配置和部署MSE軟體版本7.2 HA

目錄

簡介

思科移動服務引擎(MSE)軟體7.2版為物理和虛擬裝置增加了高可用性(HA)支援。本文檔為那些將MSE高可用性新增到思科統一WLAN中並運行情景感知服務和/或自適應wIPS的使用者提供了配置和部署指南，以及故障排除提示。本文檔旨在解釋MSE高可用性指導原則，並為MSE提供HA部署方案。

注意：本文檔不提供與MSE HA不相關的MSE和相關元件的配置詳細資訊。其他檔案中提供了此資訊，並提供參考資料。請參閱相關資訊部分，以獲取有關情景感知移動服務的配置和設計的文檔清單。自適應wIPS配置也不在本文檔中介紹。

必要條件

需求

本文件沒有特定需求。

採用元件

本文件所述內容不限於特定軟體和硬體版本。

慣例

如需文件慣例的詳細資訊，請參閱思科技術提示慣例。

背景資訊

MSE是一個能夠運行多個相關服務的平台。這些服務提供高級服務功能。因此，考慮HA對於保持最

高的服務信心至關重要。

啟用HA後，每個活動MSE都由另一個非活動例項備份。MSE HA引入了健康監控器，可在其中配置、管理和監控高可用性設定。維護主和輔助MSE之間的心跳。運行狀況監視器負責設定資料庫、檔案複製和監視應用程式。當主MSE發生故障且輔助節點接管時，主MSE的虛擬地址會透明地交換。

此設定(請參閱圖1)演示了典型的Cisco WLAN部署，其中包括為實現高可用性而啟用的思科移動服務引擎(MSE)。HA支援在MSE-3310、MSE-3350/3355和ESXi虛擬裝置上提供。

圖1.在高可用性中部署MSE
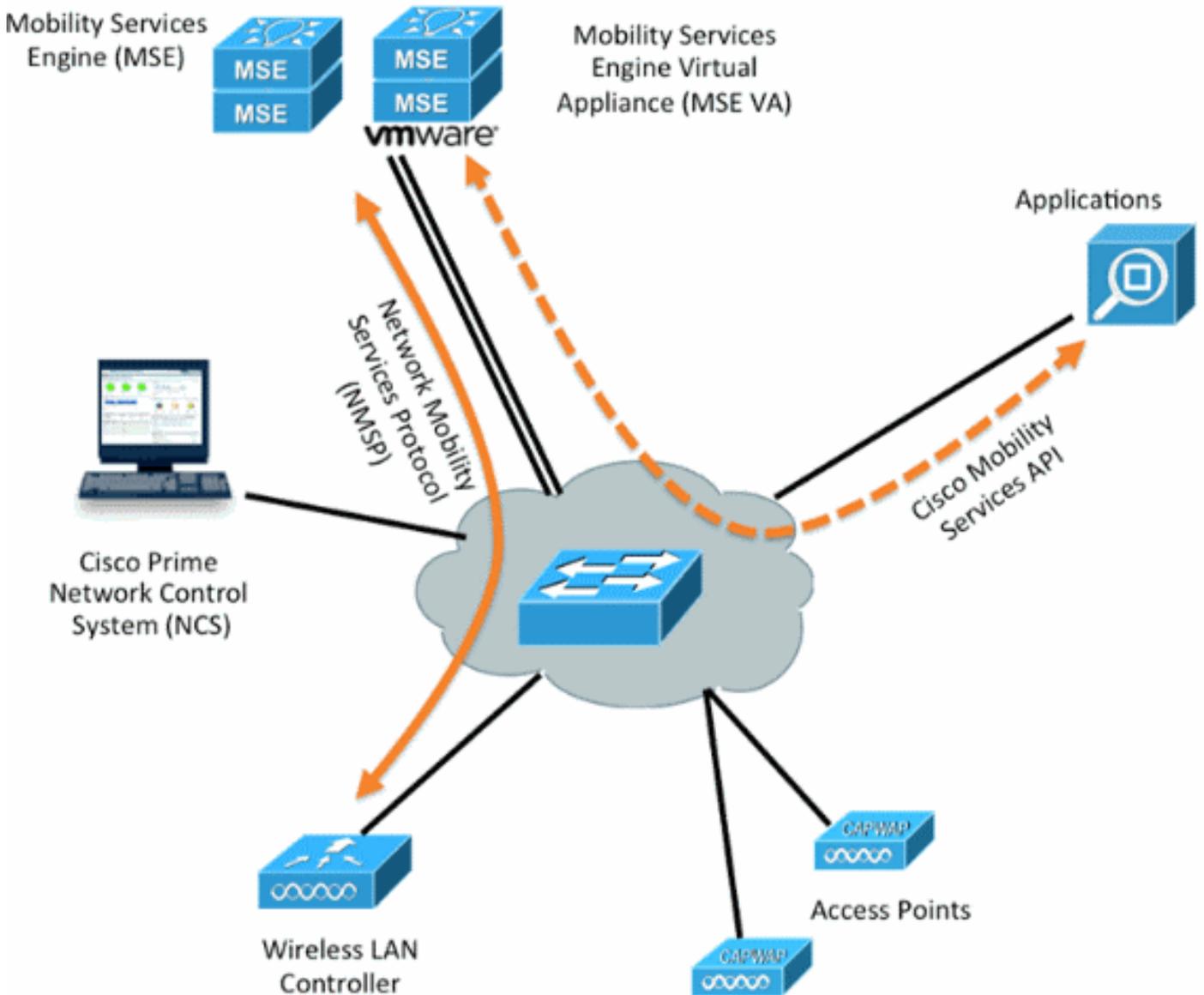
准則和限制

以下是有關MSE HA架構的資訊：

- MSE虛擬裝置僅支援1:1 HA。
- 一個輔助MSE最多可以支援兩個主要MSE。請參閱HA配對矩陣（圖2和3）。
- HA支援網路連線和直接連線。
- 僅支援MSE第2層冗餘。運行狀況監視器IP和虛擬IP必須位於同一個子網上，並且可從網路控制系統(NCS)訪問。 不支援第3層冗餘。

- 運行狀況監視器IP和虛擬IP必須不同。
- 您可以使用手動或自動故障切換。
- 您可以使用手動或自動故障恢復。
- 主MSE和輔助MSE應該使用相同的軟體版本。
- 每個活動的主MSE都由另一個非活動例項備份。只有在啟動故障切換過程後，輔助MSE才會變為活動狀態。
- 故障切換過程可以是手動的，也可以是自動的。
- 每個註冊的主要MSE都有一個軟體和資料庫例項。

圖2. MSE HA支援配對矩陣

Primary Server Type	Secondary Server Type					
	3310	3350	3355	VA-Low	VA-Standard	VA-High
3310	Y	Y	Y	N	N	N
3350	N	Y	Y	N	N	N
3355	N	Y	Y	N	N	N
VA-Low	N	N	N	Y	Y	Y
VA-Standard	N	N	N	N	Y	Y
VA-High	N	N	N	N	N	Y

圖3. MSE HA N:1配對矩陣

| Secondary Server	Primary Server
3310	N:1 not supported
3350	Two 3310 servers are supported
3355	Two 3310 servers are supported
3355	Two 3350 servers are supported
3355	One 3310 and one 3350 are supported

MSE虛擬裝置的HA配置方案（已連線網路）

此示例顯示MSE虛擬裝置(VA)的HA配置(請參見圖4)。 在此案例中，設定了以下設定：

- 主MSE VA:虛擬IP - [10.10.10.11]運行狀況監視器介面(Eth0)- [10.10.10.12]
- 輔助MSE VA:虛擬IP - [無]運行狀況監視器介面(Eth0)- [10.10.10.13]

注意： 每個VA都需要一個啟用許可證(L-MSE-7.0-K9)。這是配置VA的HA所必需的。

圖4. HA中的MSE虛擬裝置
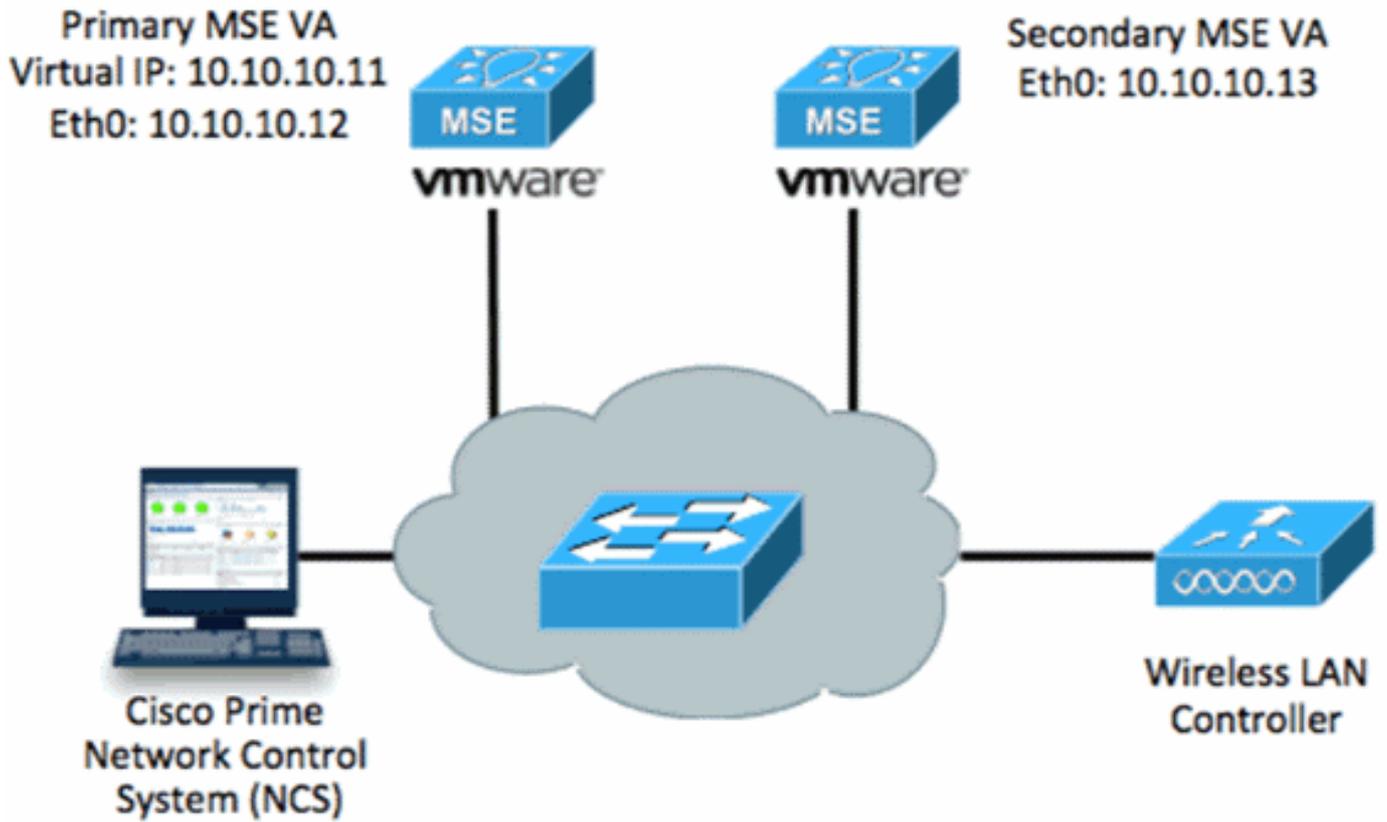
有關詳細資訊，請參閱MSE虛擬裝置上的Cisco文檔。

