

在Nexus平台上配置智慧許可並對其進行故障排除

目錄

[簡介](#)

[什麼是 Cisco Smart Licensing ?](#)

[第一次使用智慧型授權和/或智慧型帳戶管理 ?](#)

[支援的Cisco Nexus平台](#)

[Nexus交換機上支援的智慧許可方法](#)

[智慧許可使用者 workflow](#)

[智慧許可證產品狀態](#)

[已註冊](#)

[授權](#)

[請求或續約](#)

[續約](#)

[註冊和授權狀態](#)

[評估 \(未識別\) 狀態](#)

[已註冊狀態](#)

[已授權狀態](#)

[不符合規定狀態](#)

[授權已到期狀態](#)

[Nexus和配置上支援的方法](#)

[方法1 \(直接雲訪問\)](#)

[方法2 \(通過HTTP代理訪問\)](#)

[方法3 \(On-Prem — 聯機\)](#)

[方法4 \(On-Prem — 離線\)](#)

[什麼是ID令牌?](#)

[如何從CSSM生成ID令牌](#)

[疑難排解](#)

[工作流程](#)

[已知的問題](#)

[1. 錯誤 — 無法傳送Call Home HTTP](#)

[2. 錯誤 — 無法分析來自SCH伺服器的響應資料](#)

[3. 錯誤 — 無法傳送Call Home HTTP消息 \(無法通過call-home建立IPC連線 — Quo Vadis Root CA\)](#)

[4. 錯誤 — 缺少DNS響應導致callhome MTS消息停滯](#)

簡介

本文檔介紹如何與思科智慧許可 (基於雲的系統) 配合使用, 對Nexus交換機上的軟體許可證進行故障排除和管理。

什麼是 Cisco Smart Licensing ?

思科智慧帳戶是一個受管的資料儲存庫，提供對公司內思科軟體許可證、授權和產品例項的完全可視性和訪問控制

第一次使用智慧型授權和/或智慧型帳戶管理？

瀏覽並註冊新的管理員訓練課程和錄製內容：

[思科社群 - 聰明活用思科智慧型帳戶/智慧型授權和 My Cisco Entitlements](#)

您可在此處建立智慧型帳戶：[智慧型帳戶](#)

您可在此處管理智慧型帳戶：[Smart Software Licensing](#)

支援的Cisco Nexus平台

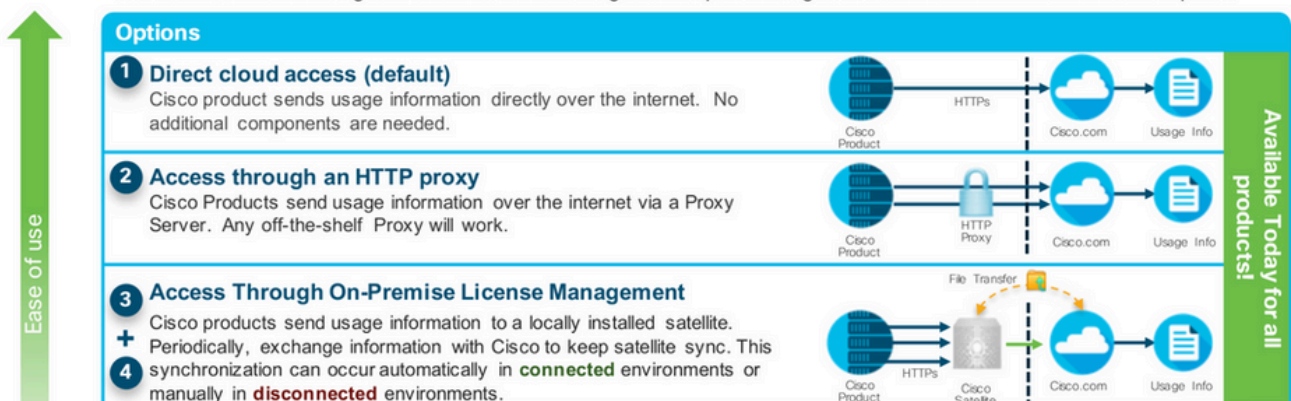
Cisco NX-OS版本9.3(3)後，所有Cisco Nexus 3000和9000系列交換機(Cisco Nexus 3016和3064平台交換機除外)均支援智慧軟體許可。

