Certificate ID_Domain name bound to the certificate*_Nginx**.

     - The ***Certificate ID_Domain name bound to the certificate*_server.crt** file contains two segments of certificate codes **-----BEGIN CERTIFICATE-----** and **-----END CERTIFICATE-----**, which are the server certificate and intermediate CA certificate respectively.
     - The ***Certificate ID_Domain name bound to the certificate*_server.key** file contains a segment of private key code **-----BEGIN RSA PRIVATE KEY-----** and **-----END RSA PRIVATE KEY-----**.

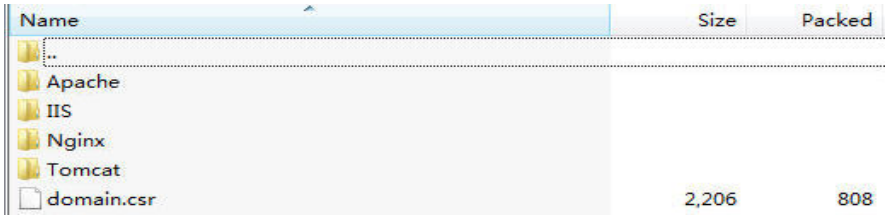
  c. Open the SSL page of BaoTa.

     - Copy the content in ***Certificate ID_Domain name bound to the certificate*_server.key** to the **KEY** text box.
     - Copy the content in ***Certificate ID_Domain name bound to the certificate*_server.crt** to the configuration box of the certificate (in PEM format).

- Configuring the SSL Certificate in the Apache Environment
  a. Decompress the downloaded certificate file on your local PC.

     The downloaded file contains the **Apache**, **IIS**, **Nginx**, and **Tomcat** folders as well as the **domain.csr** file. **Figure 7-7** shows an example.

     Figure 7-7 Decompressing an SSL certificate package on a local computer

  b. Obtain the certificate files ***Certificate ID_Domain name bound to the certificate*_ca.crt** and ***Certificate ID_Domain name bound to the certificate*_server.crt**, and private key file ***Certificate ID_Domain name bound to the certificate*_server.key** from ***Certificate ID_Domain name bound to the certificate*_Apache**.

     - The ***Certificate ID_Domain name bound to the certificate*_ca.crt** file contains a segment of intermediate CA certificate code **-----BEGIN CERTIFICATE-----** and **-----END CERTIFICATE-----**.
     - The ***Certificate ID_Domain name bound to the certificate*_server.crt** file contains a segment of server certificate code **-----BEGIN CERTIFICATE-----** and **-----END CERTIFICATE-----**.
     - The ***Certificate ID_Domain name bound to the certificate*_server.key** file contains a segment of private key code **-----BEGIN RSA PRIVATE KEY-----** and **-----END RSA PRIVATE KEY-----**.

  c. Open the SSL page of BaoTa.

     - Copy the content in ***Certificate ID_Domain name bound to the certificate*_server.key** to the **KEY** text box.
     - Combine ***Certificate ID_Domain name bound to the certificate*_server.crt** and ***Certificate ID_Domain name bound to the certificate*_ca.crt** and enter the combined content in the configuration box of the certificate (in PEM format).

CAUTION

- When the **server.crt** and **ca.crt** files are combined, the content of the **server.crt** file must be placed before that of the **ca.crt** file. If the sequence is incorrect, the Apache cannot be started properly.
- If your certificate is not purchased on SCM, the names of the downloaded .crt files are _**public.crt** and _chain.crt. The mappings with the certificate files issued by SCM are as follows:
  - The _**public.crt** file maps to the **server.crt** file.
  - The _**chain.crt** file maps to the **ca.crt** file.

  During the combination, the content of the _**public.crt** file is placed before that of the _**chain.crt** file.

Upload a CSR

In this case, perform the following steps in both the Apache and Nginx environments.

1. Decompress the downloaded certificate package to obtain the ***Certificate ID_Domain name bound to the certificate*_server.pem** file.

   The ***Certificate ID_Domain name bound to the certificate*_server.pem** file contains two segments of certificate codes **-----BEGIN CERTIFICATE-----** and **-----END CERTIFICATE-----**, which are the server certificate and intermediate CA certificate respectively.
2. Open the SSL page of the Pagoda website.
   - Copy the content of the private key server.key generated during CSR generation to the **KEY** text box.
   - Copy the content in ***Certificate ID_Domain name bound to the certificate*_server.pem** to the configuration box of the certificate (in PEM format).

7.2.7 How Do I Solve Problems Related to SSL Certificate Installation or Use?

Can Multiple SSL Certificates Be Configured on a Server?

Yes. You can configure multiple certificates on a server.

Can an SSL Certificate Be Deployed on Multiple Servers?

A certificate is associated with domain names, and there is no limit on the number of servers a certificate can be used. If the domain name bound to the purchased certificate is used on multiple servers, the purchased certificate takes effect only after being deployed on each server.

Must an SSL Certificate Be Installed on a Huawei Cloud Server?

No.

An SSL certificate you bought on SCM can be used for your server on Huawei Cloud or other platforms.

You can download and use the certificate repeatedly within its validity period. Upon downloading, you can install and deploy the certificate on your server on any platforms.

Can I Use an SSL Certificate on a Cloud Server or Website in Hong Kong (China)?

Yes.

The use of an SSL certificate is not restricted by geographical locations.

Why Cannot I Find the Newly Issued or Uploaded SSL Certificates in Cloud Services Such as WAF, ELB, or CDN?

After an SSL certificate is issued or uploaded, it can be used in other Huawei Cloud services, such as WAF, ELB, and CDN.

In SCM, you can deploy an SSL certificate to WAF, ELB, or CDN in just a few clicks. If a certificate needs to be pushed to another Huawei Cloud service, you need to download the certificate, upload the certificate to the corresponding service console, and deploy the certificate.

Applying Certificates in WAF, ELB, and CDN

In SCM, you can deploy an SSL certificate to WAF, ELB, or CDN in just a few clicks. With SSL certificates, data access through the cloud products is more secure.

For details, see **Deploying an SSL Certificate to Other Huawei Cloud Products**.

How Do I Export the Certificate Key of an SSL Certificate I Purchased on SCM and Use it on WAF?

When configuring WAF, you need to use the key in the SSL certificate. For more details, see **Configuring WAF Certificates**.

If you have any questions during the configuration, refer to the corresponding service documentation or consult the corresponding service personnel.

7.3 SSL Certificate Use

7.3.1 How Do I Configure a Non-Huawei Cloud SSL Certificate for a Huawei Cloud Product?

A non-Huawei Cloud certificate refers to an SSL certificate that is applied for from non-Huawei Cloud and is issued by a CA, for example, an SSL certificate that is applied for from another cloud service provider or an offline certificate provider and issued by a CA.

All SSL certificates are issued by the CA, regardless of platforms on which SSL certificates are applied for.

Any SSL certificates you requested from any platforms can be used in Huawei Cloud after the certificate is issued by a trusted CA. However, one-click deployment of these certificates to other cloud products, such as WAF, ELB, and CDN, is not included in CCM. CCM is recommended for purchasing SSL certificates so that you can deploy SSL certificates you get to cloud products you are using for your business in just a few clicks. With SSL certificates, data access through the cloud products is more secure.

To configure a non-Huawei Cloud SSL certificate for a Huawei Cloud service, perform the following operations as required:

Table 7-2 Scenario description

Scenario	Procedure
Managing all you certificates on Huawei Cloud SCM	Upload SSL certificates to SSL Certificate Manager. For details, see **Uploading an External Certificate**.
Using certificates for domain names in WAF, ELB, and CDN	SCM allows you to deploy certificates to WAF, ELB, and CDN in just a few clicks. For details, see **Deploying a Certificate**
Using a certificate in other Huawei Cloud products	Download the certificate, upload the certificate to the corresponding service console, and deploy the certificate. If you have any questions during the configuration, refer to the corresponding service documentation or contact the corresponding service personnel.

If you need to install an SSL certificate on a server, configure the certificate based on the server type. For details, see **How Do I Install an SSL Certificate on a Server?**

7.3.2 How Do I Apply an SSL Certificate to Other Huawei Cloud Services?

After an SSL certificate is issued or uploaded, it can be used in other Huawei Cloud services, such as WAF, ELB, and CDN.

In SCM, you can deploy an SSL certificate to WAF, ELB, or CDN in just a few clicks. If a certificate needs to be pushed to another Huawei Cloud service, you need to download the certificate, upload the certificate to the corresponding service console, and deploy the certificate.

Constraints

- Before updating an SSL certificate for ELB, ensure that the following conditions are met:
  - You have configured the original certificate in ELB. This means the certificate that is being used for ELB and you want to update in SCM

must have been configured in ELB at the very beginning. Then, you can quickly update it in SCM. For details, see **Creating, Modifying, or Deleting a Certificate**

  - You can use SCM to update the certificate deployed on listeners in ELB. If you update an SSL certificate in SCM, the certificate content and private keys are updated in ELB accordingly. ELB then updates the certificate content and private keys on all listeners where the certificate is deployed for.
  - To update a certificate used for ELB in SCM, domain names must be associated with the certificate in ELB.
  - If an ELB certificate is used for multiple domain names, ensure that the new certificate you want to update in SCM for ELB must match with those domain names. If they do not match, the domain names in the new certificate will overwrite the ones in the original certificate after the update.

    For example, the primary domain name and additional domain name of the new certificate are example01.com and example02.com, respectively, and the domain names associated with the original certificate in ELB are example01.com and example03.com. When you update the certificate in SCM, the domain names associated with the certificate in ELB are updated to example01.com and example02.com.

- Currently, you can use SCM to quickly deploy an SSL certificate to WAF in the **default** enterprise project only. For other enterprise projects, download the certificates first, upload them to WAF, and then deploy them in WAF.
- If you select **Upload a CSR** for **CSR** when applying for a certificate, the issued certificate **cannot** be directly deployed to other cloud products through SCM. To use a certificate in a cloud product, download the certificate to your local PC first. Then, upload it to the cloud product and complete deployment.

Applying Certificates in SCM to WAF, ELB, and CDN

In SCM, you can deploy an SSL certificate to WAF, ELB, or CDN in just a few clicks. With SSL certificates, data access through the cloud products is more secure.

For details, see **Deploying an SSL Certificate to Other Huawei Cloud Products**.

Applying Certificates in Other Cloud Products

Alternatively, you can download the certificate to your local PC and then upload it to the management console of the specific cloud product and complete deployment.

7.3.3 Which Region Will a Certificate Be Deployed to When I Deploy an SSL Certificate in CCM to Other Cloud Product?

Digital certificates purchased through Huawei Cloud SCM can be deployed to Huawei Cloud Web Application Firewall (WAF), Elastic Load Balance (ELB), and Content Delivery Network (CDN) in just a few clicks.

The certificate deployment regions vary depending on cloud products you select.

- When you deploy or update a certificate for ELB or WAF, you can select a region, and the certificate will be deployed to the region you select.
- If you deploy a certificate in CCM for CDN, there is no need to select a region, and the certificate is deployed to CDN.

If you have not purchased a given cloud product or the domain name associated with a certificate has not been added to the product, do not deploy the certificate on the product because the process may fail.

7.3.4 Is HTTPS Automatically Enabled After an SSL Certificate Is Deployed to a Cloud Product?

Yes.

After you use SCM to deploy the certificate to other cloud products, HTTPS encryption is automatically enabled. You do not need to configure other parameters.

7.3.5 How Do I Solve the Problem That Occurs When I Use Certificates in WAF, ELB, or CDN?

If you encounter any problems when using certificates in WAF, ELB, and CDN, submit a service ticket to the involved service for consultation.

If you have questions about how to configure certificates in those services, refer to related topics in documentation of WAF, ELB, and CDN, or submit a ticket for consultation.

If the problem persists, submit a service ticket to WAF, ELB, or CDN for help.

Follow-up Procedure

Deploy the certificate to WAF, ELB, or CDN in just a few clicks. For details, see **Deploying an SSL Certificate to Other Cloud Products**.

7.3.6 Why Is a Message Indicating that the Certificate Chain Is Incomplete Displayed When I Configure HTTPS on CDN?

When an SSL certificate is used for HTTPS configuration on Content Delivery Network (CDN), if the HTTPS certificate fails to be configured and a message is displayed indicating that the certificate chain is incomplete, perform the following operations to locate and rectify the fault:

Check whether the certificate chain is complete, whether the certificate is added in the format as required, whether all certificates are typed, and whether the certificate sequence is correct.