以下是一般步驟：

1. 完成MSE的VA安裝並驗證是否滿足所有網路設定。

2. 首次登入時初始化安裝嚮導。

3. 輸入所需的條目（主機名、域等）。 在配置高可用性步驟輸入YES。

4. 輸入以下內容：選擇Role - [1 for Primary]。運行狀況監視器介面 — [eth0]^{**}映射到網路介面卡
1的網路設定（參見示例螢幕截圖
）


```
Enter a host name [mse]: mse1

Current domain=[]
Configure domain name? (Y)es/(S)kip/(U)se default [Yes]: s

Current role=[Primary]
Configure High Availability?  (Y)es/(S)kip/(U)se default [Yes]:

High availability role for this MSE (Primary/Secondary)

Select role [1 for Primary, 2 for Secondary] [1]:

Health monitor interface holds physical IP address of this MSE server.
This IP address is used by Secondary, Primary MSE servers and WCS to communicate
 among themselves

Select Health Monitor Interface [eth0/eth1] [eth0]: _
```

5. 選擇直接連線介面 — [none]。

```
Health monitor interface holds physical IP address of this MSE server.
This IP address is used by Secondary, Primary MSE servers and WCS to communicate
 among themselves

Select Health Monitor Interface [eth0/eth1] [eth0]:

-----------------------------------------------------------------

Direct connect configuration facilitates use of a direct cable connection betwee
n the primary and secondary MSE servers.
This can help reduce latencies in heartbeat response times, data replication and
 failure detection times.
Please choose a network interface that you wish to use for direct connect. You s
hould appropriately configure the respective interfaces.
\"none\" implies you do not wish to use direct connect configuration.

-----------------------------------------------------------------

Select direct connect interface [eth0/eth1/none] [none]: _
```

6. 輸入以下內容：虛擬IP地址 — [10.10.10.11]網路掩碼 — [255.255.255.0]在恢復模式下啟動
   MSE - [否
   ]

```
Select direct connect interface [eth0/eth1/none] [none]:

Enter a Virtual IP address for first this primary MSE server

Enter Virtual IP address [1.1.1.1]: 10.10.10.11

Enter the network mask for IP address 10.10.10.11.

Enter network mask [1.1.1.1]: 255.255.255.0

Choose to start the server in recovery mode.
You should choose yes only if this primary was paired earlier and you have now l
ost the configuration from this box.
And, now you want to restore the configuration from Secondary via NCS
Do you wish to start this MSE in HA recovery mode ?: (yes/no): no_
```

7. 輸入以下內容：配置Eth0 - [是]輸入Eth0 IP地址 — [10.10.10.12]網路掩碼 —
   [255.255.255.0]預設網關 —
   [10.10.10.1]

```
Current IP address=[1.1.1.10]
Current eth0 netmask=[255.255.255.0]
Current gateway address=[1.1.1.1]
Configure eth0 interface parameters? (Y)es/(S)kip/(U)se default [Yes]

Enter an IP address for first ethernet interface of this machine.

Enter eth0 IP address [1.1.1.10]: 10.10.10.12

Enter the network mask for IP address 10.10.10.12.

Enter network mask [255.255.255.0]:

Enter an default gateway address for this machine.

Note that the default gateway must be reachable from
the first ethernet interface.

Enter default gateway address [1.1.1.1]: 10.10.10.1_
```

8. 第二個乙太網介面(Eth1)未使用。配置eth1介面 — [跳過
   ]

```
The second ethernet interface is currently disabled for this machine.
Configure eth1 interface parameters? (Y)es/(S)kip/(U)se default [Yes]: s
```

9. 繼續安裝嚮導。啟用NTP伺服器以同步時鐘至關重要。首選時區為UTC。

```
Domain Name Service (DNS) Setup
DNS is currently enabled.
No DNS servers currently defined
Configure DNS related parameters? (Y)es/(S)kip/(U)se default [Yes]: s

Current timezone=[America/New_York]
Configure timezone? (Y)es/(S)kip/(U)se default [Yes]:

Enter the current date and time.

Please identify a location so that time zone rules can be set correctly.
Please select a continent or ocean.
 1) Africa
 2) Americas
 3) Antarctica
 4) Arctic Ocean
 5) Asia
 6) Atlantic Ocean
 7) Australia
 8) Europe
 9) Indian Ocean
10) Pacific Ocean
11) UTC - I want to use Coordinated Universal Time.
12) Return to previous setup step (^).
#? 11
```

```
Network Time Protocol (NTP) Setup.

If you choose to enable NTP, the system time will be
configured from NTP servers that you select.  Otherwise,
you will be prompted to enter the current date and time.

NTP is currently disabled.
Configure NTP related parameters? (Y)es/(S)kip/(U)se default [Yes]:

Enter whether or not you would like to set up the
Network Time Protocol (NTP) for this machine.

If you choose to enable NTP, the system time will be
configured from NTP servers that you select.  Otherwise,
you will be prompted to enter the current date and time.


Enable NTP (yes/no) [no]: yes
Enter NTP server name or address: ntp.network.local
```

以下內容彙總了MSE虛擬裝置主設定：
```
-------BEGIN--------
Role=1, Health Monitor Interface=eth0, Direct connect interface=none
Virtual IP Address=10.10.10.11, Virtual IP Netmask=255.255.255.0
Eth0 IP address=10.10.10.12, Eth0 network mask=255.0.0.0
Default Gateway=10.10.10.1
-------END--------
```

10. 輸入[是]以確認所有設定資訊是否正確。

```
Please verify the following setup information.

-------BEGIN--------

    Host name=mse1
            Role=1, Health Monitor Interface=eth0, Direct connect interface=none
            Virtual IP Address=10.10.10.11, Virtual IP Netmask=255.255.255.0
    Eth0 IP address=10.10.10.12, Eth0 network mask=255.255.255.0
    Default gateway=10.10.10.1
    Time zone=UTC
    Enable NTP=yes, NTP servers=10.10.10.10

-------END--------

You may enter "yes" to proceed with configuration, "no" to make
more changes, or "^" to go back to the previous step.

Configuration Changed
Is the above information correct (yes, no, or ^): yes_
```

```
[root@mse1 ~]# reboot
Stopping MSE Platform
```

11. 建議在設定後重新引導。
12. 重新啟動後，使用/etc/init.d/msed start或service msed startcommand啟動MSE服務。

```
[root@mse1 ~]# getserverinfo
Health Monitor is not running
[root@mse1 ~]# /etc/init.d/msed start
Starting MSE Platform

ip_tables: (C) 2000-2006 Netfilter Core Team
Netfilter messages via NETLINK v0.30.
ip_conntrack version 2.4 (8192 buckets, 65536 max) - 304 bytes per conntrack
Starting Health Monitor, Waiting to check the status.
Starting Health Monitor, Waiting to check the status.
Health Monitor successfully started
Starting Admin process...
Started Admin process.
Starting database ......
Database started successfully. Starting framework and services ..............
Framework and services successfully started

[root@mse1 ~]#
```

13. 所有服務啟動後，使用getserverinfo命令確認MSE服務工作正常。操作狀態必須為Up。

```
Active Wired Clients: 0
Active Elements(Wireless Clients, Rogue APs, Rogue Clients, Interferers, Wired C
lients, Tags) Limit: 100
Active Sessions: 0
Wireless Clients Not Tracked due to the limiting: 0
Tags Not Tracked due to the limiting: 0
Rogue APs Not Tracked due to the limiting: 0
Rogue Clients Not Tracked due to the limiting: 0
Interferers Not Tracked due to the limiting: 0
Wired Clients Not Tracked due to the limiting: 0
Total Elements(Wireless Clients, Rogue APs, Rogue Clients, Interferers, Wired Cl
ients) Not Tracked due to the limiting: 0


--------------------------
Context Aware Sub Services
--------------------------


Subservice Name: Aeroscout Tag Engine
Admin Status: Disabled
Operation Status: Down

Subservice Name: Cisco Tag Engine
Admin Status: Enabled
Operation Status: Up
[root@mse1 ~]#
```

這些步驟是輔助MSE VA設定的一部分：

1. 新安裝後，初始登入將啟動安裝嚮導。輸入以下內容：配置高可用性 — [是]選擇角色 —
   [2]，表示輔助角色運行狀況監視器介面 — [eth0]與主介面相同

```
Current hostname=[mse]
Configure hostname?  (Y)es/(S)kip/(U)se default [Yes]: yes

The host name should be a unique name that can identify
the device on the network. The hostname should start with
a letter, end with a letter or number, and contain only
letters, numbers, and dashes.

Enter a host name [mse]: mse2

Current domain=[]
Configure domain name? (Y)es/(S)kip/(U)se default [Yes]: s

Current role=[Primary]
Configure High Availability?  (Y)es/(S)kip/(U)se default [Yes]:

High availability role for this MSE (Primary/Secondary)

Select role [1 for Primary, 2 for Secondary] [1]: 2

Health monitor interface holds physical IP address of this MSE server.
This IP address is used by Secondary, Primary MSE servers and WCS to communicate
among themselves

Select Health Monitor Interface [eth0/eth1] [eth0]:
```

2. 輸入以下內容：直接連線 — [無]IP地址eth0 - [10.10.10.13]網路掩碼 — [255.255.255.0]預設網
   關 —
   [10.10.10.1]

```
--------------------------------------------------------------------
Select direct connect interface [eth0/eth1/none] [none]:

Current IP address=[1.1.1.10]
Current eth0 netmask=[255.255.255.0]
Current gateway address=[1.1.1.1]
Configure eth0 interface parameters? (Y)es/(S)kip/(U)se default [Yes]:

Enter an IP address for first ethernet interface of this machine.

Enter eth0 IP address [1.1.1.10]: 10.10.10.13

Enter the network mask for IP address 10.10.10.13.

Enter network mask [255.255.255.0]:

Enter an default gateway address for this machine.

Note that the default gateway must be reachable from
the first ethernet interface.

Enter default gateway address [1.1.1.1]: 10.10.10.1_
```