Cisco Nexus 7000 上的智慧許可支援是從8.0(1)版本開始引入的。

Nexus交換機上支援的智慧許可方法

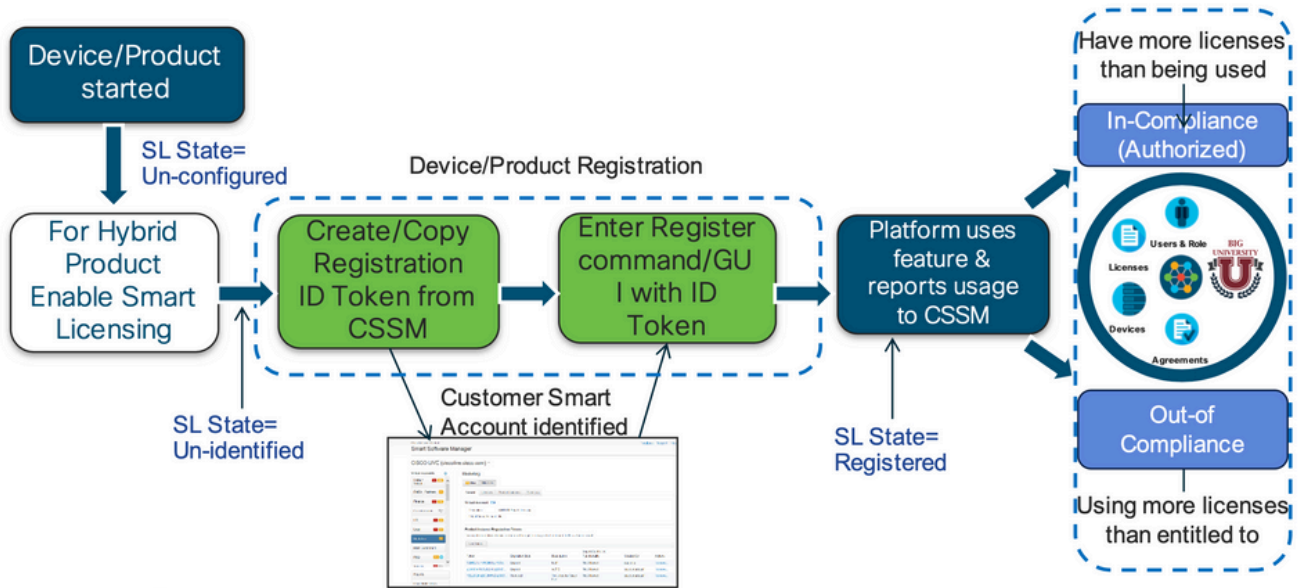
Methods of Communication

The Cisco Product is configured to use Smart Licensing at install/provisioning time. Direct cloud access is the default option.