Ensure that the content of the certificate chain is pasted right below the content of the server certificate.

If the certificate chain is incomplete, complete the certificate chain by referring to **How Do I Fix an Incomplete SSL Certificate Chain?**

If your SSL certificates were purchased through Huawei Cloud SCM, you can deploy them to CDN in just a few clicks. You do not have to make the certificate

chain manually, and you can stop worrying about such errors. Therefore, you are advised to purchase certificates in Huawei Cloud SCM.

7.3.7 Why Is an Error Reported When I Deploy an SSL Certificate with an Uploaded CSR to WAF, ELB, or CDN?

If you select **Upload a CSR** for **CSR** when applying for a certificate, the certificate file does not contain the certificate private key file after the certificate is issued. As a result, an error is reported when you deploy the certificate to WAF, ELB, or CDN.

When you manually generate a CSR file, a private key file is also generated. Although you do not need to upload the private key file when uploading the CSR file, you need to keep the private key file properly.

SCM makes it easier for you to quickly deploy such certificates to WAF, ELB, and CDN. Alternatively, you can directly deploy such certificates in those services. The detailed operations are as follows:

- Using SCM to deploy certificates
  a. Download a certificate.

     Download an issued certificate to the local PC. For details, see **Downloading an SSL Certificate**.
  b. Upload the certificate.

     Upload the certificate downloaded in **a** and the local private key file to SCM. For details, see **Uploading an External Certificate**.
  c. Deploy a certificate to WAF, ELB, or CDN.

     Deploy the uploaded certificate to WAF, ELB, and CDN in just few clicks. For details, see **Deploying an SSL Certificate to Other Cloud Products**.
- Not using SCM to deploy certificates
  a. Download a certificate.

     Download an issued certificate to the local PC. For details, see **Downloading an SSL Certificate**.
  b. Upload a certificate to WAF, ELB, or CDN.

     Upload the certificate downloaded in **a** to a specific cloud product, such as WAF, ELB, and CDN. For details, see the corresponding product documentation.

7.3.8 How Do I Use an SSL Certificate After It Is Issued?

The certificate will be issued after being approved by the CA. The certificate can be used upon issuance.

- Certificates requested through Huawei Cloud SCM
  - SCM allows you to use those certificates to Huawei Cloud WAF, ELB, and CDN in just a few clicks. For more details, see **Deploying an SSL Certificate to Other Cloud Products**.
  - You can also use those certificates to other cloud products. Download the certificate, upload the certificate to the service on the corresponding console, and deploy the certificate.

  - SCM also allows you to deploy those certificates on servers. You need to download the certificate to the local PC and deploy the certificate on the corresponding server by referring to **How Do I Install an SSL Certificate on a Server?**

- Certificates requested through other platforms
  - To deploy those certificates on a cloud service, you need to download the certificate, upload the certificate to the service on the corresponding console, and then deploy the certificate.
  - SCM also allows you to deploy those certificates on servers. You need to download the certificate to the local PC and deploy the certificate on the corresponding server by referring to **How Do I Install an SSL Certificate on a Server?**

7.3.9 What Can I Do If My SSL Certificate Cannot Be Deployed to Other Services?

With SCM, you can deploy SSL certificates to other Huawei Cloud services, such as Web Application Firewall (WAF), Elastic Load Balance (ELB), and Content Delivery Network (CDN) in just a few clicks. However, the certificate will fail to be deployed in the following scenarios:

- Currently, you can use SCM to quickly deploy an SSL certificate to WAF in the **default** enterprise project only. If you are using other projects, you cannot directly deployed certificates to WAF in them.

  Solution

  Download the certificate, upload the certificate to the corresponding service console, and deploy the certificate.

- If you select **Upload a CSR** for **CSR** when applying for a certificate, the issued certificate **cannot** be deployed on other cloud products through SCM.

  Solution

  Download the certificate, upload the certificate to the corresponding service console, and deploy the certificate.

- If you have not subscribed to cloud product or the domain name associated with the digital certificate has not been added to the cloud product, the one-click deployment may fail.

  Solution

  Purchase the cloud product, or add the domain name to the cloud product.

- A certificate can only be deployed to a product once in SCM. Any certificate that has been deployed or uploaded to a cloud product cannot be deployed again.

  Solution

  Check whether the SSL certificate has been deployed before. If it has, you do not need to deploy it again.

7.3.10 Issues Related to SSL Certificate Uploading

If you encounter problems related to certificate uploading, use a specific solution based on your situation.

Which Format Is Required of a Certificate to Be Uploaded to SCM?

Currently, only certificates in the PEM format can be uploaded to SCM.

Certificates in other formats can be uploaded only after being converted into those in the PEM format. For details, see **How Do I Convert a Certificate into the PEM Format?**

Can I Download an Uploaded Certificate?

Your uploaded digital certificate and private key will be encrypted and stored on Huawei Cloud. You cannot download the certificate and private key again. Therefore, back up and store your private key.

Is the Use of Certificate on the Original Platform Affected After Uploading?

No. Uploading a certificate does not affect the use of it on the original platform.

Certificate uploading can be regarded as copying a local certificate to Huawei Cloud. The copy operation does not affect the use of the certificate.

Why Is a Message Indicating That the Website Is Insecure After the Certificate Is Uploaded to SCM?

After a certificate is uploaded, you need to deploy the certificate on the corresponding cloud product and complete required configuration.

In SCM, you can deploy an SSL certificate to WAF, ELB, or CDN in just a few clicks. With SSL certificates, data access through the cloud products is more secure.

For details, see **Deploying a Certificate**.

7.4 Troubleshooting

7.4.1 What Can I Do If the Browser Displays a Message Indicating that the SSL Certificate Is Untrusted?

Check the brand (CA) of your certificate and the type of the terminal you are using.

Certificates issued by some CAs are not supported by some terminals. For details, see the certificate introduction of the CA on the official website.

DigiCert and GeoTrust certificates are compatible with mainstream devices in the market.

NOTE

Google Chrome 53 is incompatible with DigiCert and GeoTrust certificates due to known issues.

- Chrome 53 Bug Affecting DigiCert SSL/TLS Certificates
- Warning | Certificate Transparency error with Chrome 53

Troubleshooting Procedure

After you rule out the possibility of incompatibility between the certificate and the terminal, locate the cause in the following procedure:

1. Perform a check using the **GlobalSign SSL Server Test** tool.
   - If the certificate authority, certificate type, or domain name in the check result is inconsistent with that in your order, check the certificate configuration on your server.
   - If the check result shows that the certificate chain is incomplete, check whether the certificate configuration is correct.

   NOTICE

   A PEM certificate provided by SCM contains two parts and neither can be lost. If there is a blank line between the two parts, delete the blank line. After the configuration modification is complete, restart the web service and check the configuration again.
2. Ensure that insecure protocols, such as SSLv3, have been disabled in your digital certificate configuration.
3. Check whether some HTTP resources are referenced on your web page. Some browsers regard the reference of HTTP resources by HTTPS sites as insecure.
4. If a domain name has multiple servers, check whether the certificate is correctly deployed on each server.

7.4.2 Why Does the Browser Still Consider the Website Insecure While the Website Has an SSL Certificate Deployed?

Problem Description

After HTTPS is configured, the access to the website is still blocked, and a message is displayed indicating that the website is insecure.

Possible Causes

- **Possible cause 1**: The accessed domain name is not the same as the one associated with the purchased certificate.
- **Possible cause 2**: Non-HTTPS items, including images, CSS files, and JavaScript files, are incorrectly referenced to the website.
- **Possible cause 3**: The certificate has expired.
- **Possible cause 4**: The browser cache is large.
- Possible cause 5: The Website has been connected to Web Application Firewall (WAF), but the certificate used for the website in WAF was not updated.

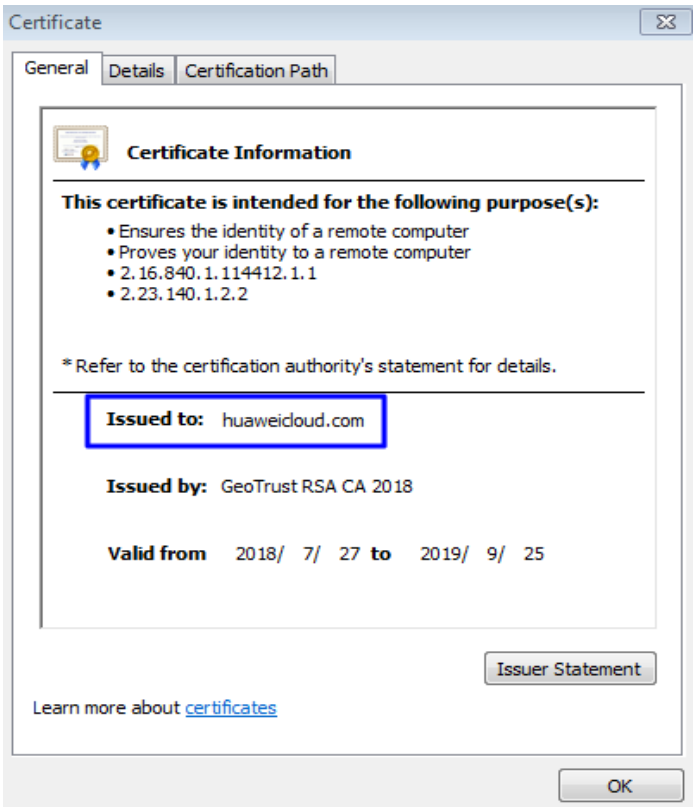
Solution

Perform the following operations based on the possible cause:

- **Possible cause 1**: The accessed domain name is not the same as the one associated with the purchased certificate.

  For example, the associated domain name is **huaweicloud.com**, but you are accessing **https://yun.huaweicloud.com/**. The certificate information is shown in **Figure 7-8**.

  Figure 7-8 Certificate information

  The purchased certificate is associated with **huaweicloud.com** and therefore it does not protect **yun.huaweicloud.com**. Either **huaweicloud.com** or **yun.huaweicloud.com** counts as a domain name. A single-domain certificate protects only the associated domain name.

  Solution:

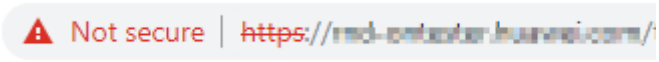
  You are advised to request a certificate and associate it with the domain name you want to protect. For example, you can purchase a certificate and associate it with **yun.huaweicloud.com**. Then you can access **https://yun.huaweicloud.com/**.

  If you have multiple domain names at the same level to be associated, for example, **yun.huaweicloud.com**, **test.huaweicloud.com**, and **example.huaweicloud.com**, which are all under ***.huaweicloud.com**, select **Wildcard** for the domain type when purchasing a certificate and associate the certificate with the wildcard domain name ***.huaweicloud.com**.

- **Possible cause 2**: Non-HTTPS items, including images, CSS files, and JavaScript files, are incorrectly referenced to the website.

  When insecure HTTP items are referenced to an HTTPS web page, such as images, JavaScript files, CSS files, audio files, video files, and flash files, HTTP

images referenced in CSS files, and insecure items written in JavaScript scripts are blocked by the browser by default. If you forcibly load the web page, a message is displayed indicating insecurity.

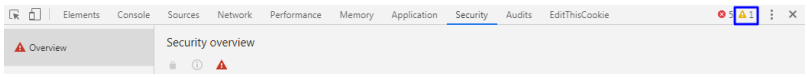


Solution:

a. Open a web browser (Google Chrome 74 is used as an example) and access the web page to be checked.

b. Press **F12** to access **Developer Tools**. In the upper right corner, you can see which insecure web links affect the website.

Figure 7-9 Checking insecure links



c. Find the reported insecure link and make sure it is an HTTP link.

Figure 7-10 Checking insecure items

- If the web link is useless, delete it. Then check whether the insecure link is cleared successfully.
- If the web link is important and cannot be deleted, change the HTTP path to an HTTPS path.

NOTICE

If your website involves data like APIs, you are advised to contact the vendor that provides the invoked data. This is because APIs are important and cannot be modified randomly. If the vendor does not perform HTTPS authentication, you are advised not to perform authentication to prevent any errors in invoked data. For details, contact your vendor.

d. After the processing is complete, clear the browser cache and access the website again.

- **Possible cause 3**: The certificate has expired.

  If your SSL certificate has expired, a message will be displayed indicating insecurity when you access the associated domain name.

  Solution:

  Purchase a new certificate. For details, see **What Can I Do If My SSL Certificate Expired?**

- **Possible cause 4**: The browser cache is large.

