

Configuración e implementación del software MSE versión 7.2 HA

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Introducción

Cisco Mobility Services Engine (MSE) Software Release 7.2 añade soporte de Alta Disponibilidad (HA) para dispositivos físicos y virtuales. Este documento proporciona pautas de configuración e implementación, así como consejos para la resolución de problemas para aquellos que agregan la alta disponibilidad de MSE y ejecutan los Servicios de identificación del contexto y/o wIPS adaptable a una WLAN de Cisco Unified. El propósito de este documento es explicar las pautas para MSE High Availability y proporcionar escenarios de implementación de HA para MSE.

Nota: Este documento no proporciona detalles de configuración para el MSE y los componentes asociados que no pertenecen a MSE HA. Esta información se proporciona en otros documentos y se proporcionan referencias. Vea la sección [Información Relacionada](#) para ver una lista de documentos sobre la configuración y el diseño de los Servicios de Movilidad con Identificación del Contexto. La configuración wIPS adaptativa tampoco se trata en este documento.

Prerequisites

Requirements

No hay requisitos específicos para este documento.

Componentes Utilizados

Este documento no tiene restricciones específicas en cuanto a versiones de software y de hardware.

Convenciones

Consulte [Convenciones de Consejos Técnicos Cisco para obtener más información sobre las convenciones del documento.](#)

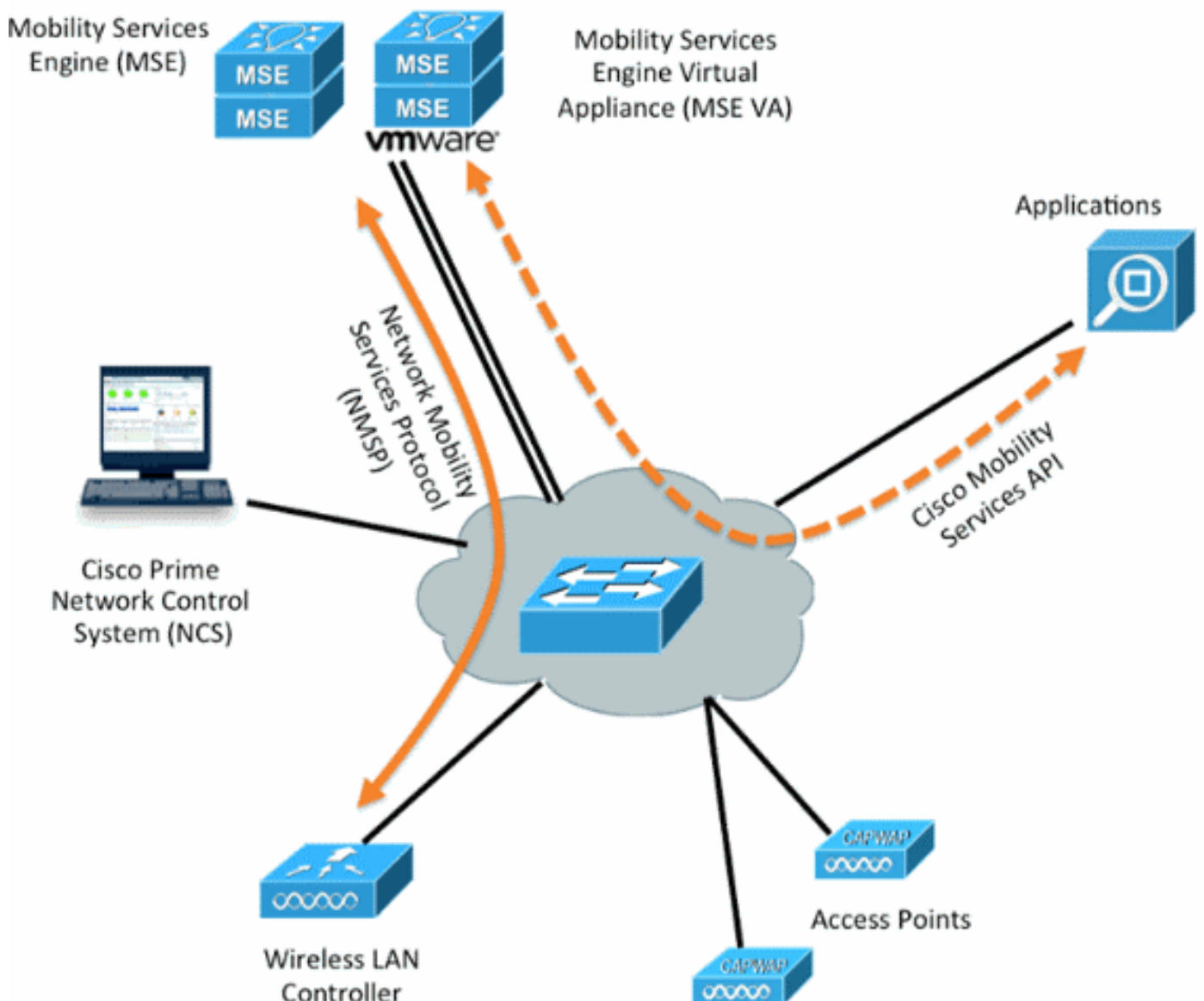
Antecedentes

MSE es una plataforma capaz de ejecutar varios servicios relacionados. Estos servicios proporcionan funcionalidad de servicio de alto nivel. Por lo tanto, la consideración de HA es fundamental para mantener la máxima confianza en el servicio.

Con HA habilitado, cada MSE activo es respaldado por otra instancia inactiva. MSE HA presenta el monitor de estado en el que configura, administra y monitorea la configuración de alta disponibilidad. Se mantiene un latido entre el MSE primario y el secundario. El monitor de estado se encarga de configurar la base de datos, la replicación de archivos y la supervisión de la aplicación. Cuando el MSE primario falla y el secundario toma el control, la dirección virtual del MSE primario se conmuta de forma transparente.

Esta configuración (consulte la [figura 1](#)) muestra una implementación típica de Cisco WLAN que incluye Cisco Mobility Services Engine (MSE) habilitado para alta disponibilidad. La compatibilidad con HA está disponible en MSE-3310, MSE-3350/3355 y Virtual Appliance en ESXi.