智慧許可使用者 workflow

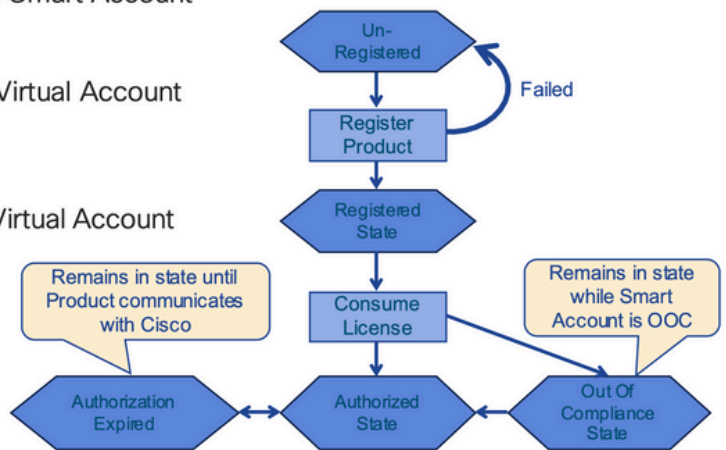
Smart Licensing User Workflow



智慧許可證產品狀態

Smart License Product States

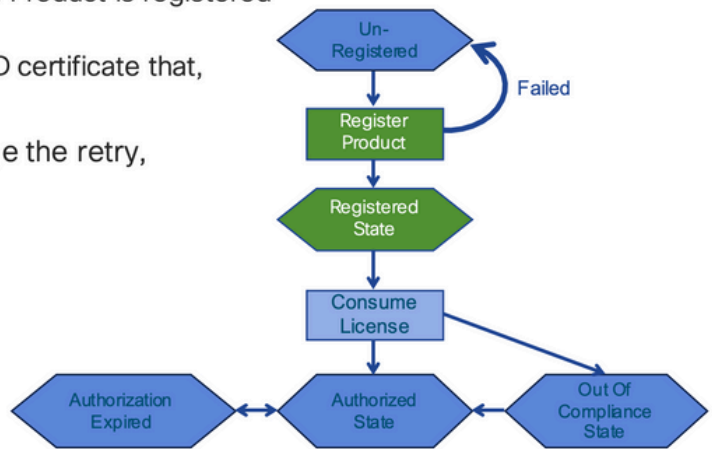
- **Registered state**
Product has been associated with a valid Smart Account
- **Authorized state (In Compliance)**
Product is using an entitlement, and the Virtual Account does not have a negative balance
- **Out of Compliance state**
Product is using an entitlement, but the Virtual Account has a negative balance
- **Authorization expired state**
Product has not communicated with Cisco within a maximum of 90 days



已註冊

Smart License Product States – Registered

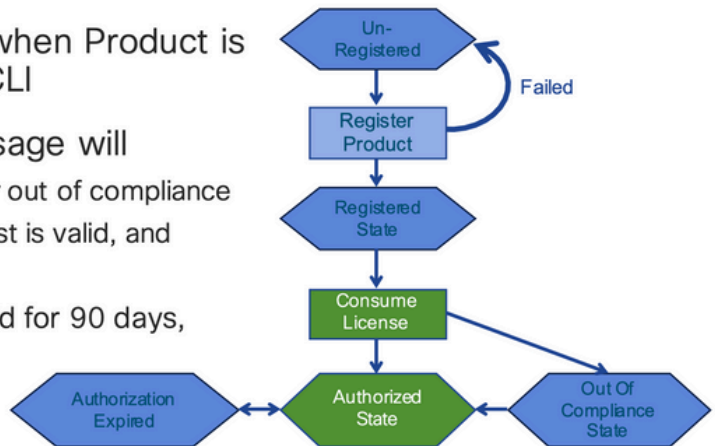
- Initial registration
 - A Registration Message is sent when Product is registered via CLI with a valid ID Token.
 - Cisco will reply with a Cryptograph ID certificate that, by default, is valid for one year.
- If there is a failure sending the message the retry, interval will be as follows:
 - Every 15 minutes for 4 hours.
 - Then every hour until successful, or Smart License is disabled via CLI



授權

Smart License Product States – Licenses

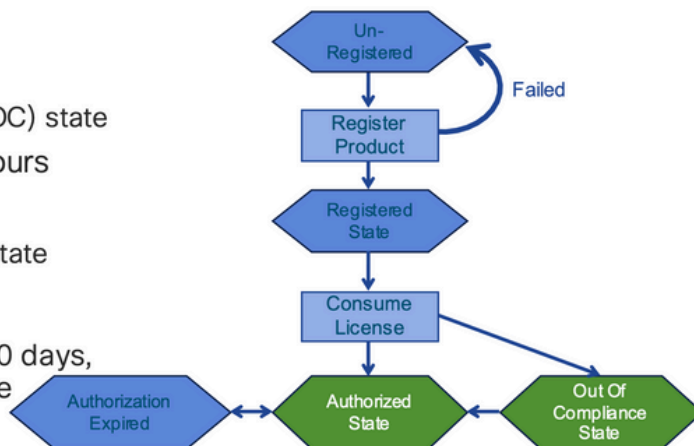
- Once a product has been successfully registered, it can be configured to use licenses via CLI
- An Entitlement Message is sent when Product is configured to use licenses via CLI
- The Entitlement Response message will
 - Indicate if the Virtual Account is in or out of compliance
 - Provide the length of time the request is valid, and the renewal interval.
- By default the Licenses usage is valid for 90 days, and renewed every 30 days