  Solution: Clear the browser cache or use another browser.

- Possible cause 5: The Website has been connected to Web Application Firewall (WAF), but the certificate used to the website in WAF was not updated.

  Solution

  – If you still need to use WAF, update the certificate in WAF. For details, see **Updating a Certificate in WAF**

  – If WAF is no longer used, resolve the domain name to the origin server.

7.4.3 Why Is My Website Inaccessible by Domain Name After an SSL Certificate Is Installed?

Problem Description

After an SSL certificate is deployed on a server, you enter **https://***Associated domain name* in the address bar of a web browser but the website fails to be opened.

Possible Causes

- **Possible cause 1**: Port 443 is disabled.
- **Possible cause 2**: The configuration file is not correct.

Solution

Perform the following operations based on the possible cause:

- **Possible cause 1**: Port 443 is disabled.

  Solution:

  Enable port 443 on the server where the SSL certificate is installed and add port 443 to the security group to ensure that HTTPS can be enabled after the installation.

- **Possible cause 2**: The configuration file is not correct.

  Solution: Rectify the fault based on the installation and configuration operations.

7.4.4 Why Does the HTTPS Access Speed Become Slower After an SSL Certificate Is Installed?

After an SSL certificate is installed, HTTPS requires several more handshakes than HTTP during website access. The handshake phase of HTTPS is time-consuming, and RSA verification is required. Therefore, the access speed of HTTPS is slower than that of HTTP after SSL certificates are used.

In addition, processing workload of the CPU of your server is increased slightly because each SSL connection needs to be encrypted and decrypted.

To reduce the pressure on the server, do the following:

1. Use SSL only for pages that need to be encrypted, for example, **https://www.domain.com/login.asp**. Do not use **https://** for all pages, especially home pages with the largest number of visits.

2. Avoid using large-sized image files or other files on pages that use SSL. Use concise pages with few images instead.

7.4.5 Why Does the Browser Prompt a Not Secure Warning to Visitors After I Configure an SSL Certificate for the Website?

Symptom

An SSL certificate has been configured in ELB. When some visitors access the domain name, a message is displayed indicating that the domain name is untrusted, and some computers on the same office network report that "Windows does not have enough information to verify the certificate."

Cause

The root certificate fails to be identified by the computer because the browser version on the computer is not updated in a timely manner.

Solution

Update the browser to the latest version. To access your server more stably, mainstream browsers, such as Google Chrome and Internet Explorer, are recommended.

7.4.6 What Can I Do If the Browser Displays "Your Connection Is Not a Private Connection"?

Symptom

In November 2016, some users reported that the **NET::ERR_CERTIFICATE_TRANSPARENCY_REQUIRED** error occurred when they accessed the HTTPS website using Chrome 53 or QQ 9.5.1 (based on Chromium 53). As a result, the HTTPS website was abnormal.

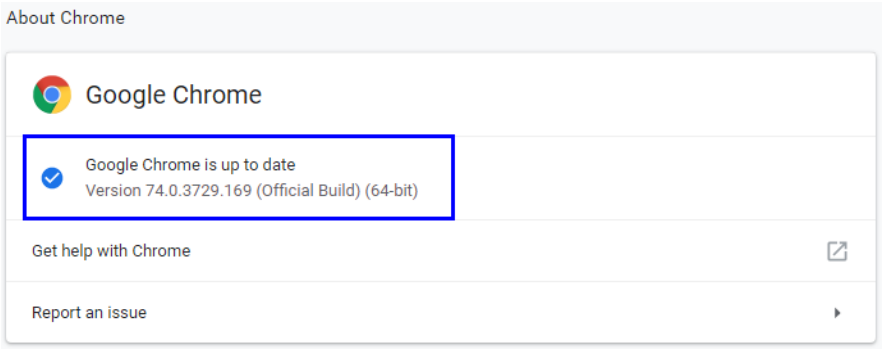
Solution

- For Google Chrome 53 users, use other versions of Google Chrome browsers to access the HTTPS website.

  To check the version of Google Chrome, perform the following steps:

  a. Open Google Chrome, click ⋮ in the upper right corner of the window, and choose **Help** > **About Chrome**.
  b. On the page that is displayed, view the version of Google Chrome.

Figure 7-11 Version of Google Chrome



- For QQ browser version 9.5.1 (based on Chromium 53) users, update the QQ browser to the latest version. This issue has been resolved in the latest version.

  To check the version of QQ browser, perform the following steps:

  a. Open the QQ browser, click ☰ in the upper right corner of the browser, and choose **Help** > **About**.
  b. In the displayed dialog box, check the version of the QQ browser.

This problem is not reported for other browsers.

7.4.7 Will the Browser Prompt A Warning Indicating the Deployed SSL Certificate Is Not Secure?

No.

Free testing certificates are used only to verify the domain names of the websites and secure the transmission. The browser will not prompt a Not Secure warning when the certificate is correctly installed and within the validity period.

The paid certificates will perform strict identity authentication on the applicant and provides strong communication link encryption function to protect sensitive data transmission on internal and external networks. The browser will not prompt a Not Secure warning when the certificate is correctly installed and within the validity period.

8 Certificate Validity Period

8.1 What Can I Do If My SSL Certificate Expired?

SSL certificates have a validity period. Once a certificate expires, it cannot be used. Renewals are allowed only for valid certificates.

You can renew only paid SSL certificates you have purchased in Huawei Cloud SCM before they are about to expire. For details, see **Renewing an SSL Certificate**.

SCM will notify you of certificate expiration 30 days before the certificate expires.

- For certificates you purchase through SCM, SCM automatically notifies you of the expiration by email and SMS two months, one month, one week, three days, and one day before a certificate expires and again when the certificate actually expired.
- For uploaded certificates, you need to configure expiration notifications so SCM can notify you of the certificate expiration by email and SMS. For details, see **How Do I Configure a Certificate Expiration Notification?**

To replace the certificate that is about to expire or update the certificate in the corresponding cloud product, manually install the new certificate on your server. A certificate application must be submitted to the CA when you purchase a new certificate or renew a certificate.

You can replace the old certificate with the new one once it is issued. The replacement does not affect services.

NOTE

- You need to manually renew the certificate or purchase another one 3 to 10 working days before it expires if you have not enabled auto-renewal. If you have enabled auto-renewal, check the SMS notifications, and finish required verification 3 to 10 working days before it expires to ensure that the certificate is valid before the CA validates your verification and issues new certificate.
- After a certificate is renewed, the validity periods of the old and new certificates are described as follows:
  - Details of new certificate not changed

    If the certificate details remain unchanged, the actual validity period of the new certificate equals to the remaining validity period of the original one plus the requested validity period of the new one. A maximum of 30 days can be counted towards the validity period of the new certificate. If you have not enabled auto-renewal, you are advised to apply for a certificate 30 days at the earliest before the current one expires.

    For example, assume that your current certificate expires on October 1, 2019, and you request a new one-year SSL certificate with the same details from the same CA on August 31, 2019. If the new certificate is issued on Sept. 1, 2019, it will be valid from Sept. 1, 2019 to Sept. 30, 2020.

    This rule is formulated, interpreted, and clarified by the CA. If you have any questions, we will work with you to communicate and negotiate with the CA.
  - Information about the new certificate is modified during manual renewal. For example, the domain name, certificate type, or company name is different from that of the old certificate.

    The validity periods of the current and new certificates are calculated separately.

    The use of the new certificate does not affect the current certificate. The current certificate can continue to be used until it expires.

- For details about how to install an SSL certificate, see **Table 8-1**.

  Table 8-1 Example for installing an SSL certificate

Server Type	Operation
Tomcat	**Installing an SSL Certificate on a Tomcat Server**
Nginx	**Installing an SSL Certificate on an Nginx Server**
Apache	**Installing an SSL Certificate on an Apache Server**
IIS	**Installing an SSL Certificate on an IIS Server**
WebLogic	**Installing an SSL Certificate on a WebLogic Server**
Resin	**Installing an SSL Certificate on a Resin Server**

- For details about how to use certificates in other Huawei Cloud services, see **How Do I Apply an SSL Certificate to Other Huawei Cloud Services?**

8.2 How Long Is an SSL Certificate Valid?

An SSL certificate is valid for one year. Once an SSL certificate expires, it cannot be used.

You can renew an SSL certificate before it expires. For details, see **Renewing an SSL Certificate**.

If you have not enabled auto-renewal, manually renew the certificate or purchase another one 3 to 10 working days before it expires. If you have enabled auto-renewal, check the SMS notifications, and finish required verification 3 to 10 working days before it expires to ensure that the certificate is valid before the CA validates your verification and issues new certificate.

When Does the Certificate Validity Period Start?

A certificate takes effect upon issuance. The certificate issuance time refers to the time when the certificate is officially issued by the CA.

If an additional domain name is added for a multi-domain certificate, the certificate validity period starts from the date when the certificate is issued for the first time.

When Will a Notification Be Sent Before a Certificate Expires?

SCM will notify you of certificate expiration 30 days before the certificate expires.

- For certificates you purchase through SCM, SCM automatically notifies you of the expiration by email and SMS two months, one month, one week, three days, and one day before a certificate expires and again when the certificate actually expired.
- For uploaded certificates, you need to configure expiration notifications so SCM can notify you of the certificate expiration by email and SMS. For details, see **How Do I Configure a Certificate Expiration Notification?**

You can renew only paid SSL certificates you have purchased in Huawei Cloud SCM before they are about to expire. For details, see **Renewing an SSL Certificate**.

8.3 What Can I Do If an SSL Certificate Is About to Expire?

SSL certificates have a validity period. Expired SSL certificates cannot secure your website communication connections. If your SSL certificate expires, a message indicating that your website is insecure or cannot be accessed will be displayed to visitors. This will deteriorate your website services and trustfulness.

Before an SSL certificate is about to expire, you can enable auto-renewal or manually renew it on the console. The manual renewal entry is available only for **30 calendar days** before an SSL certificate expires.

SCM will notify you of certificate expiration 30 days before the certificate expires.

- For certificates you purchase through SCM, SCM automatically notifies you of the expiration by email and SMS two months, one month, one week, three days, and one day before a certificate expires and again when the certificate actually expired.
- For uploaded certificates, you need to configure expiration notifications so SCM can notify you of the certificate expiration by email and SMS. For details, see **How Do I Configure a Certificate Expiration Notification?**

To replace the certificate that is about to expire or update the certificate in the corresponding cloud product, manually install the new certificate on your server. A certificate application must be submitted to the CA when you purchase a new certificate or renew a certificate.

You can replace the old certificate with the new one once it is issued. The replacement does not affect services.

NOTE

- You need to manually renew the certificate or purchase another one 3 to 10 working days before it expires if you have not enabled auto-renewal. If you have enabled auto-renewal, check the SMS notifications, and finish required verification 3 to 10 working days before it expires to ensure that the certificate is valid before the CA validates your verification and issues new certificate.
- After a certificate is renewed, the validity periods of the old and new certificates are described as follows:
  - Details of new certificate not changed

    If the certificate details remain unchanged, the actual validity period of the new certificate equals to the remaining validity period of the original one plus the requested validity period of the new one. A maximum of 30 days can be counted towards the validity period of the new certificate. If you have not enabled auto-renewal, you are advised to apply for a certificate 30 days at the earliest before the current one expires.

    For example, assume that your current certificate expires on October 1, 2019, and you request a new one-year SSL certificate with the same details from the same CA on August 31, 2019. If the new certificate is issued on Sept. 1, 2019, it will be valid from Sept. 1, 2019 to Sept. 30, 2020.

    This rule is formulated, interpreted, and clarified by the CA. If you have any questions, we will work with you to communicate and negotiate with the CA.
  - Information about the new certificate is modified during manual renewal. For example, the domain name, certificate type, or company name is different from that of the old certificate.

    The validity periods of the current and new certificates are calculated separately.

    The use of the new certificate does not affect the current certificate. The current certificate can continue to be used until it expires.

8.4 How Long Does an SSL Certificate Take Effect After Being Purchased?

After an SSL certificate is purchased, you need to apply for the certificate. The CA reviews the application submitted by the user and issues the certificate only after the application is approved.

A certificate takes effect immediately upon issuance.

An SSL certificate is valid for one year. Once an SSL certificate expires, it cannot be used. You need to manually renew the certificate or purchase another one 3 to 10 working days before it expires if you have not enabled auto-renewal. If you have enabled auto-renewal, check the SMS notifications, and finish required verification 3 to 10 working days before it expires. Otherwise, the certificate may expire before the CA validates your verification and issues new certificate.