Figura 1. Implementación de MSE en alta disponibilidad



Pautas y limitaciones

A continuación se ofrece información sobre la arquitectura MSE HA:

- El dispositivo virtual MSE admite sólo 1:1 HA.
- Un MSE secundario puede admitir hasta dos MSE principales. Véase la matriz de emparejamiento de HA (figuras 2 y 3).
- HA es compatible con Network Connected y Direct Connected.
- Solo se admite redundancia de capa 2 de MSE. Tanto la IP del monitor de estado como la IP virtual deben estar en la misma subred y deben poder acceder a ella desde el sistema de control de red (NCS). No se admite la redundancia de capa 3.
- La IP de supervisión de estado y la IP virtual deben ser diferentes.
- Puede utilizar la conmutación por fallas manual o automática.
- Puede utilizar la conmutación por recuperación manual o automática.
- Tanto el MSE primario como el secundario deben estar en la misma versión de software.
- Otra instancia inactiva realiza una copia de seguridad de cada MSE primario activo. El MSE secundario se activa solamente después de que se inicie el procedimiento de failover.
- El procedimiento de failover puede ser manual o automático.
- Hay una instancia de software y base de datos para cada MSE principal registrado.

Figura 2 Matriz de emparejamiento de soporte de MSE HA

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

Figura 3. Matriz de emparejamiento de MSE HA N:1

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

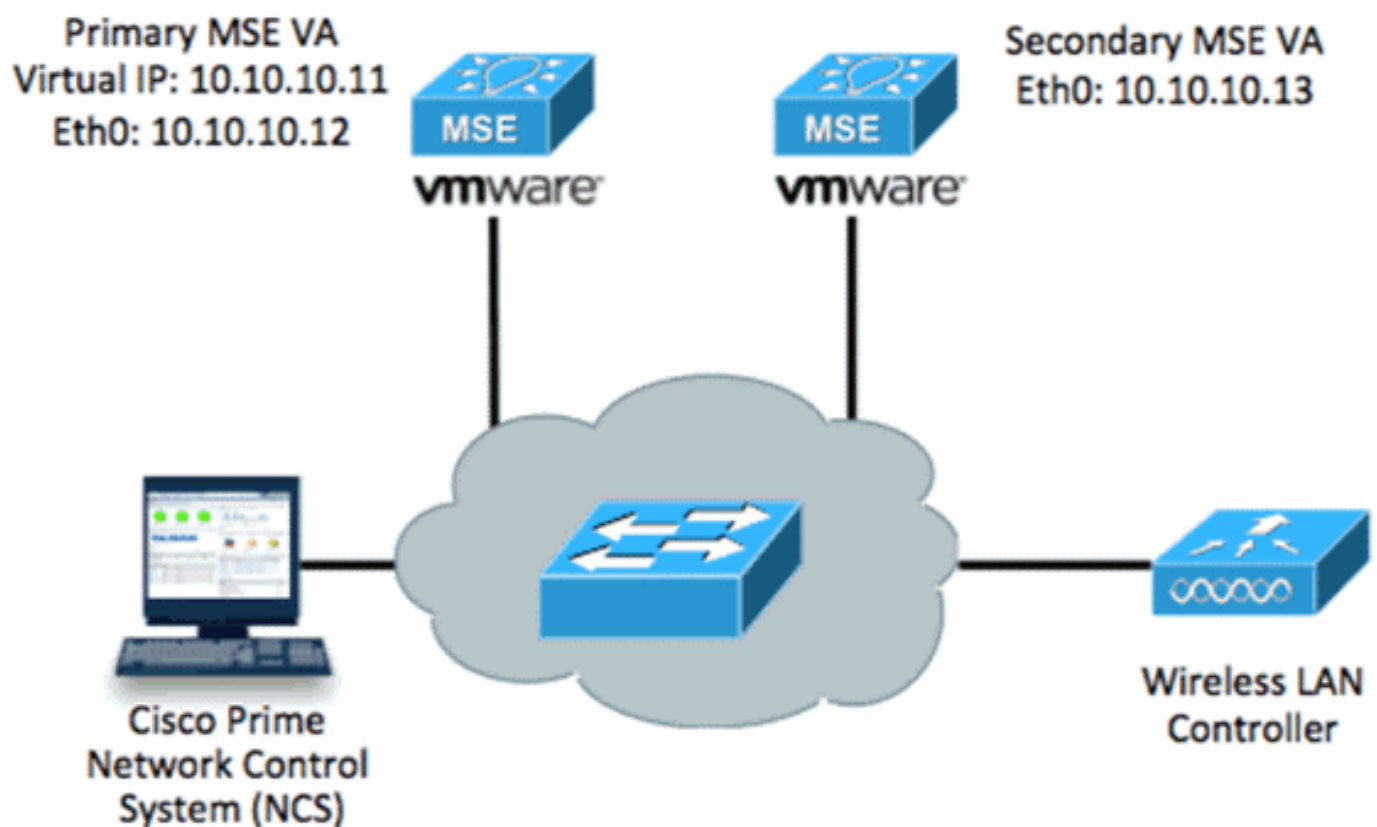
Situación de configuración de HA para el appliance virtual MSE (red conectada)

Este ejemplo muestra la configuración HA para el dispositivo virtual MSE (VA) (consulte la [figura 4](#)). Para este escenario, se configuran estos parámetros:

- VA MSE primario: IP virtual - [10.10.10.11] Interfaz de supervisión de estado (Eth0) - [10.10.10.12]
- MSE secundario VA: IP virtual - [Ninguno] Interfaz de supervisión de estado (Eth0) - [10.10.10.13]

Nota: Se requiere una licencia de activación (L-MSE-7.0-K9) por VA. Esto es necesario para la configuración HA del VA.

Figura 4 Dispositivo virtual MSE en HA



Refiérase a la [documentación de Cisco sobre el dispositivo virtual MSE](#) para obtener más información.

Estos son los pasos generales:

1. Complete la instalación VA para MSE y verifique que se cumplan todos los parámetros de red.

```
MSE1 on kft-fx
File View VM
to complete.
Preparing to install...
Extracting the JRE from the installer archive...
Unpacking the JRE...
Extracting the installation resources from the installer archive...
Configuring the installer for this system's environment...

Launching installer...

Preparing SILENT Mode Installation...

=====
Cisco Mobility Services Engine      (created with InstallAnywhere by Macrovision)
=====

Command.run(): process completed before monitors could start.

=====
Installing...
-----

[=====|=====|=====|=====]
[-----|-----|-----|-----]
```

2. Inicia el asistente de configuración al primer inicio de sesión.

```
Cisco Mobility Service Engine

mse login: root
Password:
Last login: Mon Feb 13 17:31:37 on tty1

Enter whether you would like to set up the initial
parameters manually or via the setup wizard.

Setup parameters via Setup Wizard (yes/no) [yes]: _
```

