Configure License Central on Prem and Register Licenses with ISE

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Integrate Cisco License CentralOn-Prem with ISE.

- Add DNS records on Windows Server

Troubleshoot

- Host/IP Address is not reachable.(Error on ISE)
- SSO service: Unable to reach Cisco. (Error on Cisco License CentralOn-Prem)
- The Common Name in the CSR is not a DNS-resolvable hostname or IP address, please try again.(Error on Cisco License CentralOn-Prem)

Introduction

This document describes the integration of Cisco License Central On-Prem with Cisco Identity Service Engine (ISE) and Cisco Smart Account, ensuring a seamless setup.

Prerequisites

Requirements

- ISE 3.X
- Cisco License Central Version 8 Release 202304 +

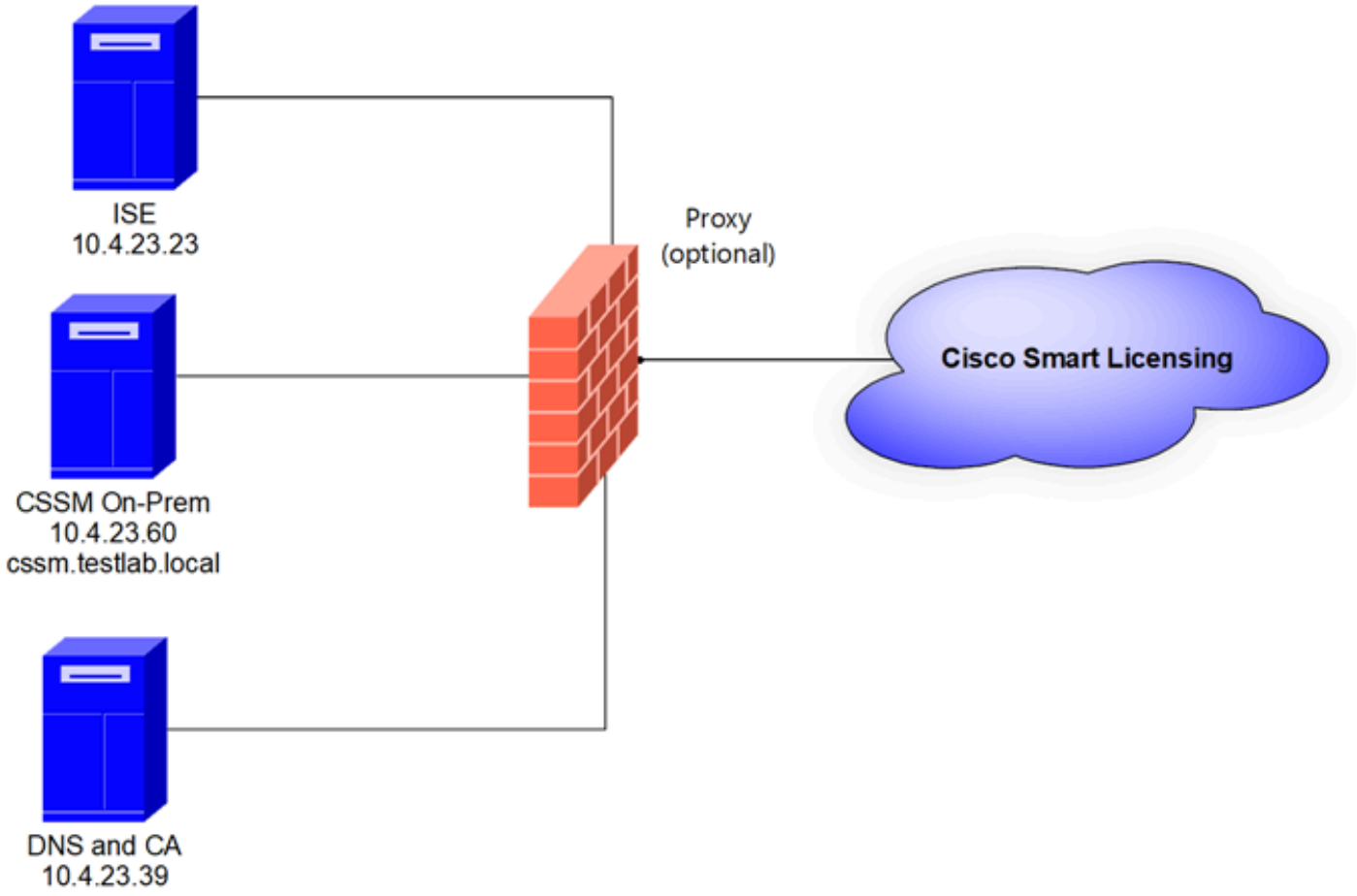
Components Used

- Identity Service Engine 3.2 patch 2
- Cisco License Central On Prem 8.20234
- Windows Active Directory 2016 (DNS and Certificate Authority services)
- VMWare ESXi version 7

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Configure

Network Diagram



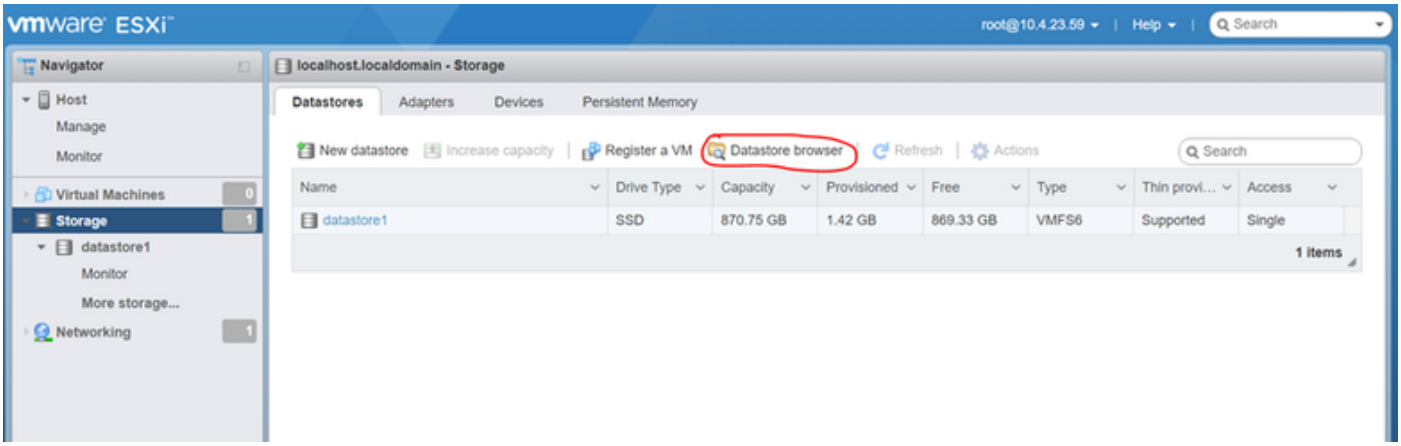
General topology

Install Cisco License Central On-Prem on VMWARE ESXi

1. Download the Cisco IOS®. You can use the next link: https://software.cisco.com/download/home/286285506/type/286326948/release/8-202304

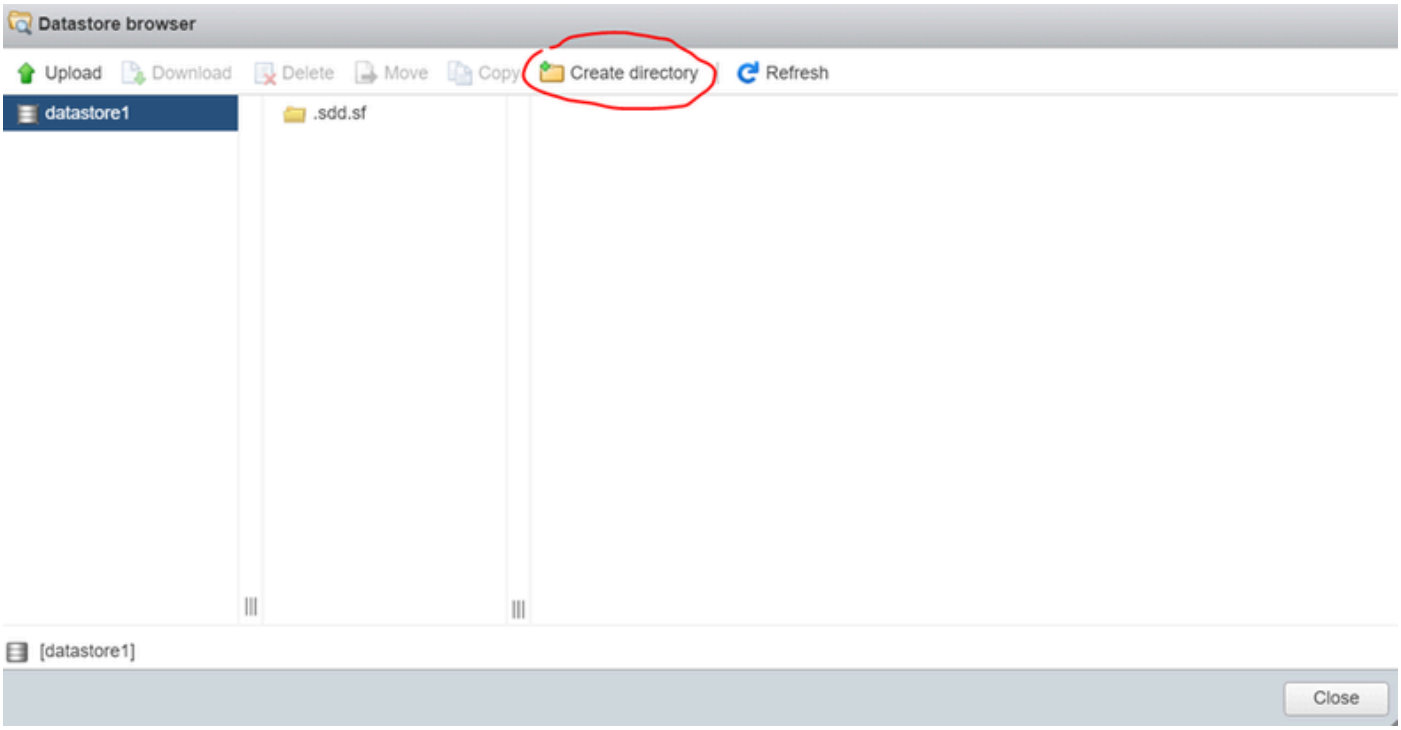
2. Upload the ISO in VMWARE ESXi.

Navigate to **Storage > Datastore Browser.**



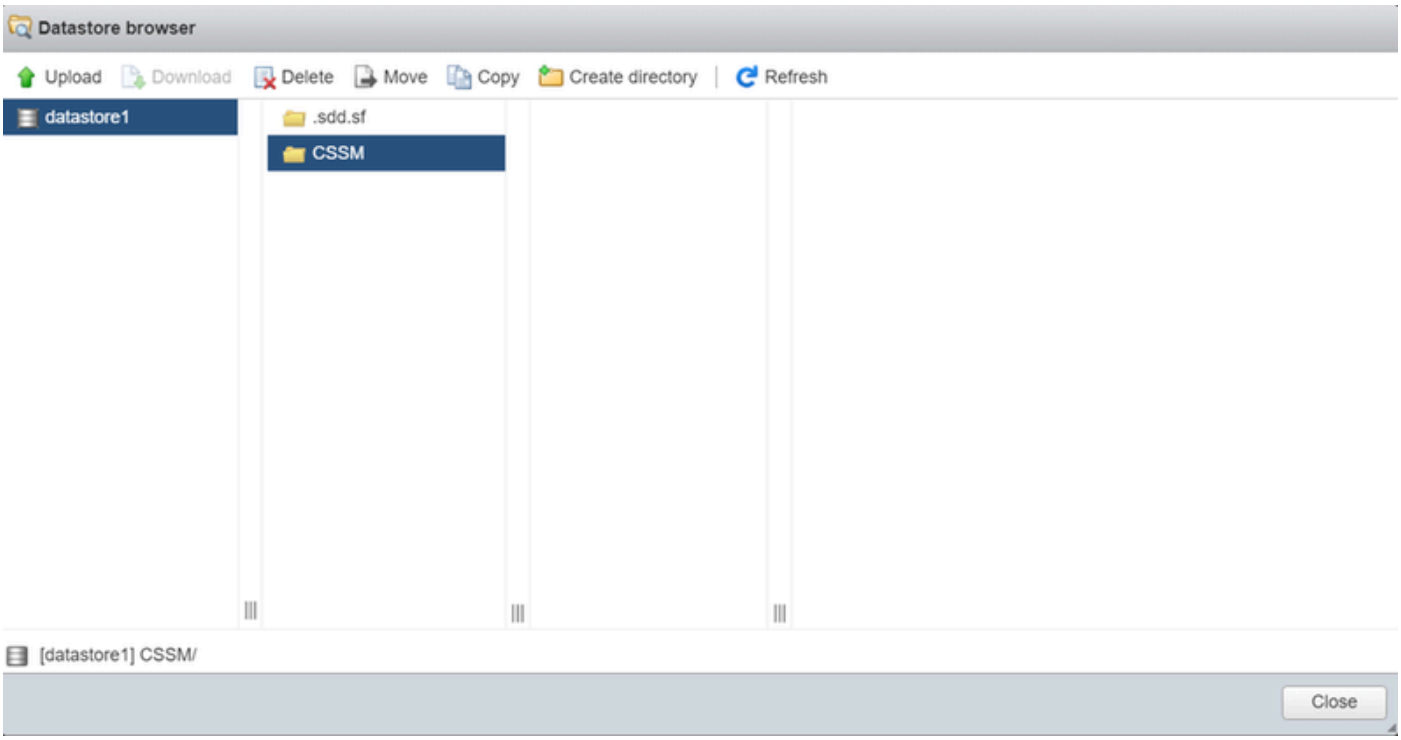
Data browser section

3. Click **Create Directory** to create a new folder (optional).



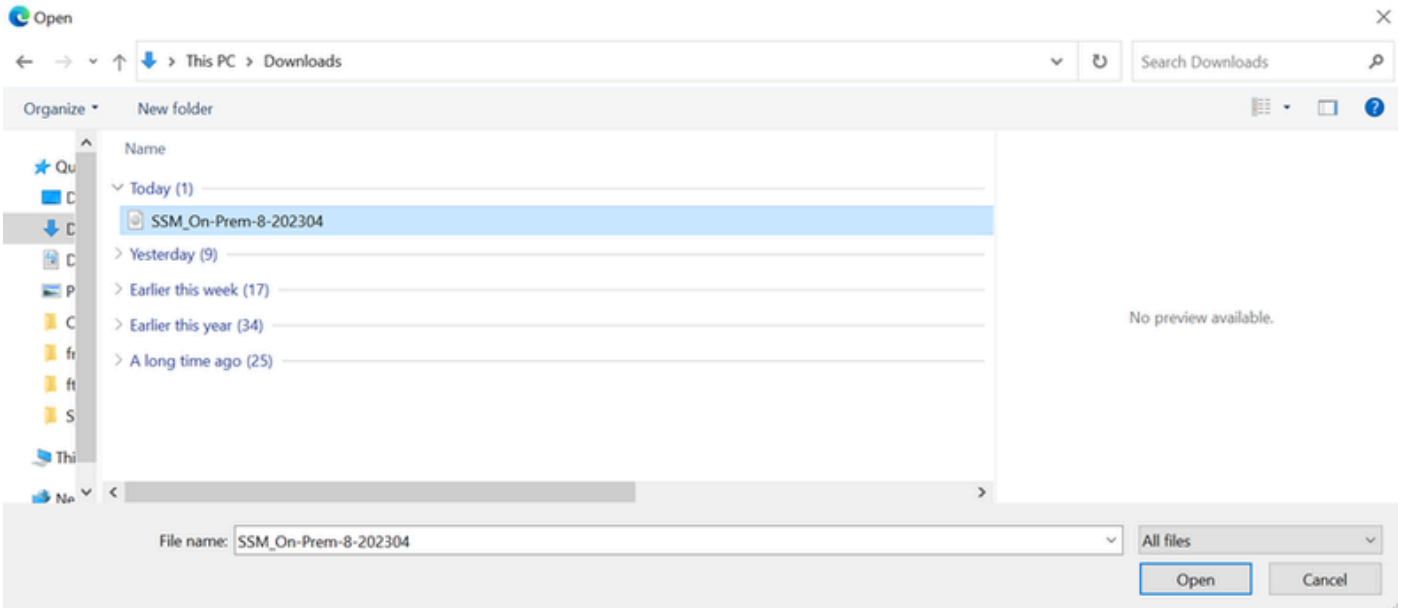
Creation of directory

In this example, the Cisco License Central folder was created:



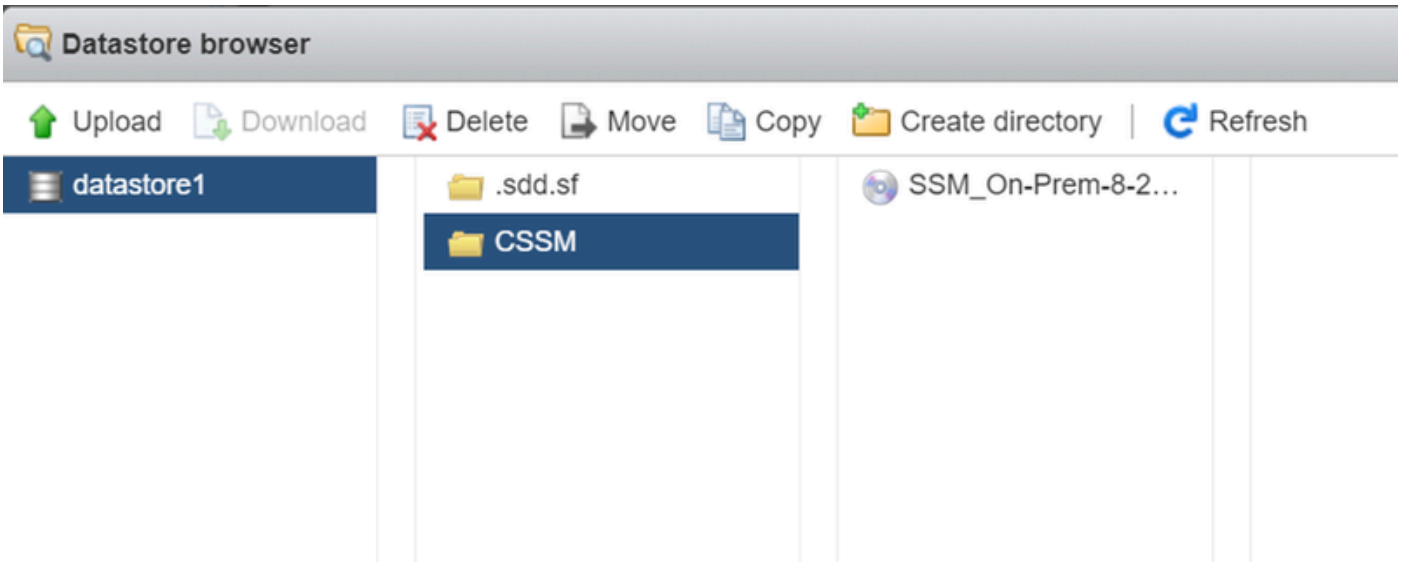
Creation of folders

4. Click **Upload** and then choose your **ISO** file.



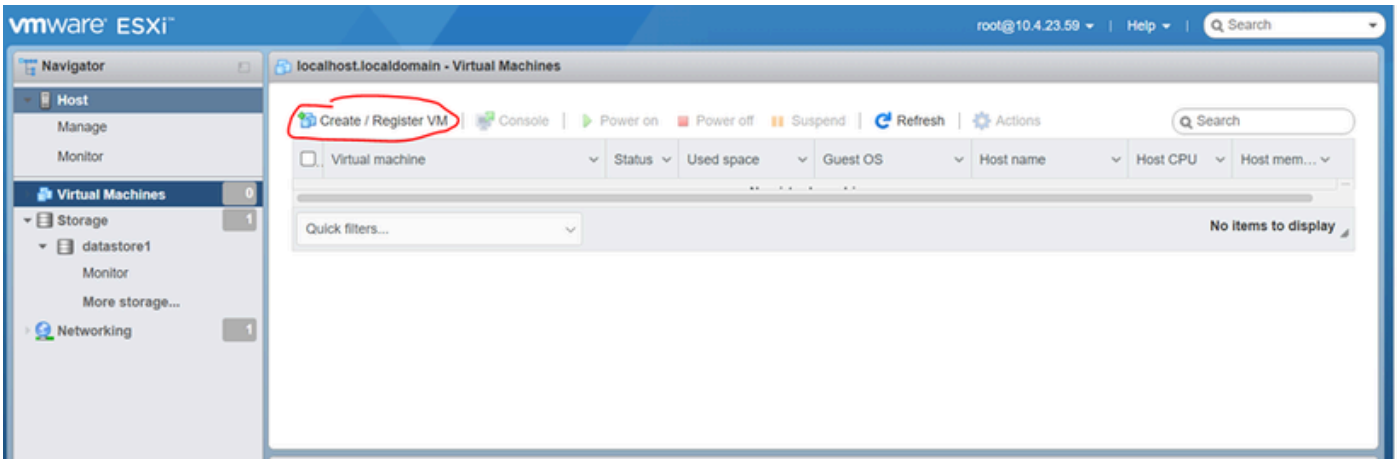
Uploading ISO

Now the **ISO** file is in the Cisco License Central folder:



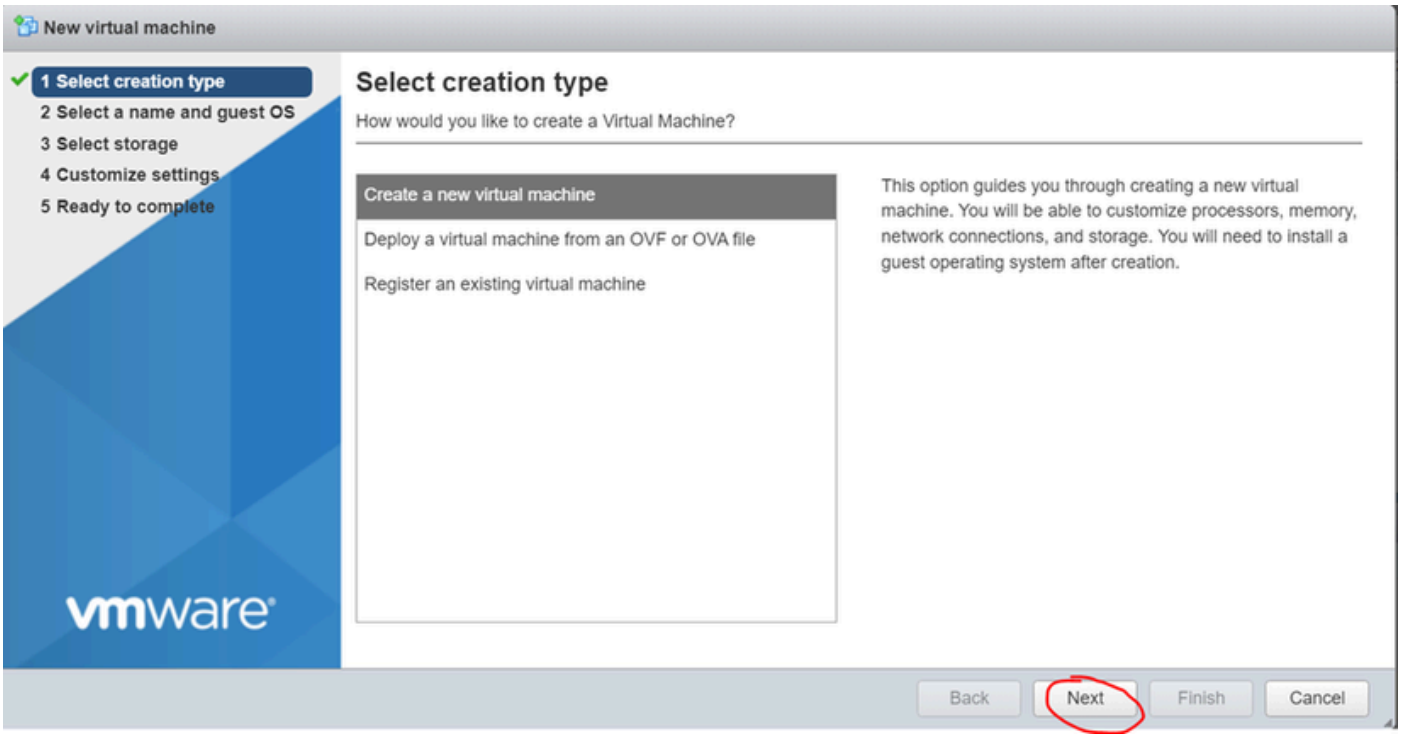
The ISO upload is completed

5. Create the Virtual Machine. navigate to **Virtual Machine > Create / Register VM.**



Creating a new VM step 01

6. Choose **Create a new virtual machine** and click **next**.

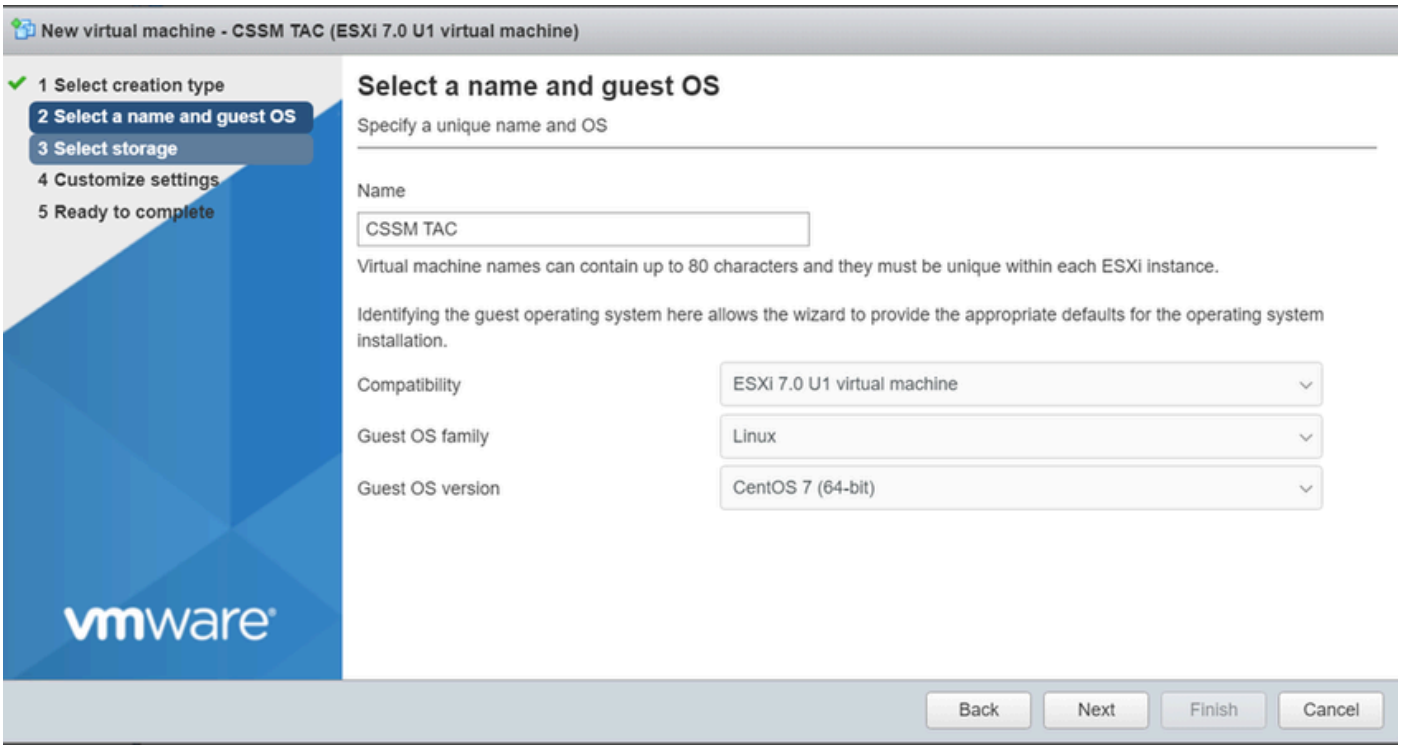


Creating a new VM step 02

7. Then configure the next parameters:

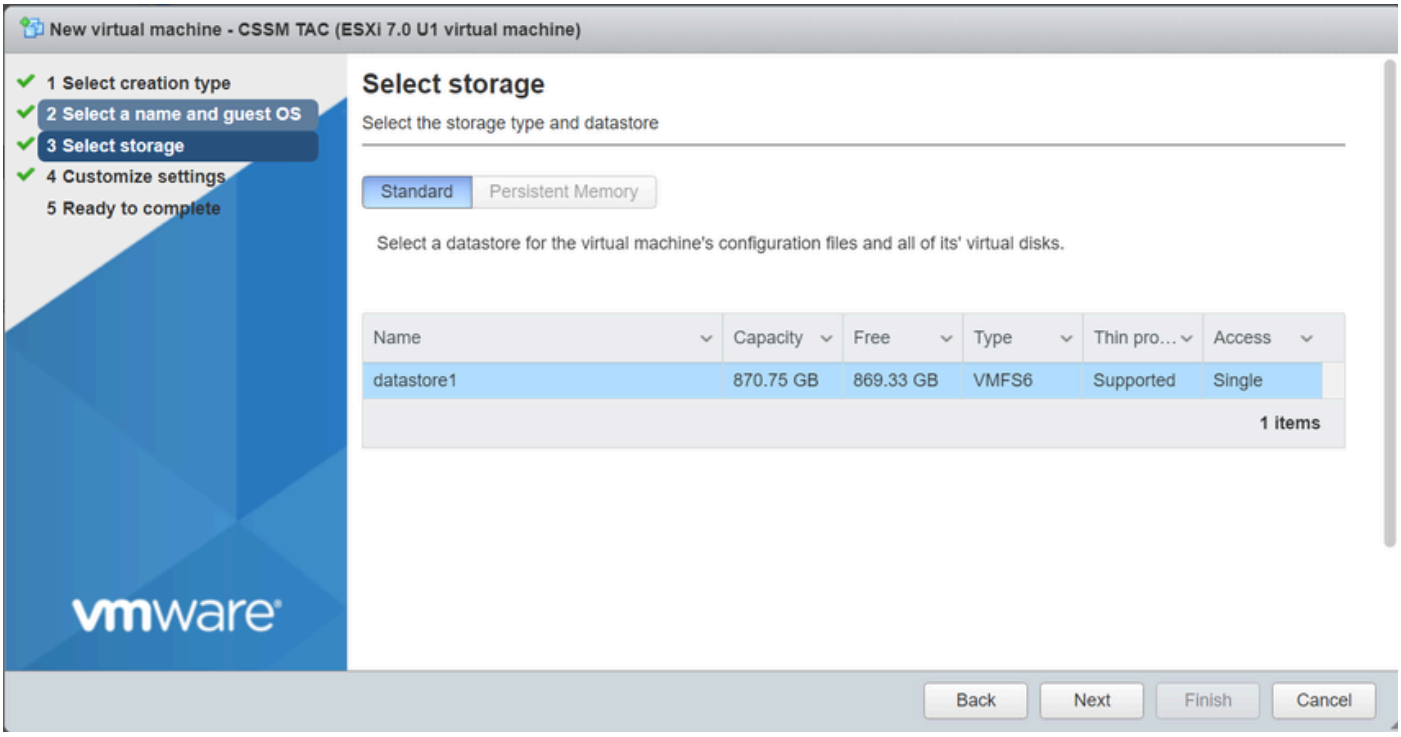
- **Name**: Enter the name of your virtual machine.
- **Compatibility**: Select either ESXi 6.0 or later or ESXi 6.5 or later.
- **Guest OS family**: Linux.
- **Guest OS version**: Choose either CentOS 7 (64 bit) or Other 2.6x Linux (64 bit)

Click **Next**.



VM name and IOS

8. Select your **Storage** and click **Next**.



Storage list

9. Configure the next parameters:

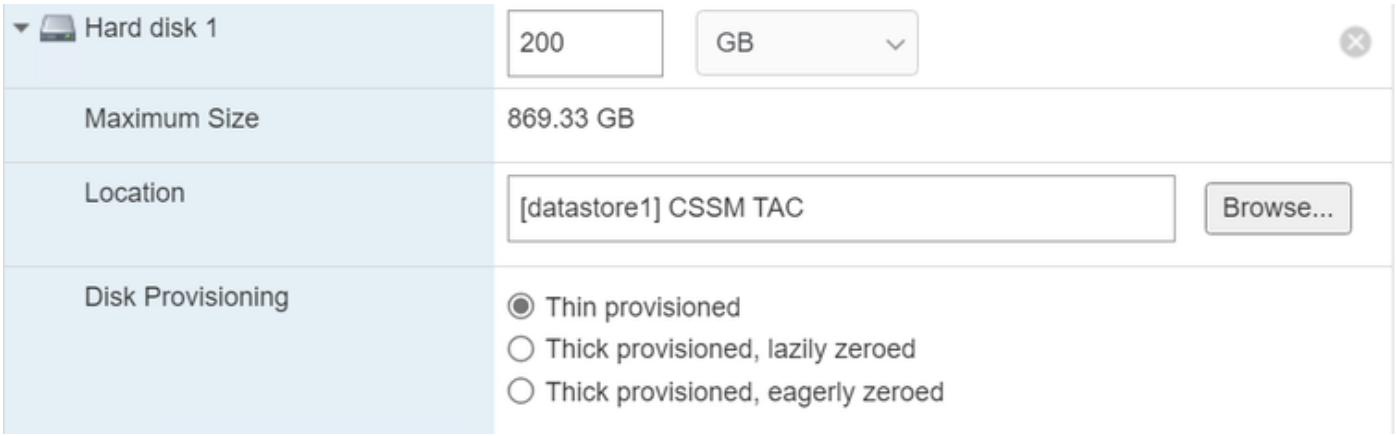
- **CPU:** 4 as minimum. The actual vCPU setting depends on your scale requirement

Note: The amount of cores per socket needs to be set to 1 regardless of the number of virtual sockets selected. For example, a 4 vCPU configuration needs to be configured as 4 sockets and 1 core per socket.



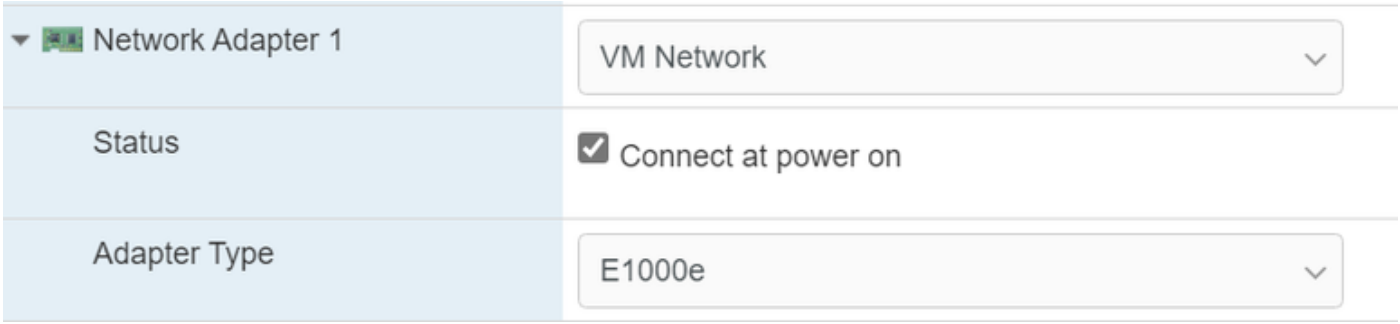
Configuration of Cores

- **Memory**: 8 GB
- **Hard Disk:** 200 GB and and verify provisioning is set to **Thin Provision**.



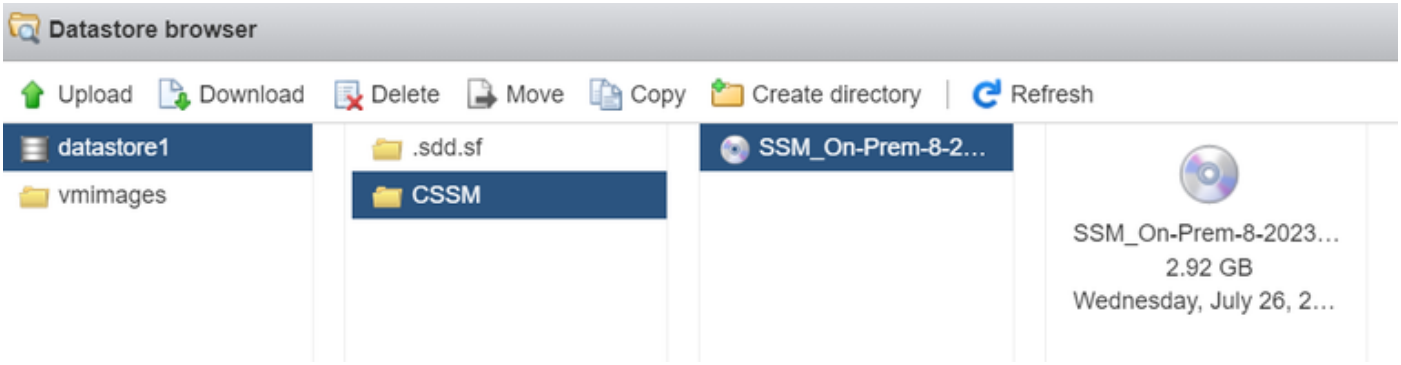
Configuration of disk

- **Network Adapter**: Select E1000 adapter type and select **Connect at Power On**.



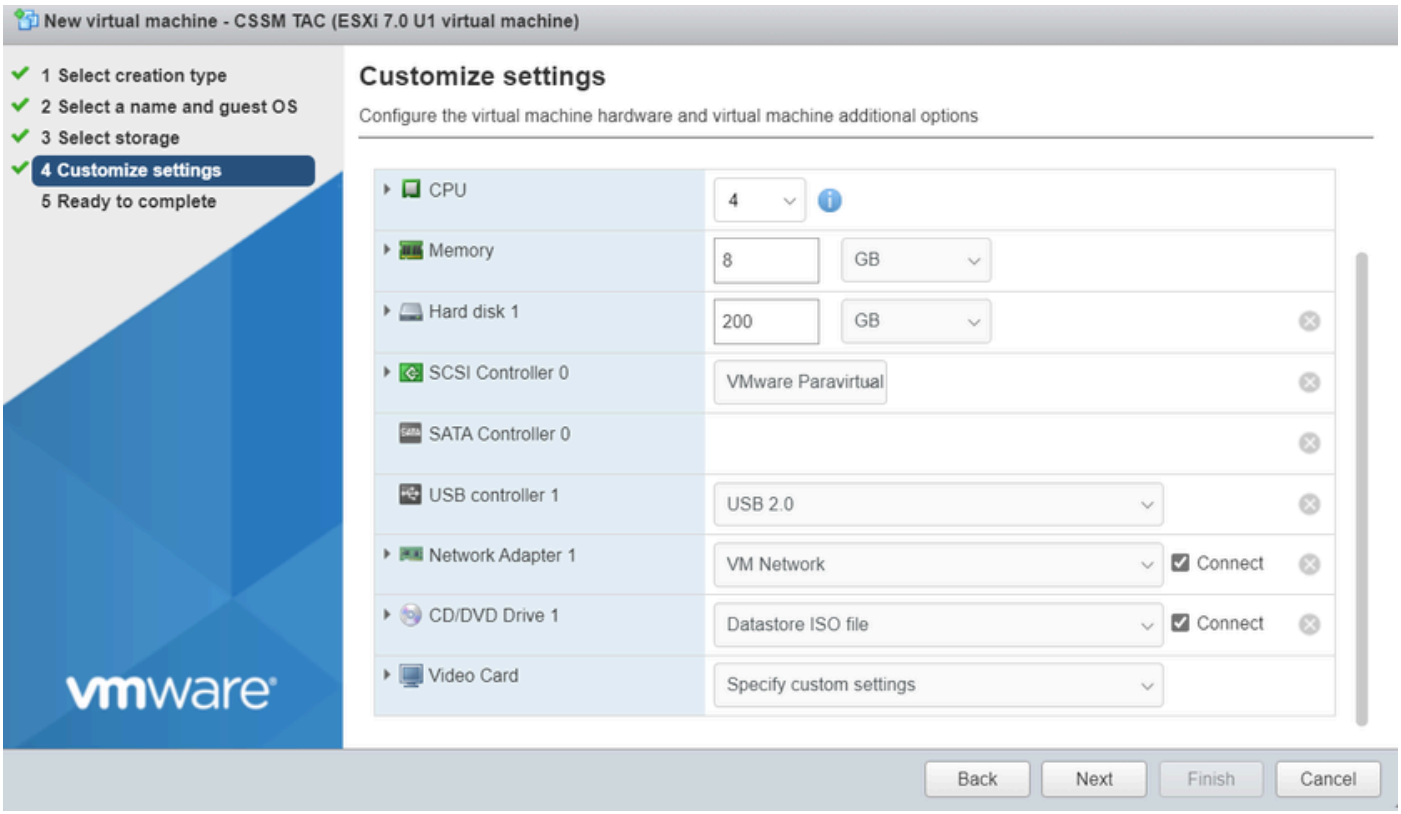
Configuration of network settings

- **CD / DVD Drive**: Choose **Data ISO file** and select the **ISO** file.



ISO image

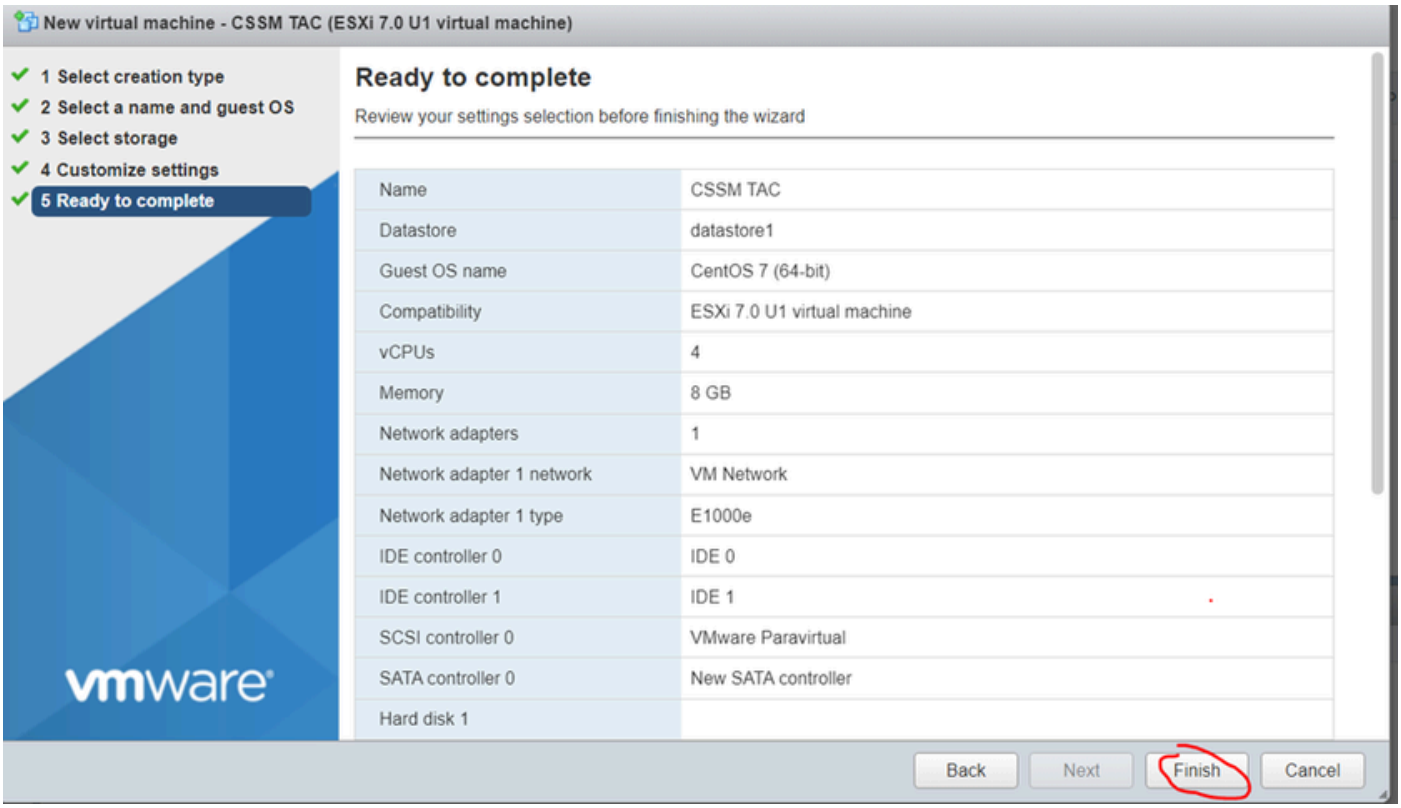
You can verify the summary of the settings once you have completed the previous steps.



Summary VM configuration 01

Click **Next**.

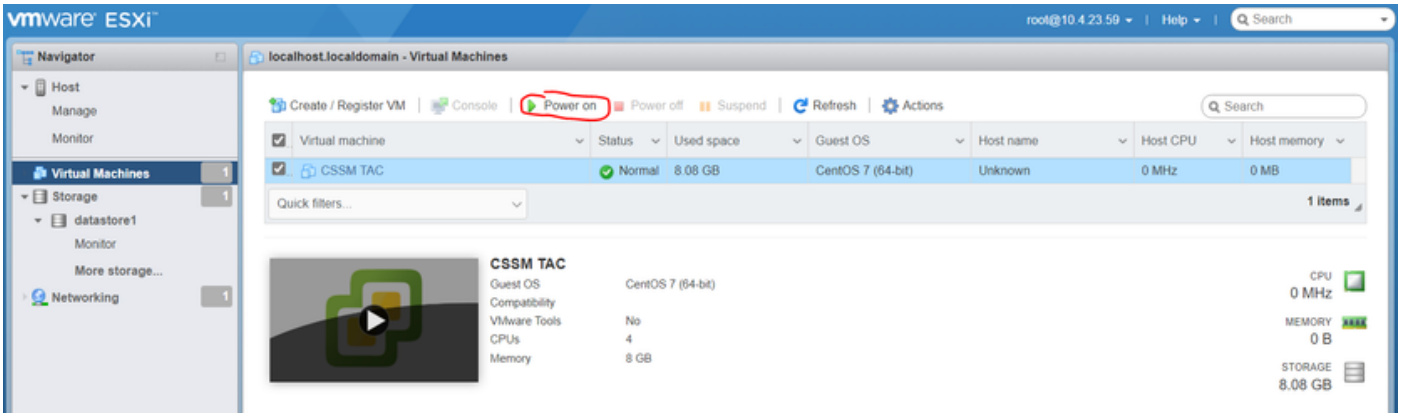
10. Click **Finish**.



Summary VM configuration 02

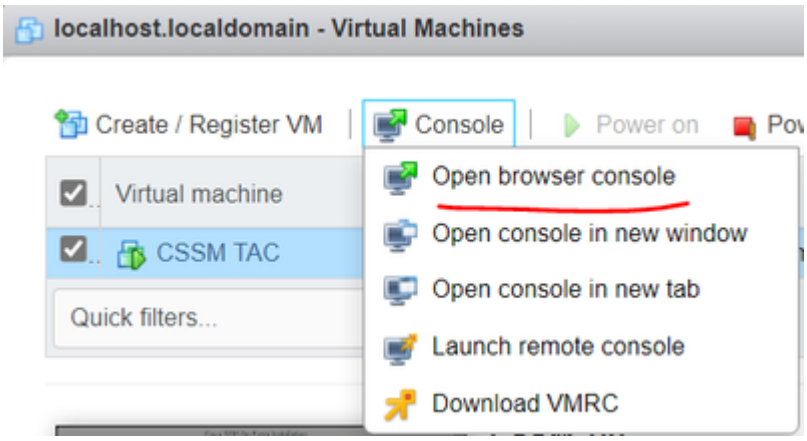
Initial Configuration of Cisco License Central On-Prem

1. In **VMWARE ESXi**, navigate to **Virtual Machines** and select your VM and then click **Power On**.



Power on option

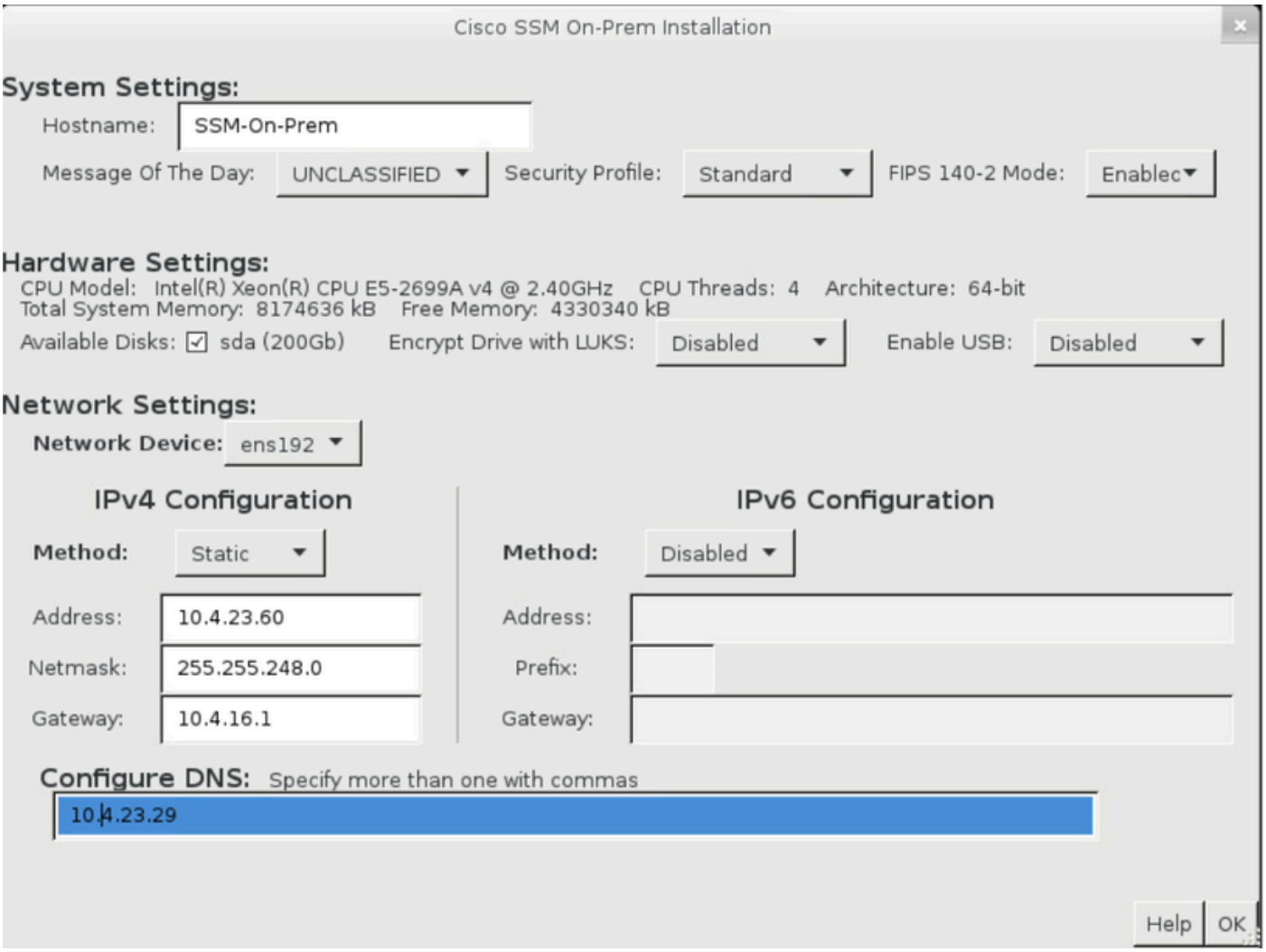
2. You have multiple options to manage the VM console. Select **Console > Open browser console**.