If an additional domain name is added for a multi-domain certificate, the certificate validity period starts from the date when the certificate is issued for the first time.

8.5 Validity Periods and Replacement of the Current and New SSL Certificates

Validity Periods of Current and New SSL Certificates

After the certificate is renewed, the current certificate is still valid. The validity period and usage of the new certificate depend on whether certificate details have changed:

- Certificate details not changed

  If the certificate details remain unchanged, the actual validity period of the new certificate equals to the remaining validity period of the original one plus the requested validity period of the new one. A maximum of 30 days can be added to the validity period of the new certificate. If you have not enabled auto-renewal, you are advised to apply for a certificate 30 days before the expiration.

  For example, assume that your current certificate expires on October 1, 2019, and you request a new one-year SSL certificate with the same details from the same CA on August 31, 2019. If the new certificate is issued on Sept. 1, 2019, it will be valid from Sept. 1, 2019 to Sept. 30, 2020.

  This rule is formulated, interpreted, and clarified by the CA. If you have any questions, we will work with you to communicate and negotiate with the CA.

  In this case, the two certificates are considered as the same certificate and in use concurrently.
- Information about the new certificate is modified during manual renewal. For example, the domain name, certificate type, or company name is different from that of the old certificate.

  The validity periods of the current and new certificates are calculated separately.

  The use of the new certificate does not affect the current certificate. The current certificate can continue to be used until it expires.

Does the Replacement of Old Certificates with New Ones Affect Services?

To replace the certificate that is about to expire or update the certificate in the corresponding cloud product, manually install the new certificate on your server. A certificate application must be submitted to the CA when you purchase a new certificate or renew a certificate.

You can replace the old certificate with the new one once it is issued. The replacement does not affect services.

8.6 How Can I Renew an SSL Certificate?

An SSL certificate is a one-time product and has a validity period. An expired certificate is invalid and cannot protect your website anymore. To ensure that your website is always under protection with an SSL certificate, renew the SSL certificate you are using before it expires. For details, see **Renewing an SSL Certificate**.

SCM will notify you of certificate expiration 30 days before the certificate expires.

- For certificates you purchase through SCM, SCM automatically notifies you of the expiration by email and SMS two months, one month, one week, three days, and one day before a certificate expires and again when the certificate actually expired.
- For uploaded certificates, you need to configure expiration notifications so SCM can notify you of the certificate expiration by email and SMS. For details, see **How Do I Configure a Certificate Expiration Notification?**

To replace the certificate that is about to expire or update the certificate in the corresponding cloud product, manually install the new certificate on your server. A certificate application must be submitted to the CA when you purchase a new certificate or renew a certificate.

You can replace the old certificate with the new one once it is issued. The replacement does not affect services.

NOTE

- You need to manually renew the certificate or purchase another one 3 to 10 working days before it expires if you have not enabled auto-renewal. If you have enabled auto-renewal, check the SMS notifications, and finish required verification 3 to 10 working days before it expires to ensure that the certificate is valid before the CA validates your verification and issues new certificate.
- After a certificate is renewed, the validity periods of the old and new certificates are described as follows:
  - Details of new certificate not changed

    If the certificate details remain unchanged, the actual validity period of the new certificate equals to the remaining validity period of the original one plus the requested validity period of the new one. A maximum of 30 days can be counted towards the validity period of the new certificate. If you have not enabled auto-renewal, you are advised to apply for a certificate 30 days at the earliest before the current one expires.

    For example, assume that your current certificate expires on October 1, 2019, and you request a new one-year SSL certificate with the same details from the same CA on August 31, 2019. If the new certificate is issued on Sept. 1, 2019, it will be valid from Sept. 1, 2019 to Sept. 30, 2020.

    This rule is formulated, interpreted, and clarified by the CA. If you have any questions, we will work with you to communicate and negotiate with the CA.
  - Information about the new certificate is modified during manual renewal. For example, the domain name, certificate type, or company name is different from that of the old certificate.

    The validity periods of the current and new certificates are calculated separately.

    The use of the new certificate does not affect the current certificate. The current certificate can continue to be used until it expires.

After a new certificate is issued, you need to install it on the server to replace the current certificate that is about to expire or replace the certificate in the corresponding cloud product. For more details about certificate installation, see the following FAQs:

- For details about how to install an SSL certificate, see **Table 8-2**.

Table 8-2 Example for installing an SSL certificate

Server Type	Operation
Tomcat	**Installing an SSL Certificate on a Tomcat Server**
Nginx	**Installing an SSL Certificate on an Nginx Server**
Apache	**Installing an SSL Certificate on an Apache Server**
IIS	**Installing an SSL Certificate on an IIS Server**
WebLogic	**Installing an SSL Certificate on a WebLogic Server**

Server Type	Operation
Resin	Installing an SSL Certificate on a Resin Server

- For details about how to use certificates in other Huawei Cloud services, see **How Do I Apply an SSL Certificate to Other Huawei Cloud Services?**

8.7 How Do I Configure a Certificate Expiration Notification?

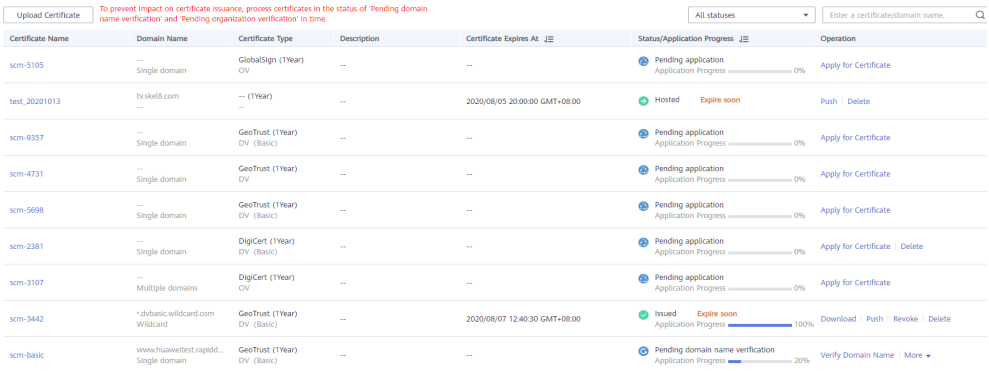
Scenario

An SSL certificate has a validity period and cannot be used after it expires. If you have not enabled auto-renewal, manually renew the certificate or purchase another one 3 to 10 working days before it expires. If you have enabled auto-renewal, check the SMS notifications, and finish required verification 3 to 10 working days before the certificate expires to ensure that the certificate is valid before the CA validates your verification and issues a new certificate.

To prevent risks caused by certificate expiration, we provide the following methods to notify you of certificate expiration:

- Reminder on the SCM console: For hosted or issued certificate, a certificate expiration reminder will be displayed on the SCM console 30 days before a certificate expires. **Figure 8-1** shows an example.

  Figure 8-1 Certificate list



- Message notification: For issued and uploaded certificates, SCM automatically notifies the certificate applicants or configured message recipients of the expiration two months, one month, one week, three days, and one day before the certificate expires and again on the day when the certificate actually expired. For details about how to add or modify a notification recipient, see **Adding a Message Recipient**.

If your certificate is about to expire and you receive a notification from the system, address the issue by following **What Can I Do If an SSL Certificate Is About to Expire?**

Adding a Message Recipient

Step 1 Log in to the management console.

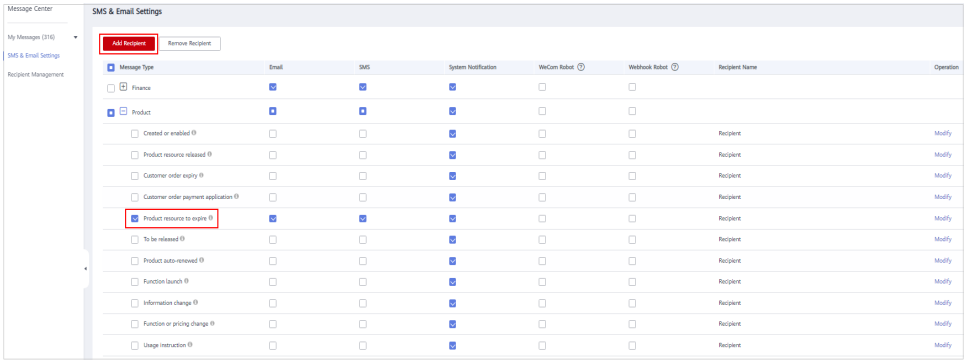
Step 2 Click  in the upper right corner of the page.

Step 3 Click **More** to go to the **Message Center** page.

Step 4 In the navigation pane on the left, click **SMS & Email Settings**.

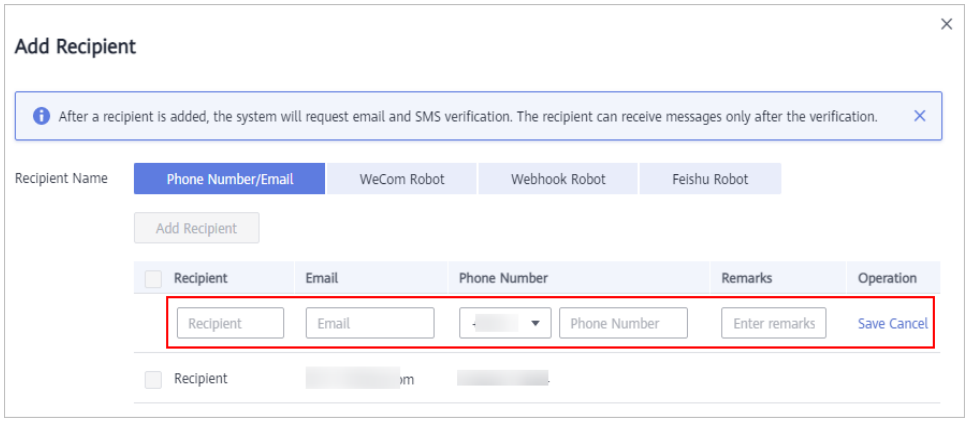
Step 5 In the **Product** area, select **Product resource to expire** and click **Add Recipient** in the upper part of the page.

Figure 8-2 Add Recipient



Step 6 In the displayed **Add Recipient** dialog box, select existing recipients, or click **Add Recipient** above the recipient list, enter the name, email address, and mobile number of the new recipient, and click **Save**.

Figure 8-3 Add Recipient



Step 7 Click **OK**.

After a recipient is added, the system automatically sends a verification message to the entered mobile number and email address. The newly added recipient can receive messages only after the verification.

----End

Follow-up Operations

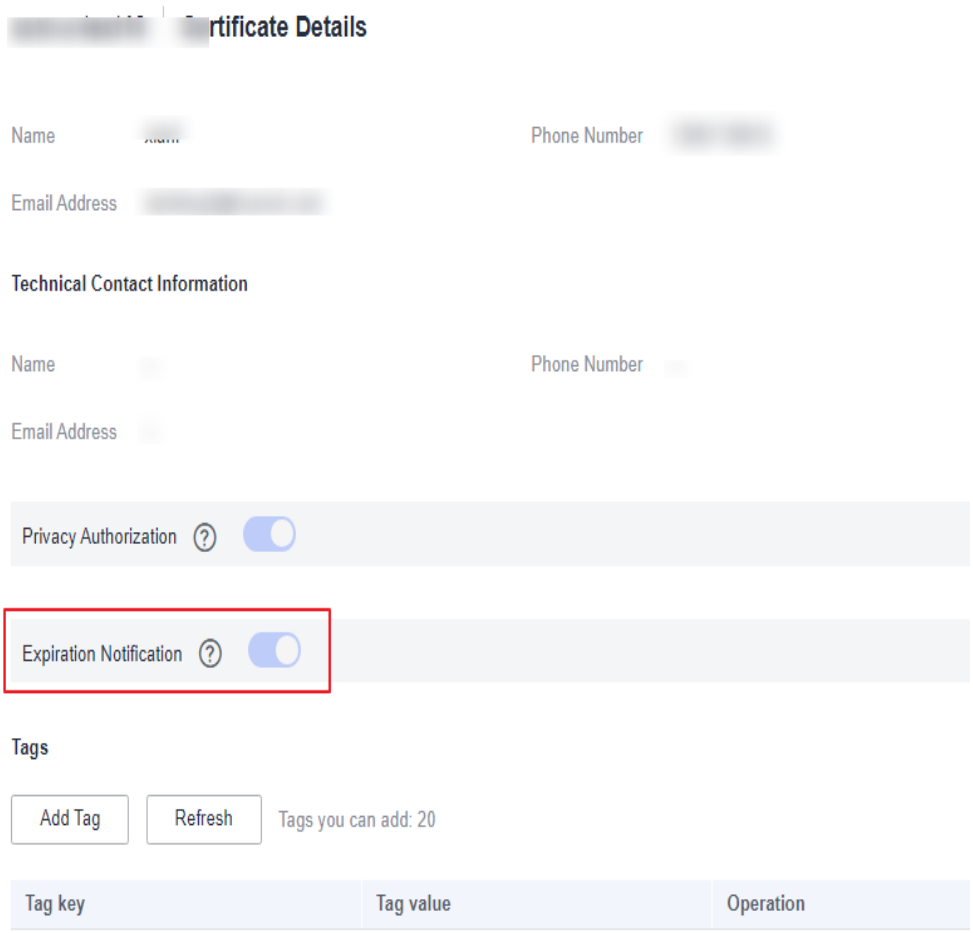
After the configuration is complete, the expiration notification is enabled by default. You can disable or enable it if needed. To do so, click the certificate name

to go to the certificate details page and toggle off ( ) or on ( )**Expiration Notification**.

