

# SSM On-Prem 8.X高可用性群集正在工作

## 目錄

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### [簡介](#)

### [必要條件](#)

#### [需求](#)

#### [採用元件](#)

### [背景資訊](#)

#### [故障轉移和回退期間的SSM本地帳戶同步](#)

##### [高可用性](#)

##### [容錯移轉](#)

##### [後援](#)

#### [故障轉移和回退期間向SSM內部版VIP註冊產品例項](#)

##### [高可用性](#)

##### [容錯移轉](#)

##### [後援](#)

### [降級高可用性群集](#)

#### [下一步是什麼?!](#)

### [相關資訊](#)

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## 簡介

本文檔介紹在故障轉移和回退方案時，Smart Software Manager(SSM)本地帳戶同步和產品例項註冊如何在作為高可用性(HA)群集部署的SSM本地伺服器上工作。

## 必要條件

### 需求

思科建議您瞭解以下主題：

- SSM內部
- HA

### 採用元件

本檔案中的資訊是根據SSM On-Prem 8及更新版本。

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路運作中，請確保您瞭解任何指令可能造成的影響。

# 背景資訊

這些是提供HA相關資訊的參考文檔。

- [https://www.cisco.com/web/software/286285517/151968/Smart\\_Software\\_Manager\\_On-Prem\\_8\\_Console\\_Guide.pdf](https://www.cisco.com/web/software/286285517/151968/Smart_Software_Manager_On-Prem_8_Console_Guide.pdf)
- [https://www.cisco.com/web/software/286285517/152313/Smart\\_Software\\_Manager\\_On-Prem\\_8-202006\\_Installation\\_Guide.pdf](https://www.cisco.com/web/software/286285517/152313/Smart_Software_Manager_On-Prem_8-202006_Installation_Guide.pdf)

## 故障轉移和回退期間的SSM本地帳戶同步

應在本指南的幫助下配置兩個SSM內部伺服器之間的HA:

部署HA群集

: [https://www.cisco.com/web/software/286285517/152313/Smart\\_Software\\_Manager\\_On-Prem\\_8-202006\\_Installation\\_Guide.pdf](https://www.cisco.com/web/software/286285517/152313/Smart_Software_Manager_On-Prem_8-202006_Installation_Guide.pdf)

在本演示中，使用：

.5 — 主伺服器的IP地址

.10 — 輔助伺服器的IP地址

.12 — 虛擬IP地址

### 高可用性

1.成功配置HA時，主伺服器(.5)顯示為活動，輔助伺服器(.10)顯示為備用，VIP(.12)標清如圖所示。

**High Availability**

Host      Event Logs

**Normal**  
The status of the high availability cluster is normal.

**Heartbeat**  
Connection status: **Connected**

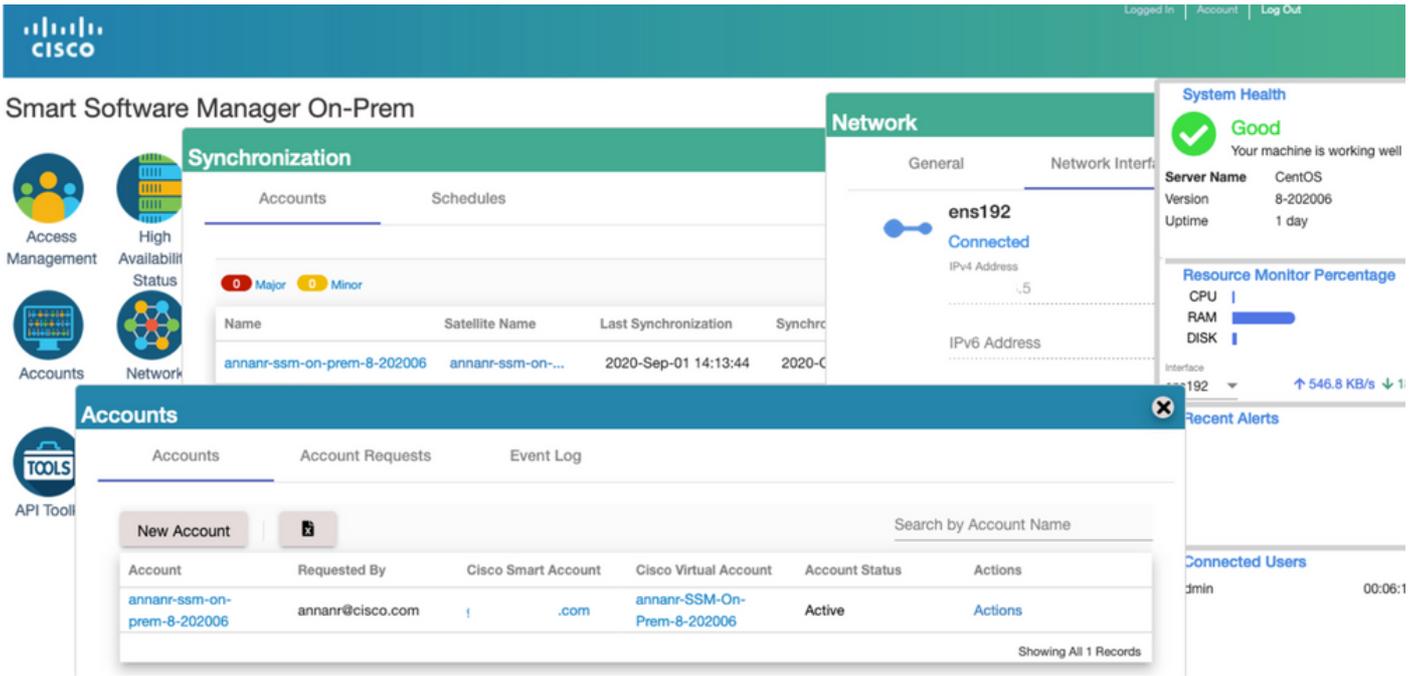
**VIP .12**

**Active Server**  
public address ( .5)  
primary-node (192.168.1.4)

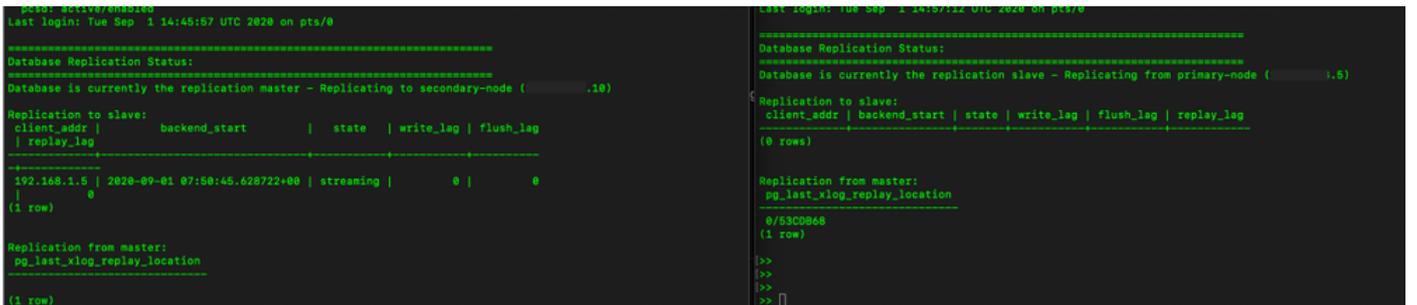
**Standby Server**  
public address ( .10)  
secondary-node (192.168.1.5)