Options to manage the VM

3. Configure your network settings.

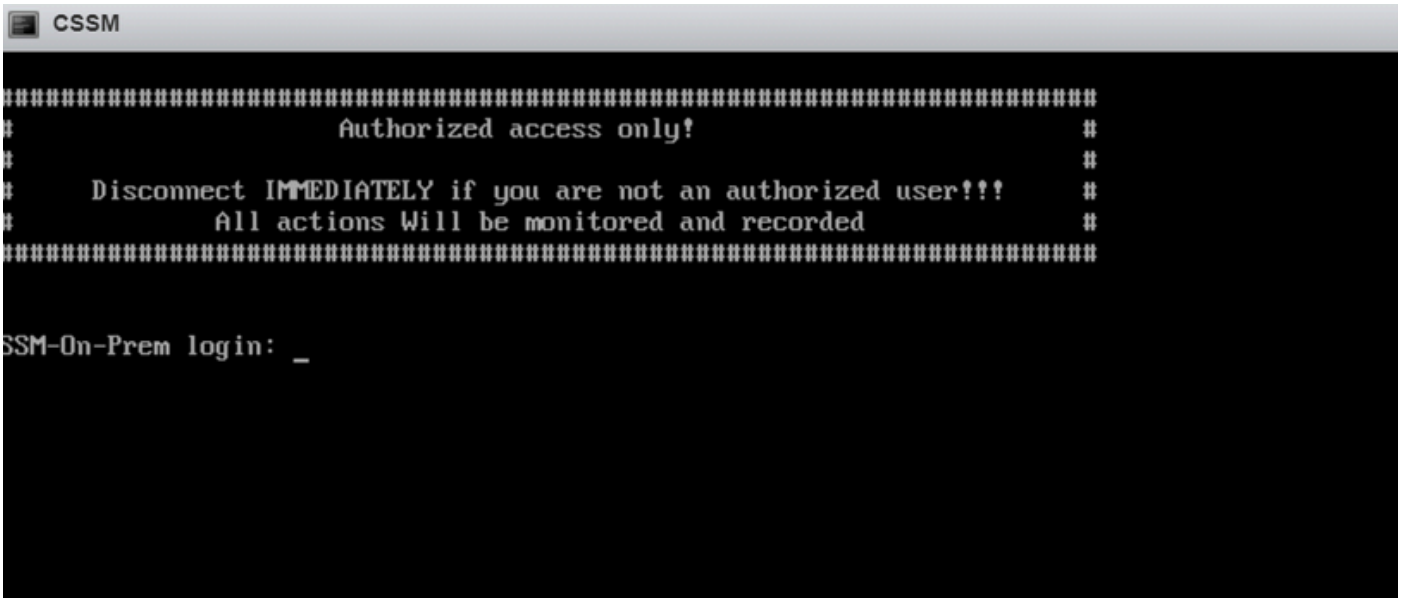
Note: It's important to configure the **IP address** of the DNS Server that resolves the Cisco License Central **FQDN**.



Configuration of CSSM network settings

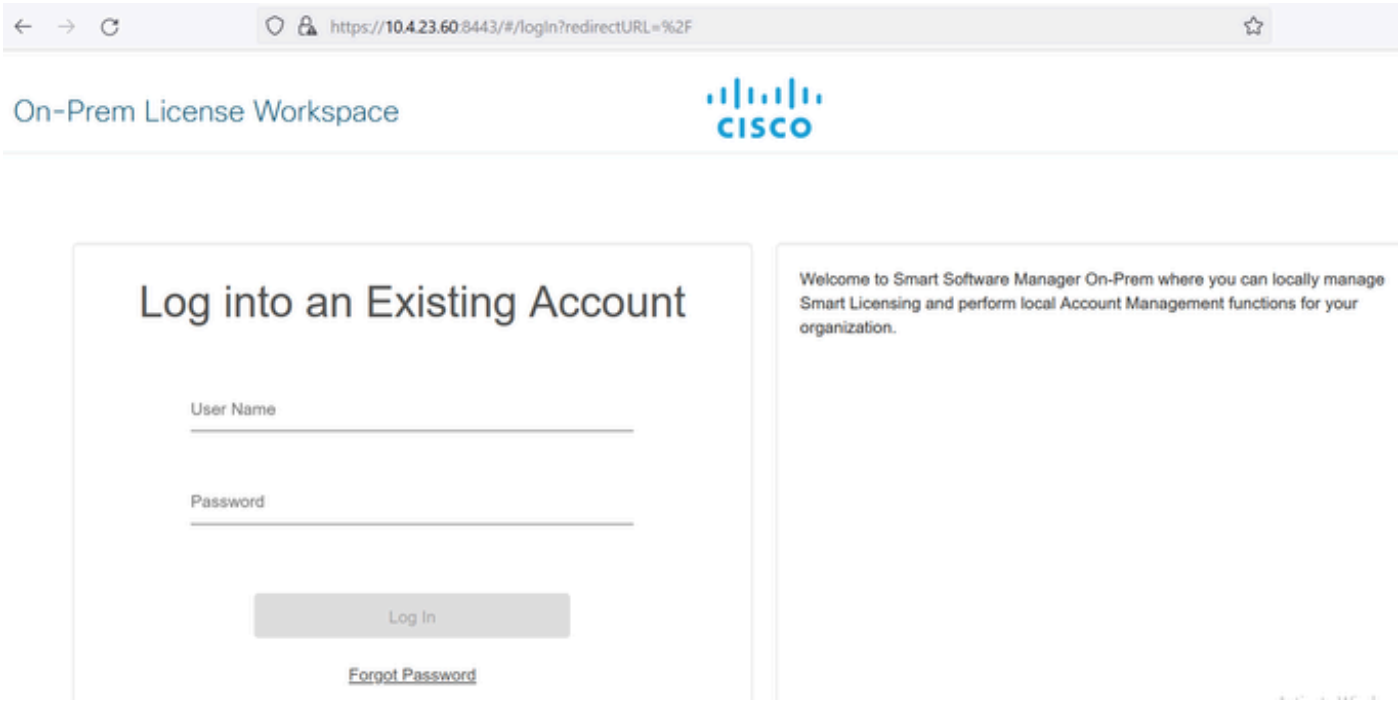
Click **Ok** to configure your new **CLI password**.

4. Then the installation process starts and is finished until you can see the access prompt.



CSSM initial configuration completed

5. Open a browser and enter **https://<ip_address_Cisco License Central>**.



CSSM login page

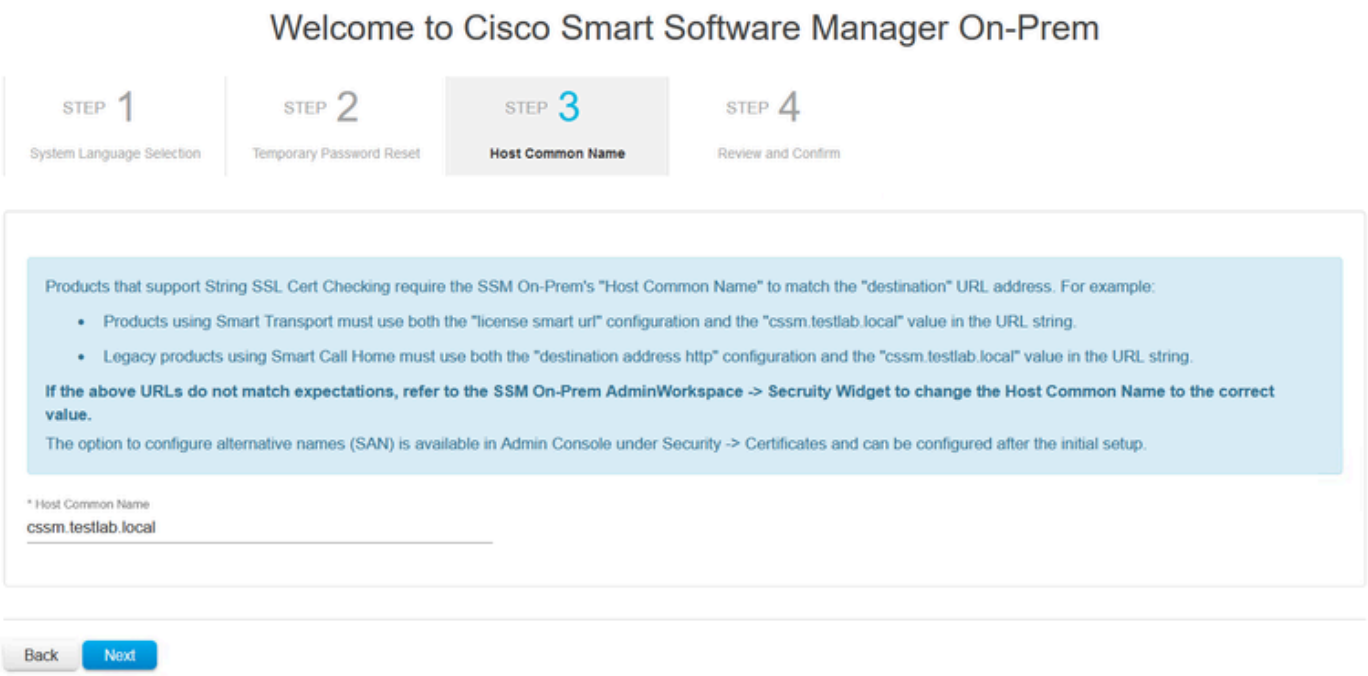
Use the default credentials:

- Username: **admin**

- Password: **CiscoAdmin!2345**

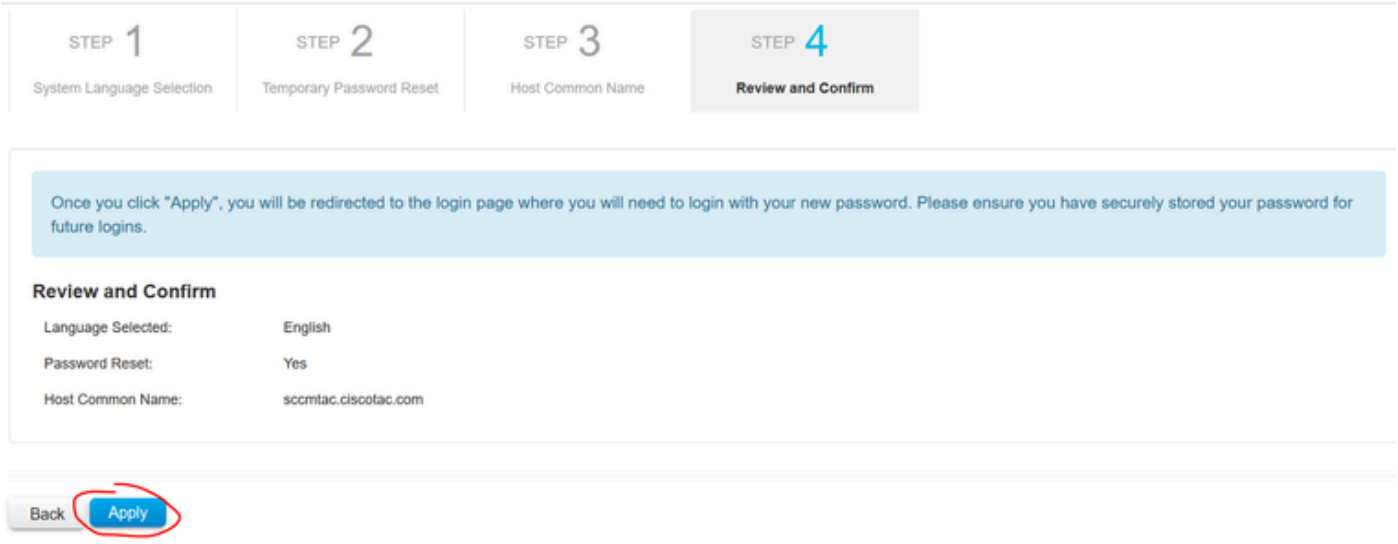
6. Select your language.
7. Create a new **GUI password**.
8. Configure the **Host Common Name**. *(example: hostname.yourdomain).*

In this case, the cssm.testlab.local was configured as **Host Common Name**.



Host common name configuration

9. Validate your configuration and click **Apply**.



CSSM initial settings completed.

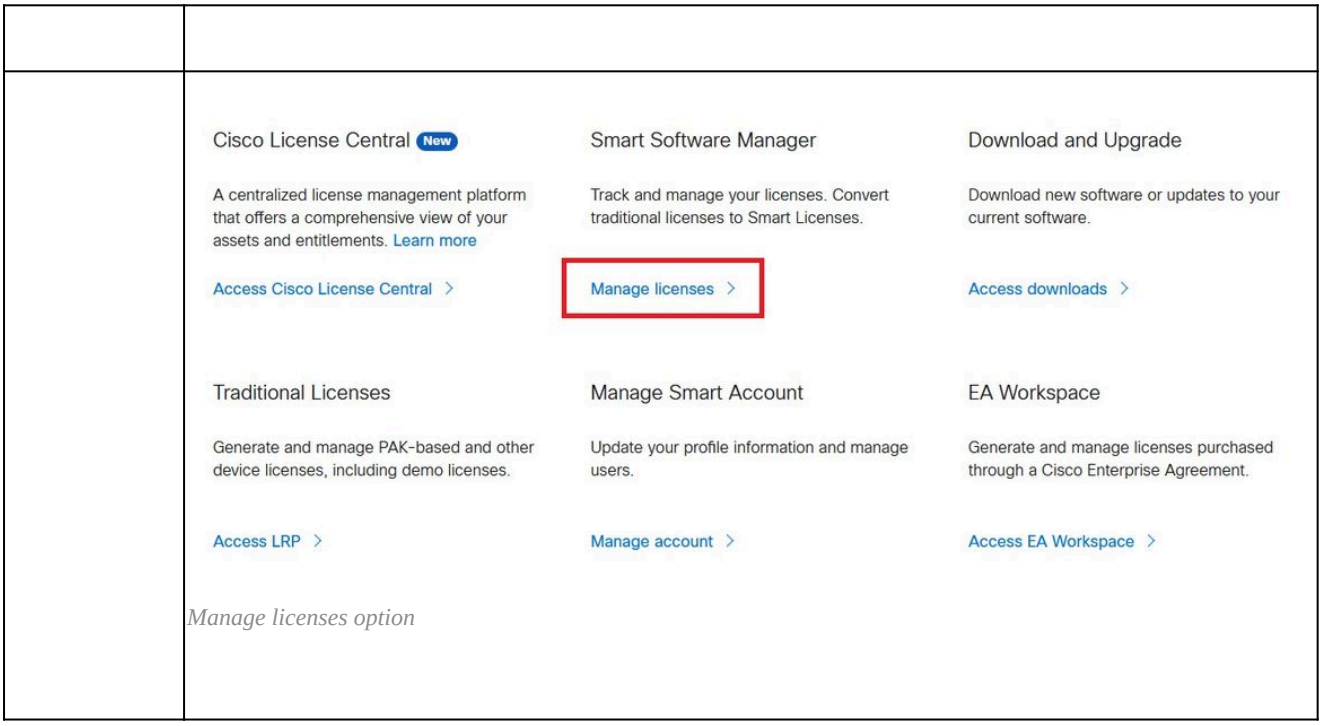
Integrate Cisco License Central On-Prem with Smart Account

You need to associate your **Smart Account** with your Cisco License Central On Prem Server.

1. Open your **Cisco Smart Account** using the next link:

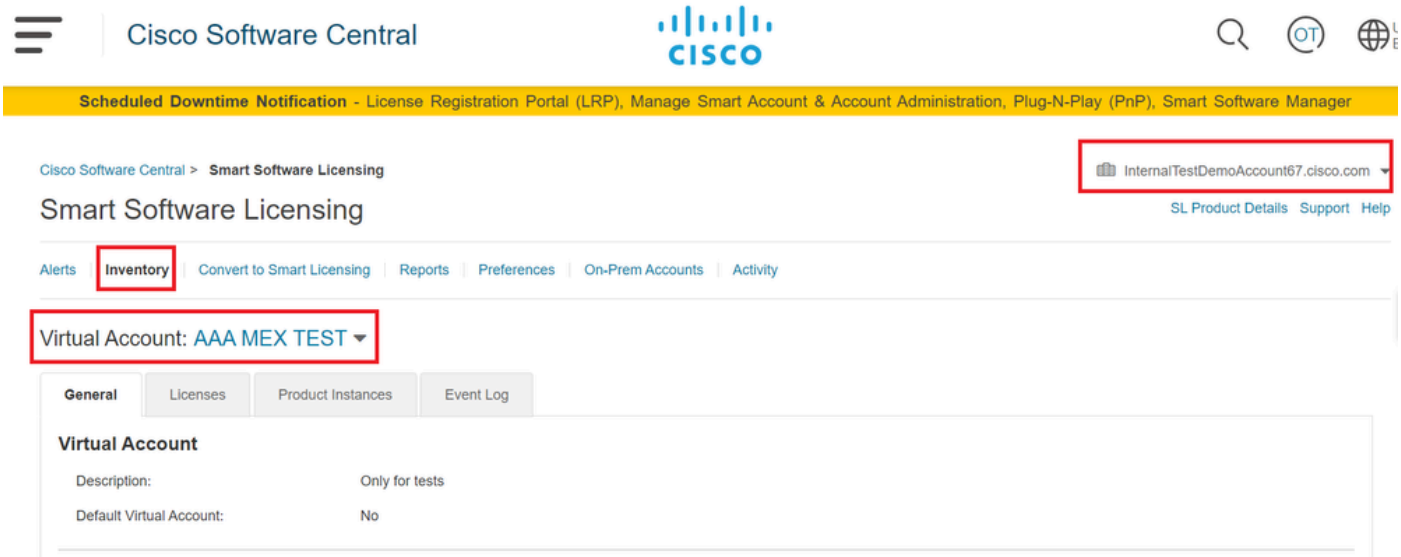
https://software.cisco.com/

2. Then choose **Manage Licenses** under the **Cisco License Central** section.



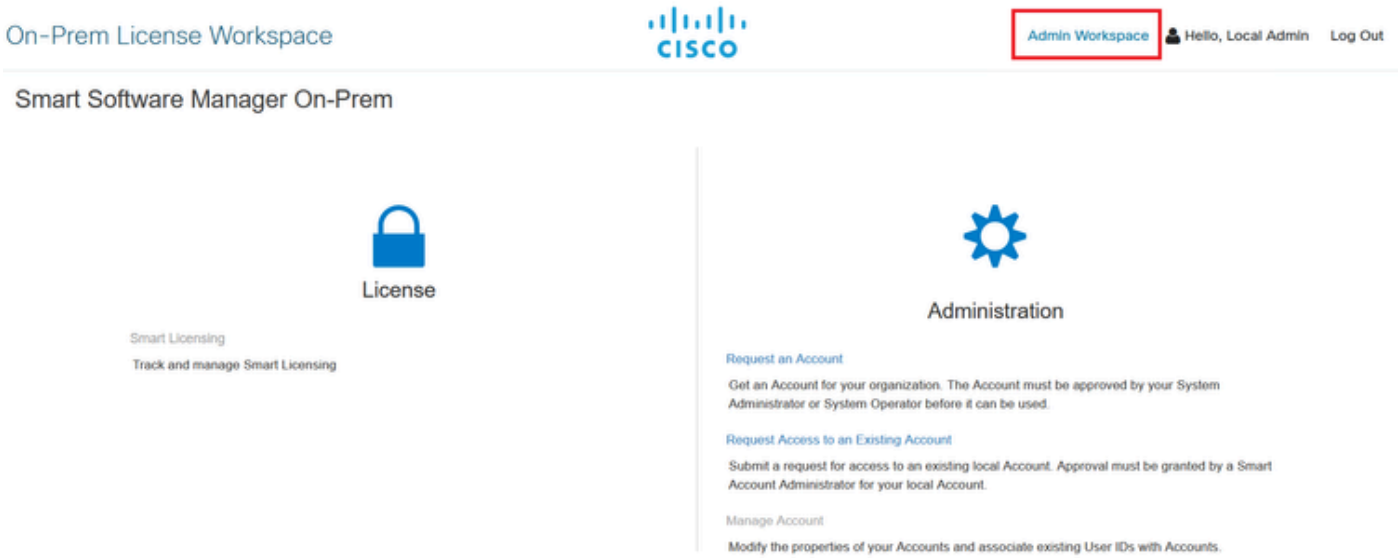
Manage licenses option

3. Navigate to **Inventory** and copy the name of your **Smart Account name** and **Virtual Account**. In this guide, this is InternalTestDemoAccount67 and AAA MEX TEST.



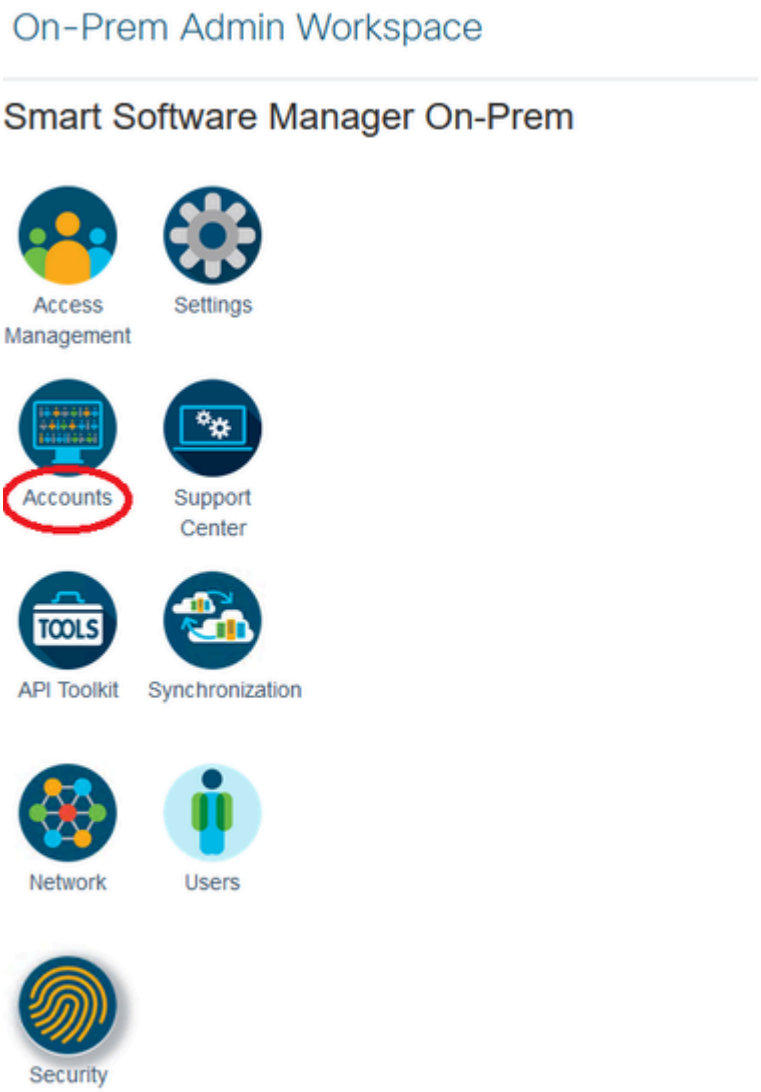
Software Cisco page

4. Open the **Cisco License Central GUI** and select the **Admin Workspace** option.



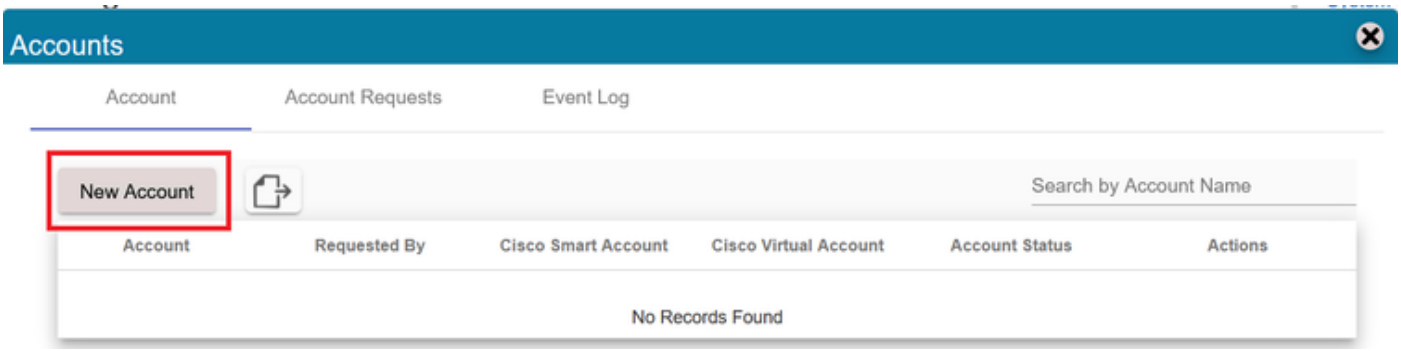
Main CSSM menu.