3. Introduzca las entradas necesarias (nombre de host, dominio, etc.). Introduzca Sí en el paso para configurar la alta disponibilidad.

```

Current hostname=[mse]
Configure hostname? (Y)es/(S)kip/(U)se default [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.

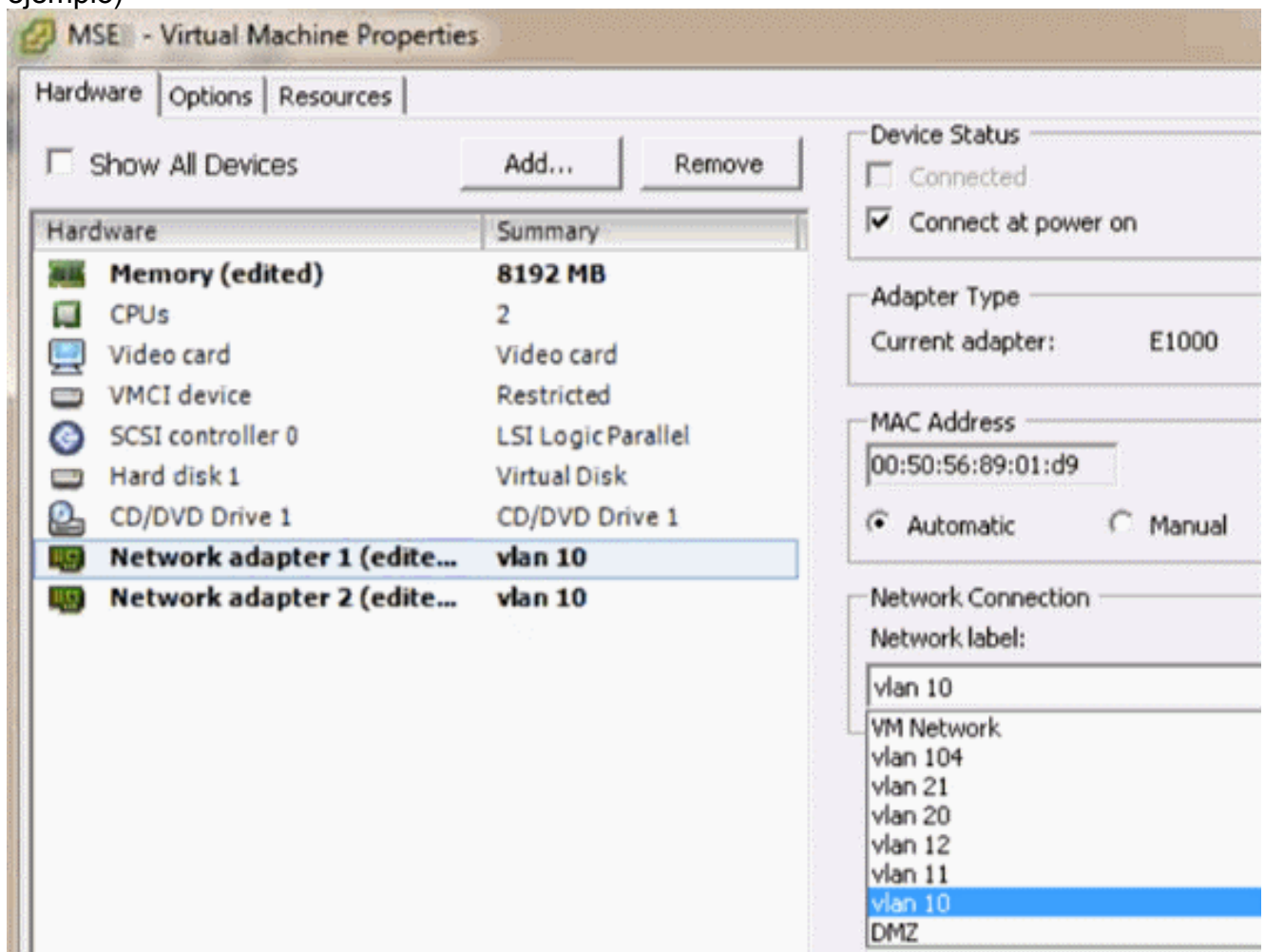
Enter a host name [mse]: mse1

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]:

```

4. Introduzca lo siguiente: Seleccione Función - [1 para Primario]. Interfaz del monitor de estado - [eth0]** Configuración de red asignada al adaptador de red 1 (consulte la captura de pantalla de ejemplo)



```

Enter a host name [mse1]: 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. Seleccione direct connect interface -
[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 between
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 should
choose 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. Introduzca lo siguiente: Dirección IP virtual - [10.10.10.11] Máscara de red -
[255.255.255.0] Iniciar MSE en modo de recuperación -
[No]

```

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 lost
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. Introduzca lo siguiente: Configurar Eth0 - [Sí] Introduzca la dirección IP Eth0 -
[10.10.10.12] Máscara de red - [255.255.255.0] Gateway predeterminado -
[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. No se utiliza la segunda interfaz Ethernet (Eth1). Configurar la interfaz eth1 - [omitir]

```

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

```

9. Continúe con el asistente de configuración. Es fundamental habilitar el servidor NTP para sincronizar el reloj. La zona horaria preferida es 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

```

Esto resume la configuración principal del dispositivo virtual MSE:

```

-----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. Introduzca [SÍ] para confirmar que toda la información de configuración es correcta.

```

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

```

11. Se recomienda reiniciar después de la

```

[root@mse1 ~]# reboot
Stopping MSE Platform

```

configuración.

12. Después de un reinicio, inicie los servicios MSE con los comandos de inicio `/etc/init.d/mseed` o `service mseed`

```

[root@mse1 ~]# getserverinfo
Health Monitor is not running
[root@mse1 ~]# /etc/init.d/mse 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. Después de que se hayan iniciado todos los servicios, confirme que los servicios MSE funcionan correctamente con el comando `getserverinfo`. El estado de la operación debe mostrar

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 ~]#

```

Estos pasos forman parte de la configuración para el VA MSE secundario:

1. Después de la nueva instalación, el inicio de sesión inicial inicia el asistente de configuración. Introduzca lo siguiente: Configurar alta disponibilidad: [S] Seleccionar rol - [2] que indica secundario Interfaz de supervisión de estado - [eth0] igual que Primaria

```

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. Introduzca lo siguiente: Conexión directa - [Ninguno] Dirección IP eth0 - [10.10.10.13] Máscara de red - [255.255.255.0] Gateway predeterminado - [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. Configurar la interfaz eth1 - [Skip]

```
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. Establecer la zona horaria - [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. Habilite el servidor NTP.

```

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. Complete los pasos restantes del asistente de configuración y confirme la información de configuración para guardar la configuración.