**Active**      **Standby**

2. 已從主/主用伺服器成功完成SSM本地與思科軟體中心的同步，如下圖所示。

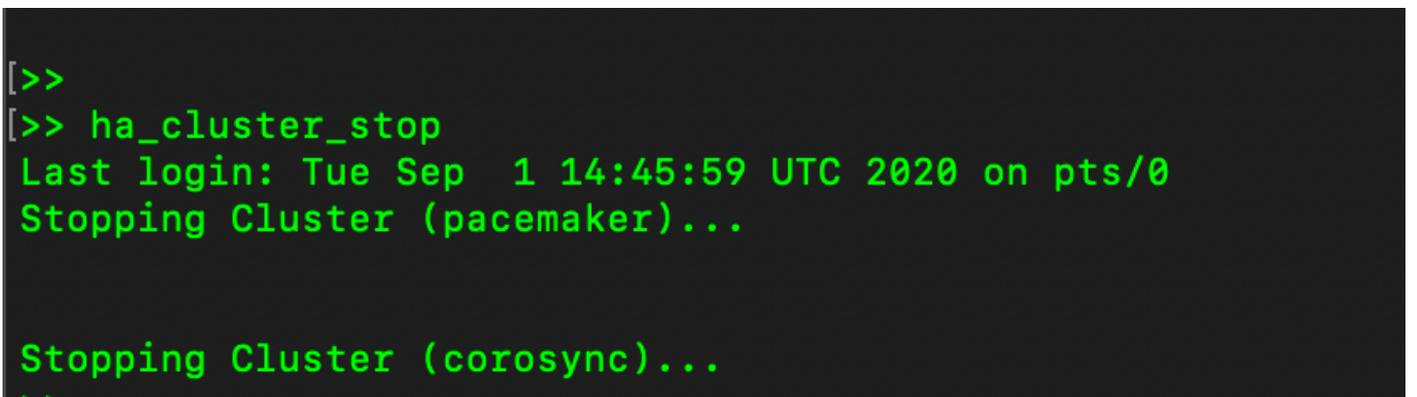


3. 群集HA狀態顯示左邊的主伺服器資料庫（複製主伺服器）按預期複製到右邊的主伺服器資料庫（複製從伺服器），如下圖所示。



## 容錯移轉

1. 停止主伺服器上的HA群集，如下圖所示。



2. 主要|次要，如圖所示。

```

pcsd: active/enabled
Last login: Tue Sep 1 14:45:57 UTC 2020 on pts/0

=====
Database Replication Status:
=====
Database is currently the replication master - Replicating to secondary-node (.10)

Replication to slave:
client_addr | backend_start | state | write_lag | flush_lag | replay_lag
-----
192.168.1.5 | 2020-09-01 07:58:45.628722+00 | streaming | 0 | 0 | 0
(1 row)

Replication from master:
pg_last_xlog_replay_location
-----
(1 row)
>>
>> hc_cluster_stop
Last login: Tue Sep 1 14:45:59 UTC 2020 on pts/0
Stopping Cluster (pacemaker)...

Stopping Cluster (corosync)...
>>

Failed Actions:
* db_monitor_30000 on secondary-node 'not running' (7): call=60, status=complete, exitreason='',
last-rc-change='Tue Sep 1 08:01:46 2020', queued=8ms, exec=8ms

PCSD Status:
secondary-node: Online
primary-node: Online

Daemon Status:
corosync: active/enabled
pacemaker: active/enabled
pcsd: active/enabled
Last login: Tue Sep 1 15:10:40 UTC 2020 on pts/0

=====
Database Replication Status:
=====
Database is currently the replication slave - Replicating from primary-node (.5)

Replication to slave:
client_addr | backend_start | state | write_lag | flush_lag | replay_lag
-----
(0 rows)

Replication from master:
pg_last_xlog_replay_location
-----
0/530C6E
(1 row)

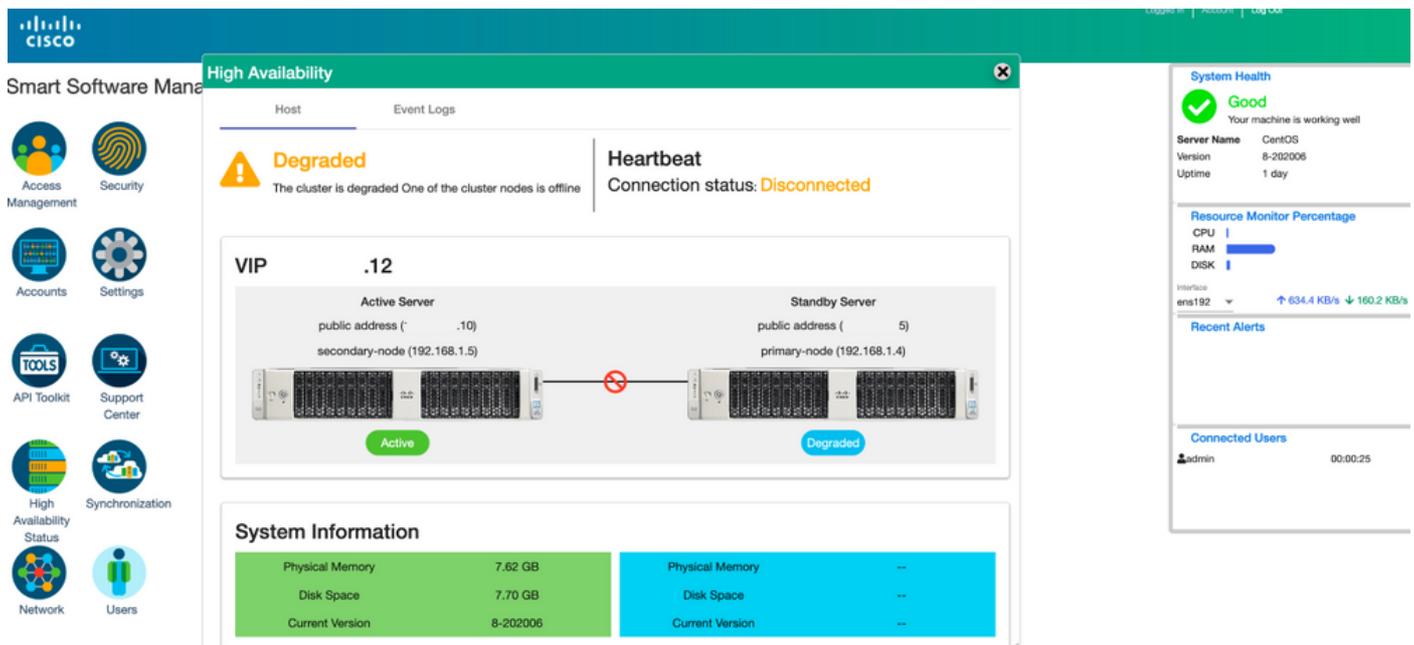
```

3.使用VIP登入SSM本地GUI，且主GUI已關閉。

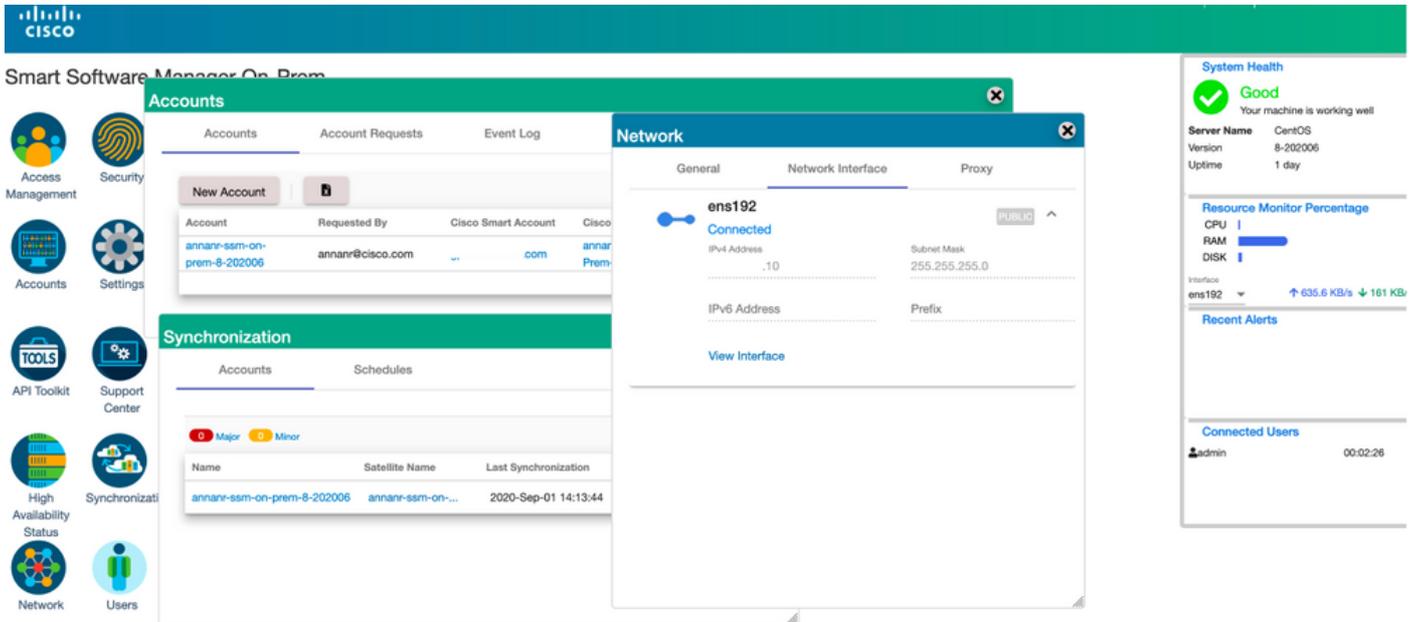
4.輔助伺服器(.10)顯示為活動伺服器。

5.心跳已斷開。

6.主伺服器(.5)已移至備用狀態。



7.可從次要/主用伺服器GUI成功看到SSM內部帳戶與思科軟體中心之間的同步，如下圖所示。



8. 在主伺服器上啟動HA群集，如下圖所示。

```
>> ha_cluster_start
Last login: Tue Sep  1 15:24:25 UTC 2020 on pts/0
Starting Cluster (corosync)...
Starting Cluster (pacemaker)...
```