3. 配置eth1介面 — [跳過
   ]

```
Configure eth0 interface parameters? (Y)es/(S)kip/(U)se default [Yes]:

Enter an IP address for first ethernet interface of this machine.

Enter eth0 IP address [1.1.1.10]: 10.10.10.13

Enter the network mask for IP address 10.10.10.13.

Enter network mask [255.255.255.0]:

Enter an default gateway address for this machine.

Note that the default gateway must be reachable from
the first ethernet interface.

Enter default gateway address [1.1.1.1]: 10.10.10.1

The second ethernet interface is currently disabled for this machine.
Configure eth1 interface parameters? (Y)es/(S)kip/(U)se default [Yes]: s
```

4. 設定時區 —
   [UTC]

```
Current timezone=[America/New_York]
Configure timezone? (Y)es/(S)kip/(U)se default [Yes]:

Enter the current date and time.

Please identify a location so that time zone rules can be set correctly.
Please select a continent or ocean.
 1) Africa
 2) Americas
 3) Antarctica
 4) Arctic Ocean
 5) Asia
 6) Atlantic Ocean
 7) Australia
 8) Europe
 9) Indian Ocean
10) Pacific Ocean
11) UTC - I want to use Coordinated Universal Time.
12) Return to previous setup step (^).
#? 11_
```

5. 啟用NTP伺服器。

```
Network Time Protocol (NTP) Setup.

If you choose to enable NTP, the system time will be
configured from NTP servers that you select.  Otherwise,
you will be prompted to enter the current date and time.

NTP is currently disabled.
Configure NTP related parameters? (Y)es/(S)kip/(U)se default [Yes]:

Enter whether or not you would like to set up the
Network Time Protocol (NTP) for this machine.

If you choose to enable NTP, the system time will be
configured from NTP servers that you select.  Otherwise,
you will be prompted to enter the current date and time.

Enable NTP (yes/no) [no]: yes
Enter NTP server name or address: ntp.network.local_
```

6. 完成安裝嚮導的其餘步驟並確認安裝資訊以儲存配置。

```
Please verify the following setup information.

-------BEGIN---------

    Host name=mse2
           Role=2, Health Monitor Interface=eth0, Direct connect interface=none

    Eth0 IP address=10.10.10.13, Eth0 network mask=255.255.255.0
    Default gateway=10.10.10.1
    Time zone=UTC
    Enable NTP=yes, NTP servers=10.10.10.10

-------END---------

You may enter "yes" to proceed with configuration, "no" to make
more changes, or "^" to go back to the previous step.

Configuration Changed
Is the above information correct (yes, no, or ^): yes_
```

7. 重新啟動並啟動服務，與主MSE的先前步驟相同。

```
[root@mse2 ~]# /etc/init.d/msed start
Starting MSE Platform

ip_tables: (C) 2000-2006 Netfilter Core Team
Netfilter messages via NETLINK v0.30.
ip_conntrack version 2.4 (8192 buckets, 65536 max) - 304 bytes per conntrack
Starting Health Monitor, Waiting to check the status.
Starting Health Monitor, Waiting to check the status.
Health Monitor successfully started
Starting Admin process...
Started Admin process.
Starting database ......
Database started successfully. Starting framework and services .............
Framework and services successfully started

[root@mse2 ~]#
```

接下來的步驟顯示如何將主和輔助MSE VA新增到NCS。執行將MSE新增到NCS的正常過程。如需幫助，請參閱配置指南。

1. 從NCS轉至Systems > Mobility Services，然後選擇Mobility Services Engine。
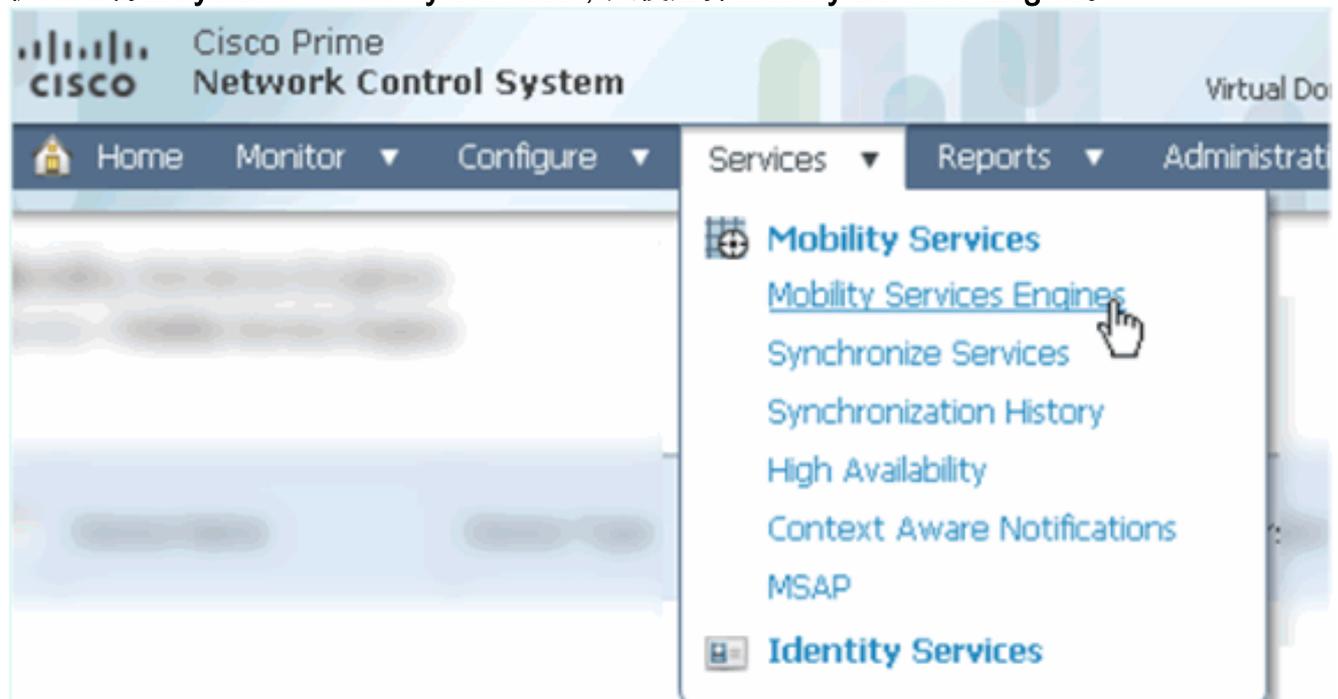
2. 從下拉選單中選擇Add Mobility Services Engine。然後，按一下Go。
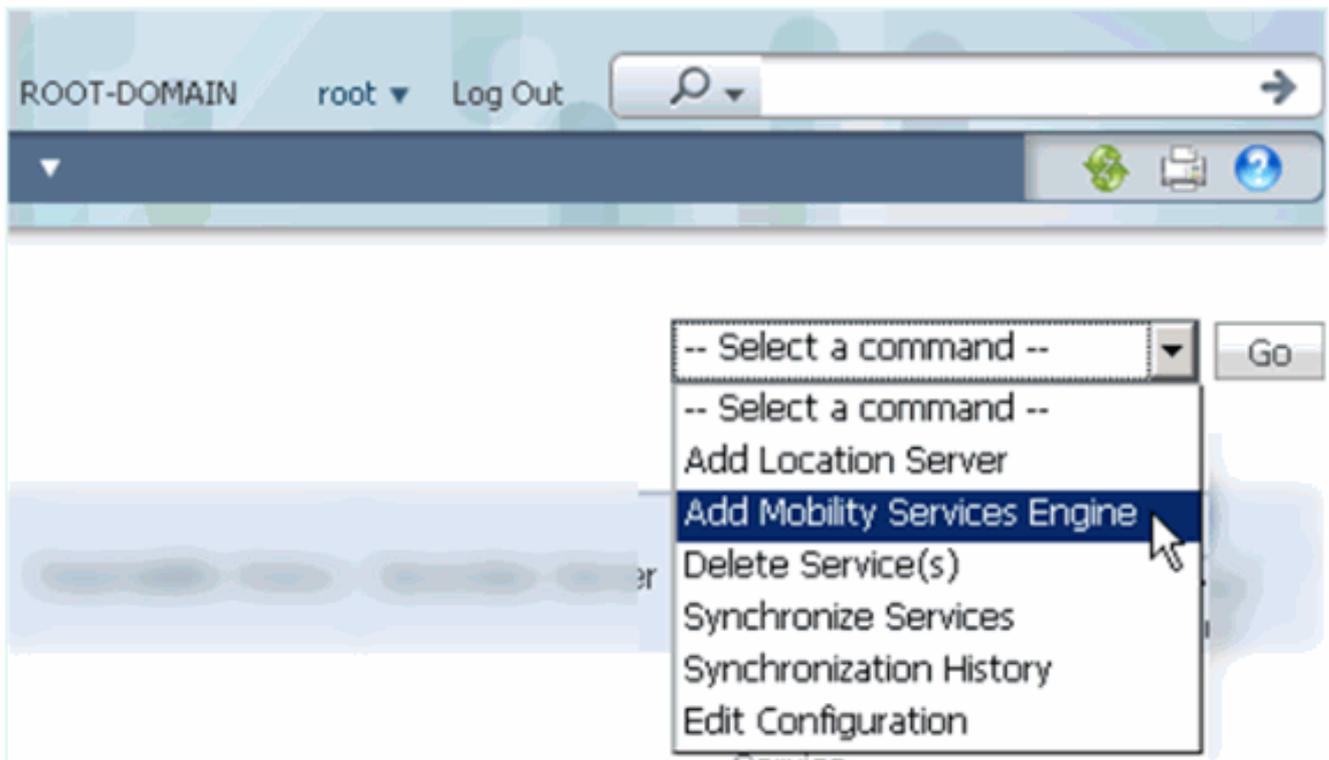
3. 按照MSE的NCS配置嚮導操作。在本檔案的案例中，這些值為：輸入裝置名稱 — 例如 [MSE1]IP地址 — [10.10.10.12}使用者名稱和密碼（每個初始設定）按「**Next**」（下一步）。

4. 新增所有可用許可證，然後按一下下**一步**。

5. 選擇MSE服務，然後按一下**下一步**。

6. 啟用跟蹤引數，然後按一下**下一步**。

Cisco Prime
Network Control System

CISCO

Select Tracking & History Parameters.