CAUTION

The expiration notification toggle is displayed only when the certificate is in the **Issued**, **Expired**, and **Hosting** states. The status of **Expiration Notification** cannot be changed for expired certificates.

Figure 8-4 Expiration Notification



8.8 Will Services Be Affected If an SSL Certificate Is Not Updated After It Expires?

If an SSL certificate expires and will not be used anymore, you do not need to purchase it again, and services are not affected.

In addition, if the SSL certificate expires and is not updated in a timely manner, an alarm indicating that the security certificate of the website has expired is

displayed when a user accesses the website. Unauthorized users, such as hackers, can use expired SSL certificates to tamper with or steal information and data transmitted between the browser and server, affecting user data security.

If a browser user finds that the website server certificate expires, the user does not trust the website, which brings negative impact on the brand image of the enterprise. After the website server expires, users may choose to stop accessing the website to avoid personal loss.

8.9 Validity Periods of Private Certificates

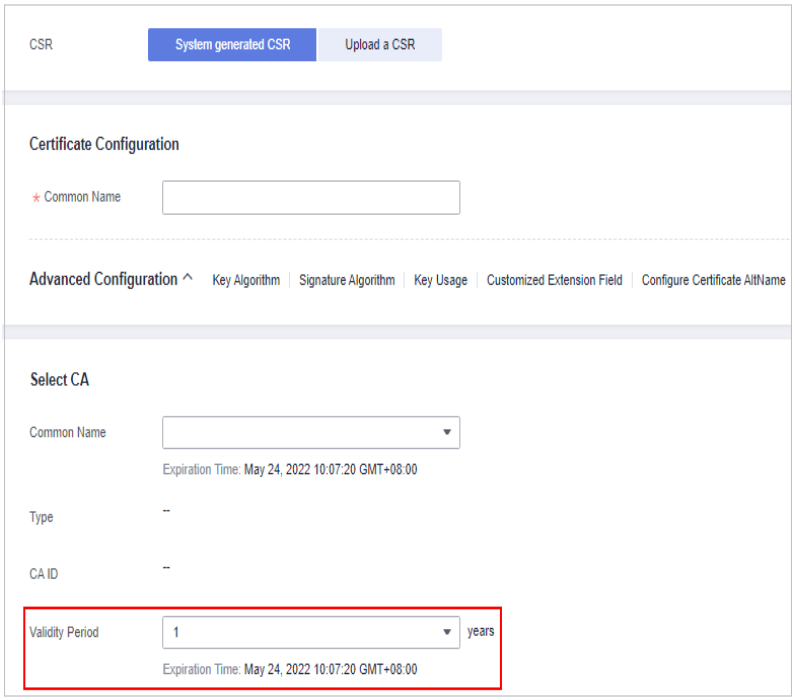
How Long Is the Validity Period of a Private Certificate?

The validity period of a private certificate is set when it is applied for.

NOTE

A private certificate is issued by an activated private CA. Therefore, the validity period of a private certificate must be shorter than or equal to that of the private CA that issued it.

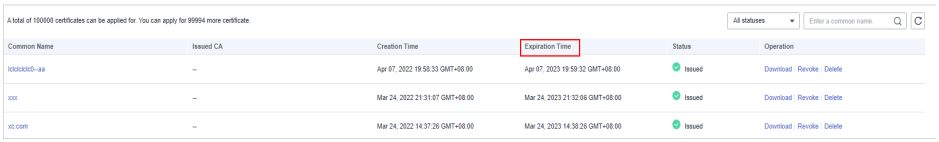
Figure 8-5 Setting the validity period



A private certificate is issued by an activated CA.

After you applied for a private certificate, you can view its expiration time on the private certificate list page. If a private certificate expires, you need to apply for a new one.

Figure 8-6 Viewing expiration time



How Do I Prevent Service Interruptions When My Private Certificate Is About to Expire?

Rotate the certificate before it actually expires. Before the old certificate expires, replace it with the newly issued certificate. For details, see **Rotating a Private CA** and **Rotating a Private Certificate**.

8.10 How Long Will an Order Become Invalid If I Do Not Apply for a Certificate After Purchasing It?

Your order for SSL certificates never expires. You can apply for certificates in your orders anytime you want.

8.11 How Do I Know When My Certificate Expires?

SCM will notify you of certificate expiration 30 days before the certificate expires.

- For certificates you purchase through SCM, SCM automatically notifies you of the expiration by email and SMS two months, one month, one week, three days, and one day before a certificate expires and again when the certificate actually expired.
- For uploaded certificates, you need to configure expiration notifications so SCM can notify you of the certificate expiration by email and SMS. For details, see **How Do I Configure a Certificate Expiration Notification?**

You can also go to the SCM console to view when your certificate expires. The procedure is as follows:

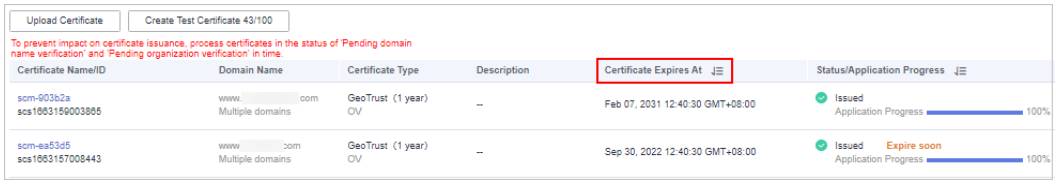
Step 1 Log in to the **management console**.

Step 2 Click ☰ in the upper left corner of the page and choose **Security & Compliance** > **Cloud Certificate Management Service**.

Step 3 In the navigation pane on the left, choose **SSL Certificate Manager**.

Step 4 In the **Certificate Expires At** column, view the expiration time of the certificate.

Figure 8-7 Certificate Expires At



----End

9 About Billing, Renewal, and Unsubscription

9.1 How Is an SSL Certificate Billed?

SCM provides you with free single-domain DV (basic) certificates issued by DigiCert. For details, see **How Can I Apply for a Free SSL Certificate?**

If you choose other SSL certificates, you will be billed based on the certificate type, certificate brand, domain name type, domain name quantity, and required duration.

For price details, see **Product Pricing Details**.

You can upload external SSL certificates to SCM to manage all of your certificate in one place for free.

9.2 Can I Renew an SSL Certificate?

Yes.

An SSL certificate issued by a CA is valid for one year. An expired SSL certificate cannot enable HTTPS-encrypted communication. Your SSL certificate has to be renewed before it expires.

For details, see **Renewing an SSL Certificate**.

Restrictions

- The manual renewal entry is available only for **30 calendar days** before an SSL certificate expires.
- Only paid SSL certificates that have been purchased in Huawei Cloud SCM and are about to expire can be renewed. Uploaded certificates, free certificates, and single-domain expansion packages cannot be renewed.
- Manually renewing an SSL certificate is to purchase a new certificate with the exactly same configurations as the original one. The configurations include the certificate authority, certificate type, domain type, domain quantity, and primary domain name.

- If auto-renewal is enabled for a certificate, the system automatically purchases a new certificate that has the same specifications with the original one 30 days before the original one expires and submits a certificate application using the application information of the original certificate. You still need to cooperate with the CA to complete domain name ownership and/or organization verification. The CA will not issue the certificate until they validate your domain name ownership and identity.
- The renewal certificate and the original certificate are two independent certificates. Once the renewed certificate is issued, you need to install it on the web server or deploy it on the Huawei Cloud product the original one is deployed.
- The new certificate inherits the remaining validity period of the original certificate. For example, your one-year certificate will expire on November 30, 2022. If you renew the certificate and the CA issues it on November 25, 2022, the new certificate will expire on November 30, 2023. The validity period of the new certificate is one year plus the remaining validity period (five days in this case) of the original certificate.

NOTICE

- A DigiCert DV (basic) wildcard-domain certificate you obtain through renewal cannot inherit the remaining validity of the old certificate.
- If you renew an SSL certificate on the certificate renewal page, and the certificate authority, certificate type, domain type, domain quantity, and/or primary domain name of the new certificate are different from those of the original certificate, the new certificate **cannot automatically inherit** the remaining validity period (if any) of the original certificate. So, the validity period of the new certificate is one year.

9.3 Can I Unsubscribe from an SSL Certificate?

The 7-day unconditional refund policy applies to SCM.

Constraints

- You can request a refund for an SSL certificate order that meets all of the following conditions:
  - You have purchased an SSL certificate on the SCM console.
  - Your refund request cannot be later than 7 natural days (or 7x24 hours) after your pay for the order.

    For example, if you pay for an SSL certificate at 12:00 on December 1, you can unsubscribe from it before 11:59 on December 8. After 11:59 on December 8, you cannot unsubscribe from it.

⚠ CAUTION

No refunds are allowed 7 days after the purchase.

  - The purchased SSL certificate must meet one of the following conditions:
    - The certificate application is not submitted. The certificate status is **Pending application**.
    - The certificate application has been submitted but has been canceled before it is issued. The certificate status is **Pending application**.
    - The certificate has been issued, and the certificate revocation process has been completed within seven days after the order is placed. The certificate status is **Revoked**.
- The full refund indicates the fees you paid for the SSL certificate.

> **CAUTION**
>
> Only the fees you paid for purchasing or renewing SSL certificates or related service orders can be refunded. Vouchers or discount coupons you used cannot be refunded.

Procedure

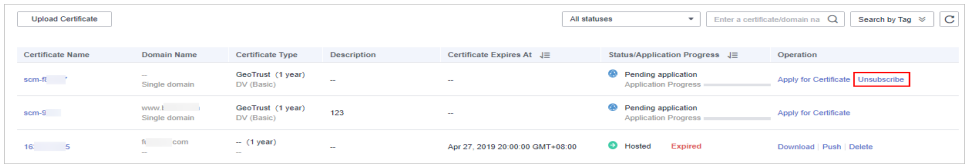
Step 1 Log in to the **management console**.

Step 2 Click ☰ in the upper left corner of the page and choose **Security & Compliance** > **Cloud Certificate Management Service**. The service console is displayed.

Step 3 In the navigation pane, choose **SSL Certificate Manager** > **SSL Certificates**.

Step 4 In the row containing the desired certificate, click **Unsubscribe** in the **Operation** column. **Figure 9-1** shows an example.

Figure 9-1 Unsubscribing



Step 5 On the **Confirm Unsubscription** page, confirm the certificate information. If the information is correct, select **I acknowledge that the certificate will be deleted and cannot be restored after the unsubscription**.

Step 6 In the lower right corner of the page, click **Unsubscribe**.

NOTICE

- Unsubscribed certificates will be deleted and cannot be recovered. Exercise caution when performing this operation.
- The system will review your unsubscription. After the unsubscription is approved, the certificate will not be displayed in the certificate list. During the review period, do not perform any operation on the SSL certificate. Otherwise, the approval fails.

Certificate unsubscribed. is displayed in the upper right corner of the page. The refund will be credited to the original payment account.

You can choose **Billing Center** > **Orders** > **My Orders** to view the unsubscription record.

----End

9.4 How Is PCA in CCM Billed?

You will be billed based on how many private CAs and private certificates you use. The pricing details are displayed on the purchase page.

How Do I Stop the Billing for a Private CA or Certificate?

Private CAs and private certificates are billed on a pay-per-use basis. A root CA is billed from the moment it is created. Subordinate CAs are not billed until they are activated.