9. HA集群狀態顯示從輔助資料庫複製主資料庫。

10. 主要|次要，如圖所示。

```
PCSD Status:
primary-node: Online
secondary-node: Online

Daemon Status:
corosync: active/enabled
pacemaker: active/enabled
pcsd: active/enabled
Last login: Wed Sep  2 08:52:24 UTC 2020 on pts/0

Database Replication Status:
Database is currently the replication slave - Replicating from secondary-node (:.....18)

Replication to slave:
client_addr | backend_start | state | write_lag | flush_lag | replay_lag
(8 rows)

Replication from master:
pg_last_xlog_replay_location
0/7079718
(1 row)

secondary-node: Offline
primary-node: Online

Daemon Status:
corosync: active/enabled
pacemaker: active/enabled
pcsd: active/enabled
Last login: Wed Sep  2 09:03:23 UTC 2020 on pts/0

Database Replication Status:
Database is currently the replication master - Replicating to primary-node (:.....8)

Replication to slave:
client_addr | backend_start | state | write_lag | flush_lag
192.168.1.4 | 2020-09-01 15:36:33.502635+00 | streaming | 0 | 0
(1 row)

Replication from master:
pg_last_xlog_replay_location
0/53C0C68
(1 row)
```

11. GUI將心跳顯示為「connected」、「Secondary in Active」和「Primary in Standby」狀態，如下圖所示。

**High Availability**

Host      Event Logs

**Normal**  
The status of the high availability cluster is normal.

**Heartbeat**  
Connection status: **Connected**

**VIP .12**

Active Server	Standby Server
public address ( .10)	public address ( .15)
secondary-node (192.168.1.5)	primary-node (192.168.1.4)
<b>Active</b>	<b>Standby</b>

**System Information**

Physical Memory	7.62 GB	Physical Memory	--
Disk Space	7.70 GB	Disk Space	--
Current Version	8.202006	Current Version	--

12. 建立一個新的TEST帳戶，並在主用備用狀態下啟用該帳戶。( .10)伺服器。

13. 主(.5)GUI在此階段不可訪問。

## Accounts

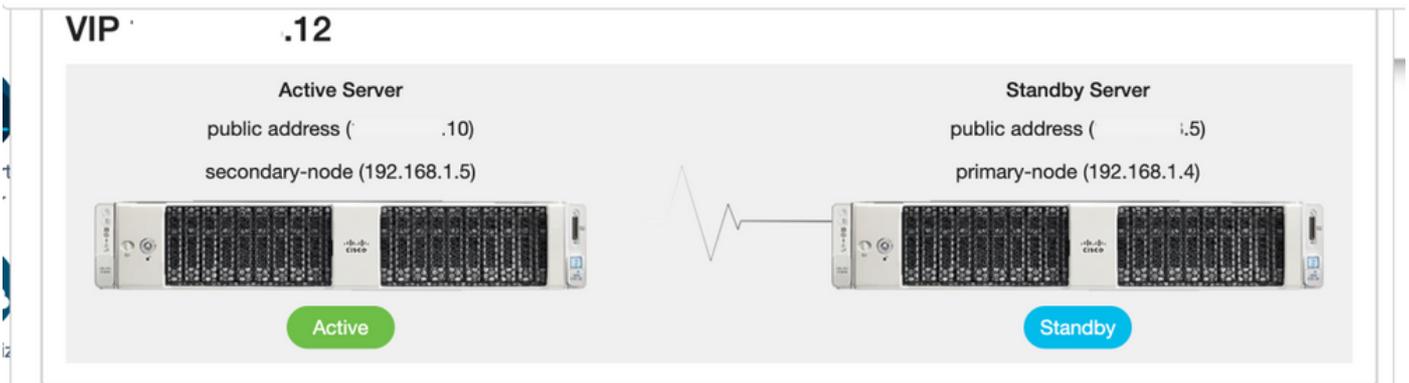
Accounts

Account Requests

Event Log

Account	Requested By	Cisco Smart Account	Cisco Virtual Account	Account Status	Actions
<a href="#">annanr-ssm-on-prem-8-202006</a>	annanr@cisco.com	.com	<a href="#">annanr-SSM-On-Prem-8-202006</a>	Active	<a href="#">Actions</a>
TEST	annanr@cisco.com	.com	TEST123	Active	<a href="#">Actions</a>

Showing All 2 Records



## 後援

1. 停止輔助節點中的Ha\_cluster，如圖所示。

```
>> ha_cluster_stop
Last login: Wed Sep  2 09:03:25 UTC 2020 on pts/0
Stopping Cluster (pacemaker)...
Stopping Cluster (corosync)...
>>
```

2. 可以在此處檢視主伺服器資料庫和輔助伺服器資料庫的當前狀態。

```
Database Replication Status:
-----
Database is currently the replication slave - Replicating from secondary-node (.10)

Replication to slave:
client_addr | backend_start | state | write_lag | flush_lag | replay_lag
-----
(0 rows)

Replication from master:
pg_last_xlog_replay_location
-----
0/7879810
(1 row)
>>
```

```
ha_cluster_start  ha_deploy  ha_provision_standby  ha_teardown
ha_cluster_stop  ha_generatekeys  ha_status
>> ha_cluster_stop
Last login: Wed Sep  2 09:03:25 UTC 2020 on pts/0
Stopping Cluster (pacemaker)...
Stopping Cluster (corosync)...
>>
>> ha_status
Last login: Wed Sep  2 09:04:44 UTC 2020 on pts/0
Error: cluster is not currently running on this node
Last login: Wed Sep  2 09:10:52 UTC 2020 on pts/0
-----
Database Replication Status:
-----
DB service not currently running.
>>
```

3. 使用VIP登入SSM本地GUI，輔助GUI關閉。

4. 主伺服器(.5)顯示為活動伺服器。

5. 心跳已斷開。

6. 輔助伺服器(.5)已移至備用狀態。

**High Availability**

Host      Event Logs

**Degraded**  
The cluster is degraded One of the cluster nodes is offline

**Heartbeat**  
Connection status: **Disconnected**

**VIP .12**

**Active Server**  
public address (.15)  
primary-node (192.168.1.4)  
**Active**

**Standby Server**  
public address (.10)  
secondary-node (192.168.1.5)  
**Degraded**

7. 當從輔助資料庫到主資料庫進行複製時，可以看到新建立的TEST帳戶處於同步狀態，如下圖所示。

**High Availability**

Host      Event Logs

**Degraded**  
The cluster is degraded One of the cluster nodes is offline

**Heartbeat**  
Connection status: **Disconnected**

**VIP .12**

**Active Server**  
public address (.15)  
primary-node (192.168.1.4)  
**Active**

**Standby Server**  
public address (.10)  
secondary-node (192.168.1.5)  
**Degraded**

**Accounts**

Accounts      Account Requests      Event Log

New Account      Search by Account Name

Account	Requested By	Cisco Smart Account	Cisco Virtual Account	Account Status	Actions
annanr-ssm-on-prem-8-202006	annanr@cisco.com	com	annanr-SSM-On-Prem-8-202006	Active	Actions
TEST	annanr@cisco.com	com	TEST123	Active	Actions

Showing All 2 Records

**Synchronization**

Name	Satellite Name	Last Synchronization	Synchronization Due	Alerts	Ac
annanr-ssm-on-prem-8-202006	annanr-ssm-on-...	2020-Sep-02 07:33:32	2020-Oct-02 07:33:32	Synchronization Successful	Acti
TEST	TEST	2020-Sep-02 07:35:42	2020-Oct-02 07:35:42	Synchronization Successful	Acti

8. 在此階段，可通過VIP地址(.12)而不是輔助IP地址訪問GUI。

9. 在輔助伺服器上啟動HA群集，如下圖所示。

```
>> ha_cluster_start
Last login: Wed Sep  2 09:10:52 UTC 2020 on pts/0
Starting Cluster (corosync)...
Starting Cluster (pacemaker)...
```

10. 群集HA狀態顯示左側的主伺服器資料庫（複製主伺服器）正在向右側輔助伺服器資料庫（複製從伺服器）進行複製，如圖所示。

```
PCSD Status:
secondary-node: Online
primary-node: Online

Daemon Status:
corosync: active/enabled
pacemaker: active/enabled
pcsd: active/enabled
Last login: Wed Sep  2 09:09:35 UTC 2020 on pts/0

Database Replication Status:
Database is currently the replication master - Replicating to secondary-node (192.168.1.5)

Replication to slave:
client_addr | backend_start | state | write_lag | flush_lag | replay_lag
-----
192.168.1.5 | 2020-09-02 09:08:39.358586+00 | streaming | 0 | 0 | 0
(1 row)

Replication from master:
pg_last_wal_replay_location
-----
0/7079810
(1 row)

PCSD Status:
secondary-node: Online
primary-node: Online

Daemon Status:
corosync: active/enabled
pacemaker: active/enabled
pcsd: active/enabled
Last login: Wed Sep  2 09:20:43 UTC 2020 on pts/0

Database Replication Status:
Database is currently the replication slave - Replicating from primary-node (192.168.1.4)

Replication to slave:
client_addr | backend_start | state | write_lag | flush_lag | replay_lag
-----
(0 rows)

Replication from master:
pg_last_wal_replay_location
-----
0/7080000
(1 row)
```

11. GUI顯示活動主伺服器 and 備用輔助伺服器之間連線的心跳。

12. TEST帳戶已成功與思科軟體中心同步。

The screenshot displays the Cisco Smart Software Manager On-Prem High Availability interface. The main window shows a 'Normal' status for the high availability cluster. A 'Heartbeat' section indicates the connection status is 'Connected'. Below this, a diagram shows two servers: an 'Active Server' (primary-node at 192.168.1.4) and a 'Standby Server' (secondary-node at 192.168.1.5), both with their respective public addresses. A 'Synchronization' window is open, showing a table of synchronization events for accounts 'annan-ssm-on-prem-8-202006' and 'TEST'. The 'TEST' account shows a successful synchronization on 2020-Sep-02 07:35:42.