```

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. Reinicie e inicie los servicios del mismo modo que los pasos anteriores para el MSE primario.

```

[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) - 384 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

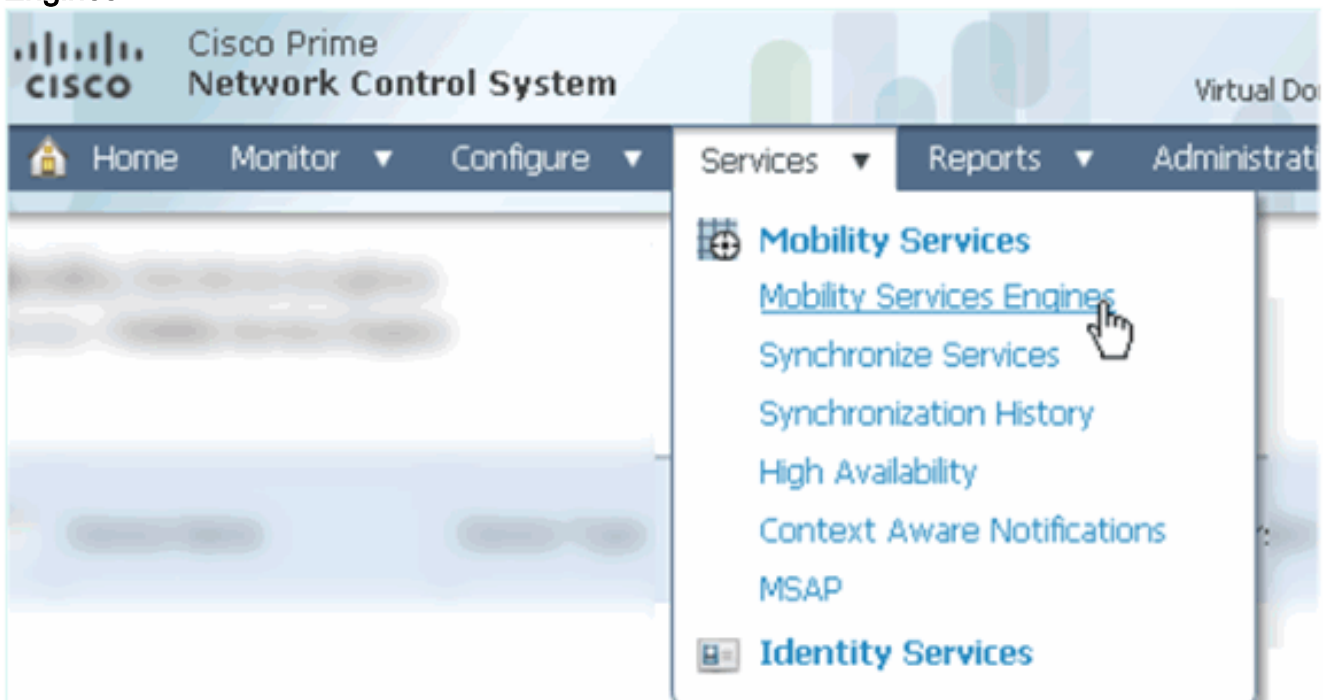
[root@mse2 ~]# _

```

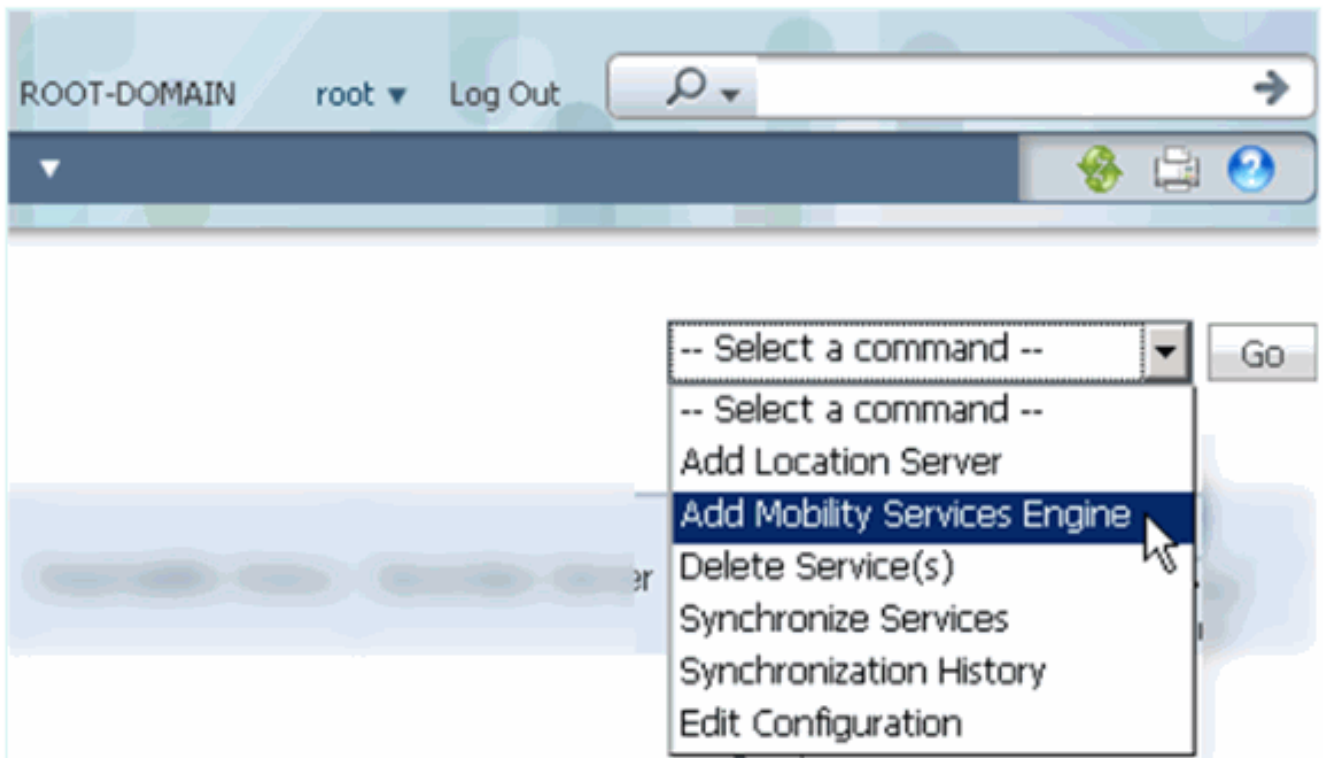
Los siguientes pasos muestran cómo agregar el VA MSE primario y secundario al NCS. Realice el proceso normal de agregar un MSE al NCS. Consulte la guía de configuración para obtener

ayuda.

1. Desde NCS, vaya a **Systems > Mobility Services** y elija **Mobility Services Engines**.



2. En la lista desplegable, elija **Add Mobility Services Engine**. A continuación, haga clic en **Ir**.



3. Siga el asistente de configuración de NCS para MSE. En el escenario de este documento, los valores son: Introduzca el nombre del dispositivo (p. ej. [MSE1] Dirección IP: [10.10.10.12} Nombre de usuario y contraseña (por configuración inicial) Haga clic en Next (Siguiente).