To stop billing for a private CA or certificate, delete it.

CAUTION

- Disabled private CAs will also be billed.
- If you delete a private CA, it takes a few days for the deletion to take effect. It takes at least 7 days for a scheduled deletion to take effect (depending on the delay time you configured). During the scheduled deletion period, you will be billed in accordance with the following rules:
  - If you have not canceled the scheduled deletion and the private CA is deleted, the private CA is not billed for this period.
  - If you cancel the scheduled deletion but the private CA is not deleted during this period, the private CA is still billed for this period.

  For example, if you delete a private CA at 00:00 on January 1, 2022 and the private CA is deleted seven days later as scheduled, you will not be billed for the seven days. If you cancel the scheduled deletion at 00:00 on January 4, 2022 and the private CA is not deleted, you will still be billed for the CA for the period from 00:00 on January 1, 2022 to 00:00 on January 4, 2022.

9.5 Do I Need to Reinstall an SSL Certificate After Renewing It?

Yes. You need to reinstall the SSL certificate.

An SSL certificate issued by a CA is one year, and it becomes invalid when it expires.

Renewing an SSL certificate is to purchase a new certificate with the exactly same configurations as the original one. The configurations include the certificate authority, certificate type, domain type, domain quantity, and primary domain name. So, the renewed SSL certificate must be deployed where the original one locates.

For details, see **How Do I Apply an SSL Certificate to Other Huawei Cloud Services?**

To install certificates on Tomcat, Nginx, Apache, or IIS servers, you can refer to **Table 9-1**.

Table 9-1 Example for installing an SSL certificate

Server Type	Operation
Tomcat	**Installing an SSL Certificate on a Tomcat Server**
Nginx	**Installing an SSL Certificate on an Nginx Server**
Apache	**Installing an SSL Certificate on an Apache Server**
IIS	**Installing an SSL Certificate on an IIS Server**
WebLogic	**Installing an SSL Certificate on a WebLogic Server**
Resin	**Installing an SSL Certificate on a Resin Server**

10 Others

10.1 SSL Certificate Management

10.1.1 What Are the Differences Between Revoking a Certificate and Deleting a Certificate?

You can revoke or delete certificates in HUAWEI CLOUD SCM.

The revocation or deletion of a certificate has no impact on repurchase of the certificate.

The differences are as follows:

- Description
  - Revoking a certificate: indicates invalidating an issued certificate at the CA. A revoked certificate is no longer trusted and can no longer be used for certificate-based encryption.
  - Deleting a certificate: indicates deleting a certificate from Huawei Cloud. The certificate will still be valid and trusted by web browsers.
- Constraints
  - Revoking a certificate:

    If you no longer need a certificate, the private key of the certificate is lost, or you have certain security concerns, you can revoke an issued certificate on the SCM console.

    NOTICE

    A certificate in the renewal period cannot be revoked. So, a certificate cannot be revoked within one month before it expires.

  - Deleting a certificate:

    If your certificate is in the **Expired**, **Hosted**, or **Issued** state, you can delete it on the SCM console.

10.1.2 Can I Withdraw a Certificate Revocation or Deletion Application?

No.

After a certificate revocation or deletion application is submitted, it cannot be withdrawn. Exercise caution with certificate revocation or deletion.

- Certificate revocation indicates invalidating an issued certificate at the CA. A revoked certificate is no longer trusted and can no longer be used for certificate-based encryption.

  After a certificate revocation application is submitted, the CA reviews the application. The revocation is complete only after the application is approved.

  No operation is required during the revocation process, and the approval process of the CA takes little time. Therefore, the revocation application cannot be withdrawn after being submitted. Exercise caution with certificate revocation.
- Deleting a certificate indicates deleting a certificate from Huawei Cloud. The certificate will still be valid and trusted by web browsers.

  If you submit a certificate deletion application, Huawei Cloud directly deletes the certificate. There is no need to obtain the approval from the CA. Therefore, the certificate deletion operation cannot be withdrawn after being performed. Exercise caution with certificate deletion.

10.1.3 How Do I Convert a Certificate into the PEM Format?

Certificate formats can be converted mutually.

It is recommended that **OpenSSL** be used to convert certificates in other formats into the **PEM** format. The following examples illustrate some popular conversion methods.

Converting the Certificate Format to PEM

Table 10-1 Certificate format conversion commands

Format	Conversion Method (Using OpenSSL)
CER/CRT	Rename the **cert.crt** certificate file to **cert.pem**.
PFX	• Obtain a private key. As an example, run the following command to convert **cert.pfx** into **key.pem**: **openssl pkcs12 -in cert.pfx -nocerts -out key.pem** • Obtain a certificate. As an example, run the following command to convert **cert.pfx** into **cert.pem**: **openssl pkcs12 -in cert.pfx -nokeys -out cert.pem**
P7B	1. Convert a certificate. As an example, run the following command to convert **cert.p7b** into **cert.cer**: **openssl pkcs7 -print_certs -in cert.p7b -out cert.cer** 2. Rename obtained certificate file **cert.cer** to **cert.pem**.

Format	Conversion Method (Using OpenSSL)
DER	• Obtain a private key. As an example, run the following command to convert **privatekey.der** into **privatekey.pem**: **openssl rsa -inform DER -outform PEM -in privatekey.der -out privatekey.pem** • Obtain a certificate. As an example, run the following command to convert **cert.cer** into **cert.pem**: **openssl x509 -inform der -in cert.cer -out cert.pem**

PKCS8 Certificate Encoding Format

As Huawei Cloud WAF, ELB, and CDN do not support the PKCS8 format, an error will occur if you upload a certificate in PKCS8 format to SCM and then deploy it on WAF, ELB, or CDN.

NOTE

- If the private key file of a certificate starts with **-----BEGIN PRIVATE KEY-----**, the certificate is in PKCS8 format.
- If the private key file of a certificate starts with **-----BEGIN RSA PRIVATE KEY-----**, the certificate is in PKCS1 format.

If your public or private key is in PKCS8 format, perform the following operations to use the PKCS8 certificate to WAF and CDN services:

Step 1 Check whether the certificate is in PEM format.

- If yes, go to **Step 2**.
- If no, convert the certificate format to PEM by referring to **Converting the Certificate Format to PEM** and then go to **2**.

Step 2 Run the following commands to convert format from PKCS8 to PKCS1:

- Converting the private key format from PKCS8 to PKCS1:

  openssl rsa -in pkcs8.pem -out pkcs1.pem
- Converting the public key format from PKCS8 into PKCS1:

  openssl rsa -pubin -in public.pem -RSAPublicKey_out

Step 3 Upload the converted certificate to SCM. For details, see **Uploading a Certificate**.

Step 4 Deploy the certificate to the corresponding Huawei Cloud service. For details, see **Deploying a Certificate to a Cloud Product**.

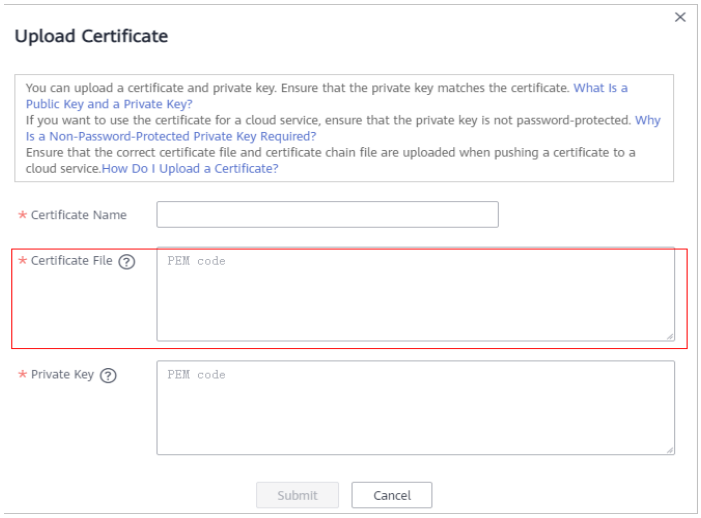
----End

10.1.4 How Do I Complete the Certificate File When Uploading a Certificate?

You can upload your external certificates to SCM so that you can centrally manage all your certificates.

When uploading an existing certificate to SCM, you need to upload a certificate file. **Figure 10-1** shows an example.

Figure 10-1 Certificate



Currently, only certificate files in the PEM format can be uploaded to SCM.

When uploading a certificate file, open the .PEM file you want to upload with Notepad and copy the content to the **Certificate File** text box as shown in **Figure 10-1**.

If the system displays a message indicating that the certificate chain is incomplete during the upload, perform the following operations:

Generally, a certificate file issued by an intermediate agency contains multiple certificates, for example, a server certificate and a certificate chain in *.PEM format. A certificate chain is an ordered list of certificates, containing an SSL certificate and Certificate Authority (CA) certificates, that enable the receiver to verify that the sender and all CA's are trustworthy. You need to combine all certificates into a single, complete certificate file before upload. For more information about the certificate chain, see **How Do I Configure a Certificate Chain?**

A server certificate must be placed before the certificate chain in a certificate file. Perform the following steps to make a certificate file:

1. Use Notepad to open all ***.PEM** certificate files.
2. Paste the server certificate before the certificate chain.

   Generally, an instruction will be issued by the intermediate agency together with the certificate. Be aware of the rules in the instruction. The general rules are as follows:

   - There are no empty lines between certificates.
   - The format of the certificate chain is as follows:

     -----BEGIN CERTIFICATE-----

     -----END CERTIFICATE-----

     -----BEGIN CERTIFICATE-----

     -----END CERTIFICATE-----

Figure 10-2 shows a complete certificate file.

Figure 10-2 A complete PEM certificate file

```
-----BEGIN CERTIFICATE-----
MIIE/DCCA+SgAwIBAgIUOWwvEj4lj5OamNabjVbGY42BBcQwDQYJKoZIhvcNAQEL
BQAwgYIxCzAJBgNVBAYTAmNuMRIwEAYDVQQIDAlHdWFuZ0RvbmcxETAPBgNVBAcM
CFNoZW56aGVuMQ8wDQYDVQQKDAZIdWF3ZWkxCzAJBgNVBAsMAklUMS4wLAYDVQQD
DCVIdWF3ZWkgV2ViIFNlY3VyZSBJbnRlcm5ldCBHYXRld2F5IENBMB4XDTE3MTAx
ODAwNDA0NloXDTE4MTAxODAwNDA0NlowgZoxCzAJBgNVBAYTAkNOMRAwDgYDVQQI
DAdqaWFuZ3N1MRAwDgYDVQQHDAduYW5qaW5nMS4wLAYDVQQKDCVIdWF3ZWkgU29m
dHdhcmUgVGVjaG5vbG9naWVzIENvLiwgTHRkMRkwFwYDVQQLDBBDbG91ZGJ1IFNS
RSBEZXB0MRwwGgYDVQQDDBN3d3cuaHVhd2VpY2xvdWQuY29tMIIBIjANBgkqhkiG
9w0BAQEFAAOCAQ8AMIIBCgKCAQEA3f5hC6J20XSF/Y7Wb8o6l30yzgaUYWGLEX8t
1dQ1JAus93xMC2Jr6UOXmXR6WaRu5lZxpPfLT/IV6UnvMLnxJQBavqauykCSkadW
stYA9ttTI/FYq+MR1XKbNrqK/ADhRfmR4owS/3w1wxvdpwy5TRZ+V/D6TjxHZCjc
+8lSmUuLxsgoUe79B/ruccY1ufuqr3v0TToaNn4c37kwjJeKf+b2F/IqO/KF+9zF
[redacted]
AgWgMBMGA1UdJQQMMAoGCCsGAQUFBwMBMEIGA1UdEQQ7MDmCE3d3dy5odWF3ZWlj
bG91ZC5jb22CESouaHVhd2VpY2xvdWQuY29tgg9odWF3ZWljbG91ZC5jb20wDQYJ
KoZIhvcNAQELBQADggEBACsLP7Hj+4KY1ES38OnOWuwQ3st8axvhDD9jZGoninzW
JSGpdmO4NEshlvwSFdEHpjy/xKSLCIqg5Ue8tTI8zOFl3UOROnMeHSKSxJG6zc8X
h/3N217oBygPgvpmc6YX66kvwXmbA7KRniiYS0nmCi2KUyng5Bv4dsx21djlqQ3b
HI+i026Q9odLsmhsKOsFUC0vDKoMIJz0Socy7Cq1+tFWF9S79MI4QjxaXVEvpIEg
QLEze3BXSsoiWRkdfsdDB9s+UtdWeJy0HMh/otwUQQtB6areV2+CPthfmDENA+A8
IK6GzHyp/mgrwKdDh97aQ42ARreAv4KVFAiJGZ02LOY=
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
MIID2TCCAsGgAwIBAgIJALQPO9XxFFZmMA0GCSqGSIb3DQEBCwUAMIGCMQswCQYD
VQQGEwJjbjESMBAGA1UECAwJR3VhbmdEb25nMREwDwYDVQQHDAhTaGVuemhlbjEP
MA0GA1UECgwGSHVhd2VpMQswCQYDVQQLDAJJVDEuMCwGA1UEAwwlSHVhd2VpIFdl
YiBTZWN1cmUgSW50ZXJuZXQgR2F0ZXdheSBDQTAeFw0xNjA1MTAwOTAyMjdaFw0y
NjA1MDgwOTAyMjdaMIGCMQswCQYDVQQGEwJjbjESMBAGA1UECAwJR3VhbmdEb25n
MREwDwYDVQQHDAhTaGVuemhlbjEPMA0GA1UECgwGSHVhd2VpMQswCQYDVQQLDAJJ
VDEuMCwGA1UEAwwlSHVhd2VpIFdlYiBTZWN1cmUgSW50ZXJuZXQgR2F0ZXdheSBD
[redacted]
rG0CAwEAAaNQME4wHQYDVR0OBBYEFDB6DZZX4Am+isCoa48e4ZdrAXpsMB8GA1Ud
IwQYMBaAFDB6DZZX4Am+isCoa48e4ZdrAXpsMAwGA1UdEwQFMAMBAf8wDQYJKoZI
hvcNAQELBQADggEBAKN9kSjRX56yw2Ku5Mm3gZu/kQQw+mLkIuJEeDwS6LWjW0Hv
3l3xlv/Uxw4hQmo6OXqQ2OM4dfIJoVYKqiLlBCpXvO/X600rq3UPediEMaXkmM+F
tuJnoPCXmew7QvvQQvwis+0xmhpRPg0N6xIK01vIbAV69TkpwJW3dujlFuRJgSvn
rRab4gVi14x+bUgTb6HCvDH99PhADvXOuI1mk6Kb/JhCNbhRAHezyfLrvimxI0Ky
2KZWitN+M1UWvSYG8jmtDm+/FuA93V1yErRjKj92egCgMlu67lliddt7zzzzqW+U
QLU0ewUmUHQsV5mk62v1e8sRViHBlB2HJ3DU5gE=
-----END CERTIFICATE-----
```