5. Then select **Accounts**.



Accounts.

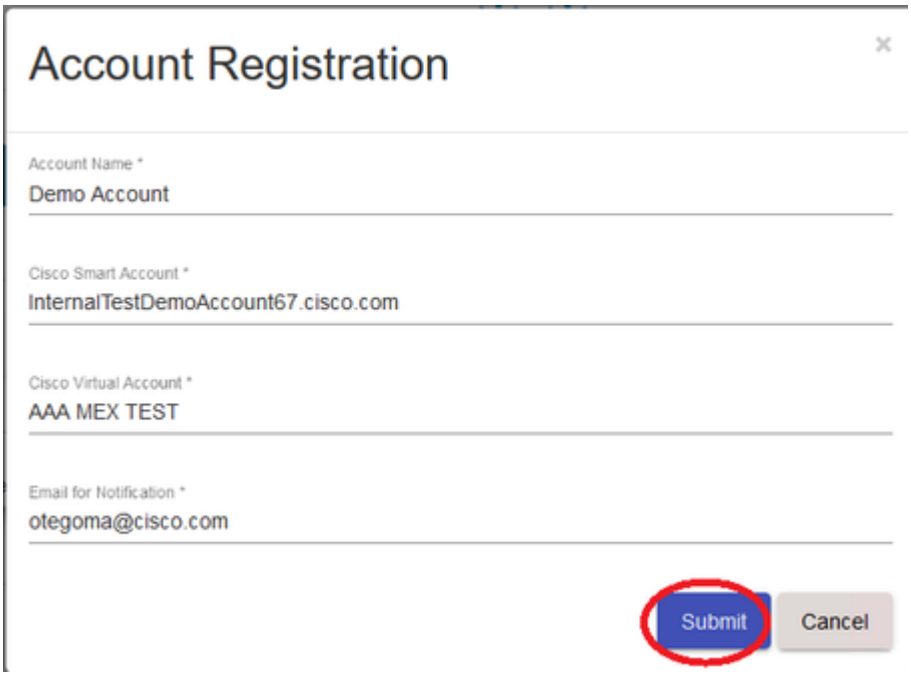
6. Select **New Account** to create a new registration request.



Creation of CSSM account.

7. Enter the next information:

- **Account name:** This is a custom name of the new register.
- **Cisco Smart Account:** Paste your **Smart Account name.**
- **Cisco Virtual Account:** Paste your **Virtual Account name.**
- **Email for notification:** Type your email.

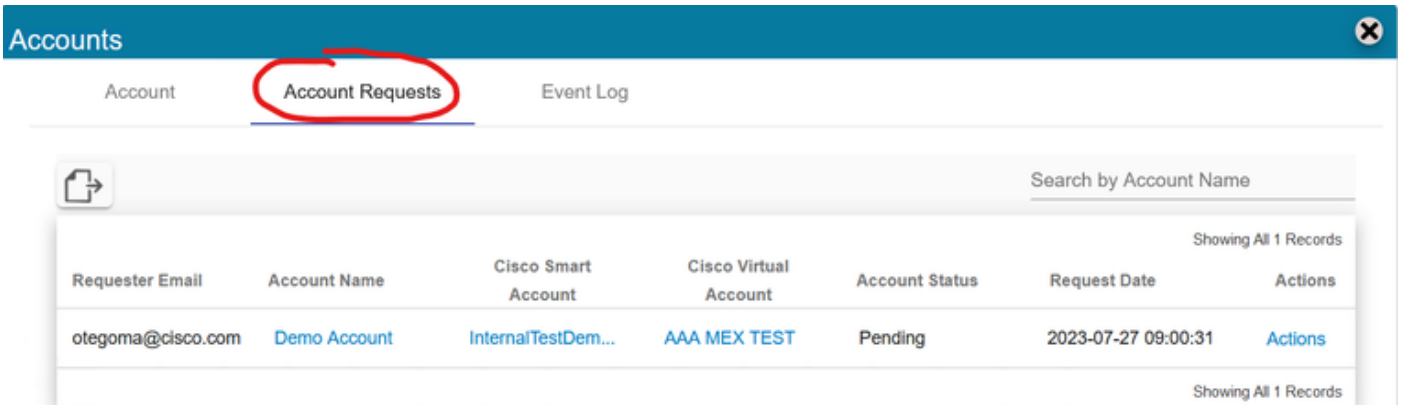


Account registration.

Click **Submit.**

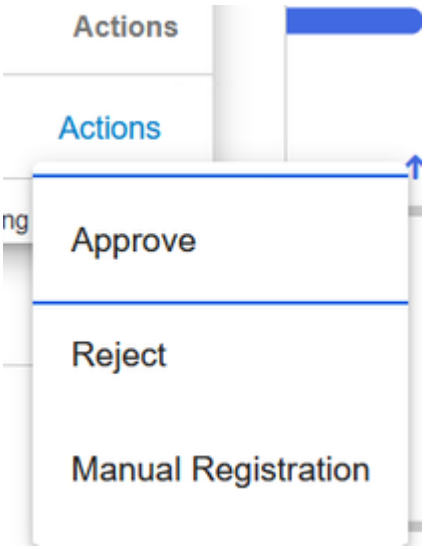
8. Then click **Account Requests**.

You can see the request done on the previous step in this section.



Account request.

9. Click **actions**.



Actions option.

You have three options:

- **Approve:** Use this option to register the Cisco License Central On-Prem with your Smart Account through Internet.
- **Reject:** Drop the request.
- **Manual Registration:** Use this option to register the Cisco License Central On-Prem with your Smart Account without Internet.

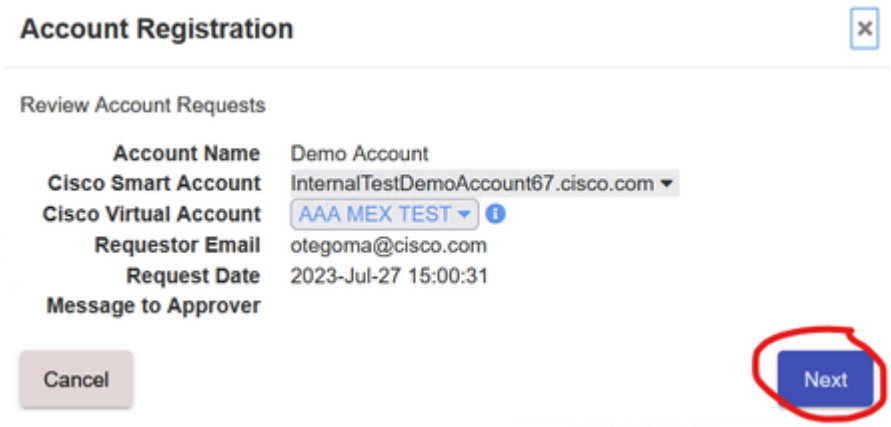
OPTION 1: Register your Cisco License Central On-Prem through Internet Connection

1. If you choose **Approve**, you need to enter your username and password of your Cisco Smart Account and click **Submit**.



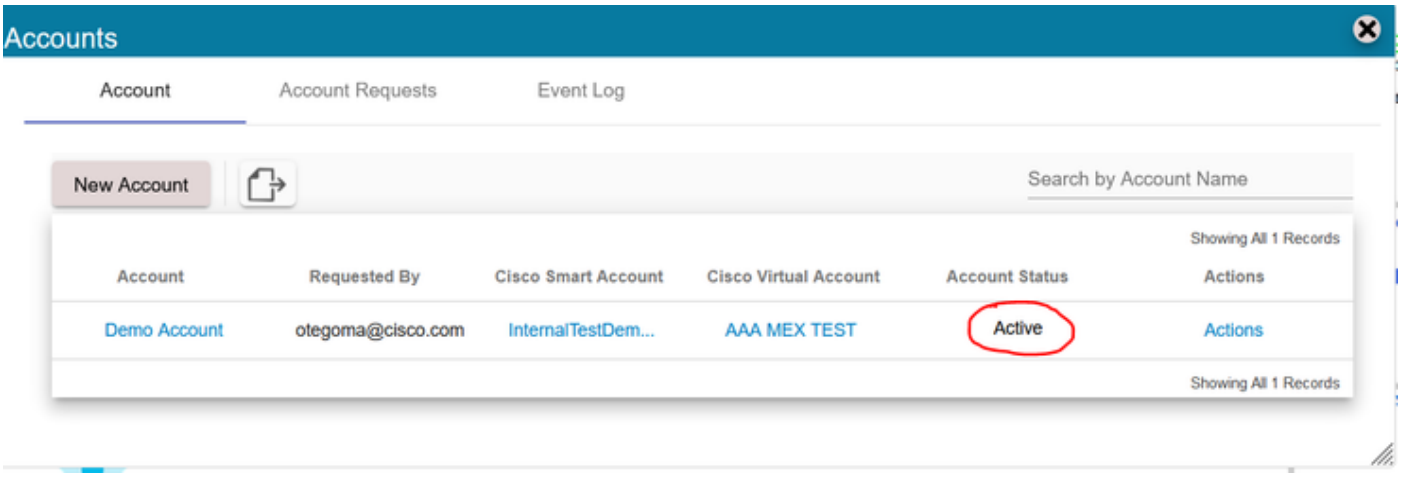
Approve option.

Then click **next** to accept the account registration.



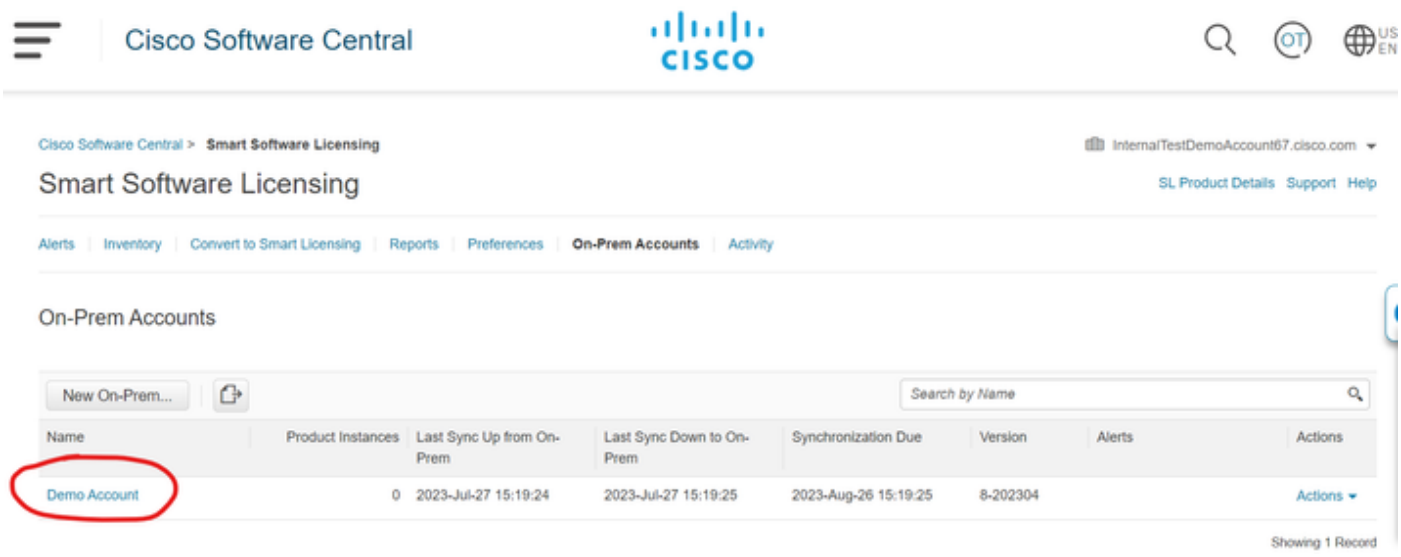
Account registration.

To confirm the status of the registration, navigate to **Account** and the **Account status** must be as **active**.



Account status.

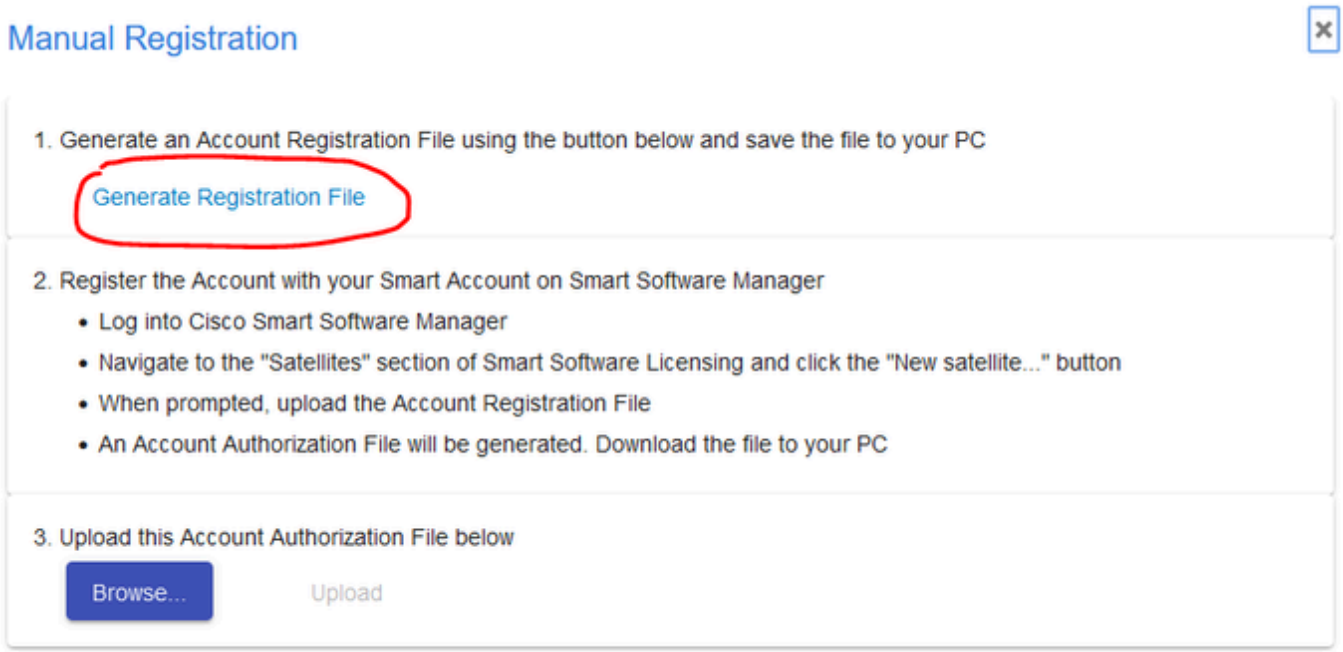
Now open your Smart Account (**https://software.cisco.com/**). Then select the **On-Prem Accounts** option to see the new register.



On Prem Account.

OPTION 2: Register your Cisco License Central On-Prem without an Internet Connection

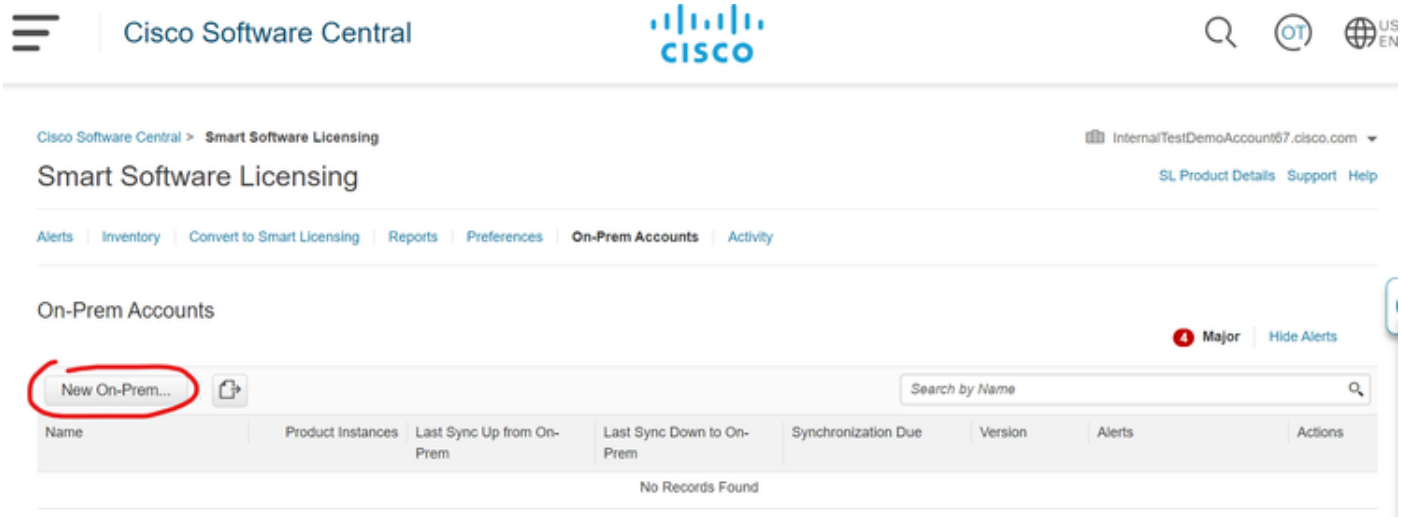
If you choose **Manual Registration**, click **Generate Registration File**. This creates a **Registration Request** that is going to be downloaded to your computer.



Manual registration.

Then open your Smart Account (https://software.cisco.com/) and navigate to **On-Prem Accounts**.

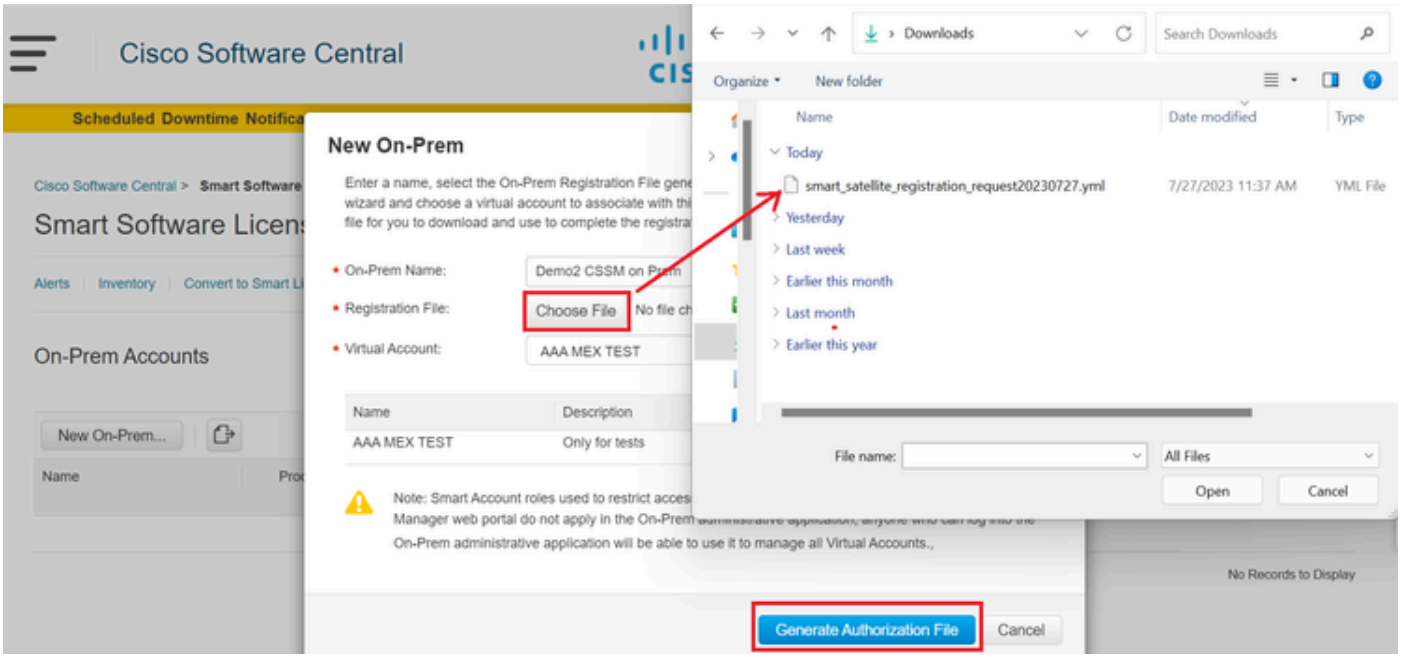
Click **New On-Prem**



Adding new On-Prem.

Then configure the next parameters:

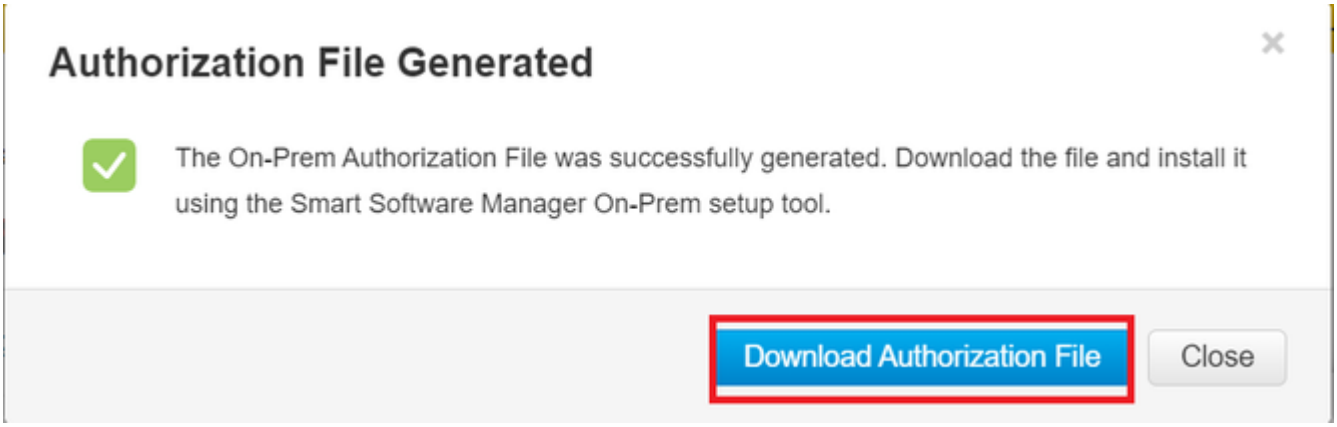
- **On-Prem Name:** This is a custom name of the new register.
- **Registration File:** Click **Choose File** and select the **Registration Request**.
- **Virtual Account:** Paste your **Virtual Account name.**



Authorization file.