Name	Satellite Name	Last Synchronization	Synchronization Due	Alerts	Actions
annan-ssm-on-prem-8-202006	annan-ssm-on-...	2020-Sep-02 07:33:32	2020-Oct-02 07:33:32	Synchronization Successful	Actions
TEST	TEST	2020-Sep-02 07:35:42	2020-Oct-02 07:35:42	Synchronization Successful	Actions

## 故障轉移和回退期間向SSM內部版VIP註冊產品例項

應使用以下指南配置兩個SSM內部伺服器之間的高可用性：

部署HA群集

：[https://www.cisco.com/web/software/286285517/152313/Smart\\_Software\\_Manager\\_On-](https://www.cisco.com/web/software/286285517/152313/Smart_Software_Manager_On-)

在本演示中，使用：

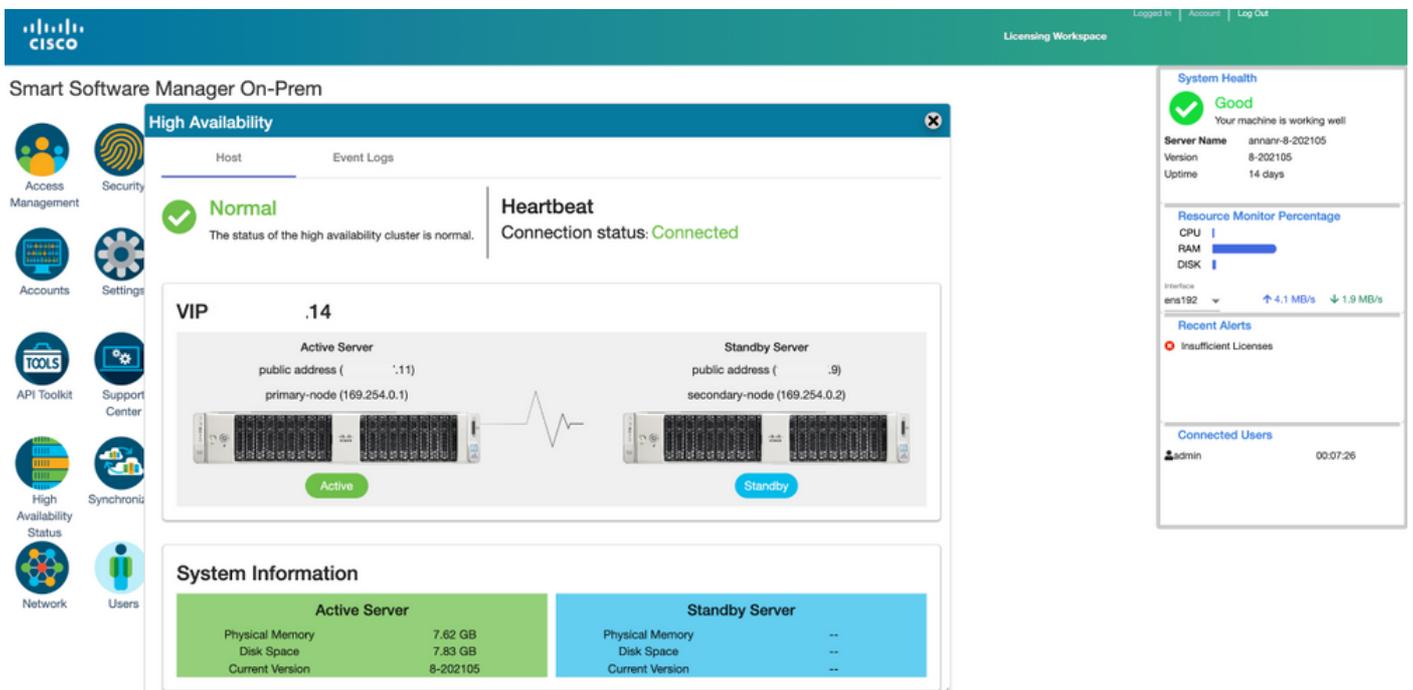
.11 — 主伺服器的IP地址

.9 — 輔助伺服器的IP地址

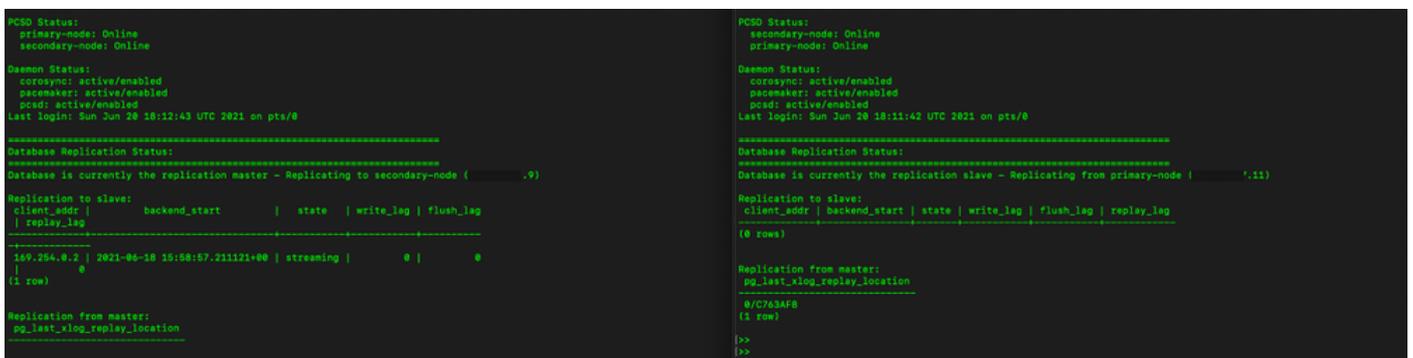
.14 — 虛擬IP地址

### 高可用性

1.成功配置HA，其中主伺服器(.11)顯示為主用伺服器，.9顯示為備用伺服器，VIP(.14)顯示為備用伺服器。



2.群集HA狀態顯示，左側的主伺服器資料庫（複製主伺服器）會按預期複製到右側輔助伺服器資料庫（複製從伺服器），如下圖所示。



3.將SSM On-Prem部署為HA群集時，請登入到SSM On-Prem Administration Workspace，導航到 Security > Certificates，然後使用主機公用名上的虛擬IP地址。

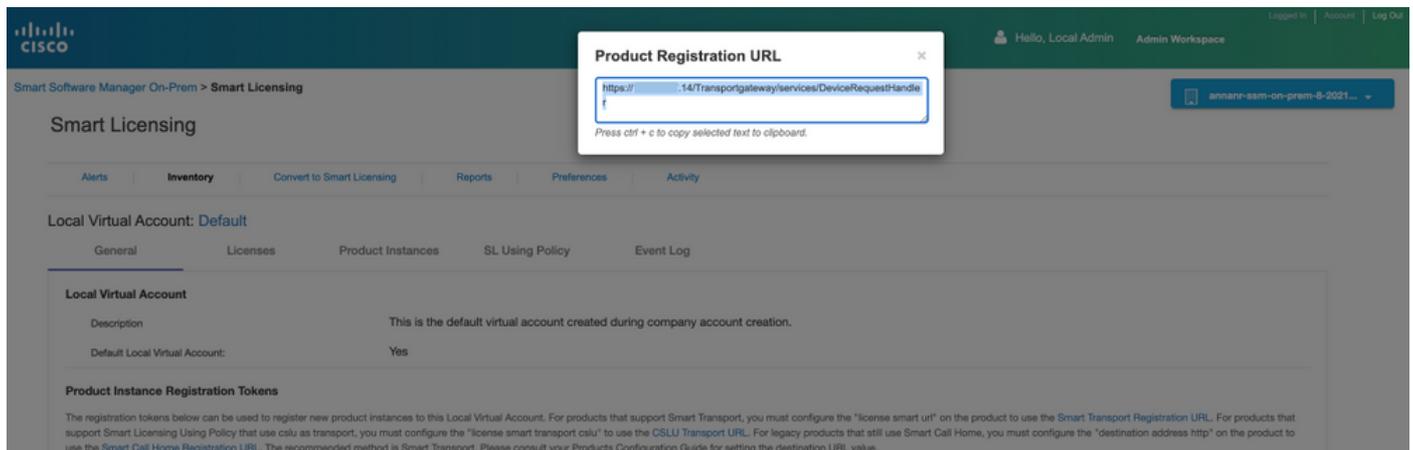
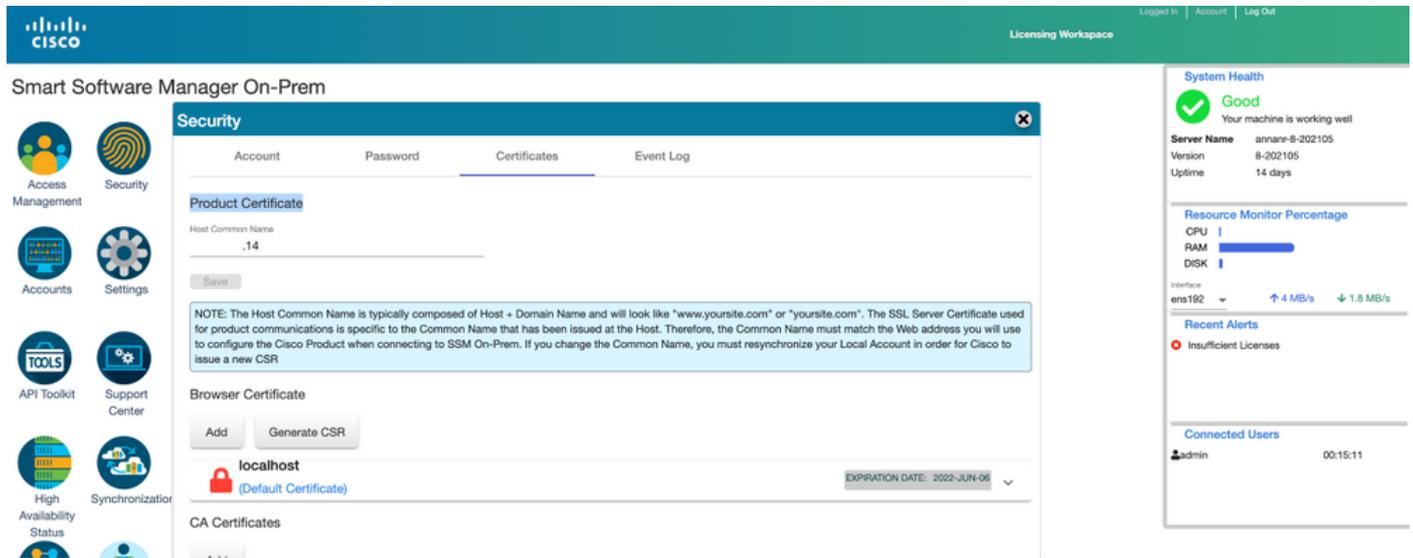
4.此值必須與計畫用於產品目標URL的值匹配。如果部署雙堆疊（IPv4和IPv6），該值必須是