請求或續約

Entitlement Authorization Request or Renewal

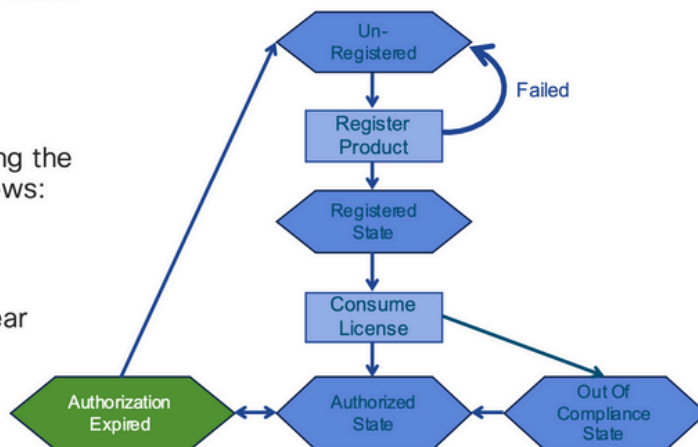
- If there is a communications failure sending the renewal, the retry interval will be as follows:
 - If the agent is in the authorized state
 - Retry every 23 hours
 - If agent is in the Out of Compliance (OOC) state
 - Retry every 15 minutes for two hours
 - Then once every 4 hours.
 - If agent is in the authorization expired state
 - Retry once every hour.
- If there is NO communications within 90 days, License usage is released and available for use by other products



續約

Registration ID Certificate Renewal

- By default the Cryptograph ID certificate
 - Valid duration (one Year) and renewal period is sent in with the Registration Response message .
- The Cryptograph ID certificate
 - Renewal will be sent every six months
- If there is a communications failure sending the message, the retry interval will be as follows:
 - One per hour until success
 - Or until Cryptograph ID certificate expires.
- If there is NO communications within 1 year
 - Device become "unregistered"
 - Device must be re-registered
 - Use any remaining evaluation time



註冊和授權狀態

設定智慧許可時，思科裝置可能處於多種狀態。這些狀態可以通過Cisco裝置的Command Line Interface(CLI)中的「show license all 或show license status」顯示。

以下是所有狀態及其含義的清單：

評估 (未識別) 狀態

- 此為裝置第一次開機時的預設狀態。

- 當思科裝置尚未設定智慧型授權或向智慧型帳戶註冊時，系統經常會顯示此狀態。
- 在此狀態中，所有功能均可使用，且該裝置可任意變更授權層級。
- 當裝置處於未識別狀態時，即會使用評估期。在此狀態下，裝置不會嘗試與思科通訊。
- 這是使用90天而不是90個日曆天。一旦過期，它就永遠不會重置。
- 整個裝置僅具有一個評估期，而非每項權利都有一個評估期。
- 當評估期於90天結束到期後，該裝置會進入「評估到期」模式，但即使重新載入後，仍不會對功能造成影響或產生功能中斷。目前並未實施強制措施。
- 在重新開機期間，系統仍會出現倒數計時。
- 如果裝置尚未向思科註冊且尚未從思科後端收到以下兩條消息，則使用評估期：
 1. 註冊請求成功回應。
 2. 權利授權請求成功回應。

已註冊狀態

- 這是成功完成註冊後的預期狀態。
- 思科裝置已可成功與思科智慧型帳戶通訊並註冊。
- 該裝置接收有效期為1年的ID證書，該證書用於將來通訊
- 裝置向CSSM傳送請求，以授權裝置上正在使用的許可證的授權
- 然後根據CSSM響應，裝置進入「已授權」或「不合規」
- 該ID憑證會在一年結束後到期。6個月後，軟體代理進程會嘗試續訂證書。如果代理無法與思科智慧軟體管理器通訊，它將繼續嘗試續訂ID證書，直到到期日期（1年）。一年後，代理將返回到「未標識」狀態，並嘗試啟用「評估」期間。CSSM從資料庫中刪除產品例項。

已授權狀態

- 這是裝置使用權利並且處於合規狀態（無負餘額）時的預期狀態，
- CSSM中的虛擬帳戶具有正確的授權類型和數量，可授權裝置授權的使用。
- 30天後，裝置會向CSSM傳送更新授權的新請求。
- 具有90天的時間範圍，在此時間範圍後（如未成功更新）則會移至授權已到期狀態。

不符合規定狀態

- 這是裝置使用權利且未處於合規狀態（負餘額）時的狀態，
- 當裝置的對應虛擬帳戶（思科裝置在思科智慧型帳戶中所註冊的帳戶）中不具有可用的授權時，系統即會顯示此狀態。
- 要進入合規性/授權狀態，您必須將正確的許可證數量和型別新增到智慧帳戶
- 當處於此狀態時，裝置每天自動傳送授權續訂請求
- 許可證和功能將繼續運行，且沒有功能影響