Cisco Prime Network Control System

Add MSE Configuration

Licensing
Select Service
Tracking
Assign Maps

Add Mobility Services Engine

Device Name: mse1
 IP Address: 10.10.10.12
 Contact Name:
 Username: admin
 Password:
 HTTP: Enable

Delete synchronized service assignments (Network designs, controllers, wired switches)
 Selecting **Delete synchronized service assignments** permanently removes all service assignments. Existing location history data is retained, however you must use manual service assignments to

4. Agregue todas las licencias disponibles y, a continuación, haga clic en **Siguiente**.

Cisco Prime Network Control System

MSE License Summary

Permanent licenses include installed license counts and in-built license counts.

MSE Name (UDI)	Service	Platform Limit	Type	Installed Limit
mse1 Activated (AIR-MSE-VA-K9:V01:mse1_d5972642-5696-11e1-bd0c				
	CAS	2000	CAS Elements	100
			wIPS Monitor Mode APs	10
	wIPS	2000	wIPS Local Mode APs	10
	MSAP	2000	Service Advertisement Clicks	1000

Add License Remove License

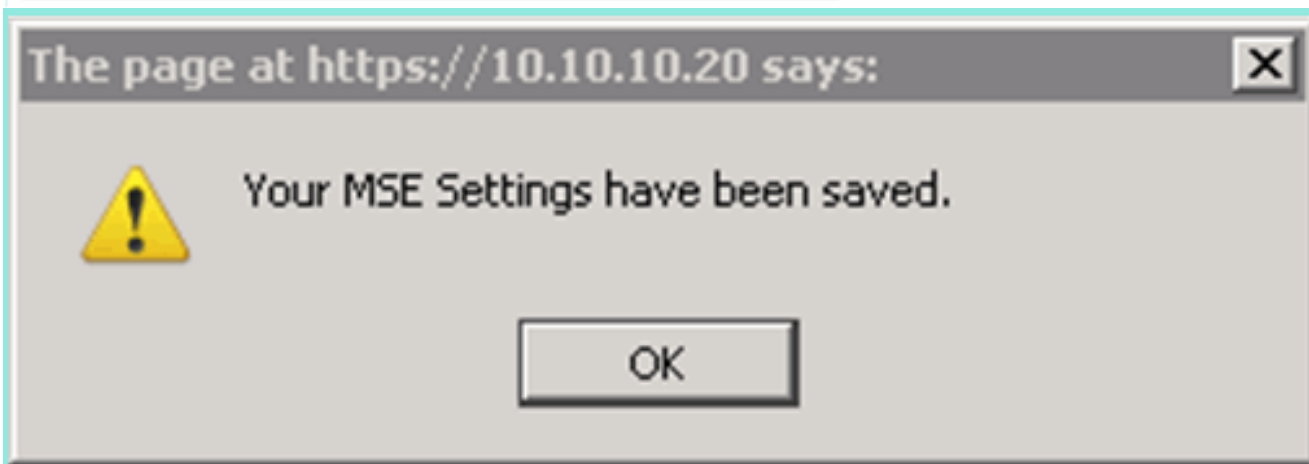
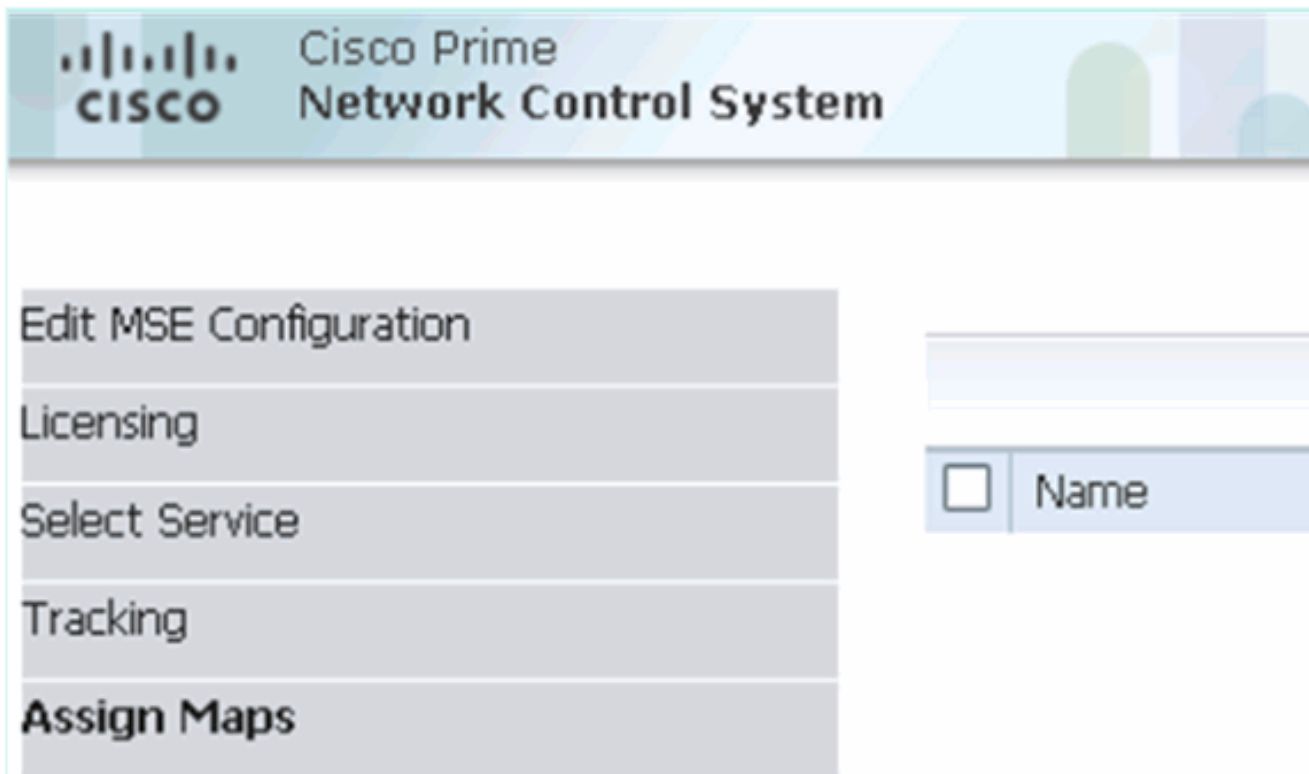
5. Seleccione servicios MSE y luego haga clic en **Next**.



6. Habilite los parámetros de seguimiento y luego haga clic en **Next**.



7. Es opcional asignar mapas y sincronizar servicios MSE. Haga clic en **Finalizado** para completar la adición de MSE a NCS.