Edit MSE Configuration

Licensing

Select Service

Tracking

Assign Maps

Tracking
☑ Wired Clients
☑ Wireless Clients
☐ Rogue AccessPoints
　☐ Exclude Adhoc Rogue APs
☐ Rogue Clients
☐ Interferers
☑ Active RFID Tags

7. 分配對映和同步MSE服務是可選的。按一下**Done**完成將MSE新增到NCS。
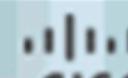
Cisco Prime
Network Control System

CISCO

Edit MSE Configuration

Licensing

Select Service

Tracking

Assign Maps

☐ | Name

The page at https://10.10.10.20 says:

⚠ Your MSE Settings have been saved.

OK
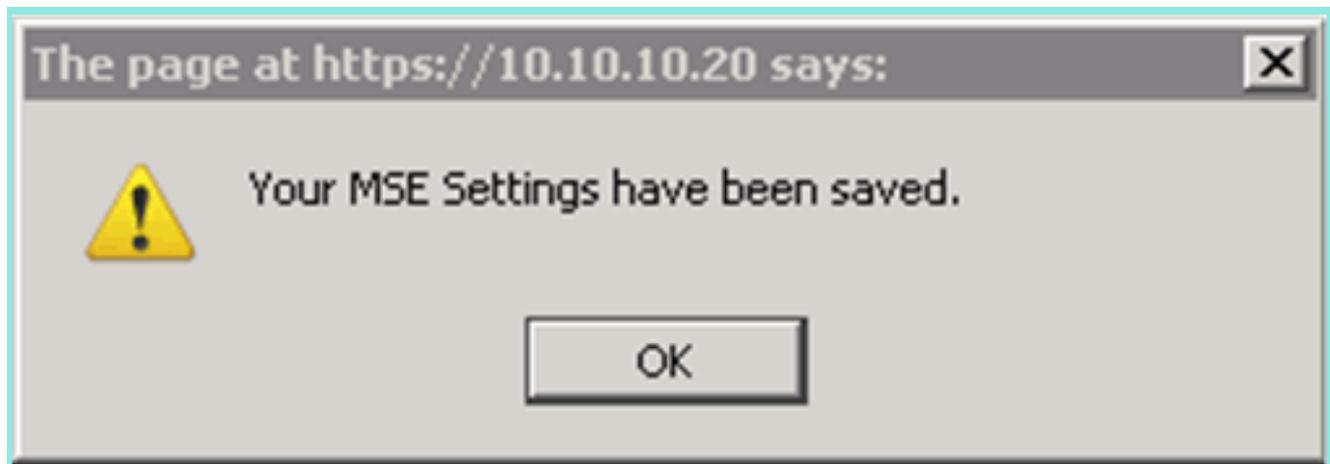
下一個螢幕截圖顯示已新增主MSE VA。現在，完成以下步驟以新增輔助MSE VA:

1. 找到Secondary Server列，然後按一下要配置的連結。

2. 使用以下場景中的配置新增輔助MSE VA:輔助裝置名稱 — [mse2]輔助IP地址 — [10.10.10.13]輔助密碼* - [預設值或來自安裝指令碼]故障切換型別* - [自動或手動]回退型別*長故障切換等待*按一下「**Save**」。*按一下資訊圖示或參閱MSE文檔（如果需要）。

HA Configuration : mse1
Services > Mobility Services Engines > System > Services High Availability > **Configure High Availability Parameters**

Configure High Availability Parameters

Primary Health Monitor IP	10.10.10.12
Secondary Device Name	mse2
Secondary IP Address	10.10.10.13
Secondary Password ⓘ	•••••
Failover Type ⓘ	Automatic
Fallback Type ⓘ	Manual
Long Failover Wait ⓘ	10 seconds

Save

3. 當NCS提示配對兩個MSE時，按一下**OK**。

The page at https://10.10.10.20 says:

Are you sure you want to pair up these two servers?

OK   Cancel

NCS建立配置需要幾秒鐘時間。

Please Wait. High Availability configuration is being created at the Primary and Secondary servers. This will take a few seconds...

• • • • •
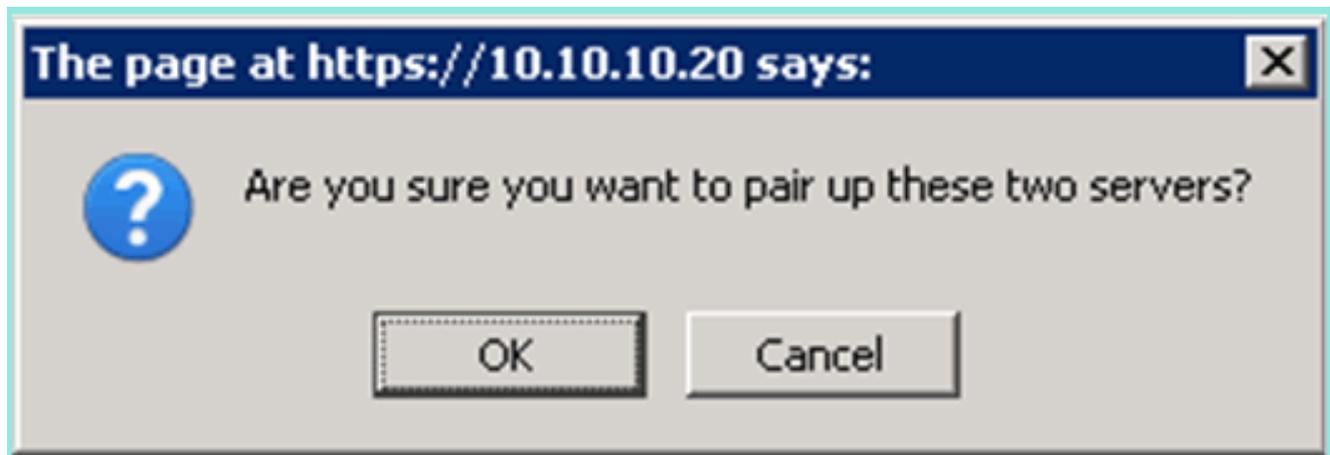
如果輔助MSE VA需要啟用許可證(L-MSE-7.0-K9),NCS將提示。

The page at https://10.10.10.20 says:

⚠ Secondary MSE needs to be activated with a Virtual Appliance license. Add a license and save the config.

OK
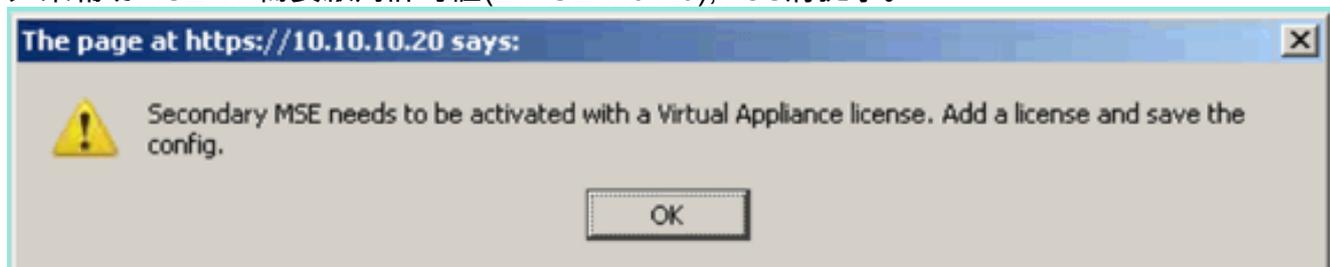
4. 按一下**OK**並找到License File以啟用Secondary。

HA Configuration : mse1

Services > Mobility Services Engines > System > Services High Availability > **Configure High Availability Parameters**

Configuration

Primary Health Monitor IP	10.10.10.12
Secondary Device Name	mse2
Secondary IP Address	10.10.10.13
Secondary Password ⓘ	•••••
Secondary Platform UDI	AIR-MSE-VA-K9:V01:mse2_666f2046-5699-11e1-b1b1-0050566
Secondary Activation Status	Not Activated
Activate Secondary with License	[ ] Browse...
Failover Type ⓘ	Automatic ▼
Failback Type ⓘ	Manual ▼
Long Failover Wait ⓘ	10 seconds

Save   Delete

5. 啟用輔助MSE VA後，按一下**Save**以完成配置。

6. 導航到**NCS > Mobility Services > Mobility Services Engine**。NCS顯示此螢幕，其中輔助MSE出現在輔助伺服器的列中
：

7. 要檢視高可用性狀態，請導航到**NCS > Services > High Availability**。
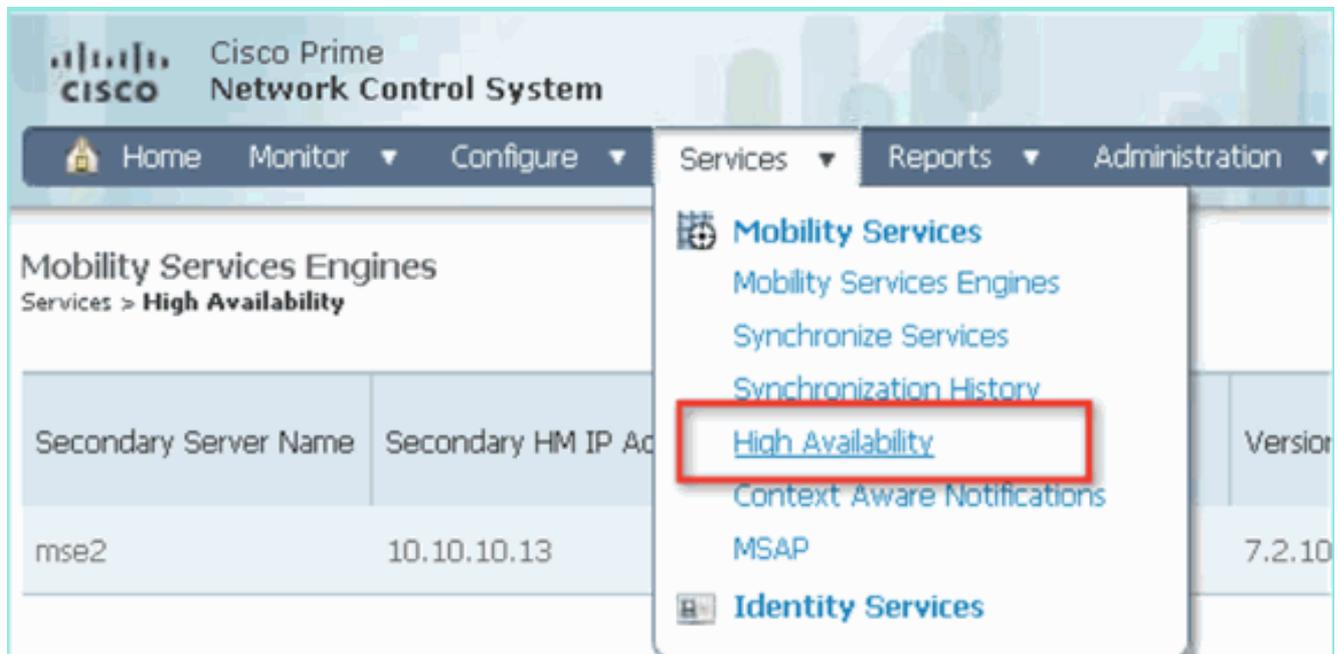
在HA狀態中，您可以通過MSE對檢視當前狀態和事件。