授權已到期狀態

- 這是當裝置使用權利在90天以上無法與關聯的思科智慧帳戶通訊時的狀態。
- 如果思科裝置在初次註冊後中斷網際網路存取或無法連線至 tools.cisco.com，則系統通常會顯示此狀態。
- 智慧型授權的線上方法會要求思科裝置至少每90天通訊一次，以避免顯示此狀態。

- CSSM將此裝置的所有使用中許可證返回池，因為它在90天內未進行任何通訊
- 在此狀態下，裝置將繼續嘗試每小時聯絡思科，以續訂權利授權，直到註冊期 (id證書) 過期。
- 許可證和功能將繼續運行，且沒有功能影響。
- 如果軟體代理與思科重新建立通訊，並收到其授權請求，它會正常處理回覆並進入已建立的狀態之一。

Nexus和配置上支援的方法

方法1 (直接雲訪問)

基本配置：

```
switch# show run callhome
```

```
!Command: show running-config callhome
```

```
!Running configuration last done at: Wed Jun 22 16:14:37 2022
```

```
!Time: Wed Jun 22 16:16:28 2022
```

```
version 9.3(4) Bios:version 07.67
```

```
callhome
```

```
    email-contact sch-smart-licensing@cisco.com
```

```
    destination-profile CiscoTAC-1 transport-method http
```

```
    destination-profile CiscoTAC-1 index 1 http https://tools.cisco.com/its/service/oddce/services/DDCESe
```

```
transport http use-vrf management
```

```
enable
```

```
Switch# license smart register idtoken XXXX (force)
```

```
Initiated device registration with backend. run show license status, for registration status
```

```
switch# show license status
```

```
Smart Licensing is ENABLED
```

```
Registration:
```

Status: REGISTERED

Smart Account: ldap_user_test

Virtual Account: Default

Export-Controlled Functionality: Allowed

Initial Registration: SUCCEEDED on Jun 22 16:15:41 2022 UTC

Last Renewal Attempt: None

Next Renewal Attempt: Dec 19 16:15:41 2022 UTC

Registration Expires: Jun 22 16:13:53 2023 UTC

License Authorization:

Status: AUTHORIZED on Jun 22 16:15:44 2022 UTC

Last Communication Attempt: SUCCEEDED on Jun 22 16:15:44 2022 UTC

Next Communication Attempt: Jul 22 16:15:43 2022 UTC

Communication Deadline: Sep 20 16:12:55 2022 UTC

Smart License Conversion:

Automatic Conversion Enabled: False

Status: Not started

https://www.cisco.com/c/en/us/td/docs/switches/datacenter/sw/nx-os/licensing/guide/b_Cisco_NX-OS_Licensing_Guide/m-smart-licensing-for-cisco-nexus-3000-and-9000-series-switches.html

方法2 (通過HTTP代理訪問)

```
switch# show run callhome
```

```
version 9.3(4) Bios:version 07.67
```

```
call home
```

```
email-contact sch-smart-licensing@cisco.com
```



```
destination-profile CiscoTAC-1 transport-method http destination-profile CiscoTAC-1 index 1 http
```

方法3 (On-Prem — 聯機)

```
switch# show run callhome
```

```
version 9.3(4) Bios:version 07.67
```

```
callhome
```

```
email-contact sch-smart-licensing@cisco.com
```

```
destination-profile CiscoTAC-1 transport-method http
```

```
destination-profile CiscoTAC-1 index 1 http https://10.106.41.xx/Transportgateway/services/DeviceRequ
```

```
transport http use-vrf management
```

```
enable
```

```
Switch# license smart register idtoken XXXX (force)
```

```
Initiated device registration with backend. run show license status, for registration status
```

方法4(On-Prem — 離線)

Manual sync (for when there's no internet connection)

https://172.18.123.21:8443/admin

Smart Software Manager On-Prem

System Health
Good
Your machine is working well

Synchronization

Accounts Schedules

Major Minor

| Name | Satellite Name | Last Synchronization | Synchronization Due | Alerts | Actions |
|---------------|----------------|----------------------|----------------------|-------------------------------------|---------|
| lab4 | lab4 | 2020-Jun-03 18:46:30 | 2020-Jul-03 18:46:30 | Synchronization Successful | Actions |
| TESTjuanpa | TESTjuanpa | 2020-Jun-03 21:06:59 | 2020-Jul-03 21:06:59 | Disable Scheduled Synchronizatio... | |
| ceporras_test | ceporras_test | 2020-May-27 16:38:20 | 2020-Jun-26 16:38:20 | Data Privacy... | |
| jHtst2 | jHtst2 | 2020-Jun-03 22:23:10 | 2020-Jul-03 22:23:10 | Standard Synchronization Now... | |
| emmatest43 | emmatest43 | 2020-Jun-03 22:26:00 | 2020-Jul-03 22:26:00 | Full Synchronization Now... | |

5 Showing Page 1 of 2(7 Records)

Standard Synchronization
Full Synchronization
Manual Synchronization...