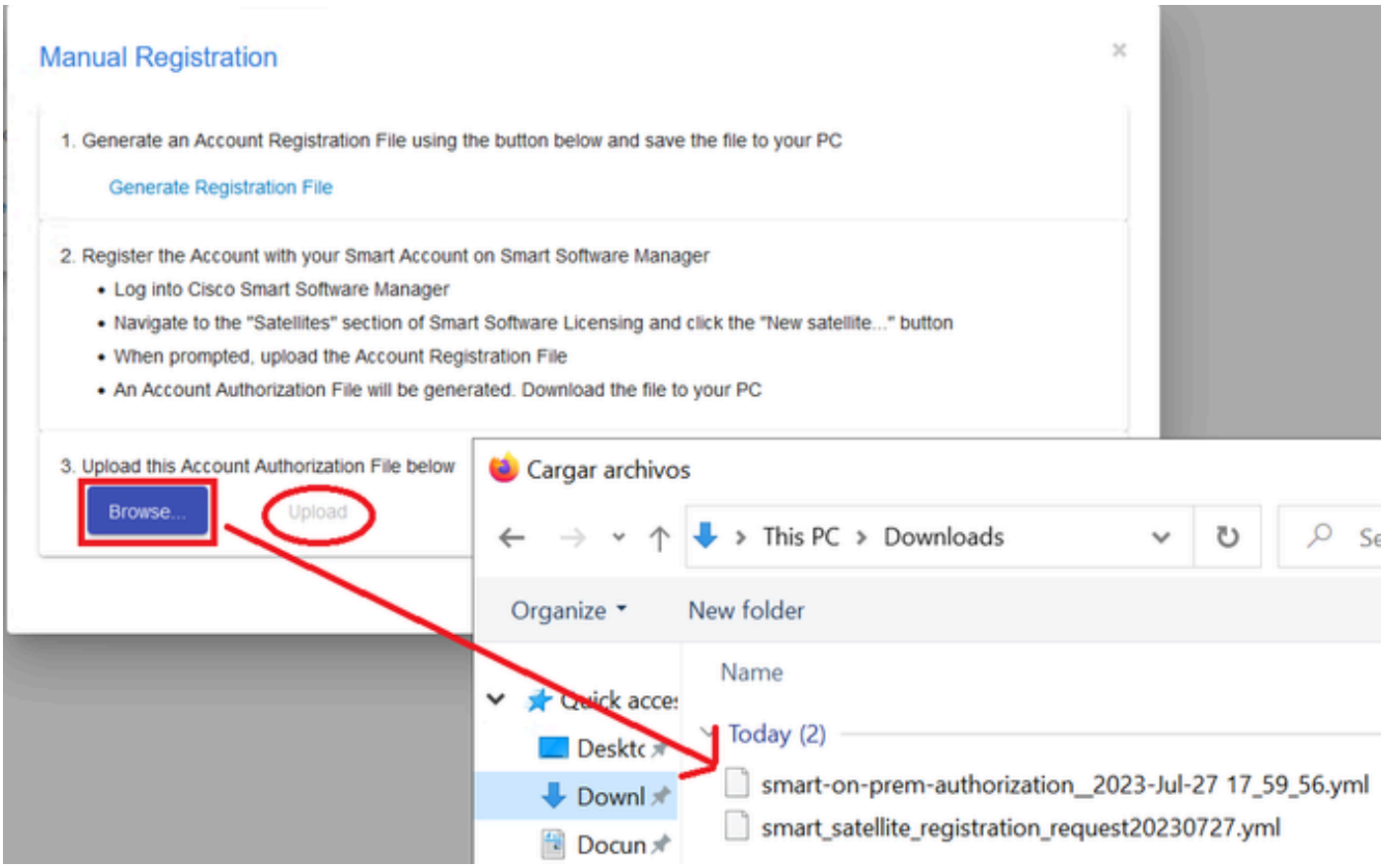
Click **Generate Authorization File.**

Then, download the **Authorization File.**



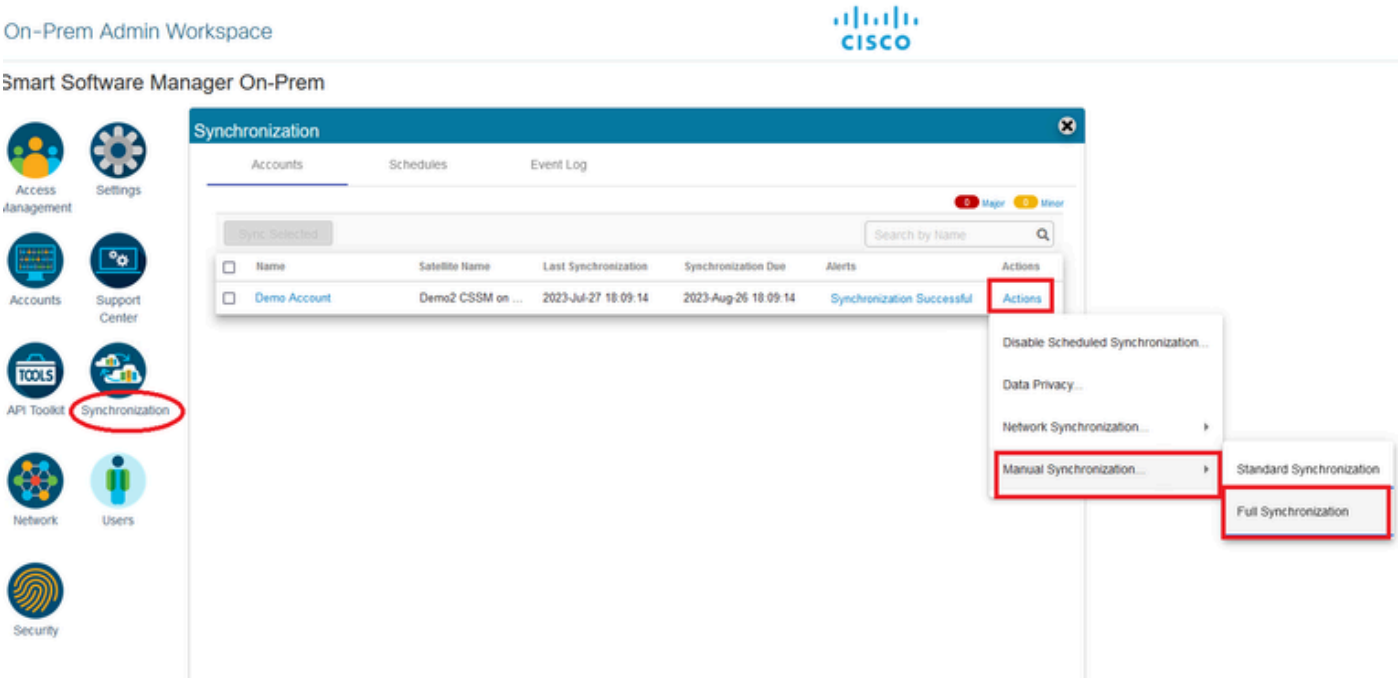
Downloading authorization file.

Open the Cisco License Central GUI to upload the **Authorization File.** Click **Browse**, choose the file, and then click **Upload**.



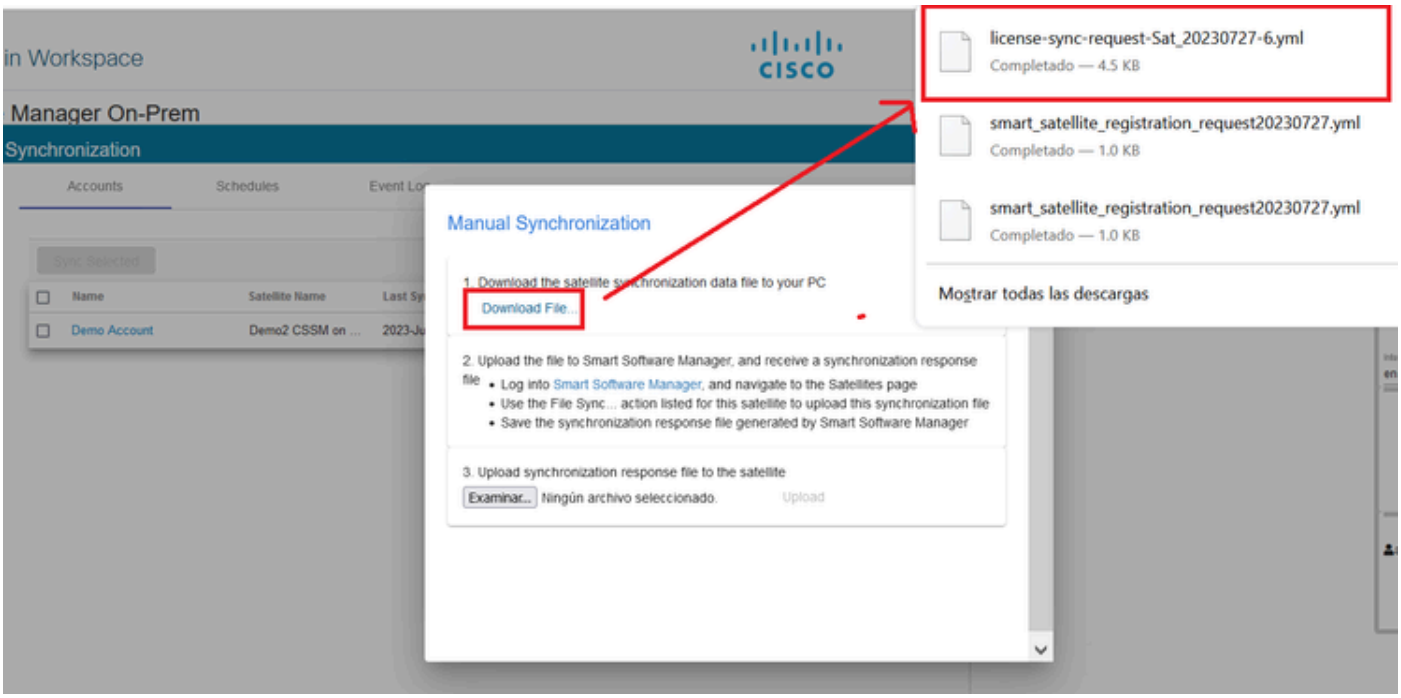
Uploading authorization file.

Then navigate to **Synchronization** and click **Actions** > **Manual Synchronization** > **Full Synchronization.**



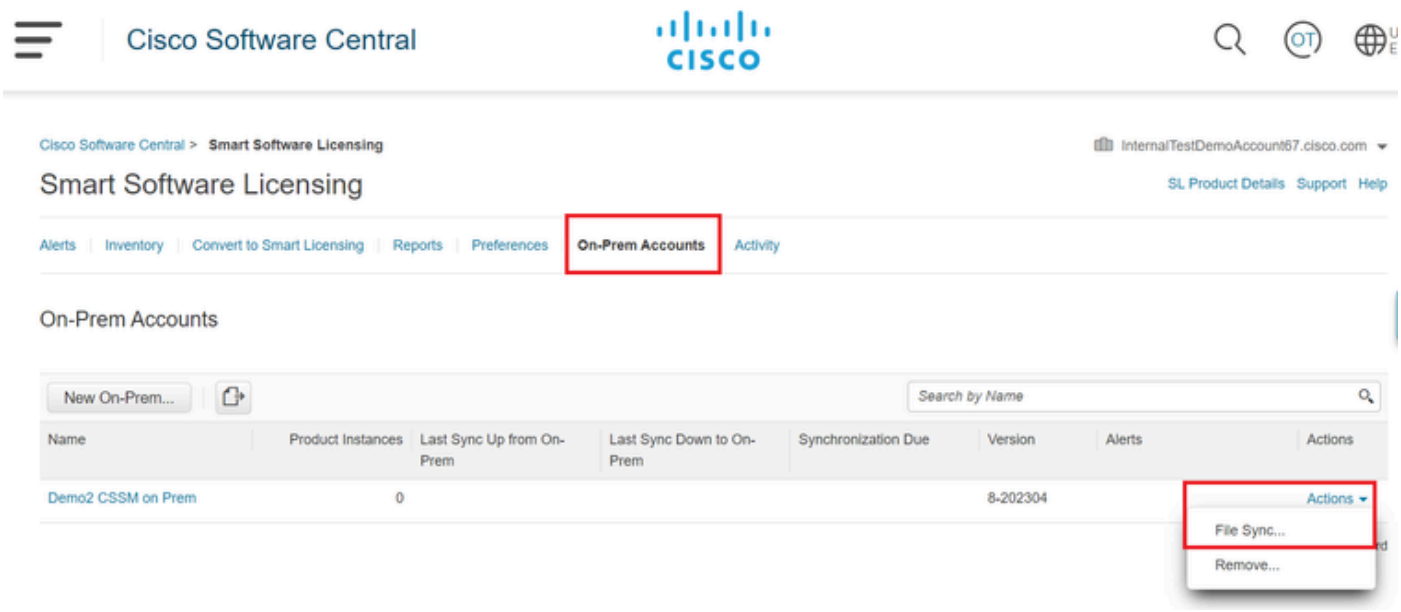
Manual Sync.

Download the **Sync request file**.



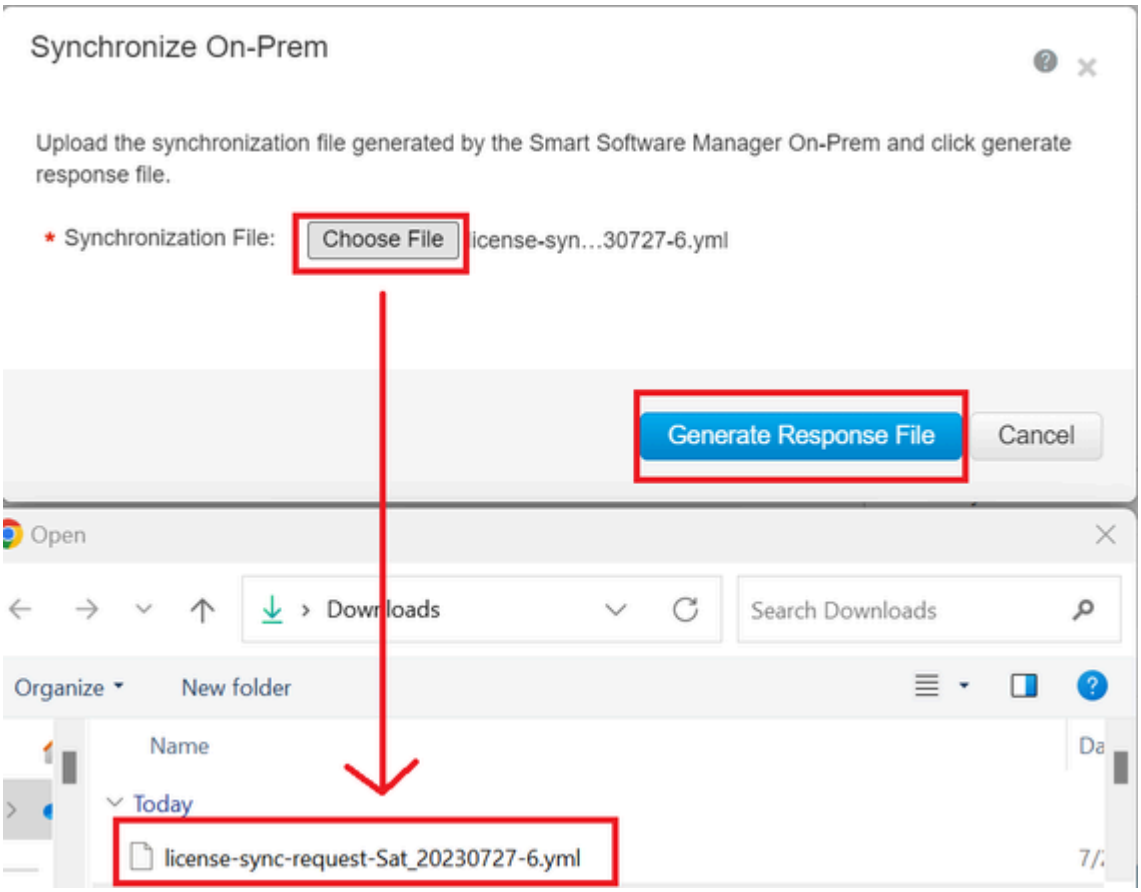
Downloading file Sync.

Open your **Smart Account** and select **On-Prem Account**, then look for your Cisco License Central On-Prem name in the list, and click **Actions > File Sync**



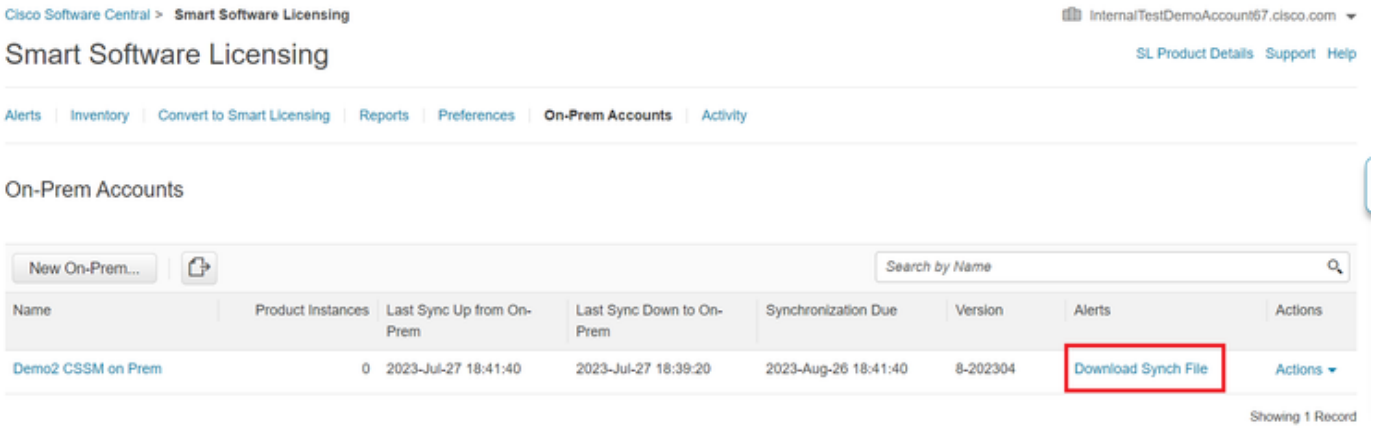
Uploading file Sync.

Then upload the **Sync request file,** and click **Generate Response File**.



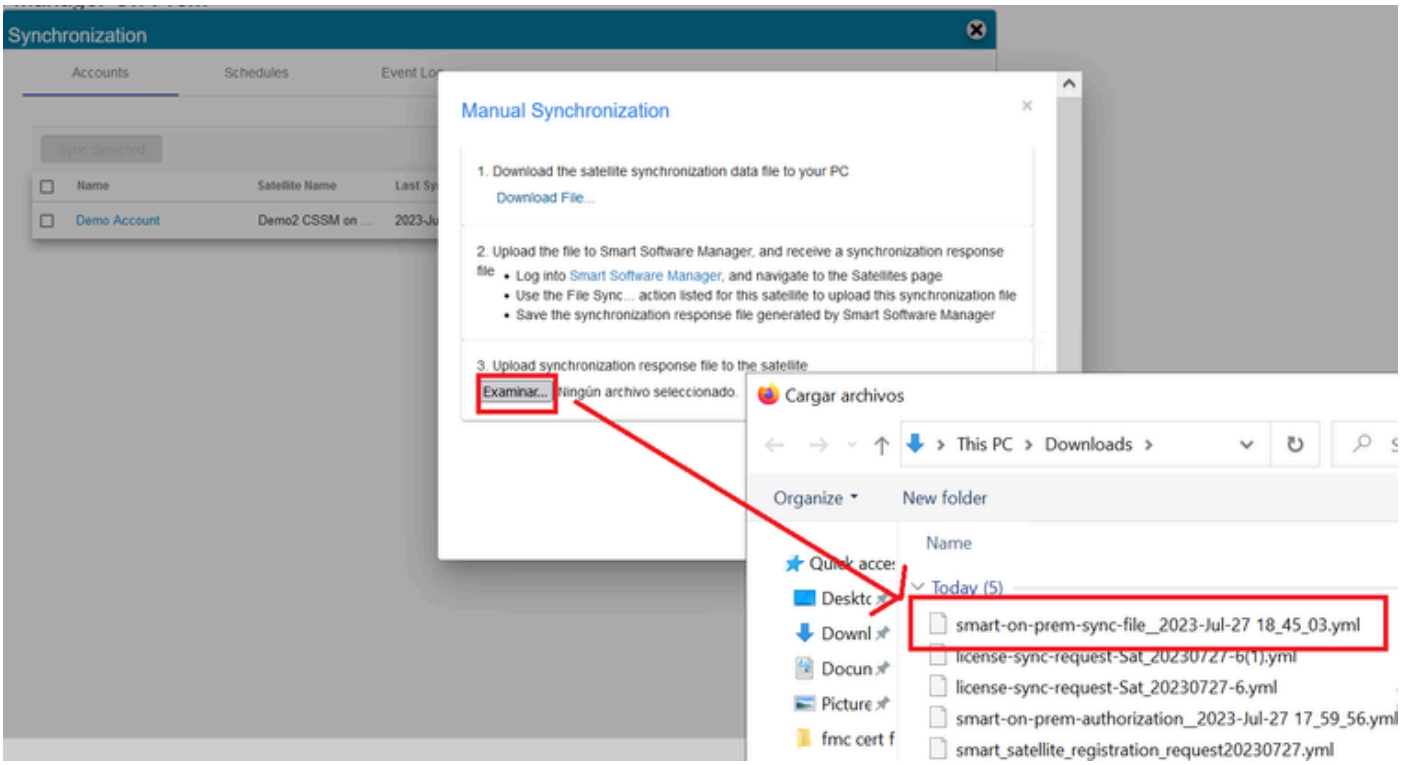
Generate a response file.

Then click **Download Synch Response File**



Sync file.

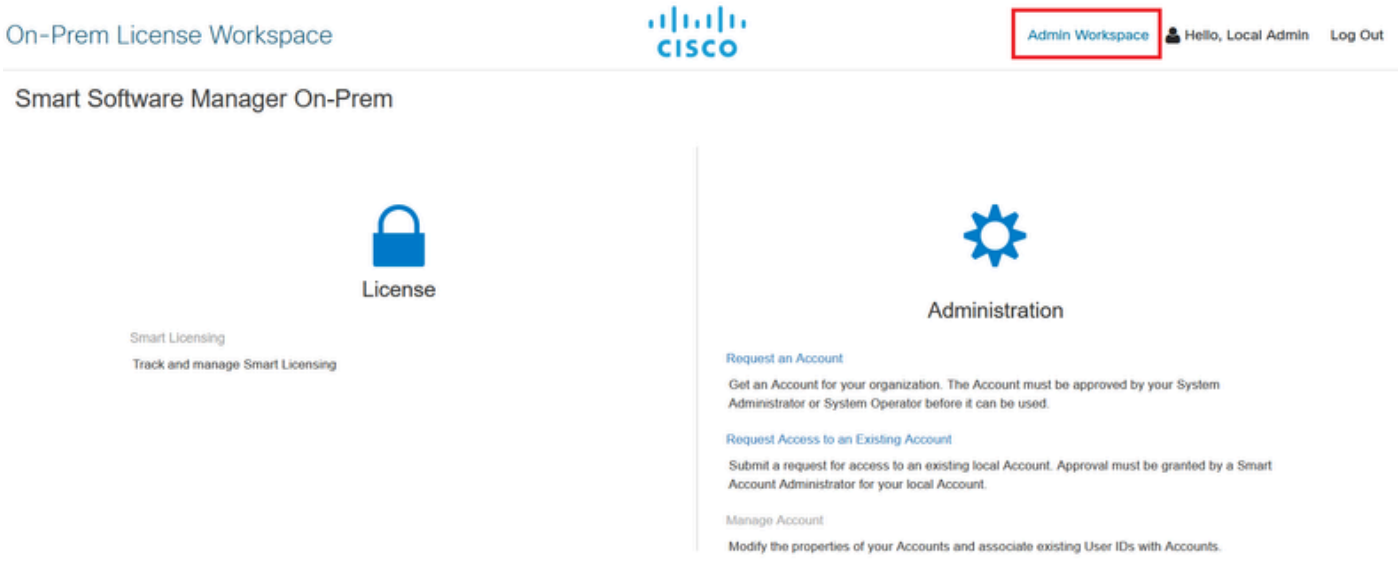
And finally, upload the **Synch Response File** in the Cisco License Central on Premise.



Sync completed.

Integrate Cisco License Central On-Prem with ISE.

1. Open the Cisco License Central GUI and select **Admin Workspace**.

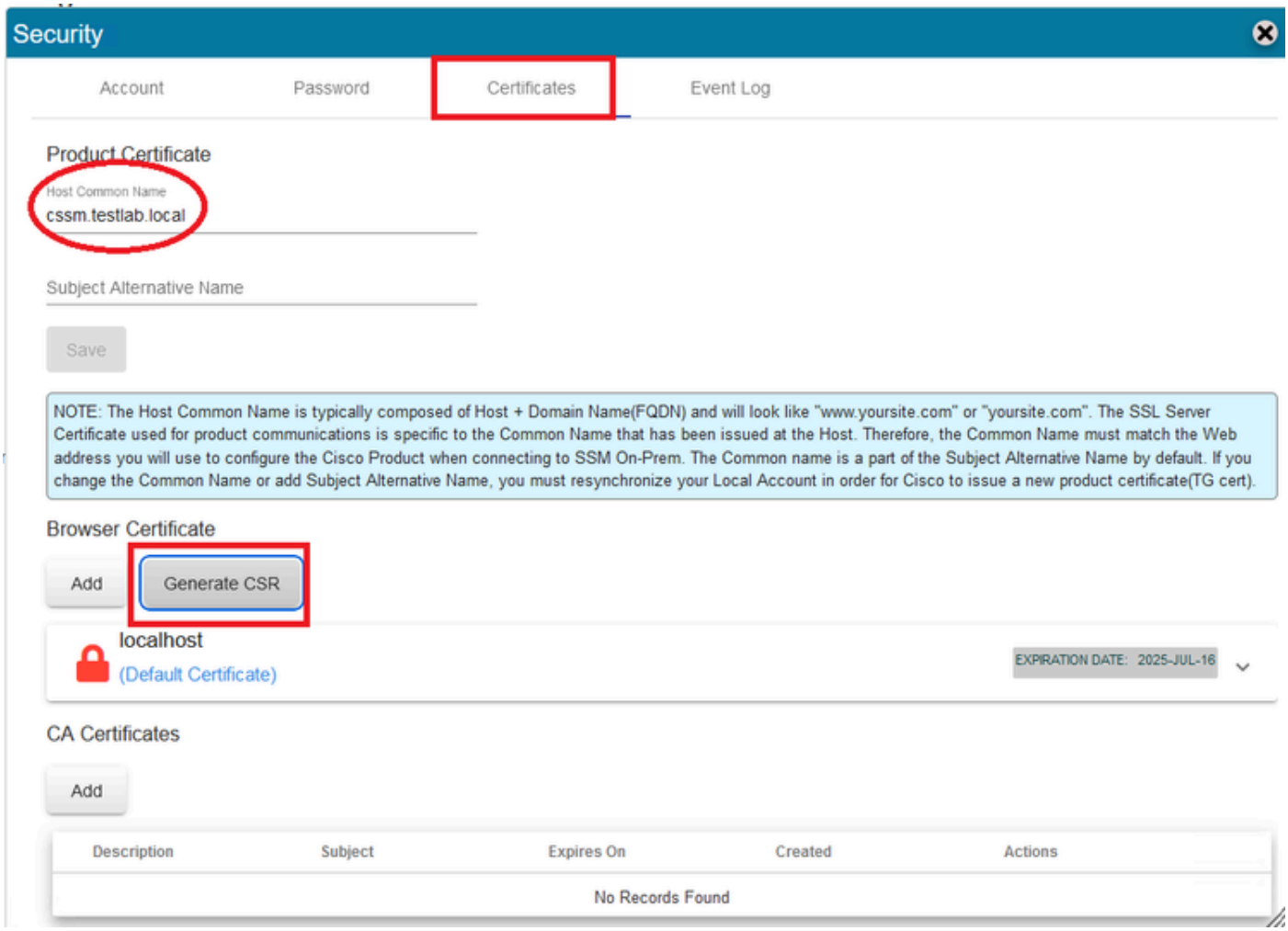


Main CSSM menu.