FQDN而不是IP地址。

5.更新主機公用名後，請確保通過使本地帳戶與思科智慧軟體管理器同步，使用新的公用名重新生成證書。

6.在嘗試使用目標URL配置中的新公用名重新註冊產品之前，您必須進行同步。

7.不同步可能導致產品無法使用新的主機公用名註冊。



8.兩個產品例項(annanr-39)和(cucmpub)已註冊到SSM本地的VIP地址，如Product Instances頁籤中所示。

9.這些產品例項使用/請求的許可證反映在許可證頁籤上。



5.主伺服器(.11)將移至「備用」狀態。

The screenshot shows the Cisco Smart Software Manager On-Prem interface. The main heading is "High Availability" with a "Degraded" status indicator. Below this, it states "The cluster is degraded One of the cluster nodes is offline". The "Heartbeat" section shows "Connection status: Disconnected". The "VIP" section displays two servers: an "Active Server" (secondary-node 169.254.0.2) and a "Standby Server" (primary-node 169.254.0.1). The standby server is marked as "Degraded". The "System Information" table compares the Active and Standby servers:

Active Server		Standby Server	
Physical Memory	7.62 GB	Physical Memory	--
Disk Space	7.56 GB	Disk Space	--
Current Version	8-202105	Current Version	--

On the right side, the "System Health" is "Good", and "Recent Alerts" includes "Insufficient Licenses".

6.在傳輸網關處的產品註冊URL設定中，使用SSM本地VIP註冊產品例項，如下圖所示。

The screenshot shows the Cisco Prime Infrastructure "Smart Licensing Transport" configuration page. The "Transport Mode" is set to "Transport Gateway". The "Enter a valid URL" field contains "https://14/Transportgateway/services/DeviceRequest-handler".

7.產品例項名稱：pi37已使用VIP地址成功註冊到SSM On-Prem，如下圖所示。

Prime Infrastructure Administration / Licenses and Software Updates / Smart Software Licensing

Licensing Settings License Dashboard Settings

**Smart Software Licensing**

To view and manage Smart Licenses for your Cisco Smart Account, go to [Smart Software Manager](#)

**Smart Software Licensing Status**

Licensing Mode Smart Software Licensing  
 Product Name Prime Infrastructure  
 Registration Status ✔ Registered (Jun 20, 2021)  
 License Authorization Status ✘ Out of Compliance (Jun 20, 2021)  
 Smart Account anranr-sam-on-prem-8-202105  
 Virtual Account Default  
 Product Instance Name p37  
 Transport Settings Transport Gateway [View / Edit](#)

Smart License Usage

License	Description	Count	Status
Prime Infrastructure 3.x, Assurance Lic.	The Assurance license	2	<span style="color: red;">✘</span> Out of Compliance
Prime Infrastructure 3.x, BASE Lic.	The Base license	1	<span style="color: red;">✘</span> Out of Compliance
Prime Infrastructure 3.x, Lifecycle Lic.	The Lifecycle license	14	<span style="color: red;">✘</span> Out of Compliance
Prime Infrastructure 3.x, UCS Server MGMT Lic.	The Data Center license	0	<span style="color: green;">✔</span> No Licenses In Use
Prime Infrastructure 3.x, UCS VM	The Data Center Hypervisor license	0	<span style="color: green;">✔</span> No Licenses In Use

Success  
Smart agent registered successfully

8.在傳輸網關設定處的產品註冊URL中註冊使用SSM本地VIP的其他產品例項。

Status

Transport settings saved successfully.

**Configure how the product instance will communicate with Cisco.**

Direct - product communicates directly with Cisco licensing servers.  
 URL : <https://tools.cisco.com/its/service/oddce/services/DDCEService>

Transport Gateway - proxy data via Transport Gateway or Smart Software Manager satellite.  
 URL :

HTTP/HTTPS Proxy - send data via an intermediate HTTP or HTTPS Proxy.

Authentication needed on HTTP or HTTPS proxy

IP Address/Host Name :   
 Port :   
 User Name :   
 Password :

Do not share my hostname or IP address with Cisco.

9.使用VIP地址，通過SSM本地成功完成產品註冊，如下圖所示。

Status

Registration completed successfully

**Smart Software Licensing Product Registration**

To register the product for Smart Software Licensing:

Paste the Product Instance Registration Token you generated from [Smart Software Manager](#) or your Smart Software Manager satellite

10.產品例項名稱：cucm-pub-30已使用如圖所示的VIP地址成功註冊到SSM On-Prem。

**Cisco Unified CM Administration**  
For Cisco Unified Communications Solutions

System ▾ Call Routing ▾ Media Resources ▾ Advanced Features ▾ Device ▾ Application ▾ User Management ▾ Bulk Administration ▾ Help ▾

### License Management

**Status**

Smart Software Licensing: The system is operating with an insufficient number of licenses. Configure additional licenses in [Smart Software Manager](#) within 72 days to avoid losing the ability to provision users and devices.

---

**Smart Software Licensing**

Registration Status	Registered
License Authorization Status	Out of Compliance (Sunday, June 20, 2021 10:29:53 PM EEST)
Smart Account	annanr-ssm-on-prem-8-202105
Virtual Account	Default
Product Instance Name	cucm-pub-30
Export-Controlled Functionality	Allowed
Transport Settings	<a href="#">Transport Gateway View/Edit the Licensing Smart Call Home settings</a>
Licensing Mode	Enterprise

---

**License Usage Report**

Below is a summary of current license usage on the system. Current usage details for each type are available by pressing "Update Usage Details". Note that collecting these data is a resource intensive process and may take several deployment.

[View All License Type Descriptions And Device Classifications](#)

Update Usage Details Usage Details Last Updated: 2021-06-20 22:30:09

License Type	Current Usage	Status	Report
CUWL	0	No Licenses in Use	<a href="#">Users( 0 )   Unassigned Devices( 0 )</a>
Enhanced Plus	0	No Licenses in Use	<a href="#">Users( 0 )</a>
Enhanced	44	Out of Compliance	<a href="#">Users( 8 )   Unassigned Devices( 36 )</a>
Basic	2	Out of Compliance	<a href="#">Users( 1 )   Unassigned Devices( 1 )</a>
Essential	4	Out of Compliance	<a href="#">Users( 0 )   Unassigned Devices( 4 )</a>
TelePresence Room	0	No Licenses in Use	<a href="#">Users( 0 )   Unassigned Devices( 0 )</a>

---

**Users and Unassigned devices**

Users	9	<a href="#">View Usage Report</a>
Unassigned Devices	41	<a href="#">View Usage Report</a>

11. 兩個新產品例項(pi37)和(cucm-pub-30)已註冊到SSM本地的VIP地址，如Product Instances頁籤中所示所示。

12. 這些產品例項使用/請求的許可證反映在許可證頁籤上。

Smart Software Manager On-Prem > Smart Licensing

annanr-ssm-on-prem-8-2021...