Manual Synchronization

1. Download the satellite synchronization data file to your PC

[Download File...](#)

2. Upload the file to Smart Software Manager, and receive a synchronization response file

- Log into [Smart Software Manager](#), and navigate to the Satellites page
 - Use the File Sync... action listed for this satellite to upload this synchronization file
 - Save the synchronization response file generated by Smart Software Manager

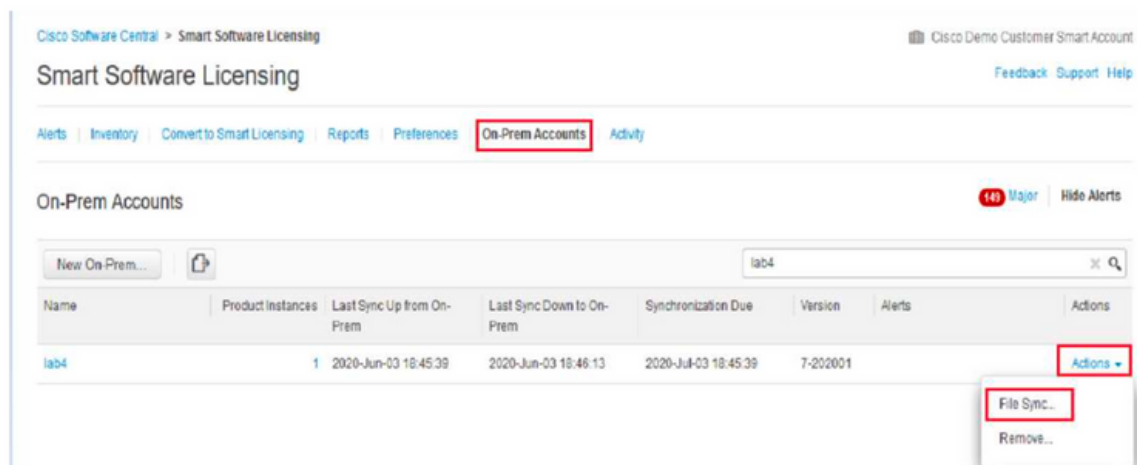
3. Upload synchronization response file to the satellite

No file selected.

This will download a sync request .yaml file like this one:

 license-sync-request-Sat_20200605-1.yaml

Go to CSSM (software.cisco.com)



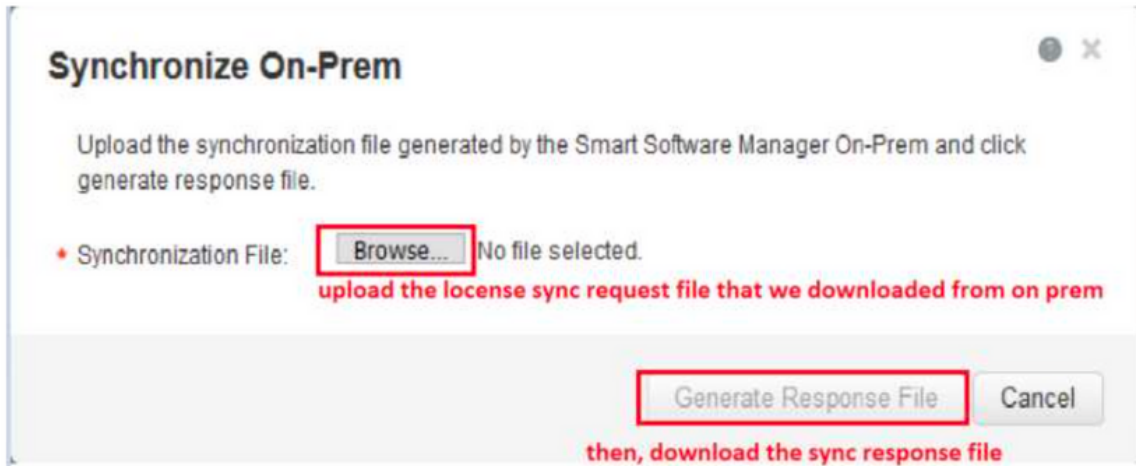
Cisco Software Central > Smart Software Licensing Cisco Demo Customer Smart Account