2. Navigate to **Security > Certificates > Generate CSR**.

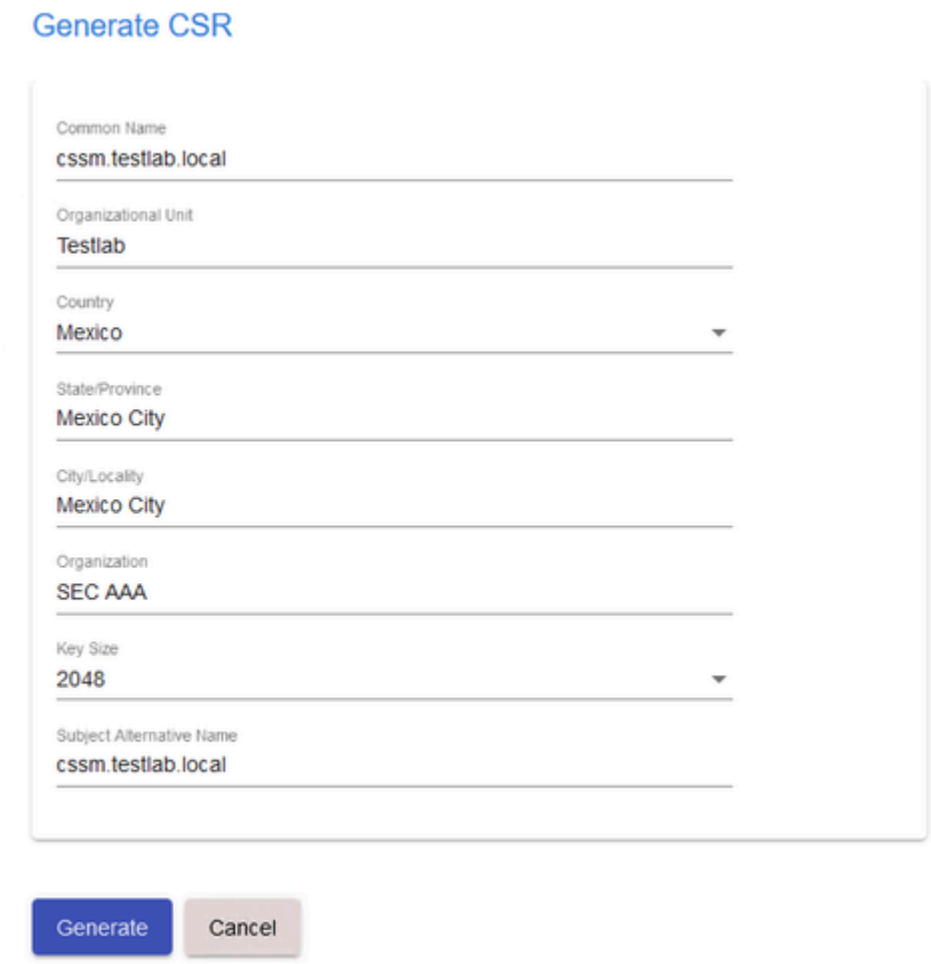
Note: It's important to have the **hostname + domain** configured on the **Host Common Name** because ISE uses this parameter in order to establish a connection with the Cisco License Central. You can use an **IP address** instead of the **hostname + domain**, however the recommendation is to use the **hostname + domain**

Note: The next steps describe the procedure to install the GUI certificate in the Cisco License Central. If you want to protect the management connection to your GUI Cisco License Central by using a certificate signed by your personal **Certification Authority** (CA) you need to check the next steps. Otherwise, check directly the step 9.



CSR option.

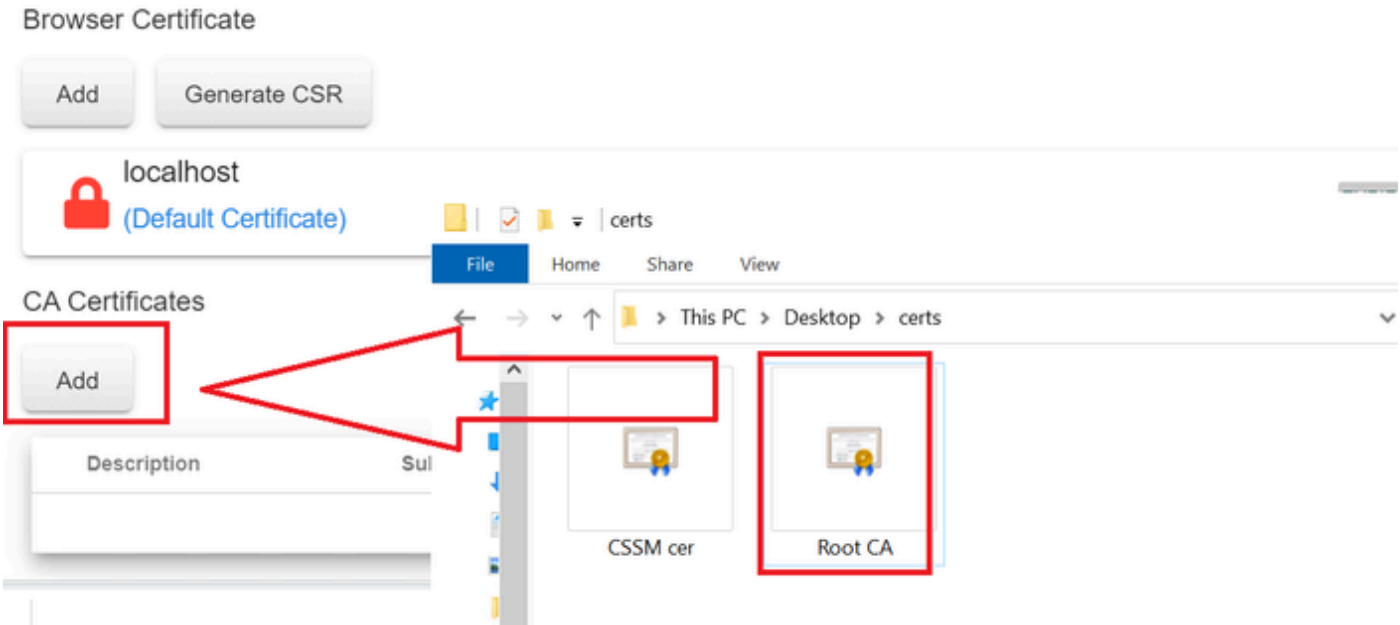
3. Then enter your personal information. Be aware the **Subject Alternative Name** is created automatically by using the same value as the **Common Name**. The **CSR** is downloaded automatically after clicking **Generate.**



CSR details.

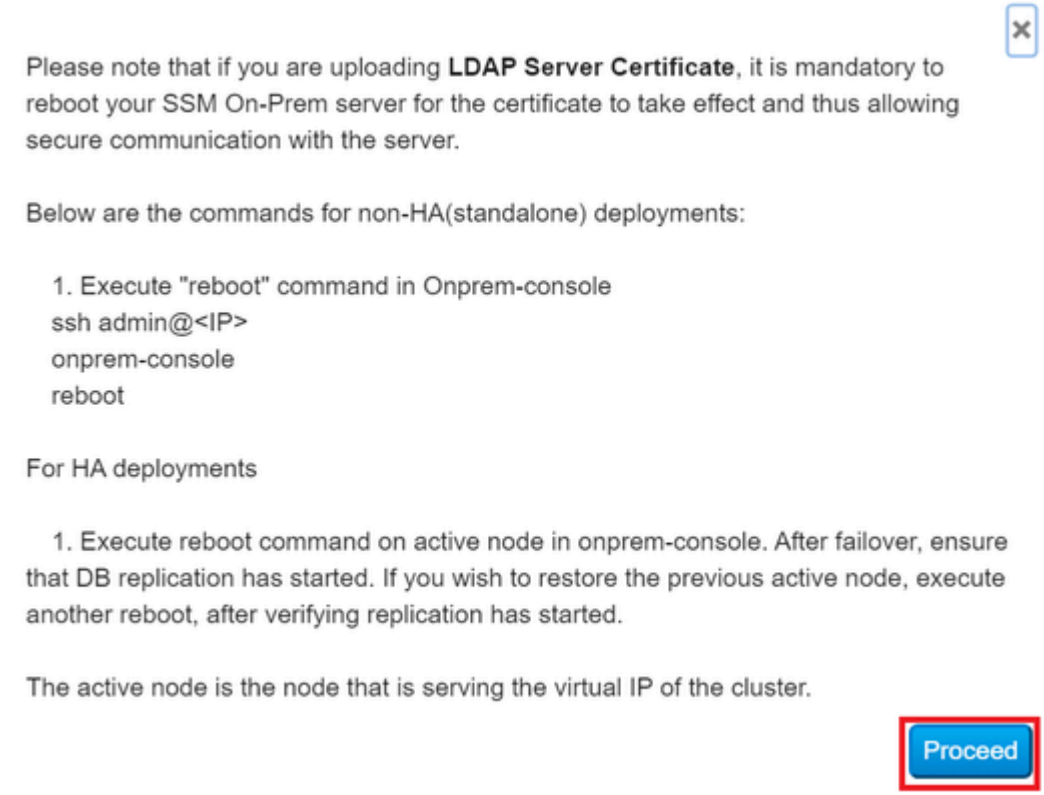
4. **Sign the CSR**:

5. Upload the **root CA certificate**.



Uploading Root CA.

Click **Proceed.**



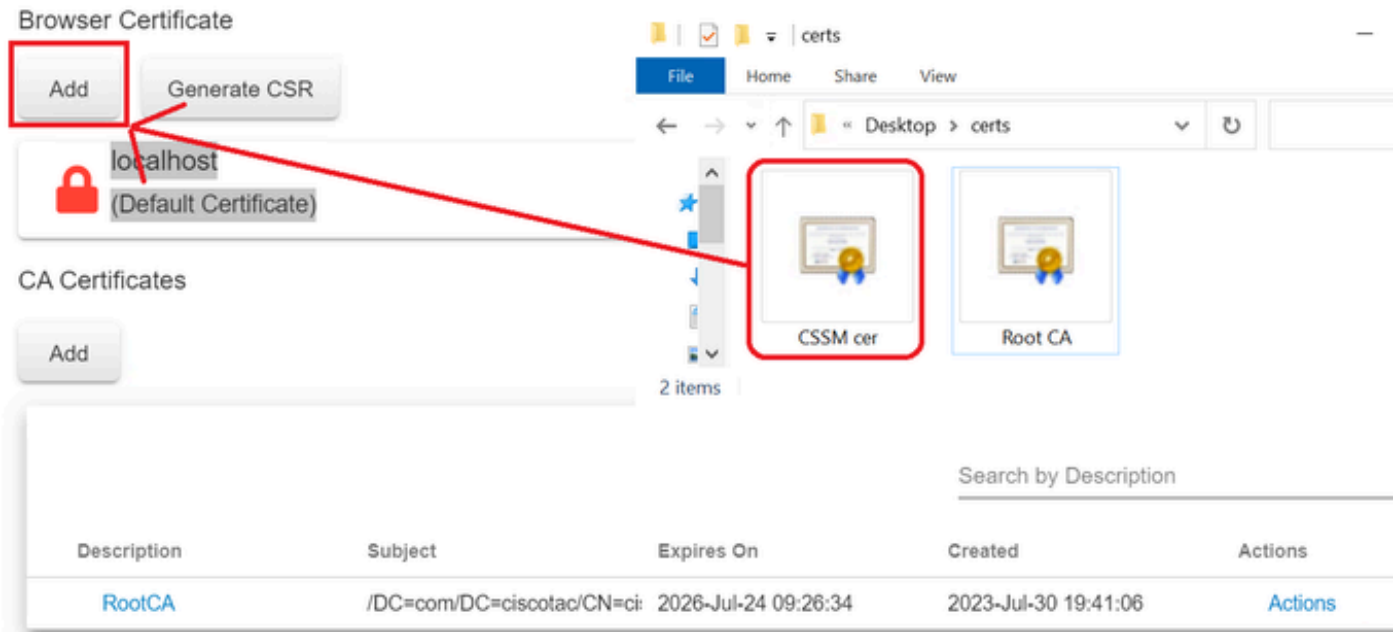
Proceed option.

6. Enter a description and choose the **root certificate** and click **Ok**.



Description root CA.

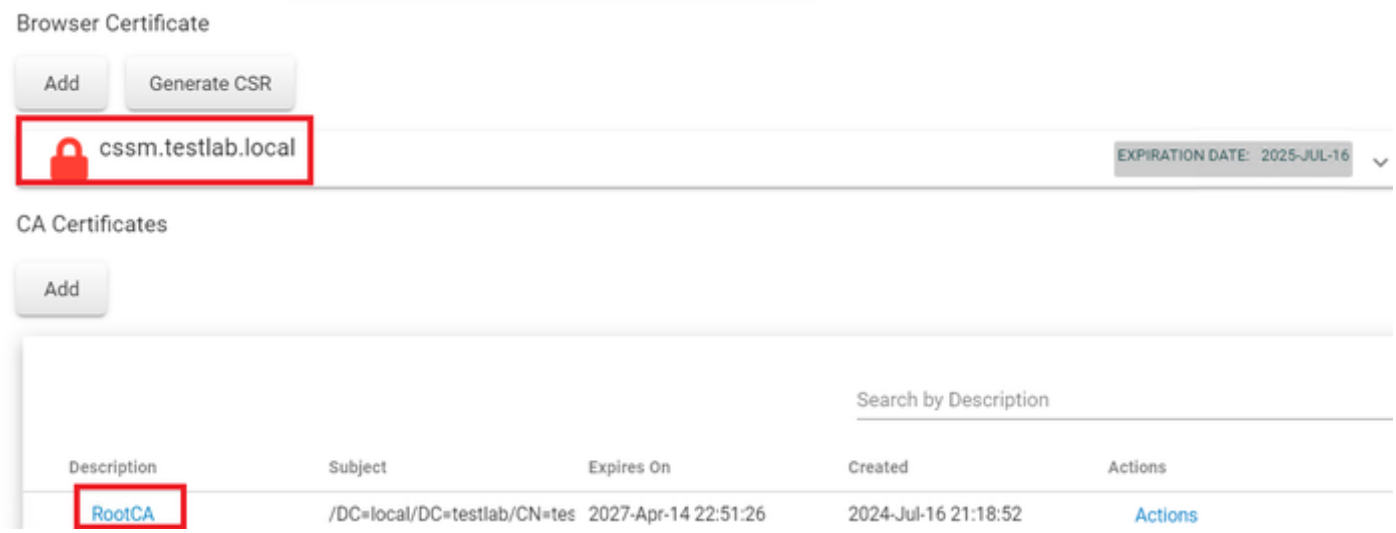
7. Upload the CSR signed by the CA (Cisco License Central **Identity Certificate**).



Uploading CSSM Identity Cert.

Note: NOTE: In our case, the **Intermediate certificate** does not exist in our CA. However, if you use an **intermediate certificate** in your architecture, the **intermediate certificate** is mandatory.

8. Then, confirm that both certificates have been installed.



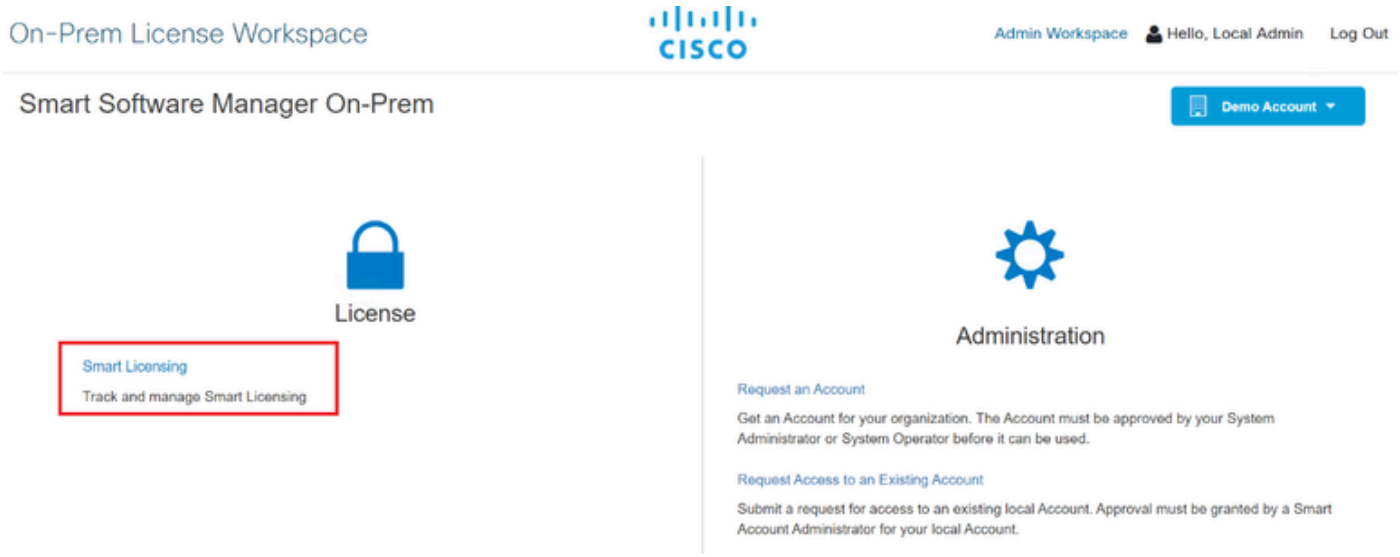
Certificates validation.

9. **Create a token** on Cisco License Central On-Prem: Select **licensing Workspace**.



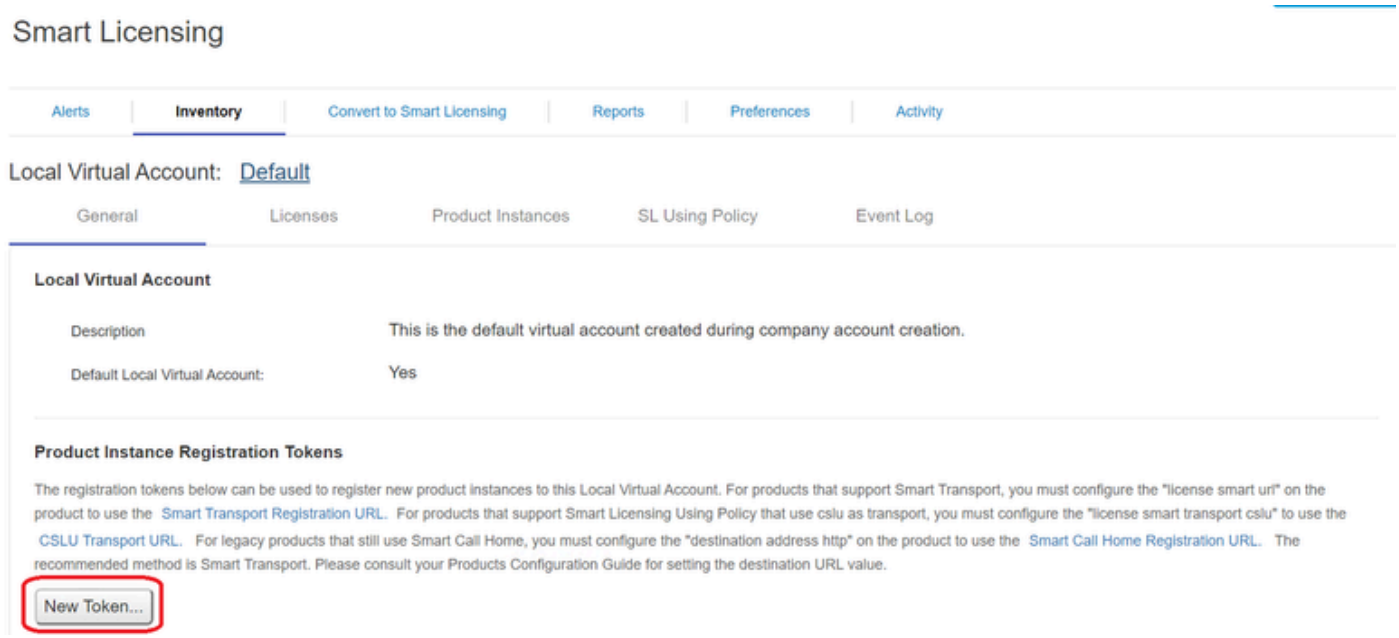
Workspace page.

10. navigate to **Smart Licensing.**



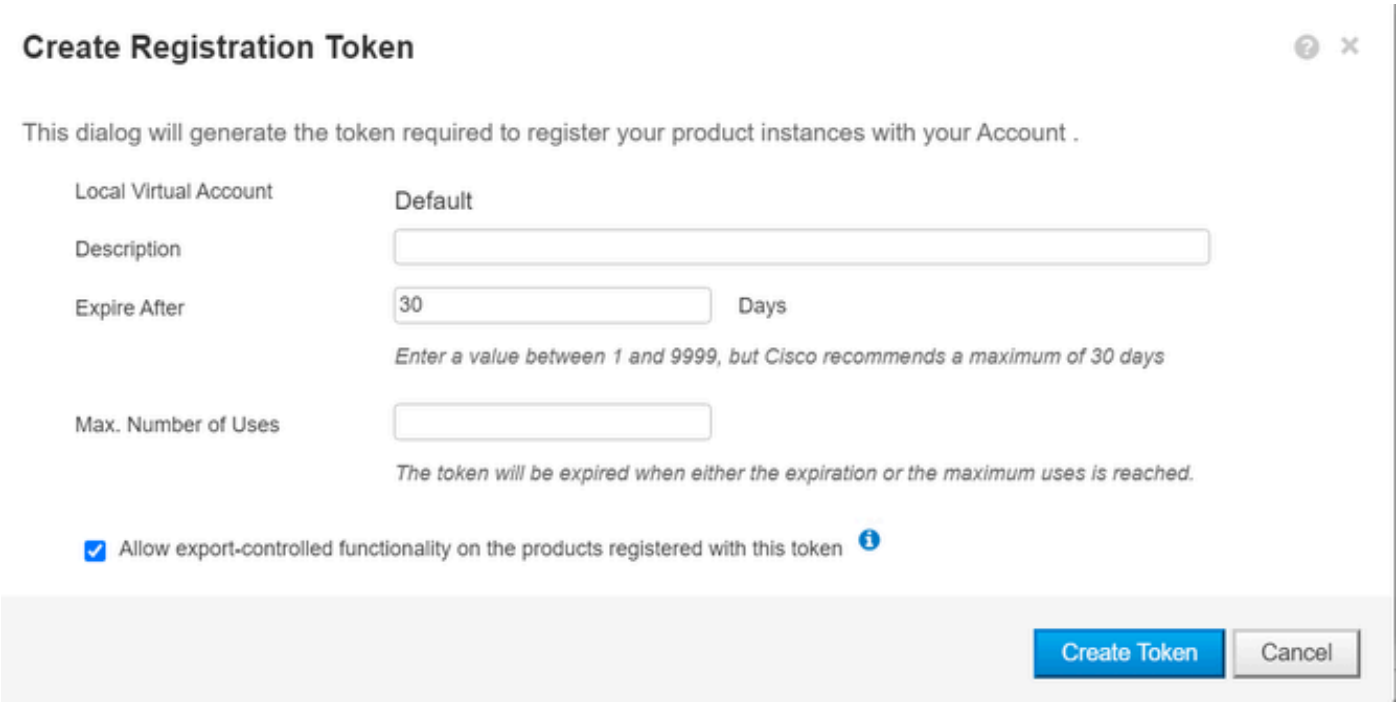
CSSM Smart licensing page

11. Look for your **Local Virtual Account,** then click **New Token** and click **Proceed.**

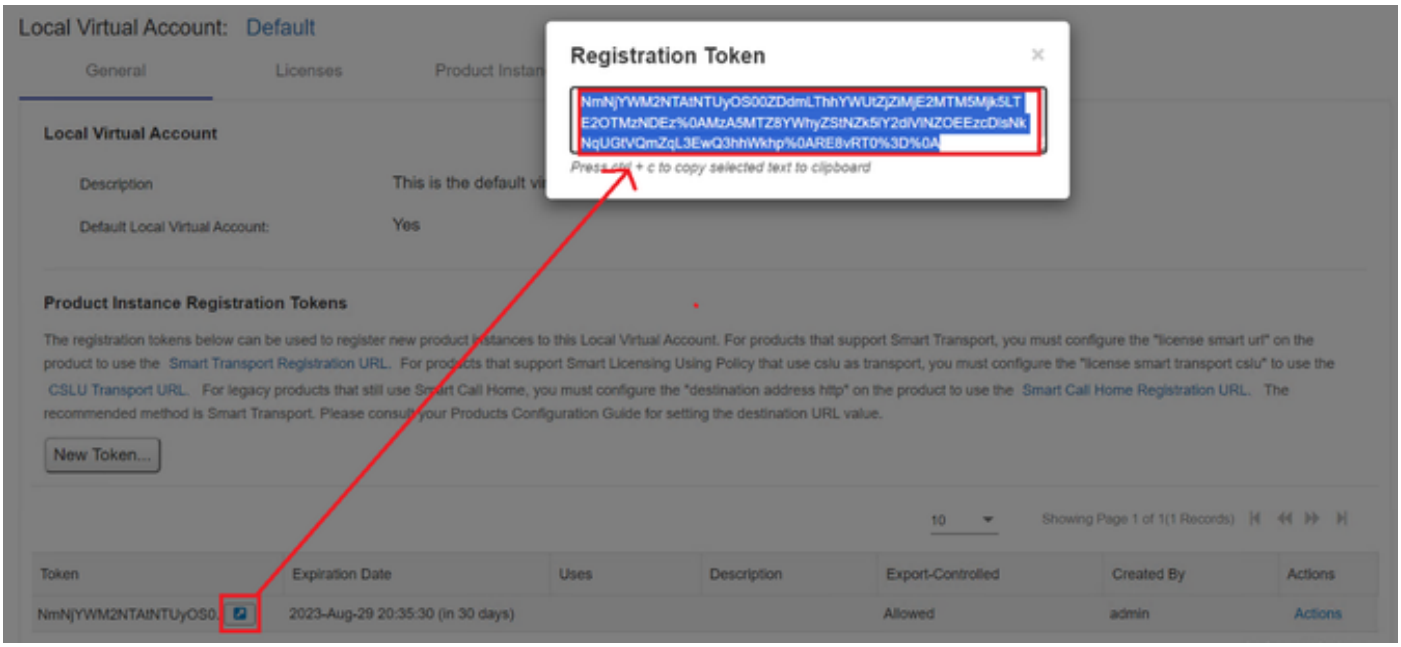


New token option.