設定初始同步和資料複製可能需要幾分鐘時間。在HA對完全啟用之前，NCS會提供進度%指示，如上文所示。
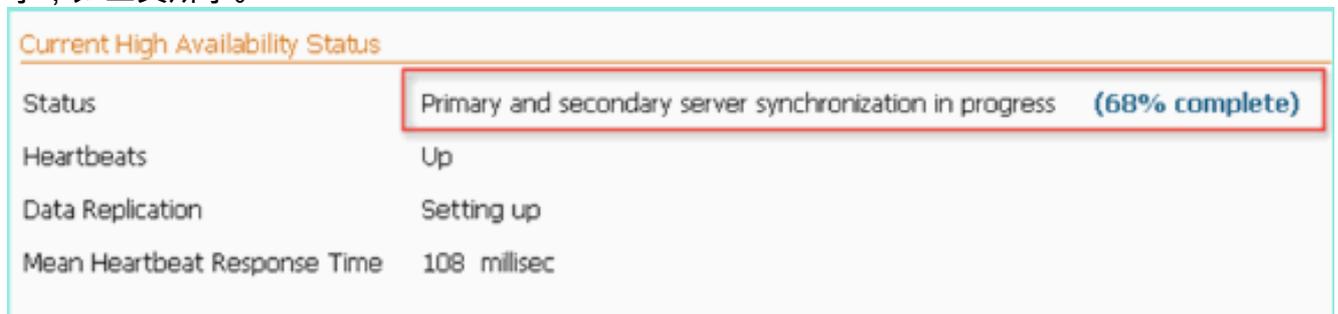
與HA相關的MSE軟體版本7.2中引入的新命令是**gethainfo**。此輸出顯示Primary和Secondary:

```
[root@mse1 ~]#gethainfo

Health Monitor is running. Retrieving HA related information

--------------------------------------------------------
```

```
Base high availability configuration for this server
-----------------------------------------------------


Server role: Primary
Health Monitor IP Address: 10.10.10.12
Virtual IP Address: 10.10.10.11
Version: 7.2.103.0
UDI: AIR-MSE-VA-K9:V01:mse1
Number of paired peers: 1


--------------------------
Peer configuration#: 1
--------------------------


Health Monitor IP Address 10.10.10.13
Virtual IP Address: 10.10.10.11
Version: 7.2.103.0
UDI: AIR-MSE-VA-K9:V01:mse2_666f2046-5699-11e1-b1b1-0050568901d9
Failover type: Manual
Failback type: Manual
Failover wait time (seconds): 10
Instance database name: mseos3s
Instance database port: 1624
Dataguard configuration name: dg_mse3
Primary database alias: mseop3s
Direct connect used: No
Heartbeat status: Up
Current state: PRIMARY_ACTIVE


[root@mse2 ~]#gethainfo

Health Monitor is running. Retrieving HA related information


-----------------------------------------------------
Base high availability configuration for this server
-----------------------------------------------------


Server role: Secondary
Health Monitor IP Address: 10.10.10.13
Virtual IP Address: Not Applicable for a secondary
Version: 7.2.103.0
UDI: AIR-MSE-VA-K9:V01:mse2
Number of paired peers: 1


--------------------------
Peer configuration#: 1
--------------------------


Health Monitor IP Address 10.10.10.12
Virtual IP Address: 10.10.10.11
Version: 7.2.103.0
UDI: AIR-MSE-VA-K9:V01:mse1_d5972642-5696-11e1-bd0c-0050568901d6
Failover type: Manual
Failback type: Manual
Failover wait time (seconds): 10
Instance database name: mseos3
Instance database port: 1524
Dataguard configuration name: dg_mse3
Primary database alias: mseop3s
Direct connect used: No
Heartbeat status: Up
Current state: SECONDARY_ACTIVE
```

使用直接連線的HA配置

網路連線的MSE HA會使用網路，而直接連線組態會促進使用主要MSE伺服器和輔助MSE伺服器之間的直接纜線連線。這有助於減少心跳響應時間、資料複製和故障檢測時間方面的延遲。在此場景中，主物理MSE連線到介面eth1上的輔助MSE（如圖5所示）。請注意，Eth1用於直接連線。每個介面需要一個IP地址。

圖5:含直接連線的MSE HA
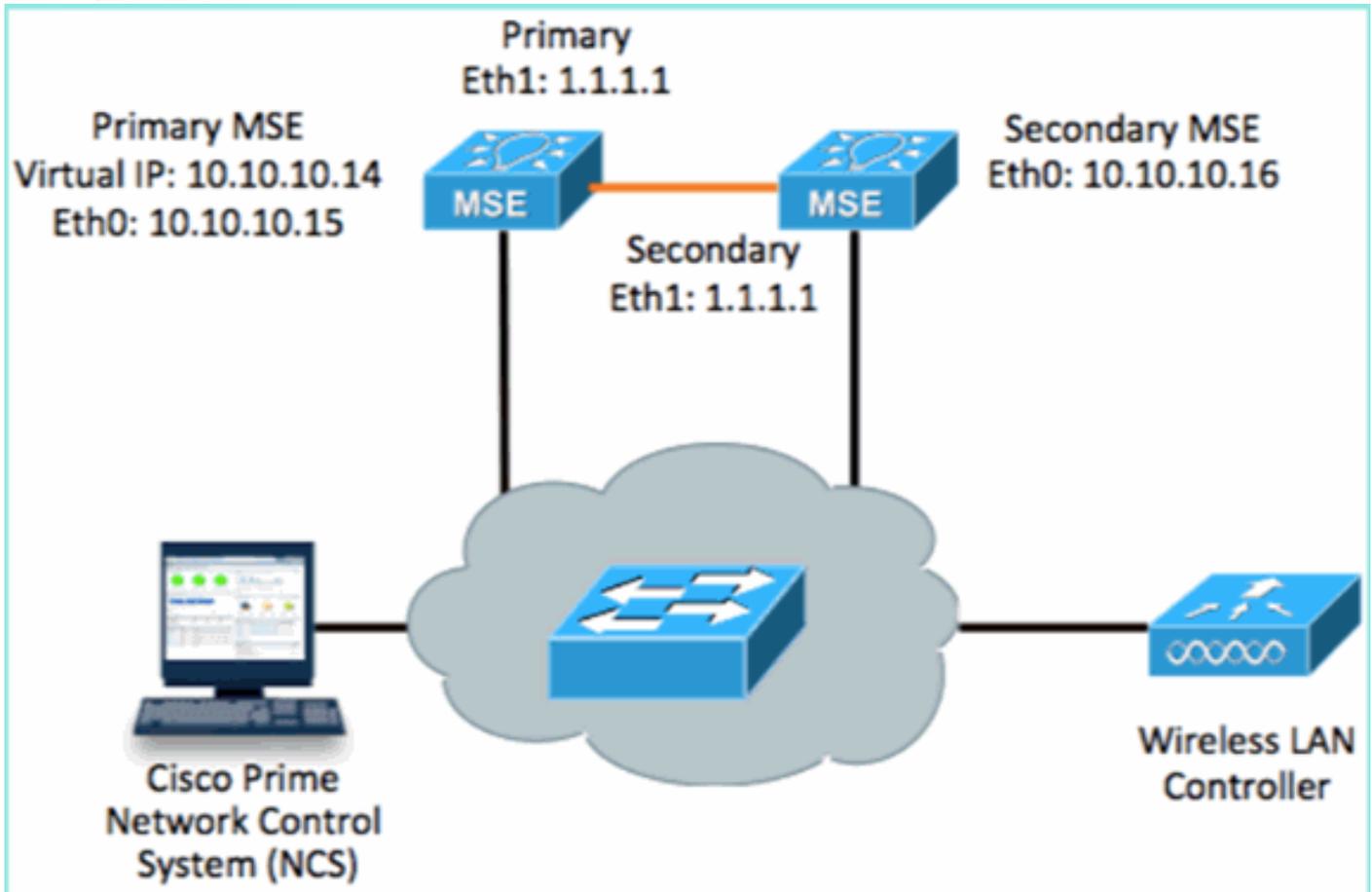

1. 設定主MSE。安裝指令碼中的配置摘要：
   ```
   -------BEGIN--------
   Host name=mse3355-1
   Role=1 [Primary]
   Health Monitor Interface=eth0
   Direct connect interface=eth1
   Virtual IP Address=10.10.10.14
   Virtual IP Netmask=255.255.255.0
   Eth1 IP address=1.1.1.1
   Eth1 network mask=255.0.0.0
   Default Gateway =10.10.10.1
   -------END--------
   ```
2. 設定輔助MSE。安裝指令碼中的配置摘要：
   ```
   -------BEGIN--------
   Host name=mse3355-2
   Role=2 [Secondary]
   Health Monitor Interface=eth0
   Direct connect interface=eth1
   Eth0 IP Address 10.10.10.16
   Eth0 network mask=255.255.255.0
   Default Gateway=10.10.10.1
   Eth1 IP address=1.1.1.2,
   ```

```
Eth1 network mask=255.0.0.0
-------END--------
```