Smart Software Licensing [Feedback](#) [Support](#) [Help](#)

[Alerts](#) | [Inventory](#) | [Convert to Smart Licensing](#) | [Reports](#) | [Preferences](#) | **[On-Prem Accounts](#)** | [Activity](#)

On-Prem Accounts **10** Major | [Hide Alerts](#)

| Name | Product Instances | Last Sync Up from On-Prem | Last Sync Down to On-Prem | Synchronization Due | Version | Alerts | Actions |
|------|-------------------|---------------------------|---------------------------|----------------------|----------|--------|---|
| lab4 | 1 | 2020-Jun-03 18:45:39 | 2020-Jun-03 18:46:13 | 2020-Jul-03 18:45:39 | 7-202001 | | Actions ▼ File Sync... Remove... |



Go back to the on prem GUI to upload the sync response file

Manual Synchronization

1. Download the satellite synchronization data file to your PC

[Download File...](#)

2. Upload the file to Smart Software Manager, and receive a synchronization response file. Log in to [Smart Software Manager](#), and navigate to the Satellites page

- Use the File Sync... action listed for this satellite to upload this synchronization file
- Save the synchronization response file generated by Smart Software Manager

3. Upload synchronization response file to the satellite

[Browse...](#) No file selected.

upload to on prem the sync response file that you got from CSSM

什麼是ID令牌？

用於將產品安全註冊到智慧帳戶和虛擬帳戶

ID令牌是在註冊產品時用於建立「標識」的「組織識別符號」。

如何從CSSM生成ID令牌

https://software.cisco.com/software/cswws/platform/home?locale=en_US#

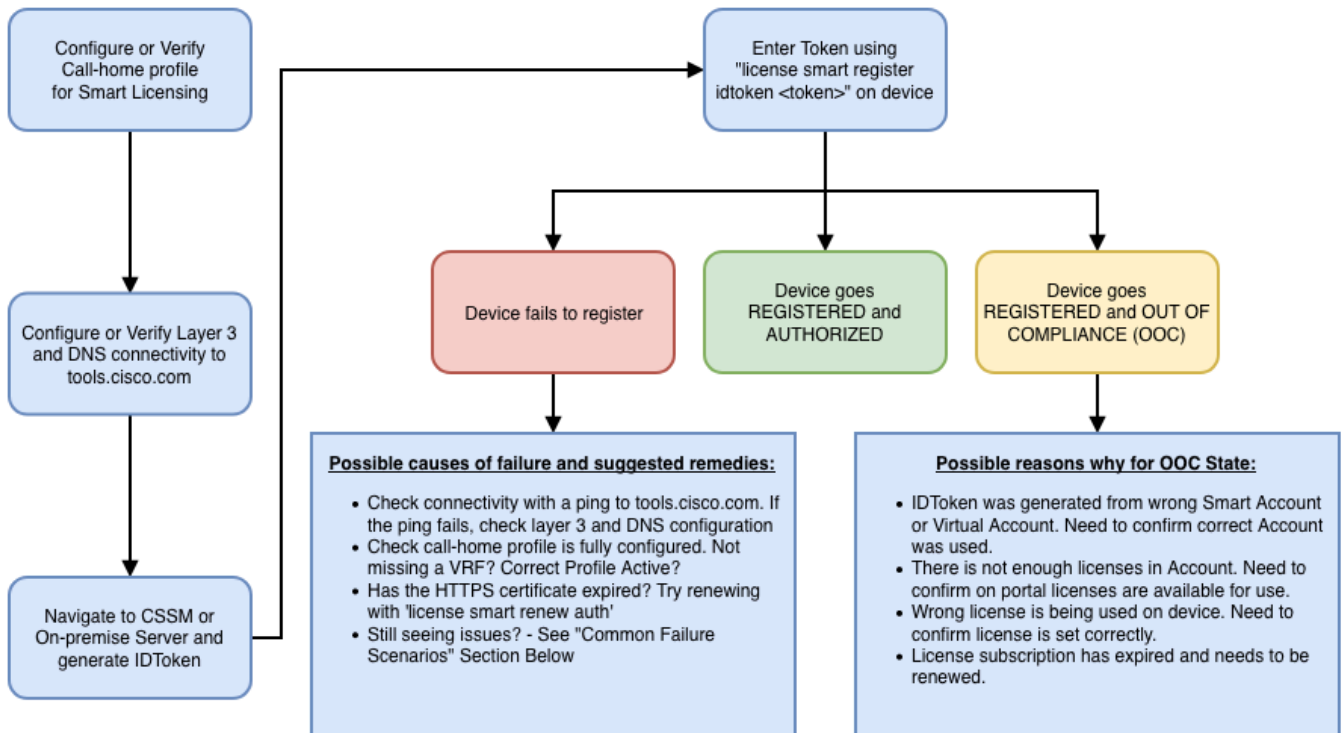
管理許可證 —> 庫存 —> 常規 —> 新令牌 —> 建立令牌

疑難排解

當思科裝置遷移到支援智慧許可的軟體版本時，此流程圖可作為所有三種方法（直接雲訪問、

HTTPS代理和思科智慧軟體管理器本地) 的一般指南。

工作流程



已知的問題

- 將N9K-C9348GC-FXP註冊為智慧許可的問題。

1.錯誤 — 無法傳送Call Home HTTP

[+] Call home配置

```
Switch# show running-config callhome
```

```
version 9.3(5) Bios:version 07.68
callhome
email-contact abc@example.com
phone-contact +919XXXXXXXXX
streetaddress ST3, RD 4, Bangalore