12. Select **Create Token** and copy it.

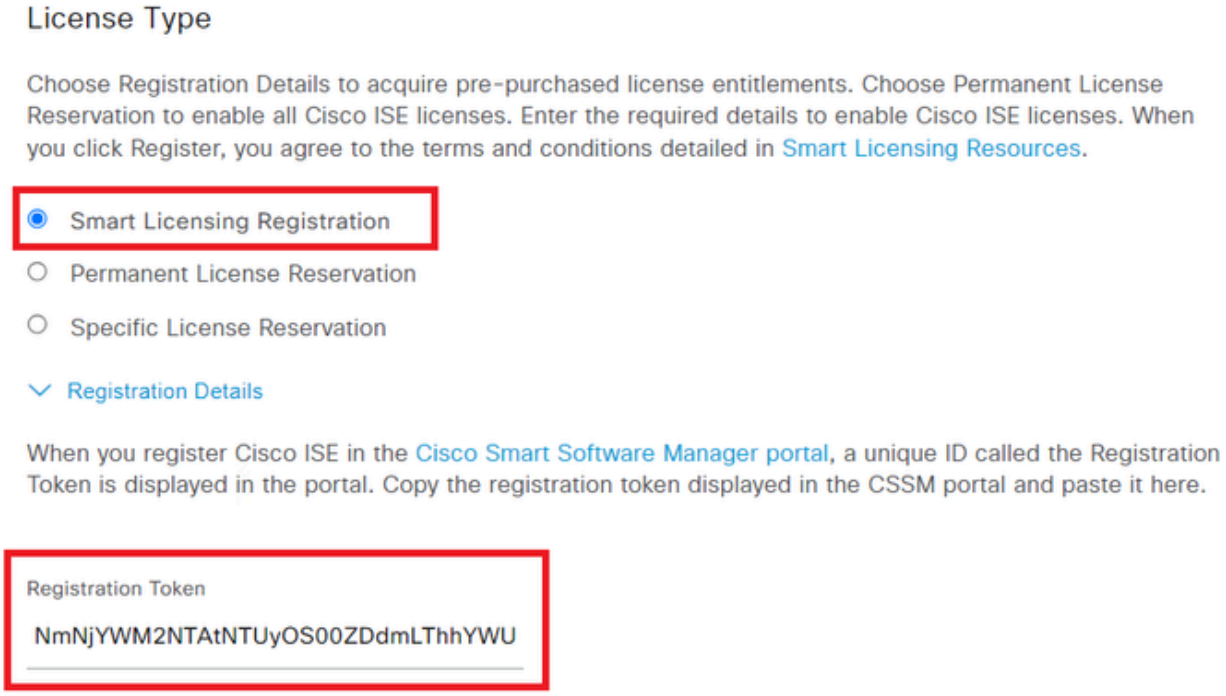


Creation of new token.



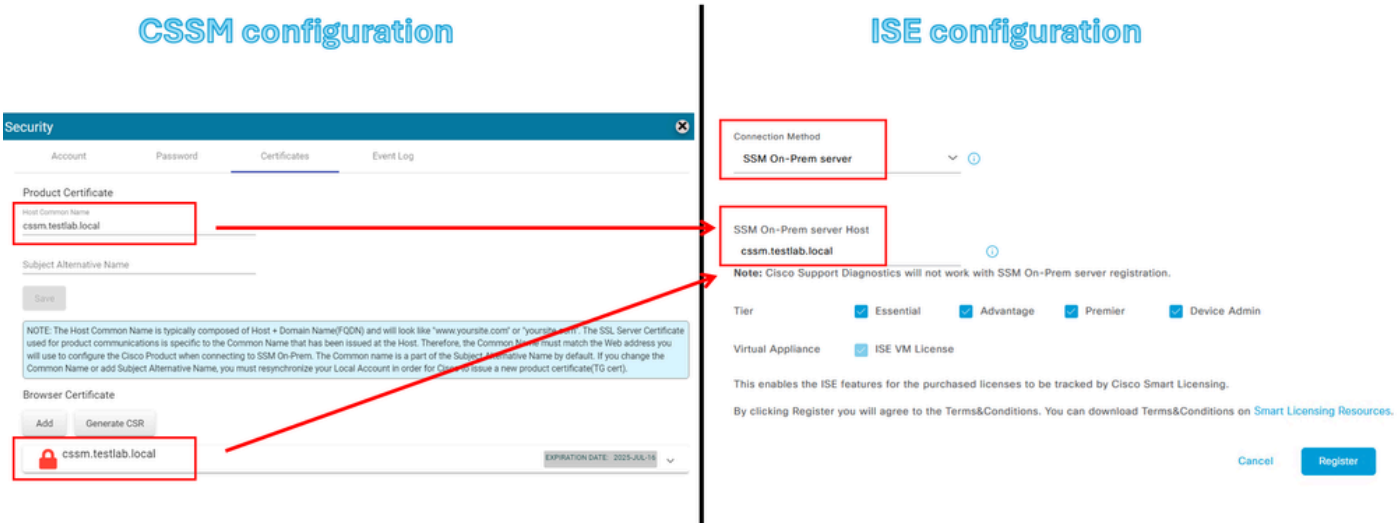
Token details.

13. Open the **ISE GUI** and navigate to **Administration** > **Systems** > **Licensing,** then click **Registration details,** select the **Cisco License Central On-Prem server Host** method**,** and paste **the token.**



Registration of licenses.

14. Enter the **Cisco License Central On-Prem FQDN** on **Cisco License Central On-Prem server Host** and click **Register**.

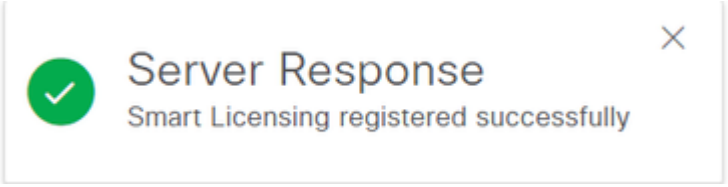


CSSM and ISE settings.

Note: It's important to have the **hostname + domain** configured on the **Host Common Name** because ISE uses this parameter in order to establish a connection with the Cisco License Central. You can use an **IP address** instead of the **hostname + domain**, however the recommendation is to use the **hostname + domain**

---

15. And finally, the registration has been completed.

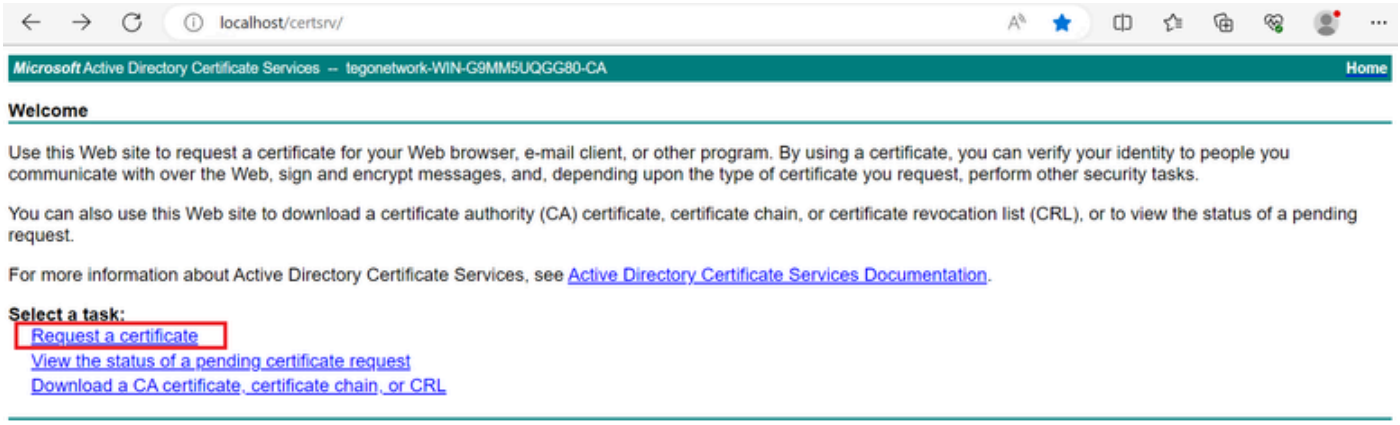


Registration completed.

Create certificates from Windows CA.

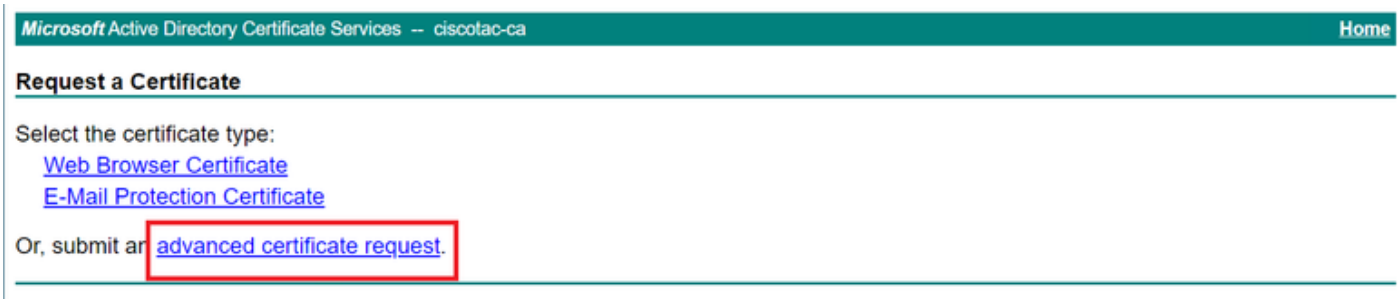
If you are the administrator of the Certificate Authority, you must do the next:

1. Open a web browser and navigate to http://localhost/certsrv/
2. Click **Request a certificate**.



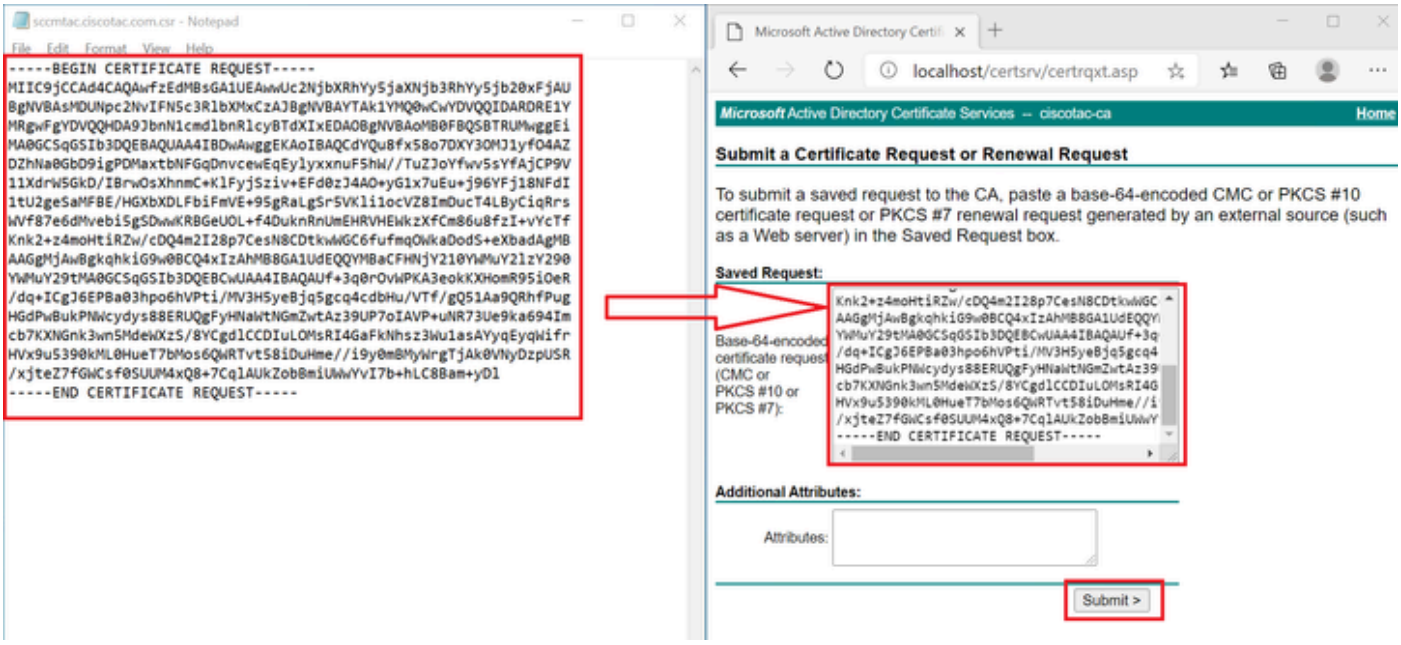
Request certificate.

3. Click **advanced certificate request**.



Advanced certificate request.

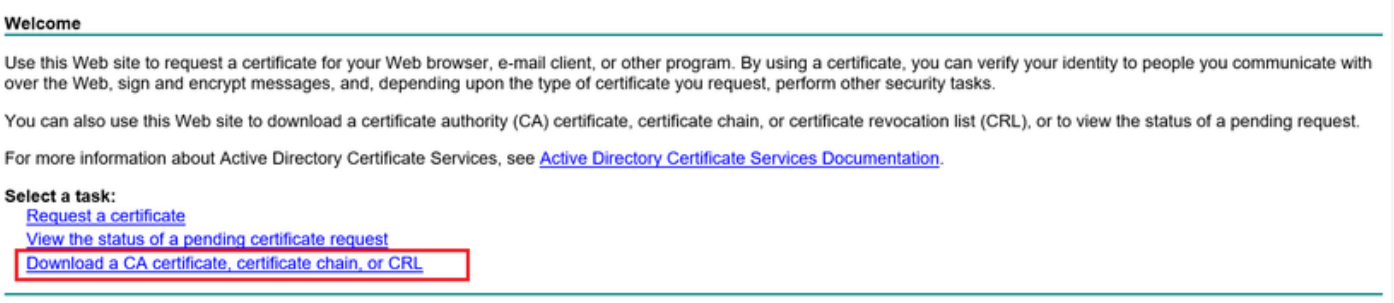
4. Open the **CSR** generated previously. Then copy the information and paste it in **Saved request**.



Submit certificate.

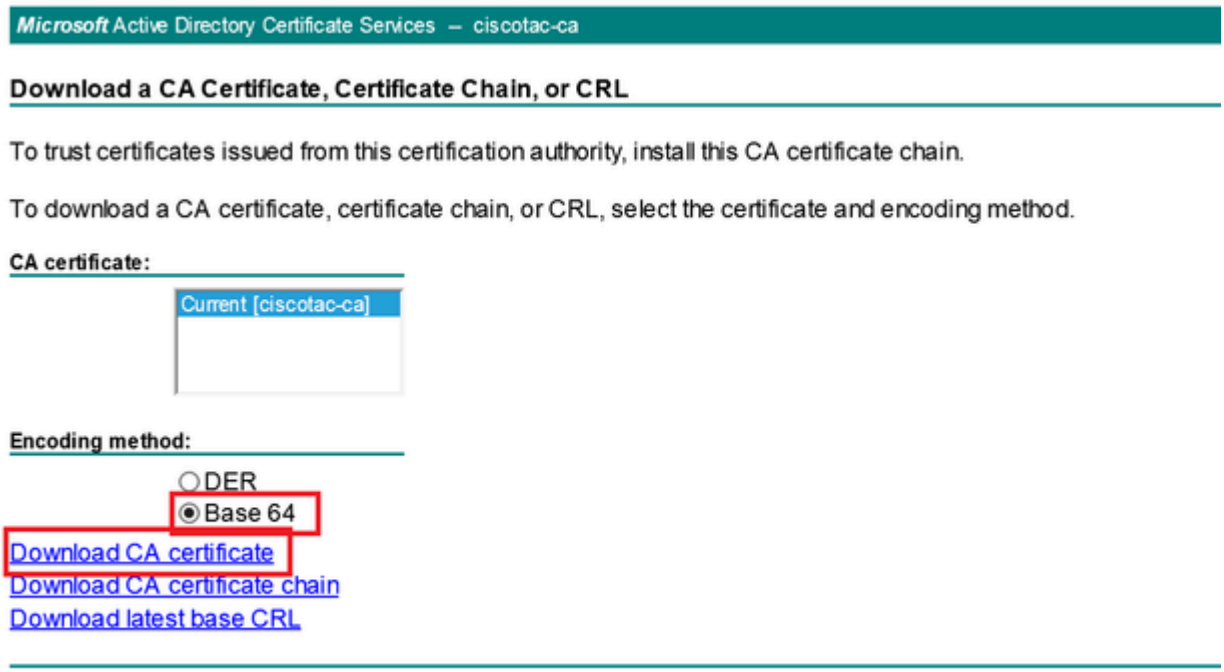
After clicking **Submit** the certificate is downloaded automatically**.**

5. Now download the CA certificate root. navigate back to http://localhost/certsrv/ and select **Download a CA Certificate, Certificate Chain, or CRL**.



Download root CA.

6. Download the **CA certificate** by using the **encoding method as Base64.**

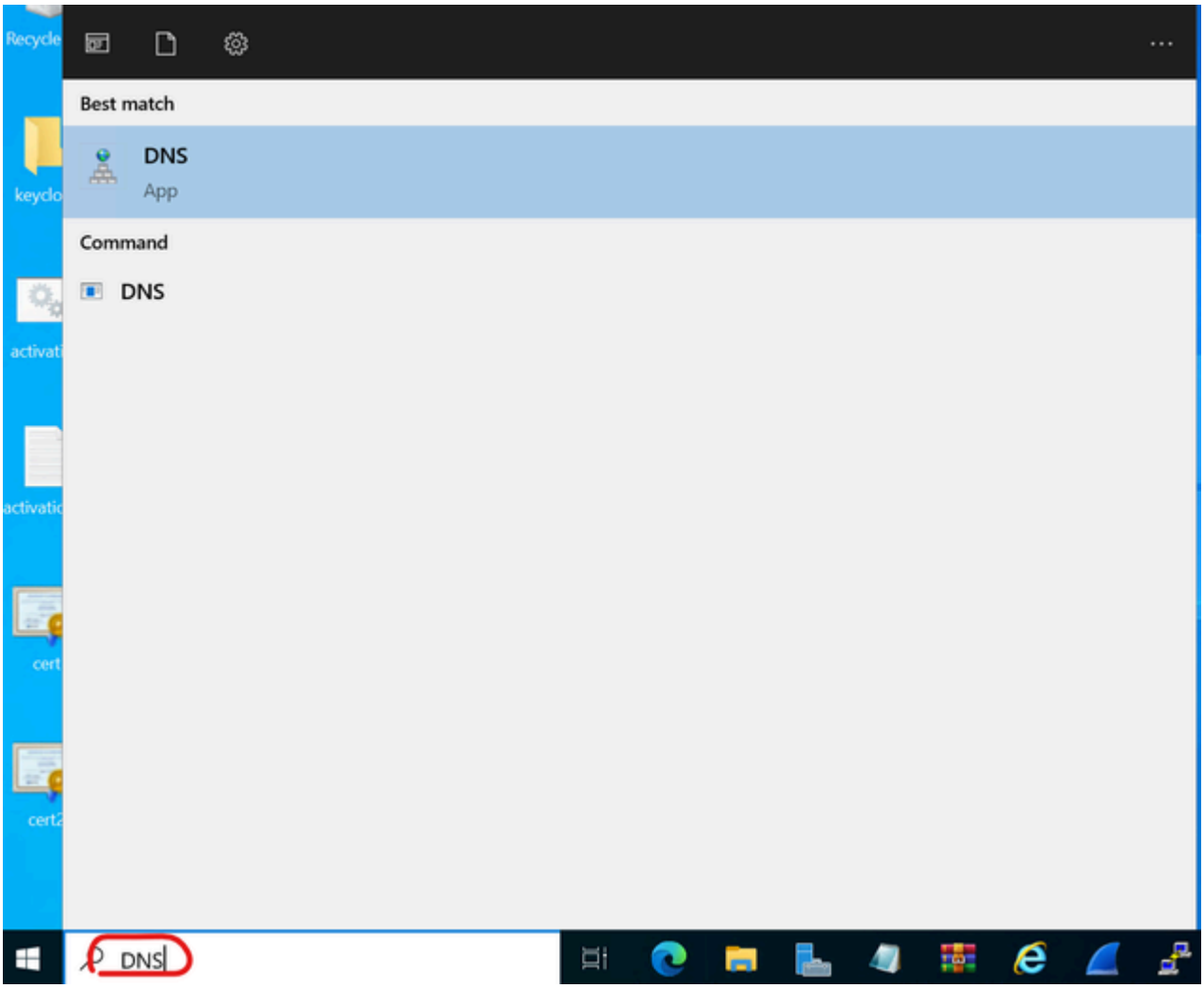


Base 64 option.