3. 將主MSE新增到NCS（請參見前面的示例，或參閱配置指南）。
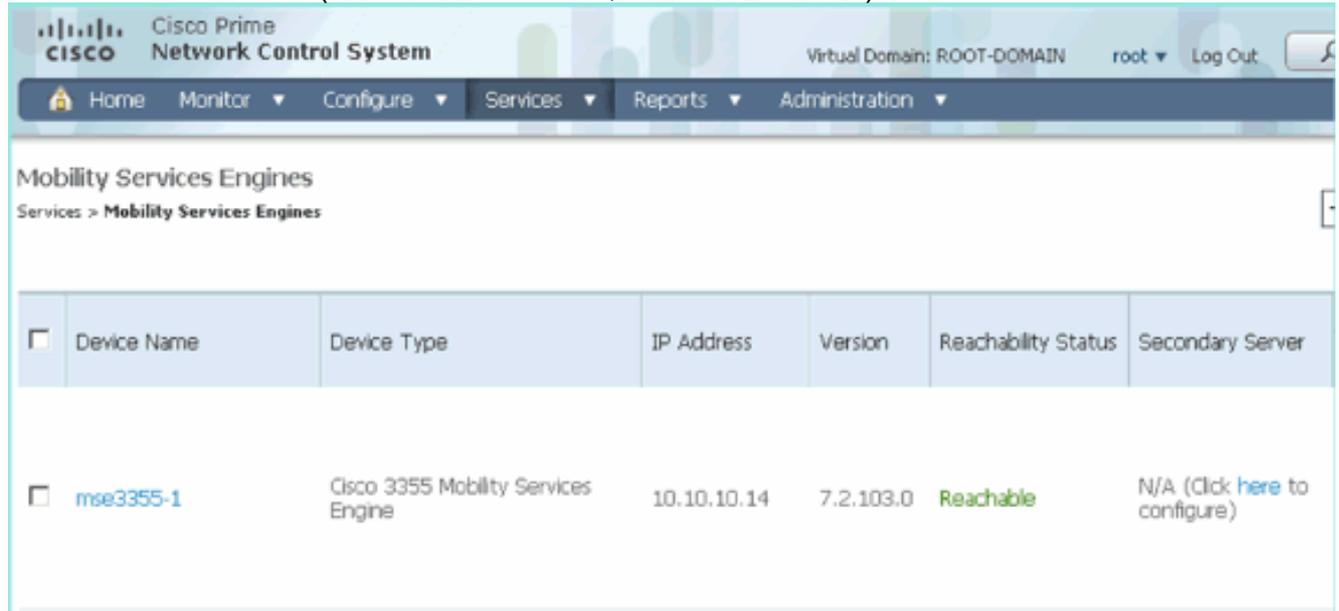


4. 從NCS設定輔助MSE >配置輔助伺服器。輸入輔助裝置名稱 — [mse3355-2]輔助IP地址 — [10.10.10.16]完成其餘引數並按一下**Save**。



5. 按一下**OK**以確認將兩個MSE配對。

The page at https://10.10.10.20 says:

? Are you sure you want to pair up these two servers?

OK    Cancel

NCS需要一段時間才能新增輔助伺服器配置。

Please Wait. High Availability configuration is being created at the Primary and Secondary servers. This will take a few seconds...

• • • • •
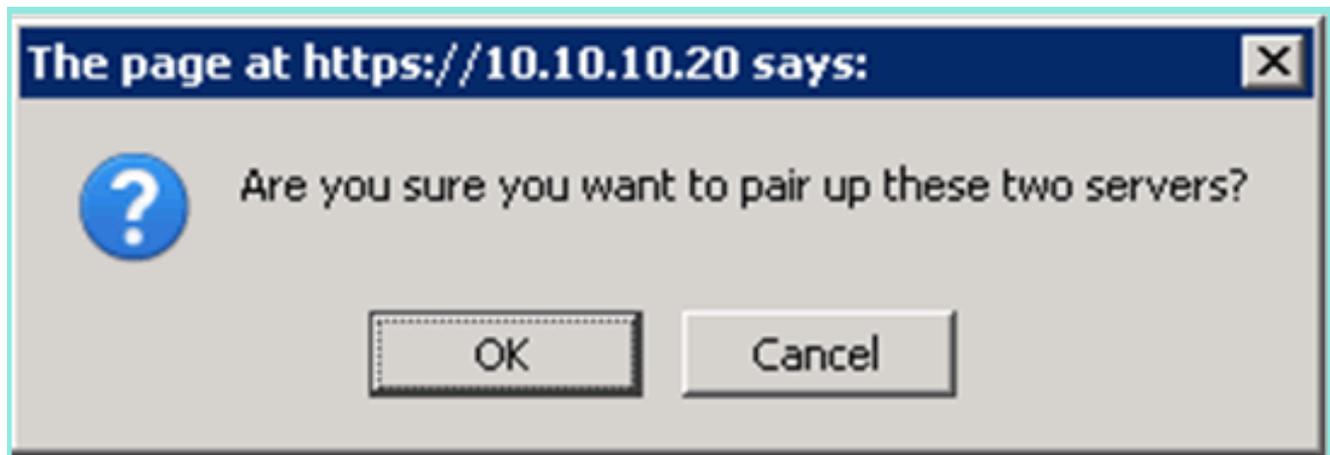
6. 完成後，對HA引數進行任何更改。按一下「**Save**」。

## HA Configuration : mse3355-1
Services > Mobility Services Engines > System > Services High Availability > **Configure High Availability Parameters**

### Configuration

| | |
|---|---|
| Primary Health Monitor IP | 10.10.10.15 |
| Secondary Device Name | mse3355-2 |
| Secondary IP Address | 10.10.10.16 |
| Secondary Password ⓘ | ••••• |
| Secondary Platform UDI | AIR-MSE-3355-K9:V01:KQ- |
| Failover Type ⓘ | Manual ▼ |
| Failback Type ⓘ | Manual ▼ |
| Long Failover Wait ⓘ | 10 seconds |

Save  Delete  Switchover

7. 檢視新MSE HA配對的即時進度的HA狀態。
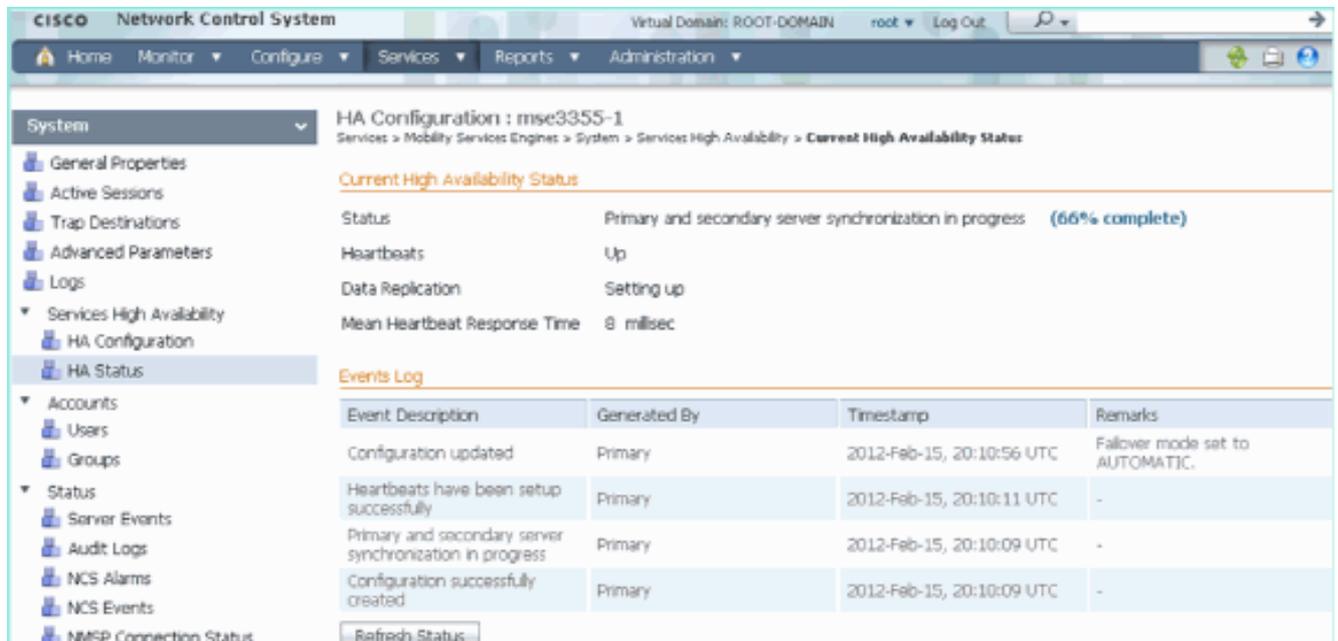
8. 從NCS > Services > Mobility Services > Mobility Services Engine，確認MSE（直接連線
）HA已新增到NCS。
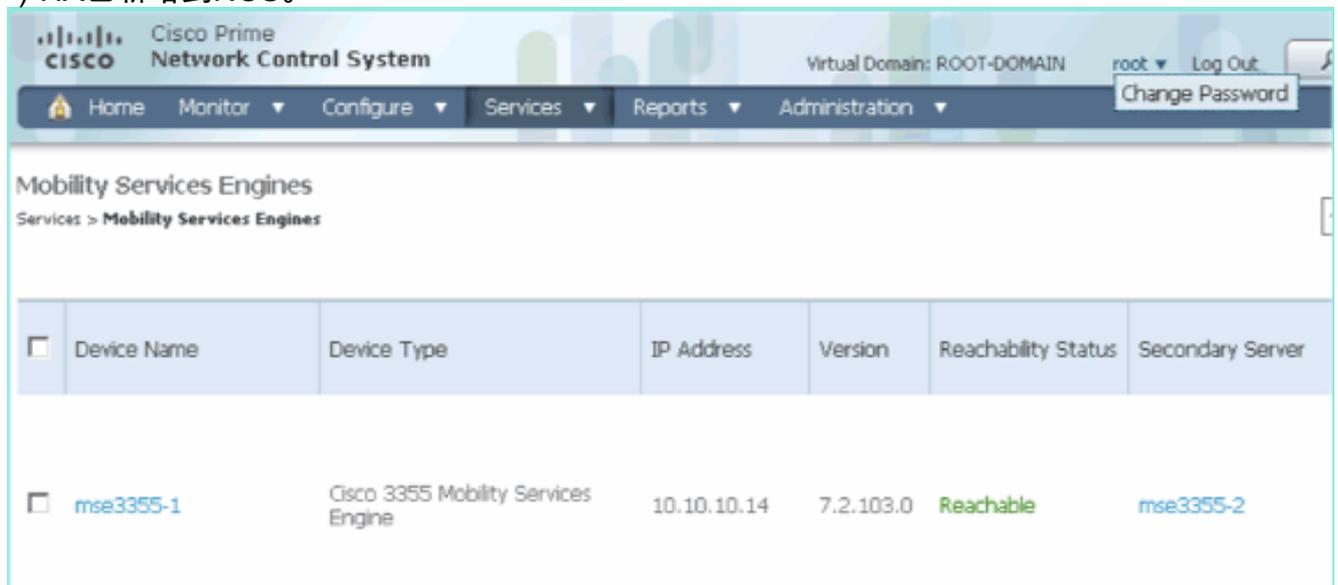