### Smart Licensing

Alerts | Inventory | Convert to Smart Licensing | Reports | Preferences | Activity

Local Virtual Account: Default

General | Licenses | Product Instances | SL Using Policy | Event Log

Name	Product Type	Last Contact	Alerts	Actions
UDI_PID-PI-SOFTWARE:UDI_SN:annanr-39	SONMGMT	2021-Jun-20 18:39:00		<a href="#">Actions</a>
UDI_PID-PI-SOFTWARE:UDI_SN:pi37:	SONMGMT	2021-Jun-20 19:26:47		<a href="#">Actions</a>
cucmpub	UCL	2021-Jun-20 18:36:56		<a href="#">Actions</a>
cucm-pub-30	UCL	2021-Jun-20 19:28:51		<a href="#">Actions</a>

Showing Page 1 of 14 Records

Smart Software Manager On-Prem > Smart Licensing

Smart Licensing

Alerts | Inventory | Convert to Smart Licensing | Reports | Preferences | Activity

Local Virtual Account: Default

General | Licenses | Product Instances | SL Using Policy | Event Log

Available Actions Manage License Tags... Search by License

License	Billing	Purchased	In Use	Substitution	Balance	Alerts	Actions
Prime Infrastructure 3.x, Assurance Lic.	Prepaid	0	2		-2	Insufficient Licenses	Actions
Prime Infrastructure 3.x, BASE Lic.	Prepaid	0	2		-2	Insufficient Licenses	Actions
Prime Infrastructure 3.x, Lifecycle Lic.	Prepaid	0	48		-48	Insufficient Licenses	Actions
UC Manager Basic License (12.x)	Prepaid	0	2		-2	Insufficient Licenses	Actions
UC Manager Enhanced License (12.x)	Prepaid	0	47		-47	Insufficient Licenses	Actions
UC Manager Enhanced Plus License (12.x)	Prepaid	0	1		-1	Insufficient Licenses	Actions
UC Manager Essential License (12.x)	Prepaid	0	4		-4	Insufficient Licenses	Actions
UC Manager Telepresence Room License (12.x)	Prepaid	0	1		-1	Insufficient Licenses	Actions

Showing All 8 Records

13. 在主伺服器上啟動HA群集。

```
>> ha_cluster_start
Last login: Sun Jun 20 19:36:49 UTC 2021 on pts/0
Starting Cluster (corosync)...
Starting Cluster (pacemaker)...
```

14. HA集群狀態顯示從輔助資料庫複製主資料庫。

15. 主要|次要，如圖所示。

```
PCSD Status:
primary-node: Online
secondary-node: Online

Daemon Status:
corosync: active/enabled
pacemaker: active/enabled
pcsd: active/enabled
Last login: Sun Jun 20 18:44:00 UTC 2021 on pts/0

Database Replication Status:
Database is currently the replication slave - Replicating from secondary-node (.....9)

Replication to slave:
client_addr | backend_start | state | write_log | flush_log | replay_log
(0 rows)

Replication from master:
pg_last_xlog_replay_location
(1 row)

PCSD Status:
secondary-node: Online
primary-node: Online

Daemon Status:
corosync: active/enabled
pacemaker: active/enabled
pcsd: active/enabled
Last login: Sun Jun 20 18:42:10 UTC 2021 on pts/0

Database Replication Status:
Database is currently the replication slave - Replicating from primary-node (.....11)

Replication to slave:
client_addr | backend_start | state | write_log | flush_log | replay_log
(0 rows)

Replication from master:
pg_last_xlog_replay_location
8/C763020
(1 row)
```

16. GUI將心跳顯示為「connected」、「Secondary in Active」和「Primary in Standby」狀態，如下圖所示。

## 後援

1. 停止輔助節點中的Ha\_cluster。
2. 可以看到主伺服器資料庫和輔助伺服器資料庫的當前狀態。

```

Last login: Sun Jun 20 18:58:34 UTC 2021 on pts/0
=====
Database Replication Status:
=====
Database is currently the replication slave - Replicating from secondary-node (.9)

Replication to slave:
 client_addr | backend_start | state | write_lag | flush_lag | replay_lag
-----
(0 rows)

Replication from master:
 pg_last_xlog_replay_location
-----
 0/6812F30
(1 row)
>>

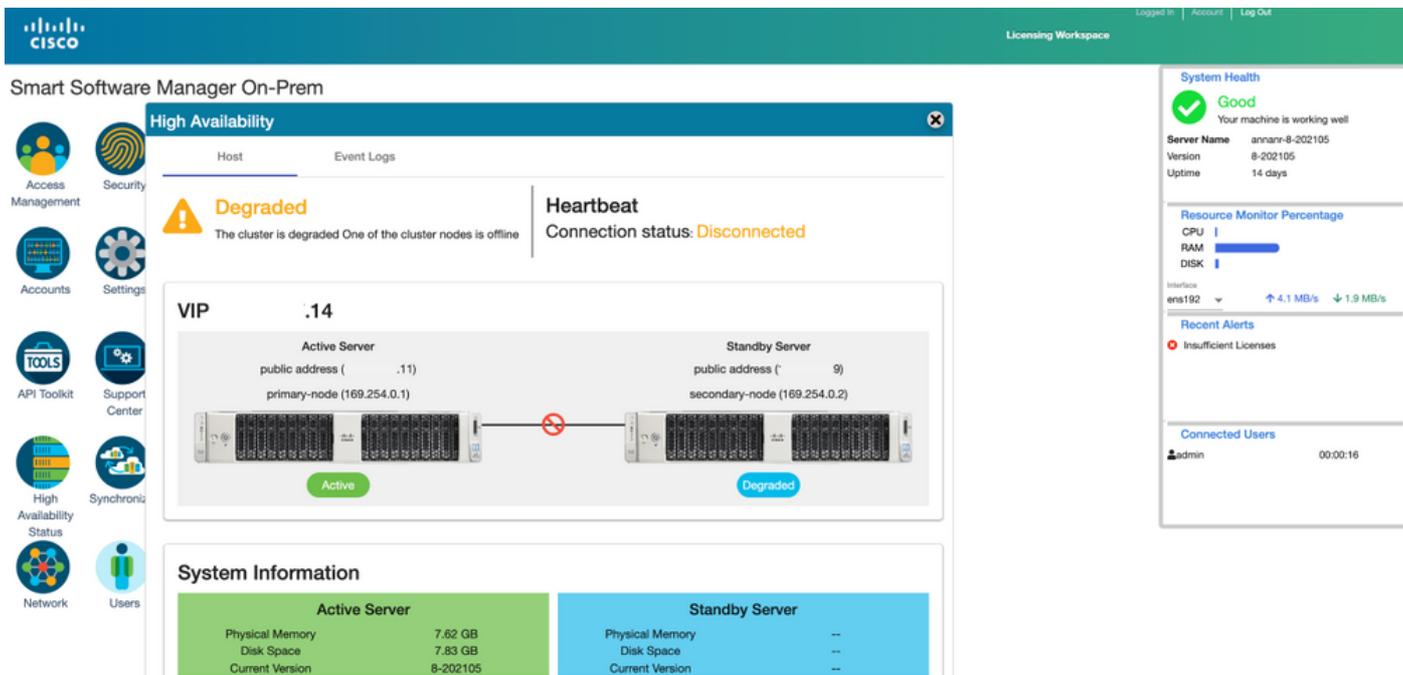
[>>]
[>>]
[>> ha_cluster_stop
Last login: Sun Jun 20 18:45:56 UTC 2021
Stopping Cluster (pacemaker)...

Stopping Cluster (corosync)...
>>
>>
[>> ha_status
Last login: Sun Jun 20 18:47:20 UTC 2021 on pts/0
Error: cluster is not currently running on this node
Last login: Sun Jun 20 18:57:24 UTC 2021 on pts/0

=====
Database Replication Status:
=====
DB service not currently running.
>>

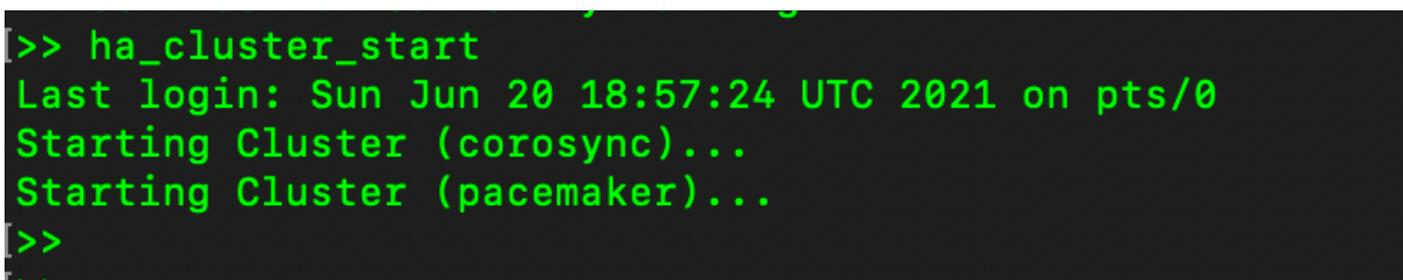
```

3. 使用VIP(.14)登入SSM本地GUI，輔助GUI關閉。
4. 主伺服器(.11)顯示為活動伺服器。
5. 心跳已斷開。
6. 輔助伺服器(.9)已移至備用狀態。