10.1.5 How Do I Configure a Certificate Chain?

When you upload an SSL certificate to SCM for unified management, import the certificate, certificate chain, and private key separately and encode them in PEM format.

The following examples describe the PEM format.

NOTICE

If you incorrectly edit any character in a PEM file, for example, adding one or more spaces at the end of any line, the certificate, certificate chain, or private key will be invalid. Exercise caution when editing a PEM file.

- Example 1: PEM-encoded certificate

  Figure 10-3 PEM-encoded certificate

  ```
  -----BEGIN CERTIFICATE-----
  Base64-encoded certificate
  -----END CERTIFICATE-----
  ```

- Example 2: PEM-encoded certificate chain

  A certificate chain contains one or more certificates. You can use a text editor to add your certificate files into a chain. Certificates must be linked in sequence so that each certificate can prove the previous one.

  The following example contains three certificates. Your certificate chain may contain more or fewer certificates.

  Figure 10-4 PEM-encoded certificate chain

  ```
  -----BEGIN CERTIFICATE-----
  Base64-encoded certificate
  -----END CERTIFICATE-----
  -----BEGIN CERTIFICATE-----
  Base64-encoded certificate
  -----END CERTIFICATE-----
  -----BEGIN CERTIFICATE-----
  Base64-encoded certificate
  -----END CERTIFICATE-----
  ```

- Example 3: PEM-encoded private key (private certificates only)

  A public key algorithm is used for X.509 version 3 certificates. When you create an X.509 certificate or request a certificate, you need to specify the algorithm and key bit size required to create the private-public key pair, and add the public key in the certificate or request.

  In addition, you need to keep the private key password. An unencrypted private key is required when you import a certificate. For details, see **Why Is a Non-Password-Protected Private Key Required?**

  The following is an example of the RSA private key encoded in PEM format:

  ```
  -----BEGIN RSA PRIVATE KEY-----
  Base64-encoded private key
  -----END RSA PRIVATE KEY-----
  ```


The following example shows an elliptic curve private key encoded in PEM format. Depending on how you create the secret, your private key may not contain a parameter block. If the private key contains a parameter block, delete it (before using the private key) from the file to be imported to SCM.

```
-----BEGIN EC PARAMETERS-----
Base64-encoded parameters
-----END EC PARAMETERS-----
-----BEGIN EC PRIVATE KEY-----
Base64-encoded private key
-----END EC PRIVATE KEY-----
```

10.1.6 Why Is the SSL Certificate Not Displayed in the Certificate List?

The following two types of certificates are displayed in the certificate list on the SCM console:

- Certificates purchased on the console
- Certificates uploaded to the SCM platform

In addition, certificates purchased from other platforms (including the marketplace) must be uploaded to the SCM console so that SCM can manage them. For details, see **Uploading a Certificate**.

10.1.7 How Long Does It Take to Revoke a Certificate?

A DV certificate will be revoked within one working day after you submit a certificate revocation application.

For OV and EV certificates, after you submit a certificate revocation application, the CA sends a confirmation email to the email address you provide when you apply for the certificate. The certificate will be revoked after you confirm the revocation as required in the email.

10.2 Troubleshooting

10.2.1 How Do I Add, Unbind, Replace, or Change the Domain Name for an SSL Certificate?

Select a processing method based on your requirements.

Adding a Domain Name to an SSL Certificate

- If you have purchased an SSL certificate with a single domain name:

  A new certificate needs to be purchased.
- If you have purchased an SSL certificate with multiple domain names:

  - If the certificate has a quota for adding additional domain names, you can add additional domain names for the certificate. For details, see **Adding an Additional Domain Name**.
  - If the certificate does not have a quota for additional domain names, you need to purchase a new certificate.
- If you have purchased an SSL certificate with a wildcard domain name:
  - If the domain name to be added is at the same level as the domain name associated with the certificate, you can directly use the existing certificate without adding the domain name.

    For example, if the domain name associated with the certificate is ***.huaweicloud.com** and you want to associate **test.huaweicloud.com** with the certificate, you do not need to add the domain name **test.huaweicloud.com**, and you can directly use the existing certificate.
  - If the domain name to be added is not at the same level as the domain name associated with the certificate, you need to purchase a new certificate.

    For example, if the domain name associated with the certificate is ***.huaweicloud.com** and you want to associate the domain name **abc.test.huaweicloud.com** with the certificate, you need to purchase a new certificate and associate the domain name with the certificate.

Unbinding a Domain Name from an SSL Certificate

- If the certificate has not been issued, and you need to unbind the domain name from the current certificate and bind a new domain name:

  You can withdraw the certificate application. For details, see **Withdrawing an SSL Certificate Application**.
- If the certificate has been issued:

  For a single-domain or wildcard-domain certificate, apply for a reissue and associate the reissued certificate with new domain names. For a multi-domain certificate, domain names cannot be changed. You can purchase a new certificate for the new domain name.

  An issued certificate can be reissued within a specified period. The period varies depending on domain types and CAs. The following describes the period given by some CAs:

  - DigiCert and GeoTrust: 25 days.

  There is no limit on how many times you can apply for reissues of a single-domain or wildcard-domain certificate only when the reissue is requested within the specified period. This period varies depending on CAs.

  For details about how to re-issue a certificate, see **Re-issuing a Certificate**.

Replacing or Changing the Domain Name Bound to an SSL Certificate

- If the certificate has not been issued:

  You can withdraw the certificate application. For details, see **Withdrawing an SSL Certificate Application**.
- If the certificate has been issued:

For a single-domain or wildcard-domain certificate, apply for a reissue and associate the reissued certificate with new domain names. For a multi-domain certificate, purchase a new certificate for the new domain name.

An issued certificate can be reissued within a specified period. The period varies depending on domain types and CAs. The following describes the period given by some CAs:

- DigiCert and GeoTrust: 25 days.

There is no limit on how many times you can apply for reissues of a single-domain or wildcard-domain certificate only when the reissue is requested within the specified period. This period varies depending on CAs.

For details about how to re-issue a certificate, see **Re-issuing a Certificate**.

10.2.2 Can I Apply for an SSL Certificate for a Private Domain?

A public network digital certificate cannot be used for a private domain name.

To deploy a certificate on an internal network, apply for a private certificate. For more details, see **Applying for a Private Certificate**.

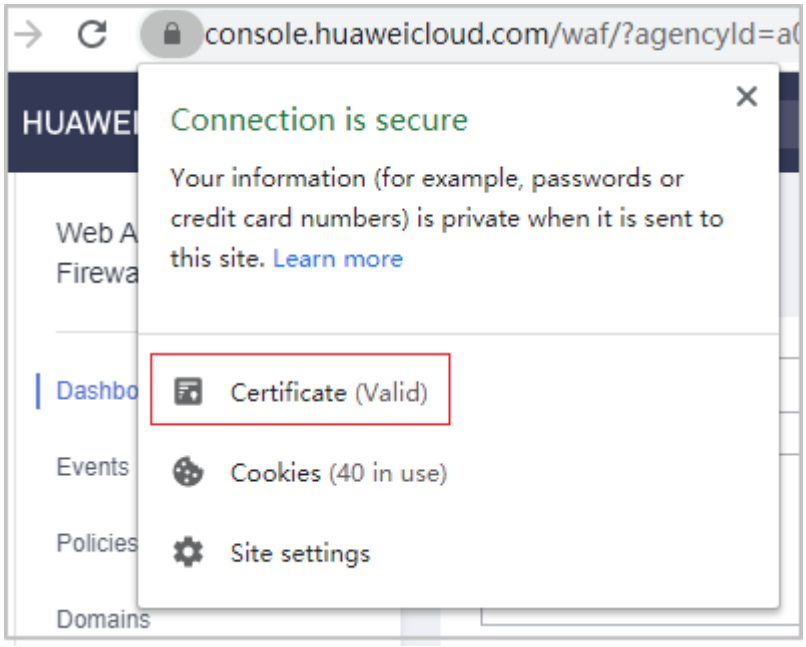
10.2.3 How Do I Fix an Incomplete SSL Certificate Chain?

If the certificate provided by the certificate authority is not found in the built-in trust store on your platform and the certificate chain does not have a certificate authority, the certificate is incomplete. If you use the incomplete certificate to access the website corresponding to the protected domain name, the access will fail.

You can manually create a complete certificate chain to solve this problem. The latest Google Chrome version supports automatic verification of the trust chain. The following describes how to manually create a complete certificate chain (using a HUAWEI CLOUD certificate as an example):

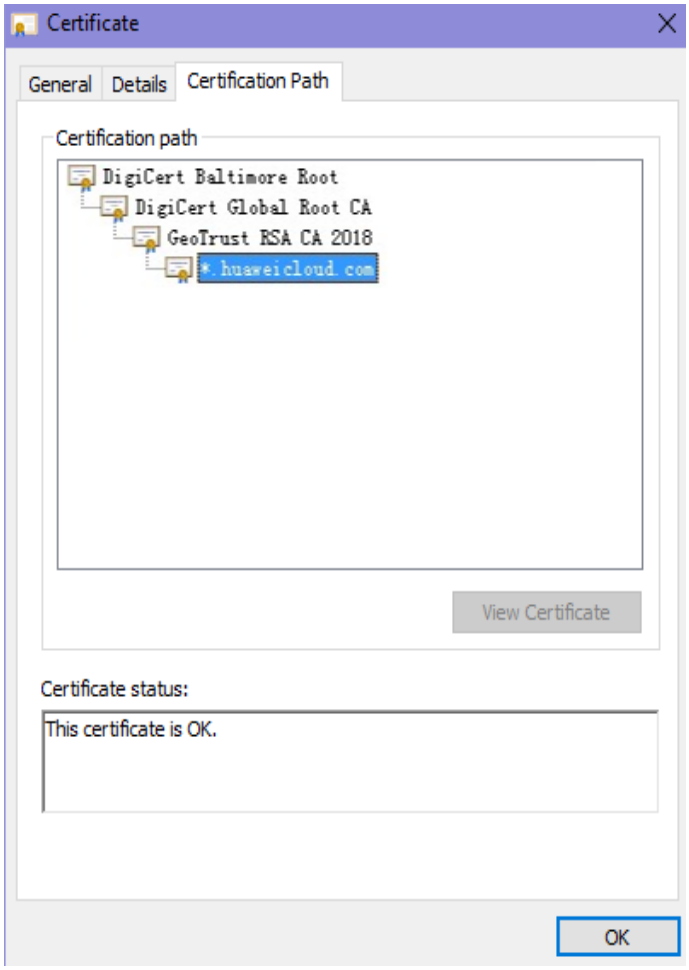
Step 1 **Viewing the certificate.** Click the padlock in the address bar to view the certificate status (see **Figure 10-5**).