9. 在控制檯中，也可使用gethainfo命令檢視確認。以下是主要和次要輸出：

```
[root@mse3355-1 ~]#gethainfo

Health Monitor is running. Retrieving HA related information

----------------------------------------------------
Base high availability configuration for this server
----------------------------------------------------

Server role: Primary
Health Monitor IP Address: 10.10.10.15
Virtual IP Address: 10.10.10.14
Version: 7.2.103.0
UDI: AIR-MSE-3355-K9:V01:KQ37xx
Number of paired peers: 1

----------------------------
Peer configuration#: 1
----------------------------

Health Monitor IP Address 10.10.10.16
Virtual IP Address: 10.10.10.14
```

```
Version: 7.2.103.0
UDI: AIR-MSE-3355-K9:V01:KQ45xx
Failover type: Automatic
Failback type: Manual
Failover wait time (seconds): 10
Instance database name: mseos3s
Instance database port: 1624
Dataguard configuration name: dg_mse3
Primary database alias: mseop3s
Direct connect used: Yes
Heartbeat status: Up
Current state: PRIMARY_ACTIVE


[root@mse3355-2 ~]#gethainfo


Health Monitor is running. Retrieving HA related information


-----------------------------------------------------
Base high availability configuration for this server
-----------------------------------------------------


Server role: Secondary
Health Monitor IP Address: 10.10.10.16
Virtual IP Address: Not Applicable for a secondary
Version: 7.2.103.0
UDI: AIR-MSE-3355-K9:V01:KQ45xx
Number of paired peers: 1


---------------------------
Peer configuration#: 1
---------------------------


Health Monitor IP Address 10.10.10.15
Virtual IP Address: 10.10.10.14
Version: 7.2.103.0
UDI: AIR-MSE-3355-K9:V01:KQ37xx
Failover type: Automatic
Failback type: Manual
Failover wait time (seconds): 10
Instance database name: mseos3
Instance database port: 1524
Dataguard configuration name: dg_mse3
Primary database alias: mseop3s
Direct connect used: Yes
Heartbeat status: Up
Current state: SECONDARY_ACTIVE
```

MSE物理裝置的HA配置方案

根據配對矩陣，HA配置中的最大值為2:1。這是為MSE-3355保留的，在輔助模式下，MSE-3310和MSE-3350可以支援。直接連線在此場景中不適用。
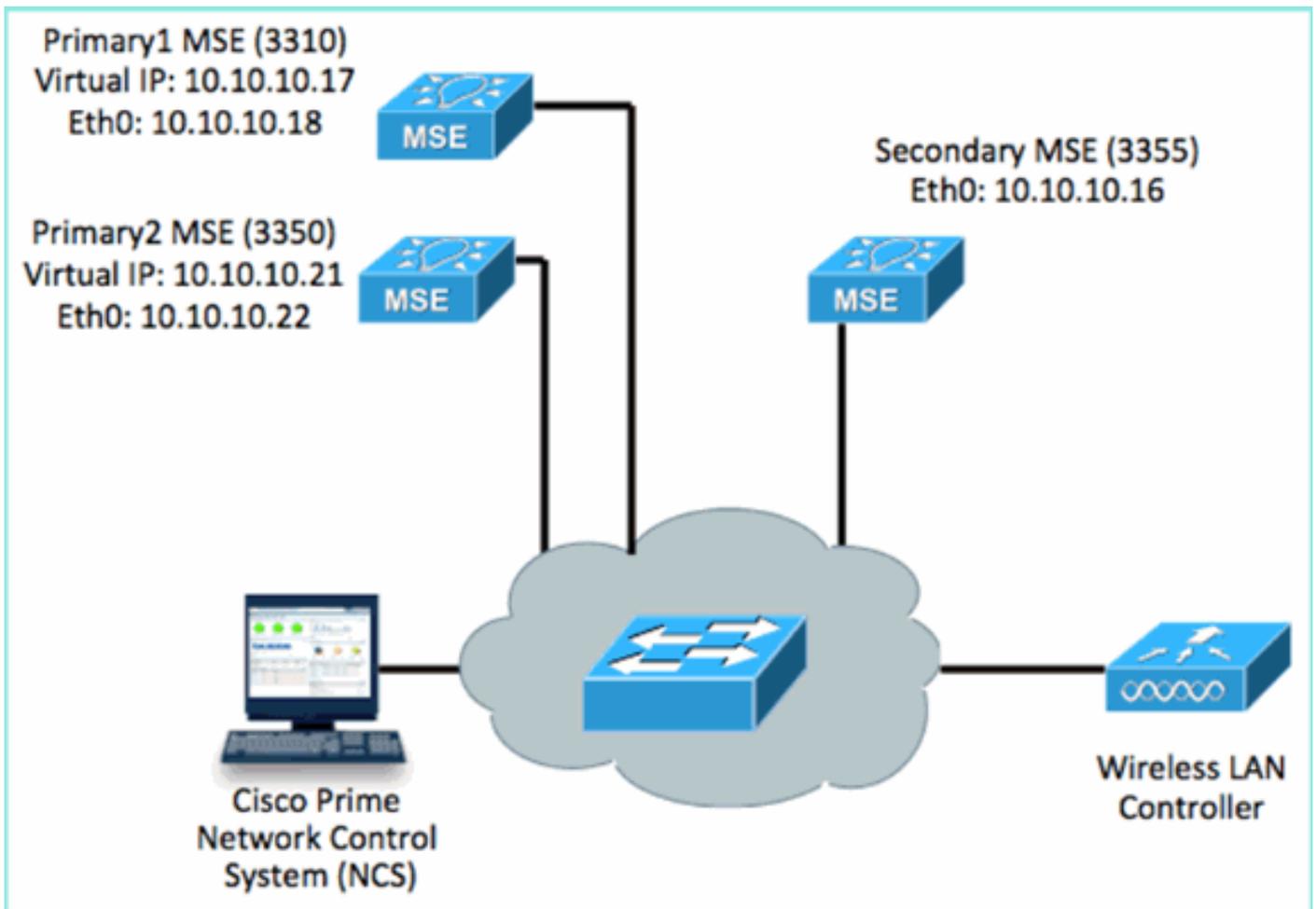
1. 配置每個MSE以演示2:1高可用性場景：

```
MSE-3310 (Primary1)
Server role: Primary
Health Monitor IP Address (Eth0): 10.10.10.17
Virtual IP Address: 10.10.10.18
Eth1 - Not Applicable

MSE-3350 (Primary2)
Server role: Primary
Health Monitor IP Address: 10.10.10.22
Virtual IP Address: 10.10.10.21
Eth1 - Not Applicable

MSE-3355 (Secondary)
Server role: Secondary
Health Monitor IP Address: 10.10.10.16
Virtual IP Address: Not Applicable for a secondary
```

2. 配置完所有MSE後，將Primary1和Primary2新增到NCS。

Cisco Prime
Network Control System

A Home   Monitor ▼   Configure ▼   Services ▼   Reports ▼   Administration ▼

Mobility Services Engines

Services > **Mobility Services Engines**

	Device Name	Device Type	IP Address	Version	Reachability Status	Secondary Server
○						
☐	mse3350	Cisco 3350 Mobility Services Engine	10.10.10.21	7.2.103.0	Reachable	N/A (Click here to configure)
○						
☐	mse3310	Cisco 3310 Mobility Services Engine	10.10.10.18	7.2.103.0	Reachable	N/A (Click here to configure)

3. 按一下以配置輔助伺服器（如前面的示例所示）。 從任一主要MSE開始。

Reachability Status	Secondary Server
Reachable	N/A (Click here to configure)
Reachable	N/A (Click here to configure)

4. 輸入輔助MSE的引數：輔助裝置名稱：例如，[mse-3355-2}輔助IP地址 — [10.10.10.16]完成
其餘引數。按一下「**Save**」。

HA Configuration : mse3350

Services > Mobility Services Engines > System > Services High Availability > **Configure High Availability Parameters**

Configuration

Primary Health Monitor IP	10.10.10.22
Secondary Device Name	mse3355-2
Secondary IP Address	10.10.10.16
Secondary Password ⓘ	•••••
Secondary Platform UDI	AIR-MSE-3355-K9:V01:KQ4
Failover Type ⓘ	Manual ▾
Failback Type ⓘ	Manual ▾
Long Failover Wait ⓘ	10 seconds

Save   Delete   Switchover

5. 稍等片刻，等待配置第一個輔助條目。

Please Wait. High Availability configuration is being created at the Primary and Secondary servers. This will take a few seconds...

● ● ● ●

6. 確認已為第一個主MSE新增輔助伺服器。

Mobility Services Engines

Services > **Mobility Services Engines**

☐	Device Name	Device Type	IP Address	Version	Reachability Status	Secondary Server
☐						
☐	mse3350	Cisco 3350 Mobility Services Engine	10.10.10.21	7.2.103.0	Reachable	mse3355-2

7. 對第二個主MSE重複步驟3到6。

8. 最終確定第二個主MSE的HA引數。

HA Configuration : mse3310

Services » Mobility Services Engines » System » Services High Availability » **Configure High Availability Parameters**

Configure High Availability Parameters

Primary Health Monitor IP	10.10.10.17
Secondary Device Name	mse3355-2
Secondary IP Address	10.10.10.16
Secondary Password ⓘ	•••••
Failover Type ⓘ	Manual ▾
Failback Type ⓘ	Manual ▾
Long Failover Wait ⓘ	10 seconds

Save

9. 儲存設定。

HA Configuration : mse3310
Services > Mobility Services Engines > System > Services High Availability > **Configure High Availability Parameters**

Configuration

Primary Health Monitor IP	10.10.10.17
Secondary Device Name	mse3355-2
Secondary IP Address	10.10.10.16
Secondary Password ⏀	●●●●●
Secondary Platform UDI	AIR-MSE-3355-K9:V01:KQ-
Failover Type ⏀	Manual ▼
Failback Type ⏀	Manual ▼
Long Failover Wait ⏀	10 seconds

[Save] [Delete] [Switchover]