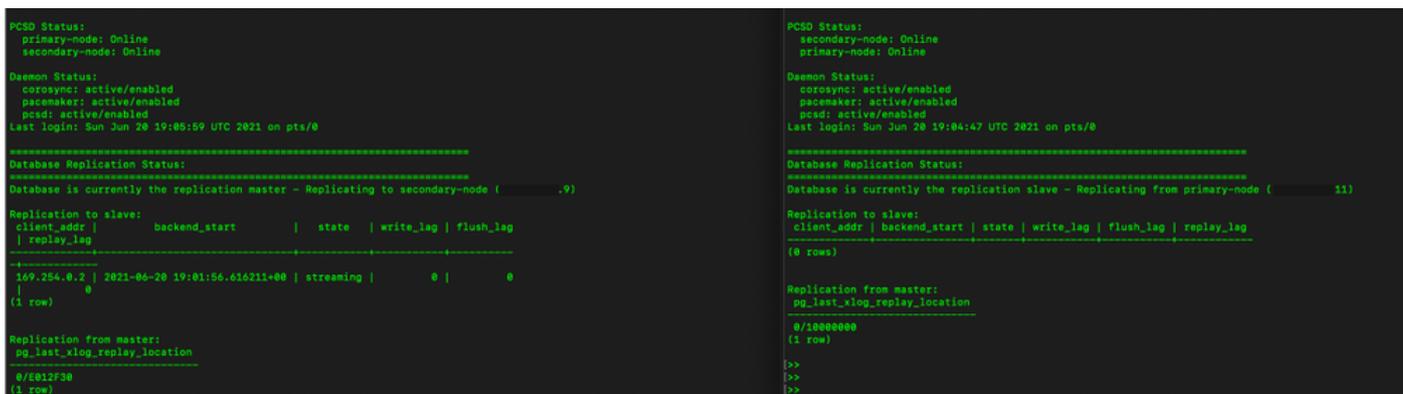


7. 在此階段，可通過VIP地址(.14)而不是輔助IP地址訪問GUI。

8. 在輔助伺服器上啟動HA群集。



9. 群集HA狀態顯示左側的主伺服器資料庫（複製主伺服器）按預期複製到右側輔助伺服器資料庫（複製從伺服器）。



10. GUI顯示活動主伺服器 and 備用輔助伺服器之間連線的心跳。

**High Availability**

Host | Event Logs

**Normal**  
The status of the high availability cluster is normal.

**Heartbeat**  
Connection status: **Connected**

**VIP** .14

Active Server	Standby Server
public address ( .11)	public address ( .9)
primary-node (169.254.0.1)	secondary-node (169.254.0.2)
<b>Active</b>	<b>Standby</b>

**System Information**

Active Server		Standby Server	
Physical Memory	7.62 GB	Physical Memory	--
Disk Space	7.63 GB	Disk Space	--
Current Version	8-202105	Current Version	--

**System Health**  
**Good**  
Your machine is working well

Server Name: annann-8-202105  
Version: 8-202105  
Uptime: 14 days

**Resource Monitor Percentage**  
CPU |  
RAM |  
DISK |

Interface: ens192 | ↑ 4.1 MB/s | ↓ 1.9 MB/s

**Recent Alerts**  
Insufficient Licenses

**Connected Users**  
admin | 00:07:26

11. 註冊到SSM On-Prem的VIP地址的所有四個產品例項，如Product Instances頁籤所示。

12. 這些產品例項使用/請求的許可證反映在許可證頁籤上。

Smart Software Manager On-Prem > Smart Licensing

Alerts | **Inventory** | Convert to Smart Licensing | Reports | Preferences | Activity

Local Virtual Account: Default

General | **Licenses** | Product Instances | SL Using Policy | Event Log

Name	Product Type	Last Contact	Alerts	Actions
UDI_PID-PI-SOFTWARE;UDI_SN:annann-09	SDNMGMT	2021-Jun-20 18:39:00		Actions
UDI_PID-PI-SOFTWARE;UDI_SN:pi37:	SDNMGMT	2021-Jun-20 19:26:47		Actions
cucmpub	UCL	2021-Jun-20 18:36:56		Actions
cucm-pub-30	UCL	2021-Jun-20 19:28:51		Actions

Showing Page 1 of 1 (4 Records)

## Smart Licensing

Alerts | **Inventory** | Convert to Smart Licensing | Reports | Preferences | Activity

Local Virtual Account: Default

General | **Licenses** | Product Instances | SL Using Policy | Event Log

Available Actions	Manage License Tags									By Name	By Tag
Search by License											
<input type="checkbox"/>	License	Billing	Purchased	In Use	Substitution	Balance	Alerts	Actions			
<input type="checkbox"/>	Prime Infrastructure 3.x, Assurance Lic.	Prepaid	0	2		-2	Insufficient Licenses	Actions			
<input type="checkbox"/>	Prime Infrastructure 3.x, BASE Lic.	Prepaid	0	2		-9	Insufficient Licenses	Actions			
<input type="checkbox"/>	Prime Infrastructure 3.x, Lifecycle Lic.	Prepaid	0	48		-48	Insufficient Licenses	Actions			
<input type="checkbox"/>	UC Manager Basic License (12.x)	Prepaid	0	2		-2	Insufficient Licenses	Actions			
<input type="checkbox"/>	UC Manager Enhanced License (12.x)	Prepaid	0	47		-47	Insufficient Licenses	Actions			
<input type="checkbox"/>	UC Manager Enhanced Plus License (12.x)	Prepaid	0	1		-1	Insufficient Licenses	Actions			
<input type="checkbox"/>	UC Manager Essential License (12.x)	Prepaid	0	4		-4	Insufficient Licenses	Actions			
<input type="checkbox"/>	UC Manager Telepresence Room License (12.x)	Prepaid	0	1		-1	Insufficient Licenses	Actions			

Showing All 8 Records

## 降級高可用性群集

1. Cisco Smart Manager On-Prem群集可以直接降級為單節點獨立群集。
2. 使用<ha\_tear\_down>命令，使用本地控制檯連線到主/主用SSM本地模式。
3. 在驗證SSM本地操作後，必須丟棄輔助/備用伺服器，且不能重複使用。
4. 現在，您將擁有獨立系統而不是集群。
5. 已啟動拆卸，如下圖所示。

```

Database Replication Status:
=====
Database is currently the replication master - Replicating to secondary-node (192.168.1.5)
Replication to slave:
client_addr | backend_start | state | write_lag | flush_lag | replay_lag
-----
192.168.1.5 | 2020-09-02 09:08:39.358506+00 | streaming | 0 | 0 | 0
(1 row)

Replication from master:
pg_last_xlog_replay_location
-----
0/7079010
(1 row)

>> ha_tear_down
Last login: Wed Sep 2 11:03:58 UTC 2020

WARNING: You are about to destroy the HA cluster configuration
and convert this service node into stand-alone mode without a cluster.

This script operates on the local service node and will not
affect the remote service node.

Destroy HA cluster and convert to stand-alone? Enter 'yes' to continue: yes
Adjusting firewall...
success
The interface is under control of NetworkManager, setting zone to default.
success
Destroying HA cluster...
Stopping Cluster (pacemaker)...
Stopping Cluster (corosync)...
Shutting down pacemaker/corosync services...
Killing any remaining services...
Removing all cluster configuration files...
Disabling HA services...
Removed symlink /etc/systemd/system/multi-user.target.wants/pcsd.service.
Stopping SSH tunnel...
ssh tunnel service
added activating auto-restart SSH tunnel device forwarding service
Removed symlink /etc/systemd/system/multi-user.target.wants/ssh tunnel service.
Removed symlink /etc/systemd/system/multi-user.target.wants/tunha.service.
Cleaning up...
atlantis_default
Enabling SSM stand-alone mode...
Created symlink from /etc/systemd/system/multi-user.target.wants/satellite.service to /etc/systemd/system/satellite.service.
Deleting SSH tunnel user...

HA cluster has been destroyed. SSM is now in stand-alone mode.

>>
>> ha_status
Last login: Wed Sep 2 11:11:39 UTC 2020
Error: cluster is not currently running on this node
Last login: Wed Sep 2 11:19:21 UTC 2020 on pts/0
HA is not enabled.
>>
>>
>>
>>
    
```

```

Last login: Wed Sep 2 11:12:48 UTC 2020 on pts/0
Database Replication Status:
=====
Database is currently the replication slave - Replicating from primary-node (192.168.1.5)
Replication to slave:
client_addr | backend_start | state | write_lag | flush_lag | replay_lag
-----
(0 rows)

Replication from master:
pg_last_xlog_replay_location
-----
0/9080030
(1 row)

>> ha_tear_down
Last login: Wed Sep 2 11:12:42 UTC 2020 on pts/0

WARNING: You are about to destroy the HA cluster configuration
and convert this service node into stand-alone mode without a cluster.

This script operates on the local service node and will not
affect the remote service node.

Destroy HA cluster and convert to stand-alone? Enter 'yes' to continue: yes
Adjusting firewall...
success
The interface is under control of NetworkManager, setting zone to default.
success
Destroying HA cluster...
Stopping Cluster (pacemaker)...
Stopping Cluster (corosync)...
Shutting down pacemaker/corosync services...
Killing any remaining services...
Removing all cluster configuration files...
Removed symlink /etc/systemd/system/multi-user.target.wants/pcsd.service.
Stopping SSH tunnel...
Removed symlink /etc/systemd/system/multi-user.target.wants/tunha.service.
Cleaning up...
atlantis_default
Enabling SSM stand-alone mode...
Created symlink from /etc/systemd/system/multi-user.target.wants/satellite.service to /etc/systemd/system/satellite.service.
Deleting SSH tunnel user...

HA cluster has been destroyed. SSM is now in stand-alone mode.

>> ha_status
Last login: Wed Sep 2 11:18:33 UTC 2020
Error: cluster is not currently running on this node
Last login: Wed Sep 2 11:19:02 UTC 2020 on pts/0
HA is not enabled.
>>
>>
>>
>>
    
```