Figure 10-5 Viewing the certificate



Step 2 **Check the certificate chain.** Click **Certificate**. Select the **Certificate Path** tab and then click the certificate name to view the certificate status.

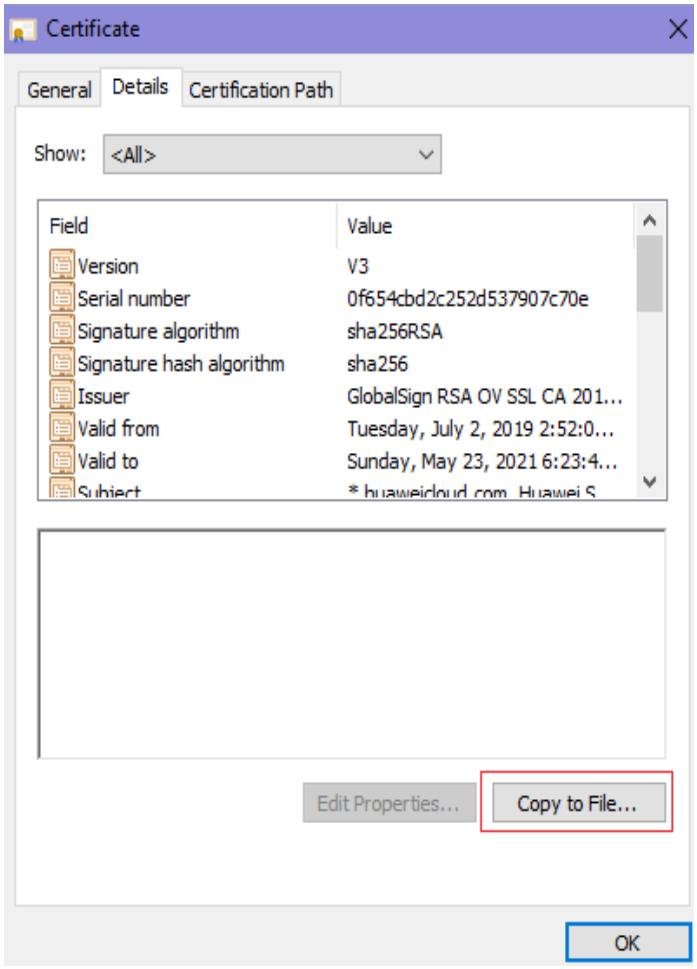
Figure 10-6 Viewing the certificate chain



Step 3 Save the certificates to the local PC one by one.

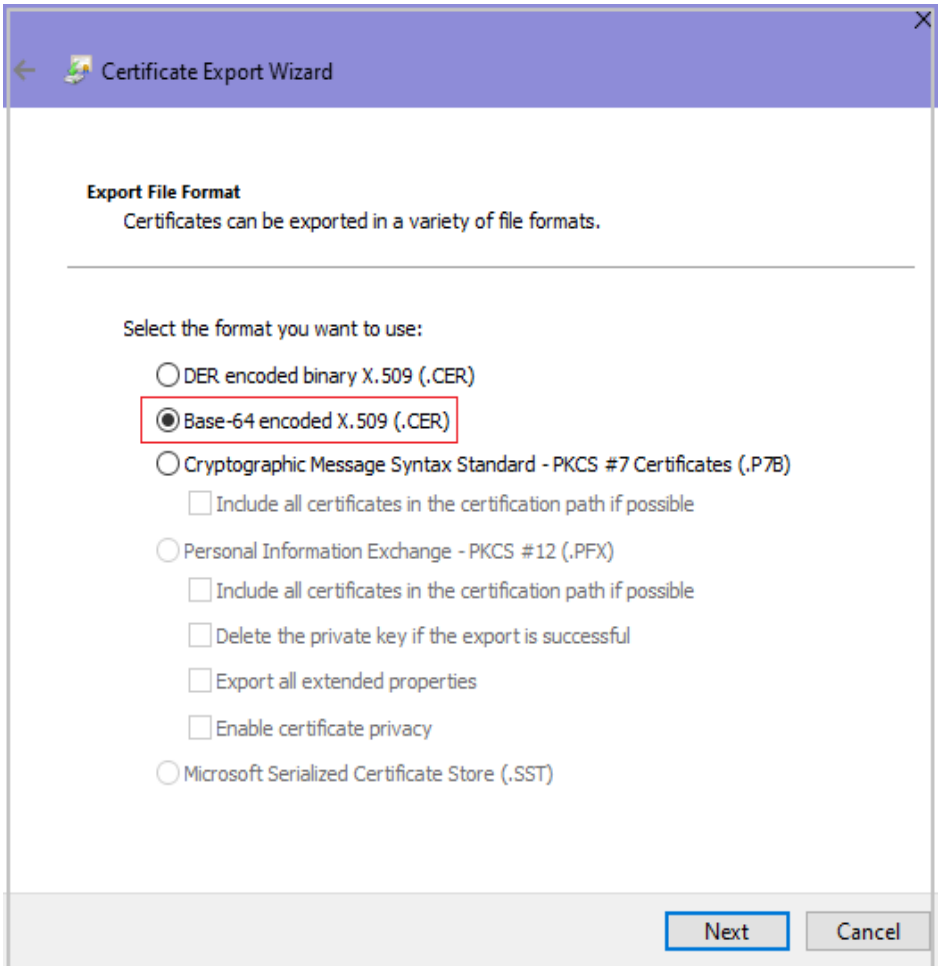
1. Select the certificate name and click the **Details** tab.

Figure 10-7 Details



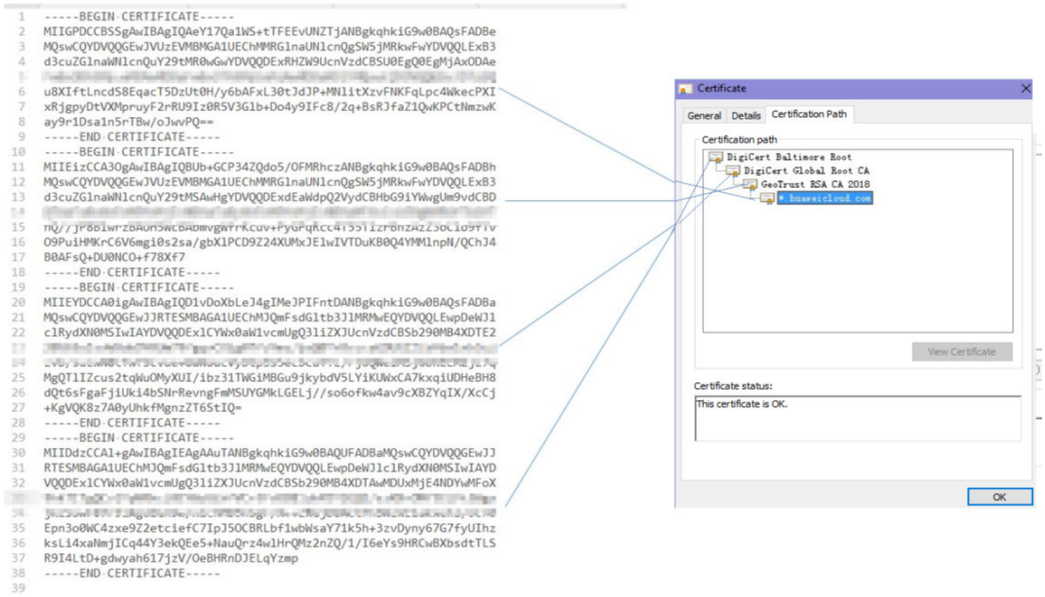
2. Click **Copy to File**, and then click **Next** as prompted.
3. Select **Base-64 encoded X.509 (.CER)** and click **Next**. **Figure 10-8** shows an example.

Figure 10-8 Certificate export wizard



Step 4 **Rebuild the certificate.** After all certificates are exported to the local PC, open the certificate file in Notepad and rebuild the certificate according to the sequence shown in **Figure 10-9**.

Figure 10-9 Certificate rebuilding



Step 5 Upload the certificate again.

----End

10.3 About Certificate Use

10.3.1 Can I Discontinue a Private CA After It Issues A Private Certificate?

You can use either of the following methods to disable some functions of a private CA or discontinue a private CA:

- If you do not need to use a private CA to issue certificates but need to use it to revoke certificates or sign CRLs, you can disable the private CA. After a private CA is disabled, your using of all certificates subordinated to the CA is not affected. For details, see **Disabling a Private CA**.

  CAUTION

  Disabled private CAs will also be billed.

- If you no longer need a private CA, delete it. After a private CA is deleted, the billing stops. The exported certificates (not revoked) can still be used. However, all certificates subordinated to the private CA cannot be revoked, and the CRL cannot be updated. All private certificates issued by the private CA or its subordinate CAs cannot be exported. For details, see **Deleting a Private CA**.

A Change History

Released On	Description
2023-10-17	This issue is the fifteenth official release. Added the description of disabling expiration notifications for a certificate in **How Do I Configure a Certificate Expiration Notification?** Added the description that the validity period of the test certificate is about to be adjusted in **Does SCM Provide Free Certificates?**.
2023-06-12	This issue is the fourteenth official release. Optimized the restrictions on certificate revocation in **What Are the Differences Between Revoking a Certificate and Deleting a Certificate?**
2023-05-23	This issue is the thirteenth official release. Updated **What Are Differences Between Test (Free) and Paid SSL Certificates?**: Added the description of OCSP. Updated **What Do I Do If DNS Verification for a DV Certificate Fails?**: Added possible problems caused by DNS verification failures.
2023-01-19	This issue is the twelfth official release. Added **How Do I Query the Remaining Quota for Free Test Certificates?**.

Released On	Description
2023-01-11	This issue is the eleventh official release. • Updated **What Do I Do If DNS Verification for a DV Certificate Fails?**: Added the error message for failed DNS verification. • Updated **How Can I Apply for a Test SSL Certificate?**: Certificates that have not been applied for after purchase no longer use the free certificate quota.
2022-11-16	This issue is the tenth official release. Added: • **Do I Need to Reinstall an SSL Certificate After Renewing It?** • **What Do I Do If DNS Verification for a DV Certificate Fails?**
2022-10-31	This issue is the ninth official release. • Optimized FAQs by category. • Optimized **Can I Apply for an SSL Certificate for a Private Domain?**
2022-09-29	This issue is the eighth official release. Optimized **How Do I Install an SSL Certificate on a Server?**
2022-09-23	This issue is the seventh official release. • Optimized **How Do I Add, Unbind, Replace, or Change the Domain Name for an SSL Certificate?** and **Can I Change Certificate Information After I Submit a Certificate Application?** as domain names associated with multi-domain certificates cannot be changed. • Added **How Long Will an Order Become Invalid If I Do Not Apply for a Certificate After Purchasing It?**, **How Long Does It Take to Revoke a Certificate?** and **How Do I Know When My Certificate Expires?**
2022-08-19	This issue is the sixth official release. Added descriptions about test certificate creation and updated **How Can I Apply for a Test SSL Certificate?**
2022-07-27	This issue is the fifth official release. Optimized **How Do I Verify the Domain Ownership Manually by DNS?**

Released On	Description
2022-06-22	This issue is the fourth official release. Added **Can I Discontinue a Private CA After It Issues A Private Certificate?**
2022-05-31	This issue is the third official release. Added **How Do I Prevent Service Interruptions When My Private Certificate Is About to Expire?** and **What Can I Do If My Test Certificate Quota Is Used Up?**
2022-04-28	This issue is the second official release. Optimized **How Do I Apply an SSL Certificate to Other Huawei Cloud Services?**, **Is HTTPS Automatically Enabled After an SSL Certificate Is Deployed to a Cloud Product?**, and **How Do I Configure a Non-Huawei Cloud SSL Certificate for a Huawei Cloud Product?**
2022-03-24	This issue is the first official release.