10. 檢查每個主MSE的進度。

11. 確認主MSE和主MSE都使用輔助MSE進行設定。

12. 從NCS > Services > Mobility Services中選擇**High Availability**。
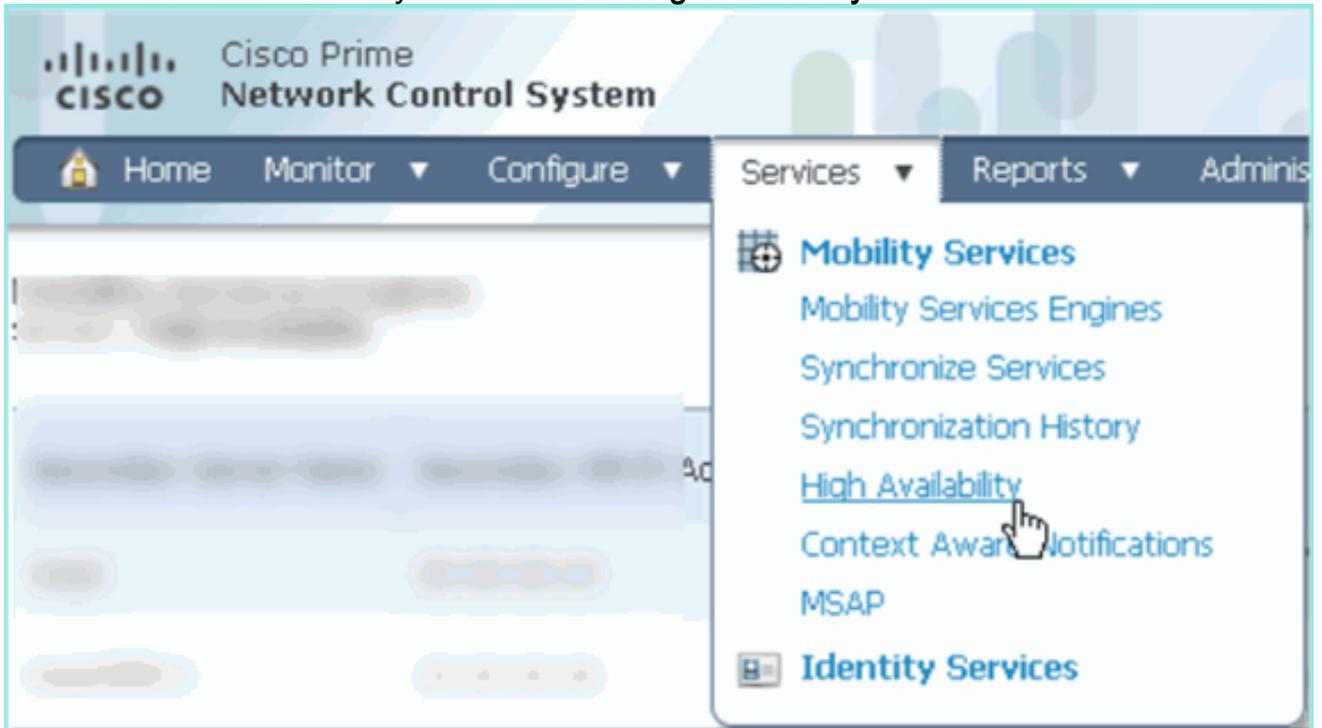
請注意，已確認MSE-3355的2:1為MSE-3310和MSE-3350的輔助路由器。

以下是使用**gethainfo**指令時，所有三個MSE的控制檯上的HA設定輸出範例：

```
[root@mse3355-2 ~]#gethainfo

Health Monitor is running. Retrieving HA related information


-----------------------------------------------------
Base high availability configuration for this server
-----------------------------------------------------

Server role: Secondary
Health Monitor IP Address: 10.10.10.16
Virtual IP Address: Not Applicable for a secondary
Version: 7.2.103.0
UDI: AIR-MSE-3355-K9:V01:KQ45xx
Number of paired peers: 2


----------------------------
Peer configuration#: 1
----------------------------

Health Monitor IP Address 10.10.10.22
Virtual IP Address: 10.10.10.21
Version: 7.2.103.0
```

```
UDI: AIR-MSE-3350-K9:V01:MXQ839xx
Failover type: Manual
Failback type: Manual
Failover wait time (seconds): 10
Instance database name: mseos3
Instance database port: 1524
Dataguard configuration name: dg_mse3
Primary database alias: mseop3s
Direct connect used: No
Heartbeat status: Up
Current state: SECONDARY_ACTIVE


----------------------------
Peer configuration#: 2
----------------------------

Health Monitor IP Address 10.10.10.17
Virtual IP Address: 10.10.10.18
Version: 7.2.103.0
UDI: AIR-MSE-3310-K9:V01:FTX140xx
Failover type: Manual
Failback type: Manual
Failover wait time (seconds): 10
Instance database name: mseos4
Instance database port: 1525
Dataguard configuration name: dg_mse4
Primary database alias: mseop4s
Direct connect used: No
Heartbeat status: Up
Current state: SECONDARY_ACTIVE
```

NCS中HA的最終驗證顯示MSE-3310和MSE-3350的狀態均完全為活動。

MSE HA的基本故障排除

新增輔助MSE時，可以看到如下提示：
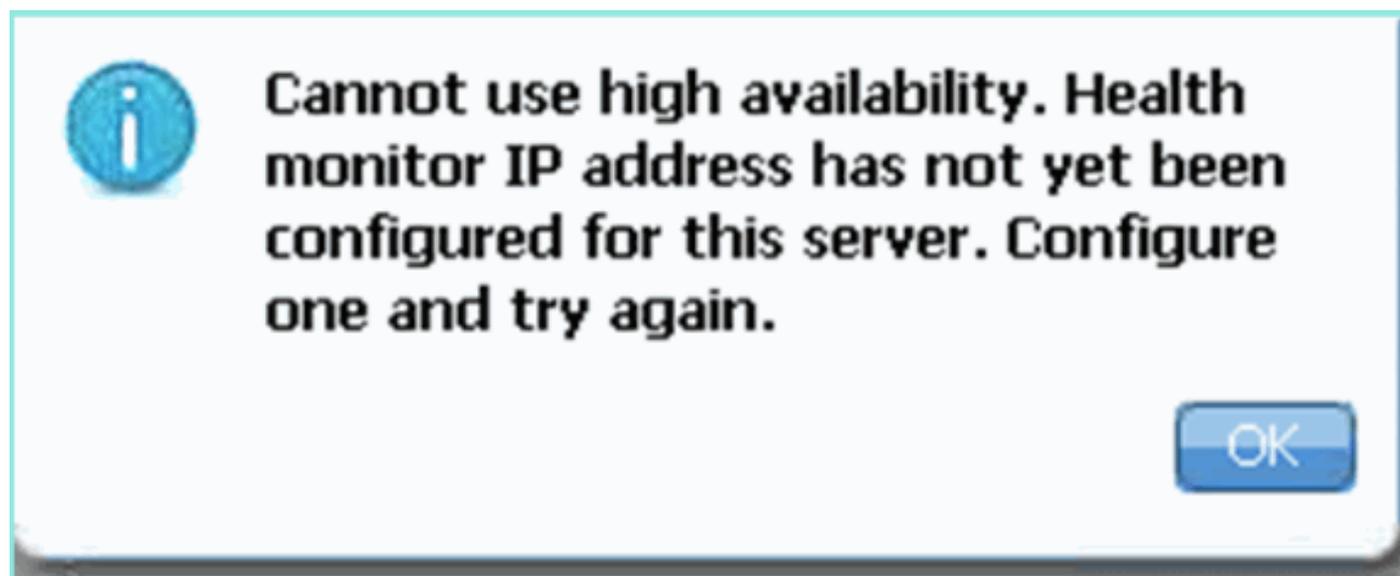
安裝指令碼期間可能存在問題。

- 運行**getserverinfo**命令檢查網路設定是否正確。
- 服務也可能尚未啟動。運行**/init.d/msed start**命令。
- 如果需要，請再次運行安裝指令碼(/mse/setup/setup.sh)，並在最後儲存。

MSE虛擬裝置還需要啟用許可證(L-MSE-7.0-K9)。 否則，NCS會在新增輔助MSE VA時提示。獲取並新增MSE VA的啟用許可證。

The page at https://10.10.10.20 says:

⚠ Secondary MSE needs to be activated with a Virtual Appliance license. Add a license and save the config.

[OK]
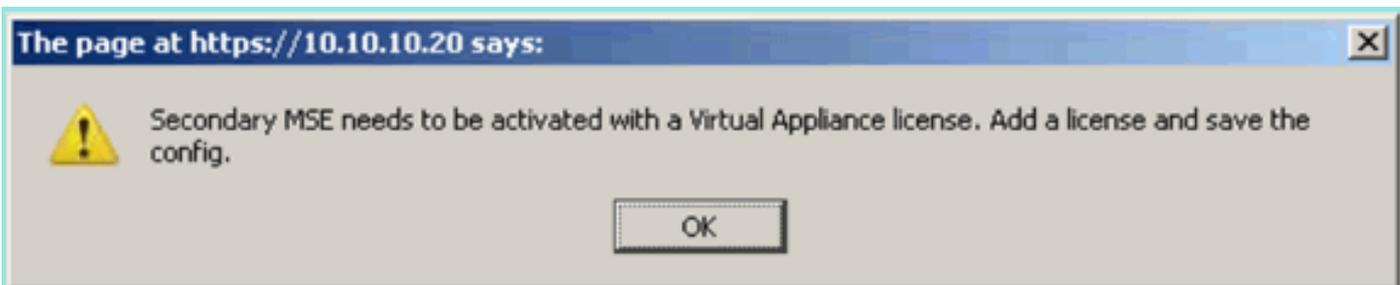
如果在MSE上交換HA角色，請確保服務已完全停止。因此，請使用**/init.d/msed stop**命令停止服務，然後再次運行安裝指令碼(/mse/setup/setup.sh)。


```
Applying High Availability configuration

*** User has switched roles for this MSE. MSE must be stopped before switching r
oles.
*** Please stop MSE and then re-run setup.sh.

ERROR: One or more of the requested configurations was not applied.

Role=2, Health Monitor Interface=eth0, Direct connect interface=none
Success
[root@mse2 setup]#
```

使用**gethainfo**命令獲取MSE上的*高可用性資訊*。這為排除或監控HA狀態和更改提供了有用的資訊。

```
[root@mse3355-2 ~]#gethainfo

Health Monitor is running. Retrieving HA related information

------------------------------------------------------
Base high availability configuration for this server
------------------------------------------------------

Server role: Secondary
Health Monitor IP Address: 10.10.10.16
Virtual IP Address: Not Applicable for a secondary
Version: 7.2.103.0
UDI: AIR-MSE-3355-K9:V01:KQ45xx
Number of paired peers: 2


----------------------------
Peer configuration#: 1
----------------------------

Health Monitor IP Address 10.10.10.22
Virtual IP Address: 10.10.10.21
Version: 7.2.103.0
UDI: AIR-MSE-3350-K9:V01:MXQ839xx
Failover type: Manual
Failback type: Manual
Failover wait time (seconds): 10
Instance database name: mseos3
Instance database port: 1524
Dataguard configuration name: dg_mse3
Primary database alias: mseop3s
Direct connect used: No
Heartbeat status: Up
Current state: SECONDARY_ACTIVE
```

```
----------------------------
Peer configuration#: 2
----------------------------

Health Monitor IP Address 10.10.10.17
Virtual IP Address: 10.10.10.18
Version: 7.2.103.0
UDI: AIR-MSE-3310-K9:V01:FTX140xx
Failover type: Manual
Failback type: Manual
Failover wait time (seconds): 10
Instance database name: mseos4
Instance database port: 1525
Dataguard configuration name: dg_mse4
Primary database alias: mseop4s
Direct connect used: No
Heartbeat status: Up
Current state: SECONDARY_ACTIVE
```

此外，NCS High Availability View是一個極好的管理工具，可用於檢視MSE的HA設定。

相關資訊

- [MSE配置指南（虛擬和物理裝置）](#)
- [MSE高可用性配置](#)
- [訂購](#)
- [技術支援與文件 - Cisco Systems](#)