Add DNS records on Windows Server

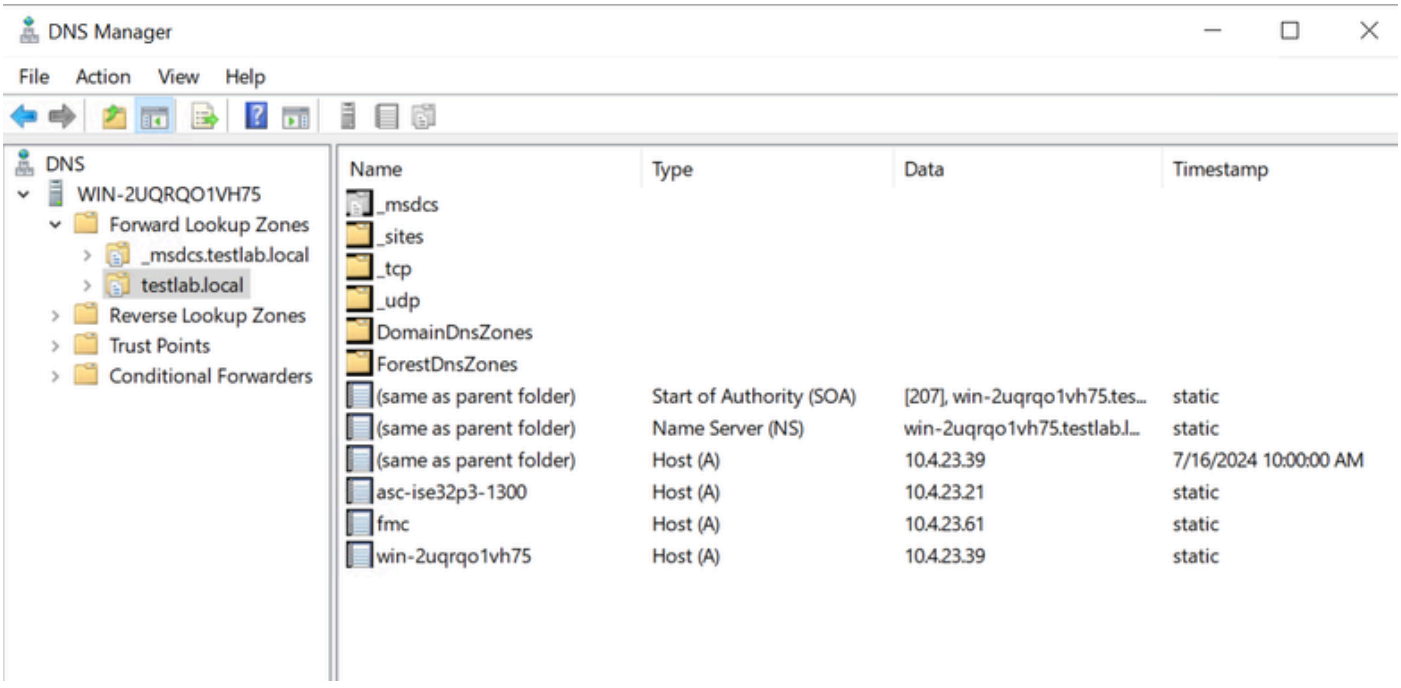
If you are the administrator, add the ISE and Cisco License Central FQDNs.

1. Open the **DNS Manager**: Type “DNS” on the Windows finder and open the DNS app.



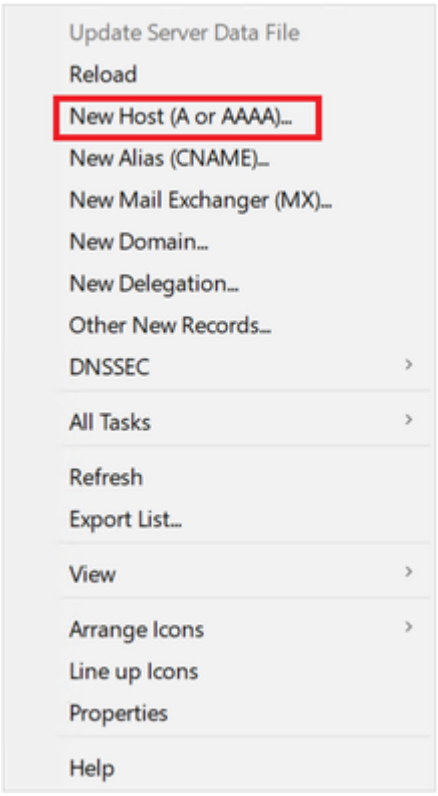
DNS option.

2. Navigate to **Forward Lookup Zones** > And choose your domain.



DNS manager.

3. Right-click on a black space over the screen and select **New Host (A or AAAA)**.

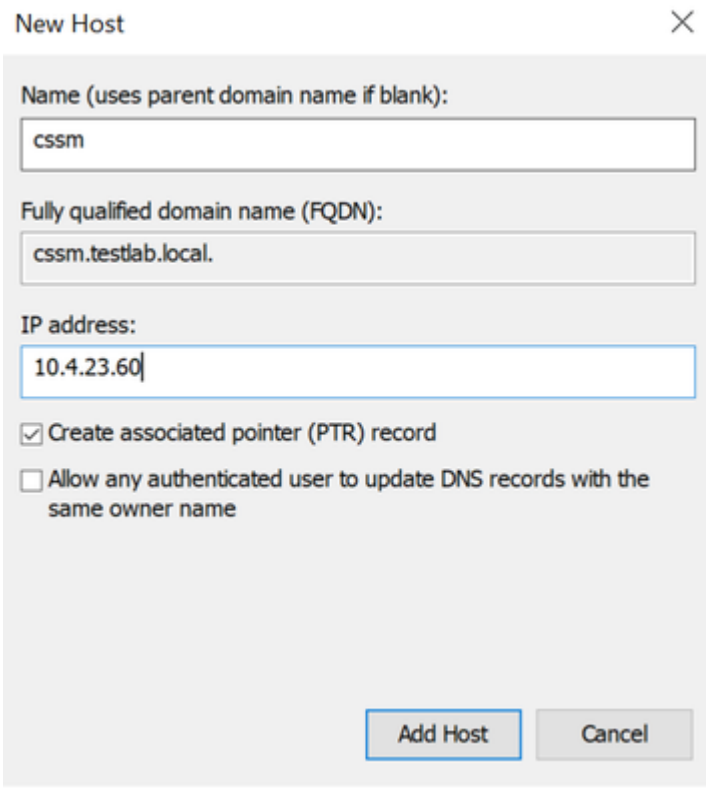


Adding record.

4. Configure the record DNS as the next:

- **Name**: It means the name of the host.
- The **IP Address** of the device.

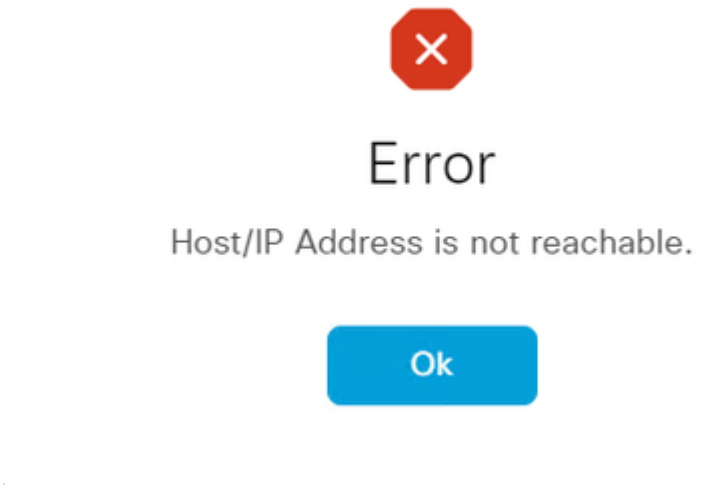
Click **Add Host**.



Record settings.

Troubleshoot

Host/IP Address is not reachable. (Error on ISE)



Reachable error.

Solution 1: Check and fix the **DNS configuration** in the ISE node.

1. Open the **ISE CLI** and type **nslookup <Cisco License Central_FQDN>**.

On the next example, we can see that cssm.testlab.local **wasn't resolved** from the ISE node.

```
asc-ise32p5-1399/admin#nslookup cssm.testlab.local
Trying "cssm.testlab.local"
Host cssm.testlab.local not found: 3(NXDOMAIN)
Received 99 bytes from 10.4.23.39#53 in 19 ms
Received 99 bytes from 10.4.23.39#53 in 19 ms
asc-ise32p5-1399/admin#
```

CSSM resolution failed.

The correct resolution would be:

```
asc-ise32p5-1399/admin#nslookup cssm.testlab.local
Trying "cssm.testlab.local"
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 26556
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 0

;; QUESTION SECTION:
;cssm.testlab.local.            IN      ANY

;; ANSWER SECTION:
cssm.testlab.local.     3600    IN      A       10.4.23.60
```

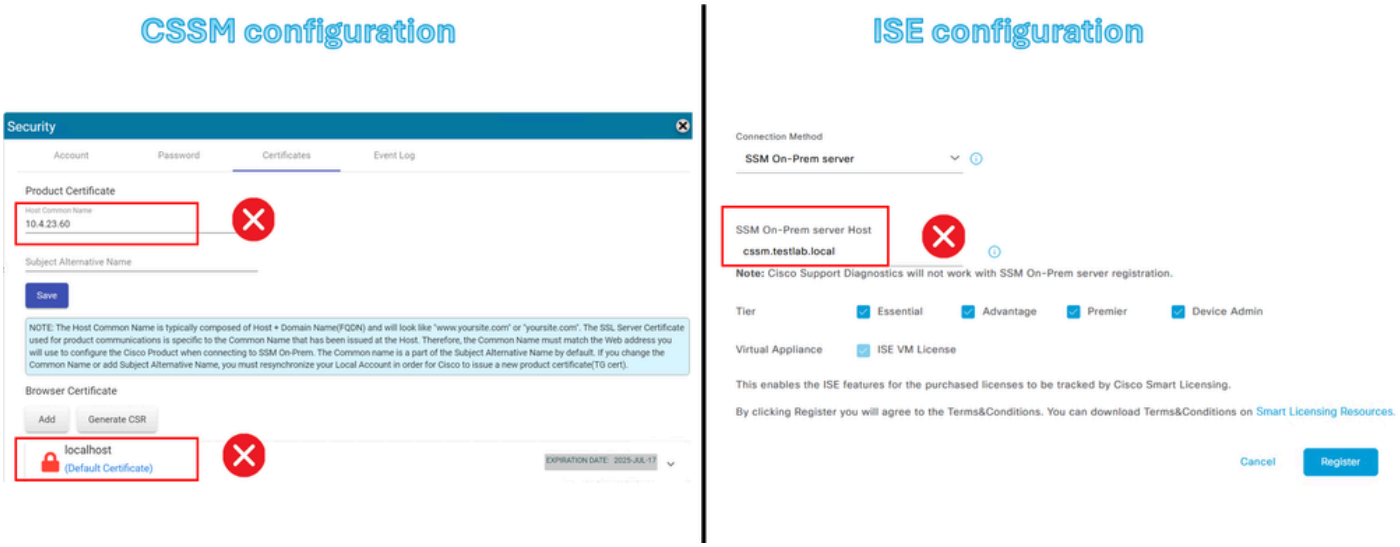
CSSM resolution successfully.

Action Plan:

1. Check the **DNS configuration topic** on this document.
2. Enter the **show running-config** command on the ISE CLI in order to check the "**ip name-server**". The "**ip name-server**" needs to match with the IP address of the DNS Server.

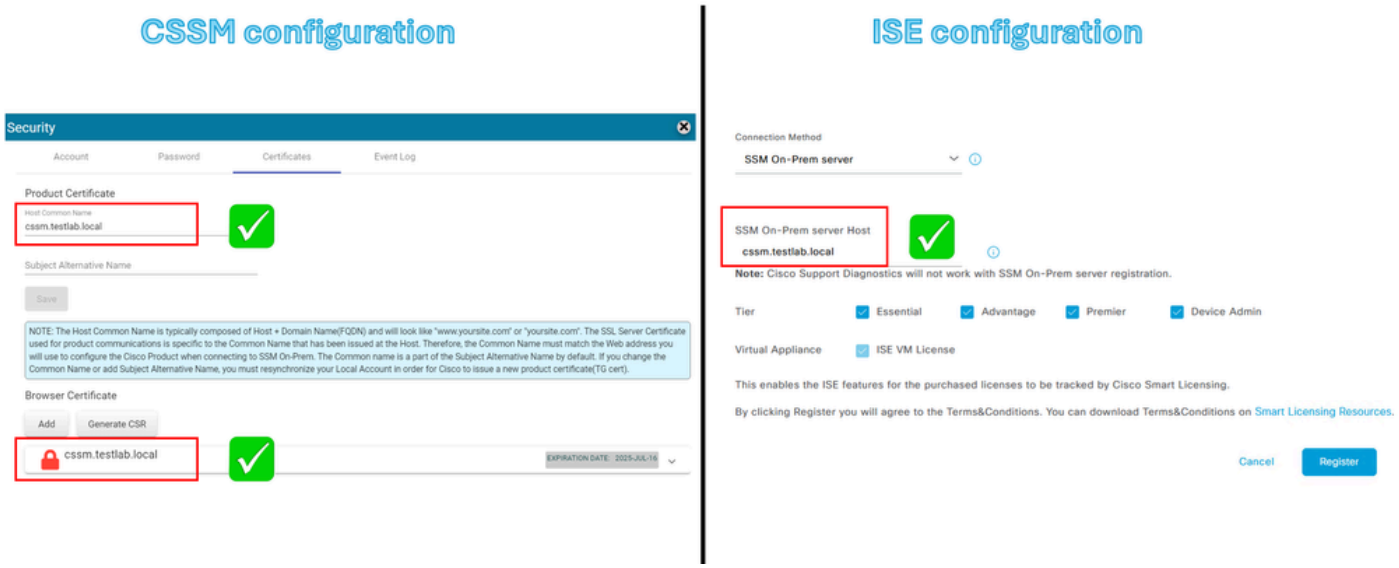
Solution 2: Open the Cisco License Central GUI to confirm that the **Host Common Name** and **Browser Certificate** are the same as Cisco License Central **On-Prem server Host** parameter on the ISE side**.**

Wrong scenario:



CSSM resolution and ISE setting are incorrect.

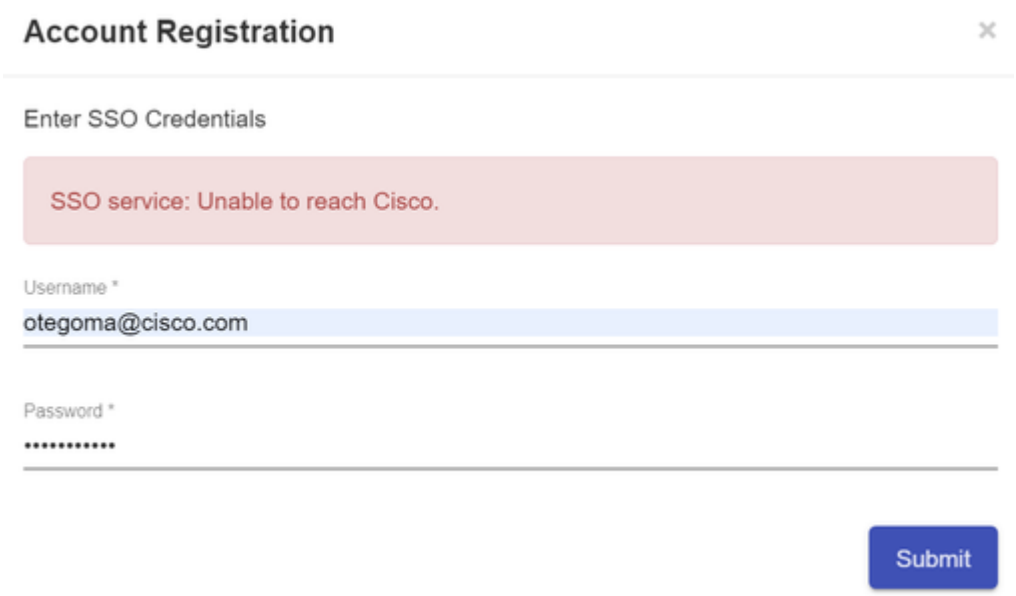
Correct scenario:



CSSM resolution and ISE setting are correct.

Action Plan: See "**ISE and Cisco License Central configuration**" in this guide for more information.

SSO service: Unable to reach Cisco. (Error on Cisco License Central On-Prem)

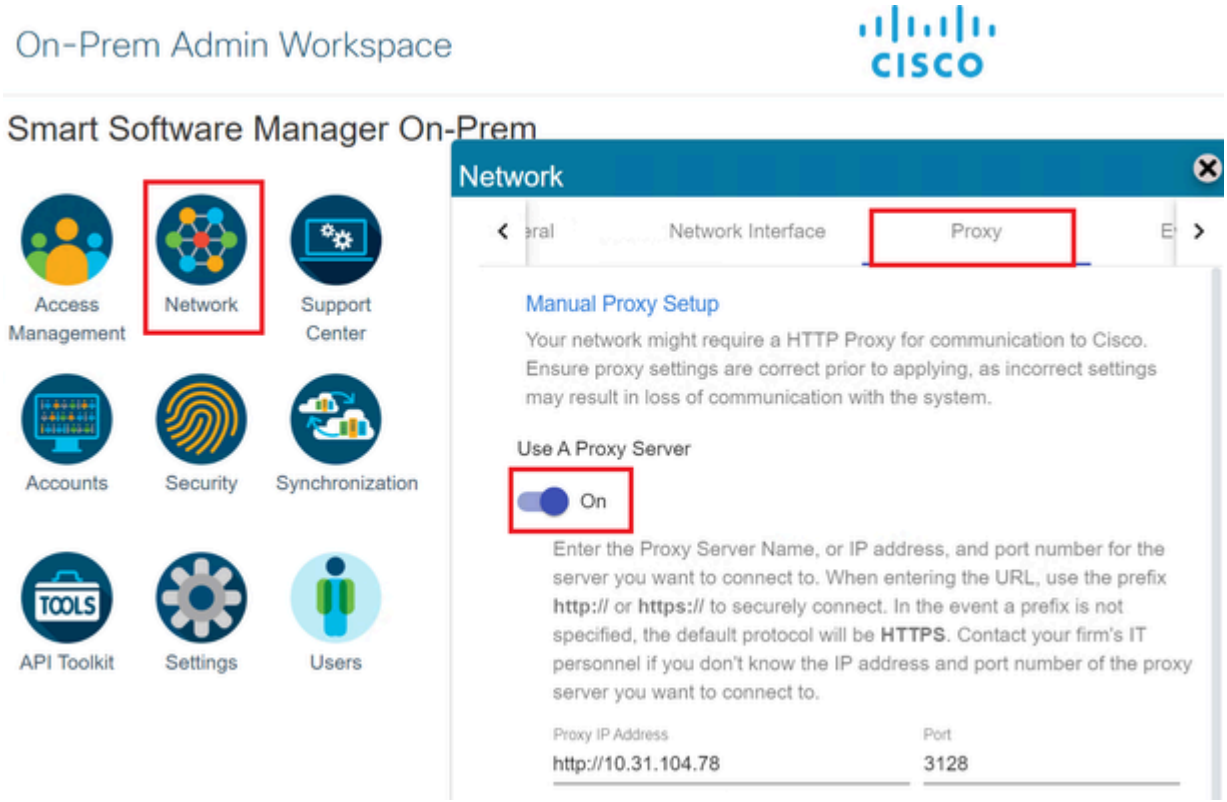


Account registration failed.

Solution: Check your connectivity to the Internet.

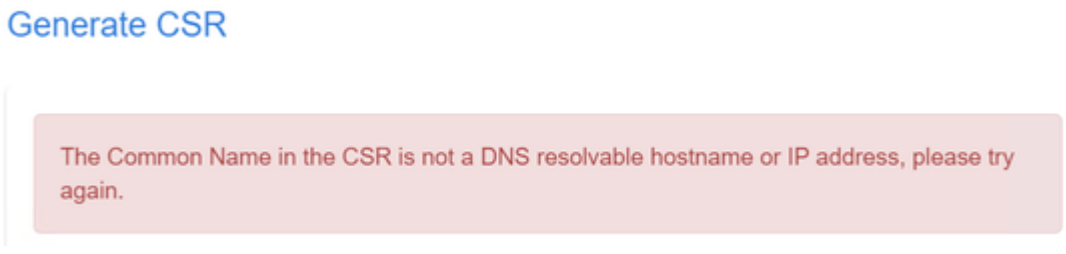
Action Plan:

1. If you need a proxy to get access to the Internet, navigate to **Network > Proxy** and enable the **Use A Proxy Server** option and click **Apply**.



Proxy configuration.

The Common Name in the CSR is not a DNS-resolvable hostname or IP address, please try again. (Error on Cisco License Central On-Prem)

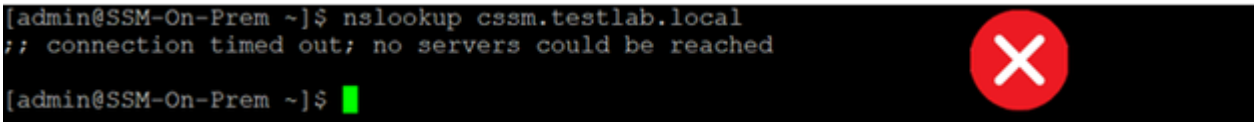


CSR error.

Solution: Check and fix the DNS resolution on the Cisco License Central Server.

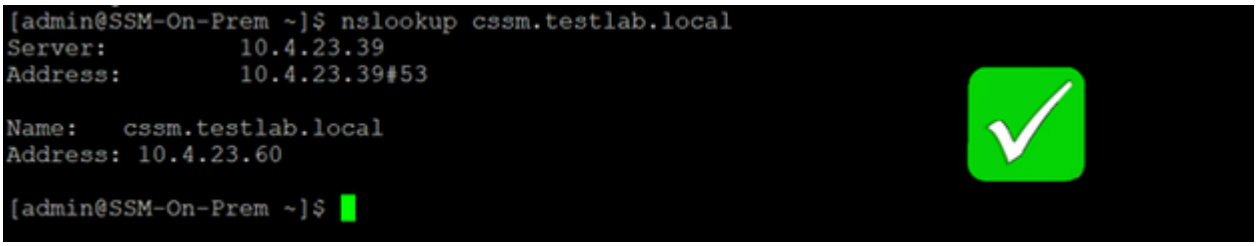
1. Open the Cisco License Central **CLI** and type **nslookup <Cisco License Central_FQDN>**.

On the next example, we can see that cssm.testlab.local was not resolved from the Cisco License Central Server.



The DNS server is not reachable.

The correct output would be the next:



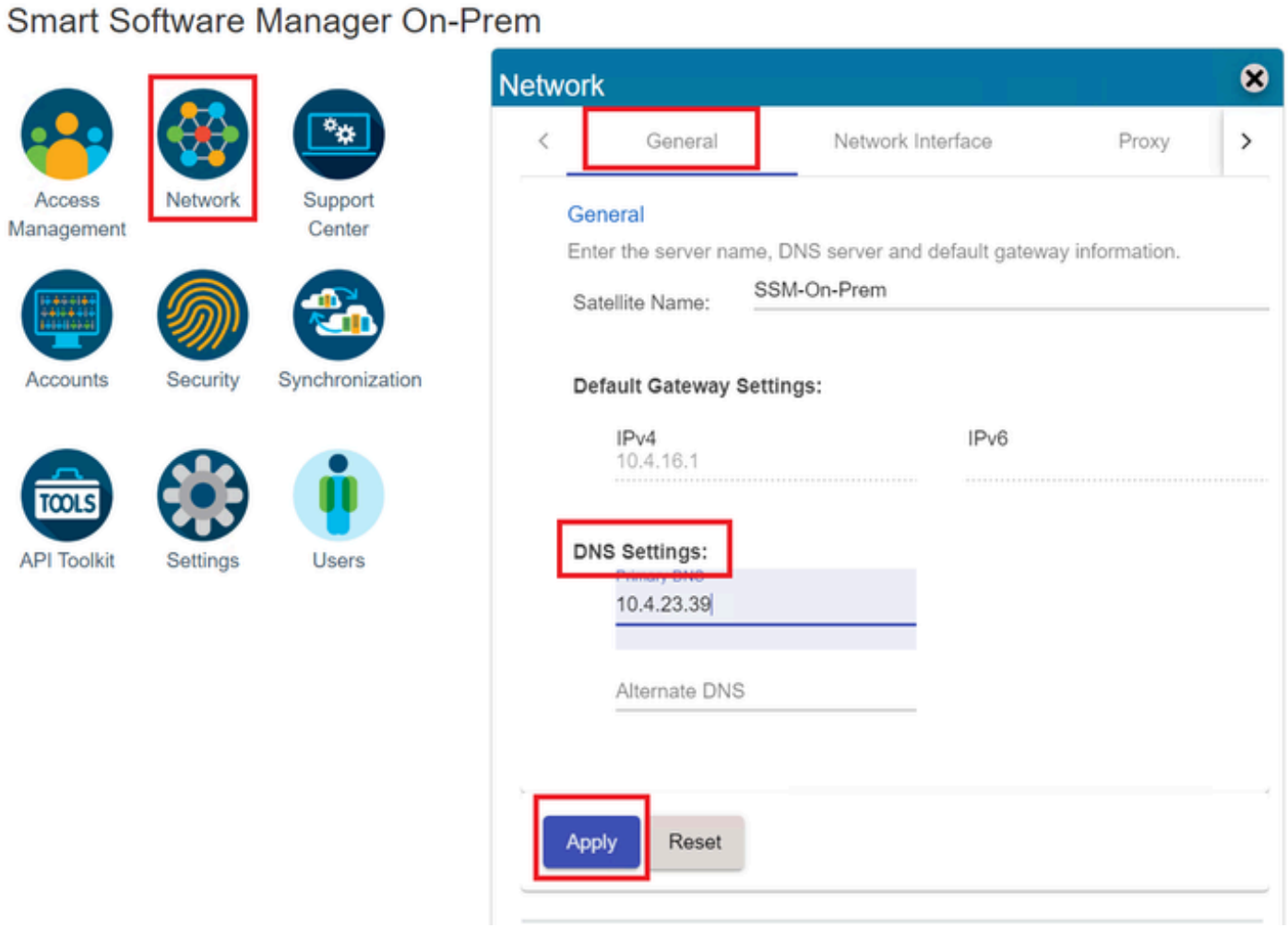
The DNS server is reachable.

Action Plan:

Check the DNS configurations on the Cisco License Central On-Prem.

1. navigate to **Network** > **General** > **DNS Setting.**

The **Primary or Alternate DNS** needs to be the same as the **IP address of the DNS Server**.



DNS settings.