6. 觸發從屬伺服器上的拆卸，如圖所示。

```

=====
Database Replication Status:
=====
Database is currently the replication slave - Replicating from primary-node ( .5)

Replication to slave:
 client_addr | backend_start | state | write_lag | flush_lag | replay_lag
-----+-----+-----+-----+-----+-----
(0 rows)

Replication from master:
 pg_last_xlog_replay_location
-----
 0/9000D30
(1 row)

[>> ha_teardown
Last login: Wed Sep  2 11:12:42 UTC 2020 on pts/0

WARNING: You are about to destroy the HA cluster configuration
and convert this service node into stand-alone mode without a cluster.

This script operates on the local service node and will not
affect the remote service node.

[Destroy HA cluster and convert to stand-alone? Enter 'yes' to continue: yes
Adjusting firewall...
success
success
The interface is under control of NetworkManager, setting zone to default.
success
success
Destroying HA cluster...
Stopping Cluster (pacemaker)...
Stopping Cluster (corosync)...
Shutting down pacemaker/corosync services...
Killing any remaining services...
Removing all cluster configuration files...
Disabling HA services...
Removed symlink /etc/systemd/system/multi-user.target.wants/pcsd.service.
Stopping SSH tunnel...
Removed symlink /etc/systemd/system/multi-user.target.wants/tunha.service.
Cleaning up...
atlantis_default
Enabling SSMS stand-alone mode...
Created symlink from /etc/systemd/system/multi-user.target.wants/satellite.service to /etc/systemd/system/satellite.service.
Deleting SSH tunnel user...

HA cluster has been destroyed.  SSMS is now in stand-alone mode.

>> ]

```

7. HA群集已被銷毀。SSMS現在處於獨立模式。

```

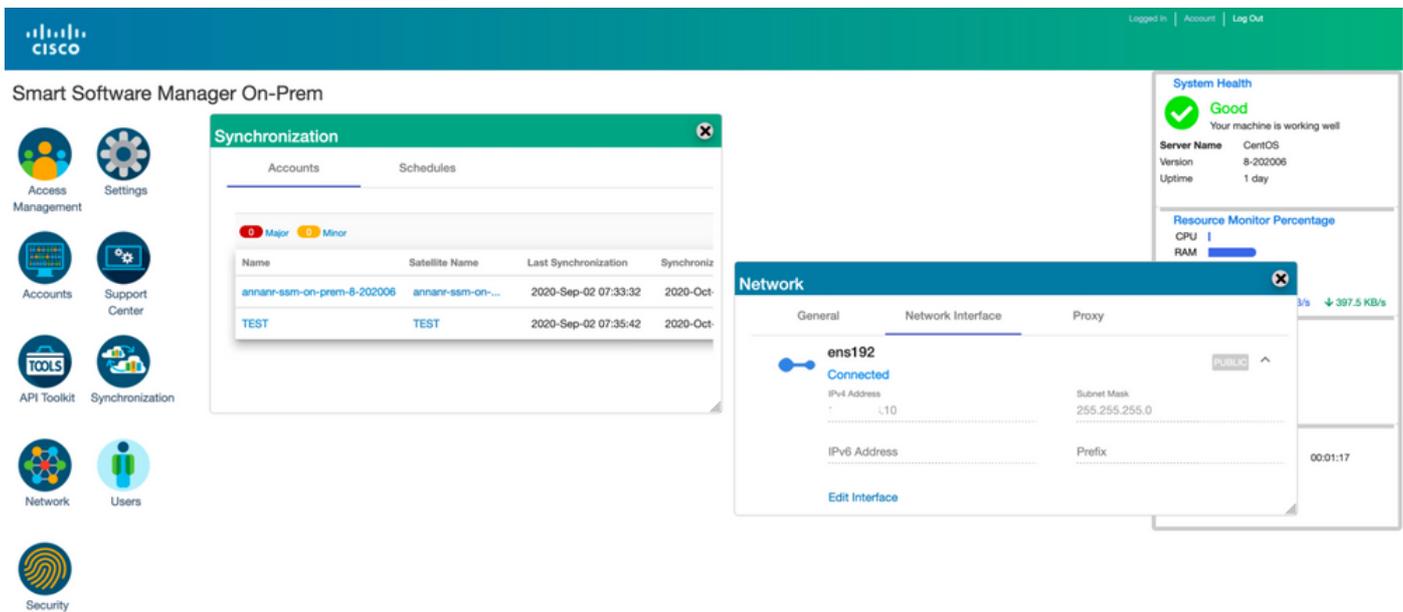
HA cluster has been destroyed.  SSMS is now in stand-alone mode.

[>> ha_status
Last login: Wed Sep  2 11:18:33 UTC 2020
Error: cluster is not currently running on this node
Last login: Wed Sep  2 11:19:02 UTC 2020 on pts/0
HA is not enabled.

>> ]

```

8.使用輔助伺服器IP地址訪問的GUI不再影響高可用性小部件。



9.觸發主伺服器上的拆卸，如圖所示。

```
[>> ha_teardown
Last login: Wed Sep  2 11:03:55 UTC 2020

WARNING: You are about to destroy the HA cluster configuration
and convert this service node into stand-alone mode without a cluster.

This script operates on the local service node and will not
affect the remote service node.

[Destroy HA cluster and convert to stand-alone? Enter 'yes' to continue: yes
Adjusting firewall...
success
success
The interface is under control of NetworkManager, setting zone to default.
success
success
Destroying HA cluster...

Stopping Cluster (pacemaker)...
Stopping Cluster (corosync)...
Shutting down pacemaker/corosync services...
Killing any remaining services...
Removing all cluster configuration files...
Disabling HA services...
Removed symlink /etc/systemd/system/multi-user.target.wants/pcsd.service.
Stopping SSH tunnel...
  sshtunha.service
aded  activating auto-restart SSH tunnel device forwarding service
Removed symlink /etc/systemd/system/multi-user.target.wants/sshtunha.service.
Removed symlink /etc/systemd/system/multi-user.target.wants/tunha.service.
Cleaning up...
atlantis_default
Enabling SSMS stand-alone mode...
Created symlink from /etc/systemd/system/multi-user.target.wants/satellite.service to /etc/systemd/system/satellite.service.
Deleting SSH tunnel user...

HA cluster has been destroyed.  SSMS is now in stand-alone mode.
```

10.已成功禁用HA。

```

>>
>> ha_status
Last login: Wed Sep  2 11:11:39 UTC 2020
Error: cluster is not currently running on this node
Last login: Wed Sep  2 11:15:21 UTC 2020 on pts/0
HA is not enabled.
>> █

```

11.使用主伺服器IP地址訪問的GUI不再影響高可用性小部件。

下一步是什麼?!

- 1.登入到SSM本地主管理工作區，導航到Security > Certificates，然後在主機公用名上使用主伺服器的 ( IP地址/主機名/FQDN )。
- 2.更新主機公用名後，請確保通過使本地帳戶與思科SSM同步，使用新的公用名重新生成證書。
- 3.在嘗試使用目標URL配置中的新公用名重新註冊產品之前，您必須進行同步。
- 4.不同步可能導致產品無法使用新的主機公用名註冊。

## 相關資訊

- 控制檯指南  
: [https://www.cisco.com/web/software/286285517/151968/Smart\\_Software\\_Manager\\_On-Prem\\_8\\_Console\\_Guide.pdf](https://www.cisco.com/web/software/286285517/151968/Smart_Software_Manager_On-Prem_8_Console_Guide.pdf)
- 使用者指南  
: [https://www.cisco.com/web/software/286285517/151968/Smart\\_Software\\_Manager\\_On-Prem\\_8\\_User\\_Guide.pdf](https://www.cisco.com/web/software/286285517/151968/Smart_Software_Manager_On-Prem_8_User_Guide.pdf)

- 安裝指南  
: [https://www.cisco.com/web/software/286285517/152313/Smart\\_Software\\_Manager\\_On-Prem\\_8-202006\\_Installation\\_Guide.pdf](https://www.cisco.com/web/software/286285517/152313/Smart_Software_Manager_On-Prem_8-202006_Installation_Guide.pdf)
- [技術支援與文件 - Cisco Systems](#)

## 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）。