destination-profile CiscoTAC-1 transport-method http
destination-profile CiscoTAC-1 index 1 http http://tools.cisco.com/its/service/oddce/services/DDCEServ
transport http use-vrf management
```

[+]已確認可以訪問tools.cisco.com。

```
DC-DMZ(config)# ping tools.cisco.com vrf management
```

```
PING tools.cisco.com (72.163.4.38): 56 data bytes
64 bytes from 72.163.4.38: icmp_seq=0 ttl=232 time=237.581 ms
64 bytes from 72.163.4.38: icmp_seq=1 ttl=232 time=237.859 ms
64 bytes from 72.163.4.38: icmp_seq=2 ttl=232 time=237.562 ms
64 bytes from 72.163.4.38: icmp_seq=3 ttl=232 time=237.413 ms
64 bytes from 72.163.4.38: icmp_seq=4 ttl=232 time=237.995 ms
```

```
DC-DMZ(config)# telnet tools.cisco.com 443 vrf management
Trying 2001:420:1101:5::a...
Trying 72.163.4.38...
Connected to tools.cisco.com.
Escape character is '^]'.
^CConnection closed by foreign host.
```

+ HTTP源介面配置為介面vlan 27，已將其更改為mgmt0

2.錯誤 — 無法分析來自SCH伺服器的響應資料

++不再支援HTTP以訪問Cisco後端；僅支援HTTPS。已刪除當前配置並更新目標地址以使用HTTPS。

<#root>

Previous config

```
destination-profile CiscoTAC-1 transport-method http
destination-profile CiscoTAC-1 index 1 http http://tools.cisco.com/its/service/oddce/services/DDCEServi
transport http use-vrf management
enable
```

<#root>

New config added

```
(config)#callhome
(config-callhome)#enable
(config-callhome)# destination-profile CiscoTAC-1 transport-method http
(config-callhome no destination-profile CiscoTAC-1 index 1 http http://tools.cisco.com/its/service/oddce/services/DDCEServi
(config-callhome destination-profile CiscoTAC-1 http https://tools.cisco.com/its/service/oddce/services/DDCEServi
```

3.錯誤 — 無法傳送Call Home HTTP消息(無法通過call-home建立IPC連線 — Quo Vadis Root CA)

<https://www.cisco.com/c/en/us/support/docs/field-notices/721/fn72115.html>

4.錯誤 — 缺少DNS響應導致callhome MTS消息停滯

[思科錯誤ID CSCv67469](#)

關於此翻譯

思科已使用電腦和人工技術翻譯本文件，讓全世界的使用者能夠以自己的語言理解支援內容。請注意，即使是最佳機器翻譯，也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準確度概不負責，並建議一律查看原始英文文件（提供連結）。