La siguiente captura de pantalla muestra que se ha agregado el VA de MSE principal. Ahora, complete estos pasos para agregar el VA MSE secundario:

1. Busque la columna Secondary Server (Servidor secundario) y haga clic en el enlace para configurar.



2. Agregue el VA MSE secundario usando la configuración en este escenario: Nombre de dispositivo secundario - [mse2] Dirección IP secundaria - [10.10.10.13] Contraseña secundaria* - [valor predeterminado o desde el script de configuración] Tipo de conmutación por fallo* - [Automático o Manual] Tipo de reserva* Espera de conmutación por fallo larga* Click **Save**. Haga clic en el icono de información o consulte la documentación de MSE

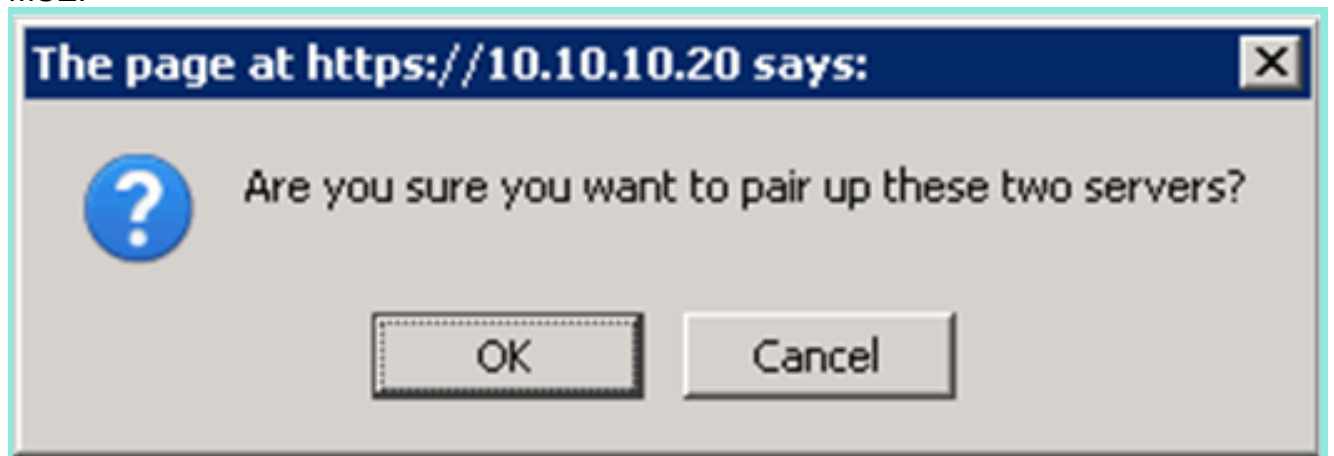
si es necesario.

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	<input type="text" value="mse2"/>
Secondary IP Address	<input type="text" value="10.10.10.13"/>
Secondary Password ⓘ	<input type="password" value="•••••"/>
Failover Type ⓘ	<input type="text" value="Automatic"/>
Failback Type ⓘ	<input type="text" value="Manual"/>
Long Failover Wait ⓘ	<input type="text" value="10"/> seconds

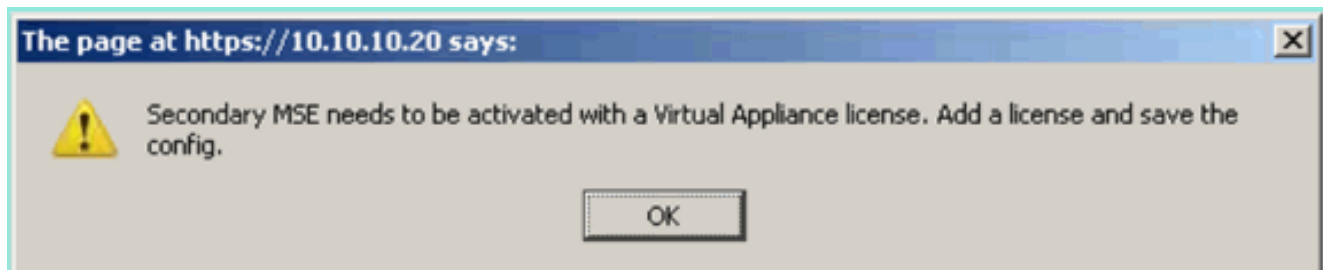
3. Haga clic en **Aceptar** cuando NCS solicite emparejar los dos MSE.



NCS tarda unos segundos en crear la configuración.



El NCS preguntará si el VA MSE secundario requiere una licencia de activación (L-MSE-7.0-K9).



- Haga clic en **Aceptar** y localice el archivo de licencia para activar el secundario.

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	<input type="text"/> <input type="button" value="Browse..."/>
Failover Type ⓘ	Automatic ▾
Failback Type ⓘ	Manual ▾
Long Failover Wait ⓘ	<input type="text" value="10"/> seconds

- Una vez que se ha activado el VA MSE secundario, haga clic en **Guardar** para completar la configuración.

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-b1b1-005
Secondary Activation Status	Activated
Delete Secondary Activation license ⓘ	<input type="checkbox"/>
Failover Type ⓘ	Automatic ▾
Fallback Type ⓘ	Manual ▾
Long Failover Wait ⓘ	10 seconds

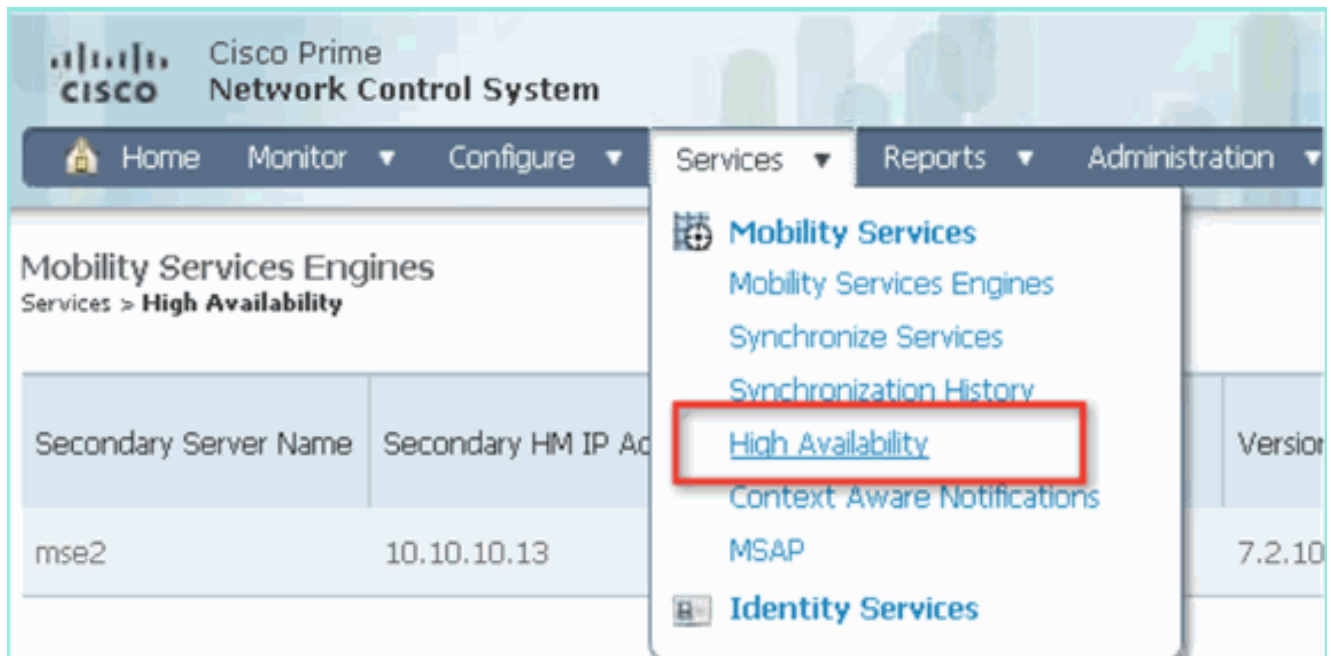
6. Vaya a **NCS > Mobility Services > Mobility Services Engine**. NCS muestra esta pantalla donde aparece el MSE secundario en la columna para el servidor secundario:

Mobility Services Engines
Service > Mobility Services Engines

-- Select a command --

Device Name	Device Type	IP Address	Version	Reachability Status	Secondary Server	Mobility Service		
						Name	Admin Status	Service Status
<input type="checkbox"/> mse1	Cisco Mobility Services Engine - Virtual Appliance	10.10.10.11	7.2.103.0	Reachable	mse2	Context Aware Service	Enabled	Up
						WIPS Service	Disabled	Down
						MSAP Service	Disabled	Down

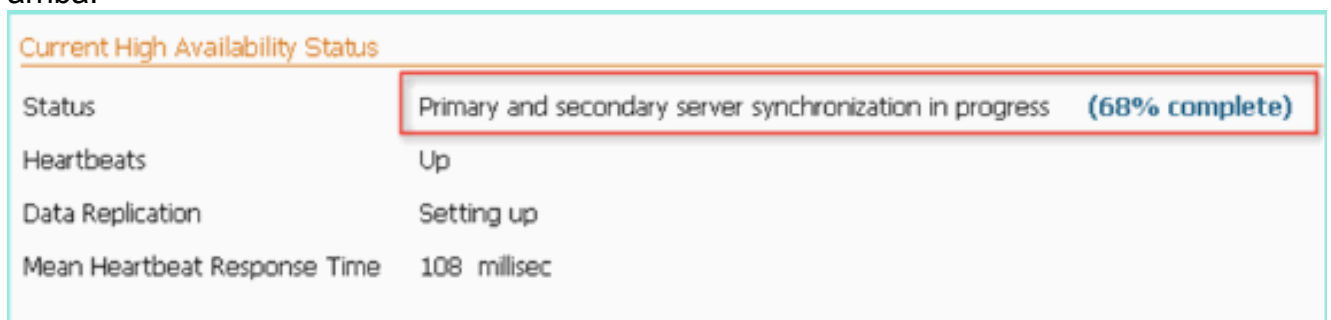
7. Para ver el estado de alta disponibilidad, navegue hasta **NCS > Services > High Availability**.



En el estado HA, puede ver el estado actual y los eventos del par MSE.



La sincronización inicial y la replicación de datos pueden tardar unos minutos en configurarse. El NCS proporciona la indicación % de progreso hasta que el par HA esté completamente activo como se muestra arriba.



Un nuevo comando introducido con la versión 7.2 del software MSE relacionada con HA es **gethainfo**. Este resultado muestra el primario y el secundario:

```
[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  
-----
```

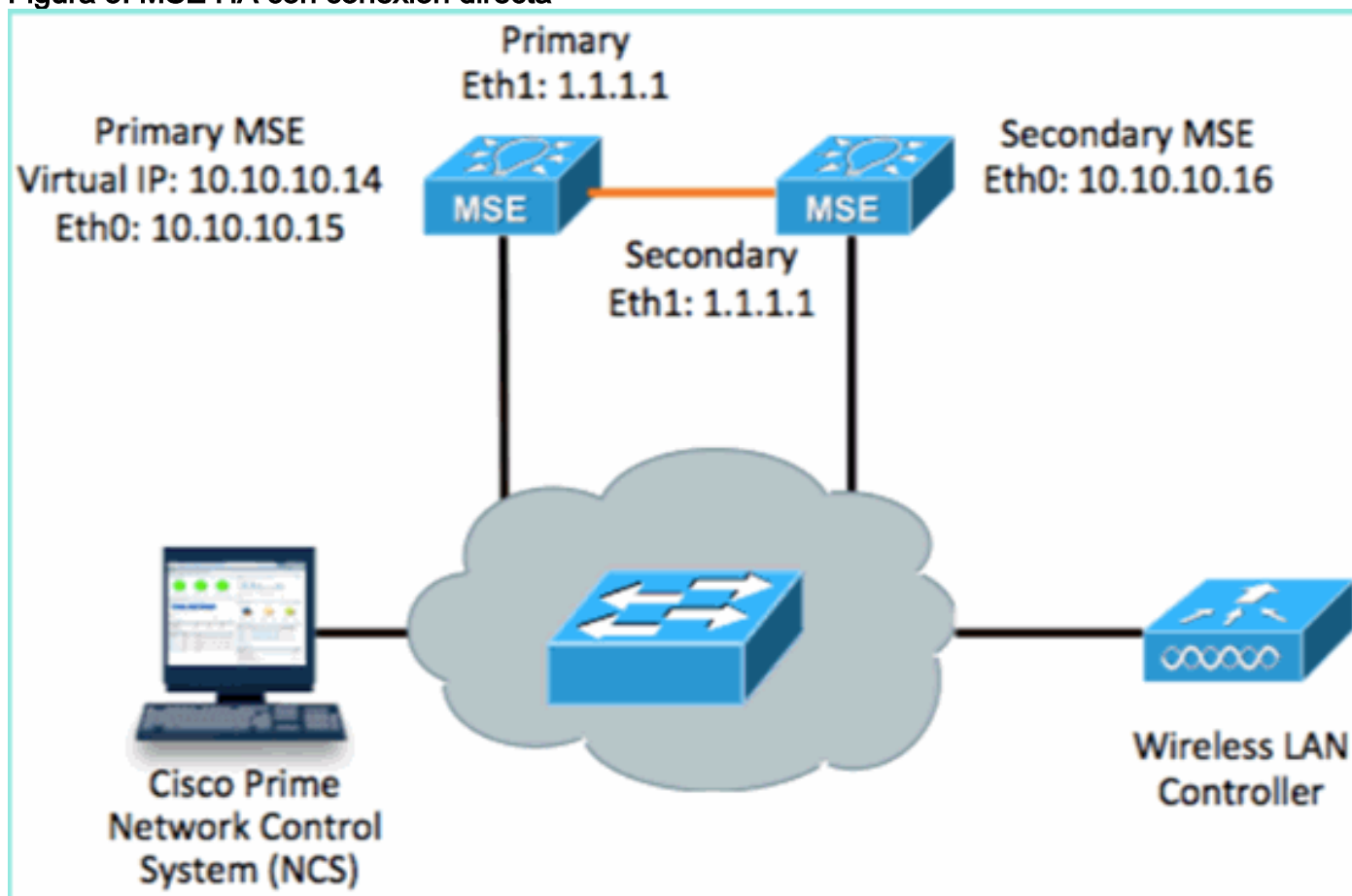
```
Health Monitor IP Address 10.10.10.12  
Virtual IP Address: 10.10.10.11  
Version: 7.2.103.0  
UDI: AIR-MSE-VA-K9:V01:mse1_d5972642-5696-11e1-bd0c-0050568901d6  
Failover type: Manual  
Failback type: Manual  
Failover wait time (seconds): 10  
Instance database name: mseos3  
Instance database port: 1524  
Dataguard configuration name: dg_mse3
```

Primary database alias: mseop3s
Direct connect used: No
Heartbeat status: Up
Current state: SECONDARY_ACTIVE

Configuración de HA con conexión directa

Network Connected MSE HA utiliza la red, mientras que la configuración de Direct Connect facilita el uso de una conexión de cable directa entre los servidores MSE primario y secundario. Esto puede ayudar a reducir las latencias en los tiempos de respuesta del latido, la replicación de datos y los tiempos de detección de fallos. Para este escenario, un MSE físico primario se conecta a un MSE secundario en la interfaz eth1, como se ve en la figura 5. Tenga en cuenta que Eth1 se utiliza para la conexión directa. Se requiere una dirección IP para cada interfaz.

Figura 5: MSE HA con conexión directa



1. Configure el MSE primario. Resumen de la configuración del script de configuración:

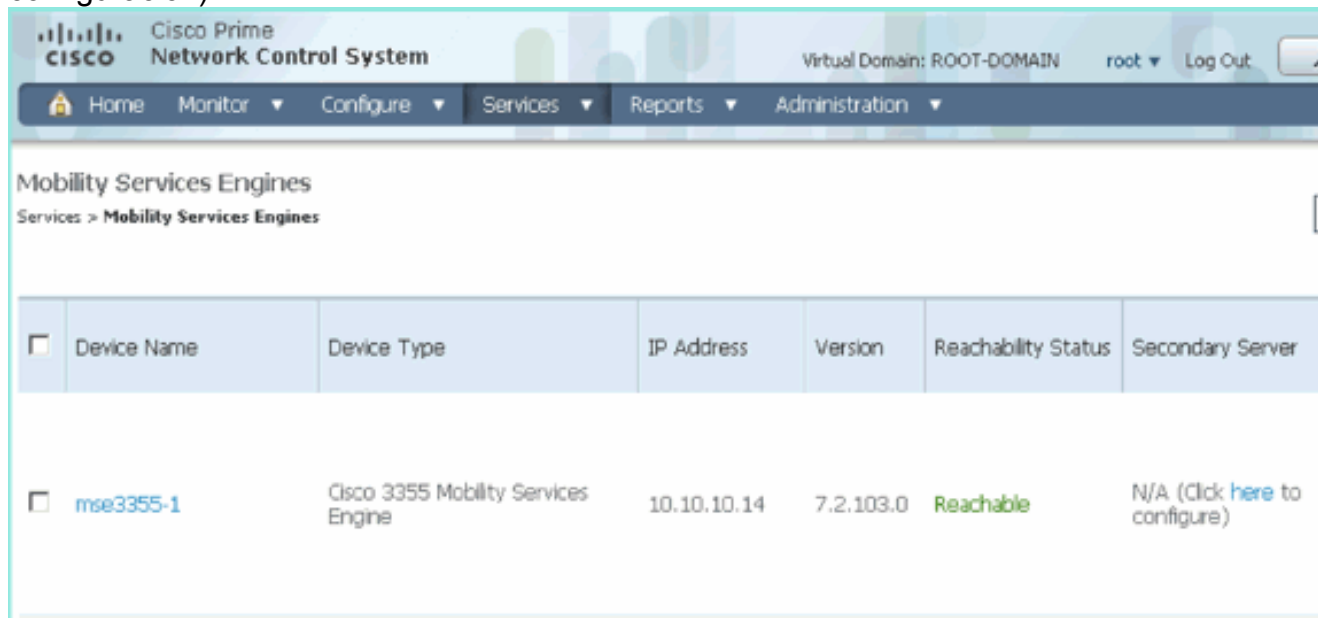
```
-----BEGIN-----  
Host name=mse3355-1  
Role=1 [Primary]  
Health Monitor Interface=eth0  
Direct connect interface=eth1  
Virtual IP Address=10.10.10.14  
Virtual IP Netmask=255.255.255.0  
Eth1 IP address=1.1.1.1  
Eth1 network mask=255.0.0.0  
Default Gateway =10.10.10.1  
-----END-----
```

2. Configure el MSE secundario. Resumen de la configuración del script de configuración:

```
-----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. Agregue el MSE principal al NCS (consulte los ejemplos anteriores o consulte la guía de configuración).



<input type="checkbox"/>	Device Name	Device Type	IP Address	Version	Reachability Status	Secondary Server
<input type="checkbox"/>	mse3355-1	Cisco 3355 Mobility Services Engine	10.10.10.14	7.2.103.0	Reachable	N/A (Click here to configure)

4. Configure el MSE secundario desde NCS > configure el servidor secundario. Introducir nombre de dispositivo secundario: [mse3355-2] Dirección IP secundaria - [10.10.10.16] Complete los parámetros restantes y haga clic en **Guardar**.

Cisco Prime Network Control System Virtual Domain: ROOT-

Home Monitor Configure Services Reports Administration

System

General Properties

Active Sessions

Trap Destinations

Advanced Parameters

Logs

Services High Availability

HA Configuration

HA Status

Accounts

Users

Groups

Status

Server Events

Audit Logs

HA Configuration : mse3355-1

Services > Mobility Services Engines > System > Services High Availability

Configure High Availability Parameters

Primary Health Monitor IP 10.10.10.15

Secondary Device Name

Secondary IP Address

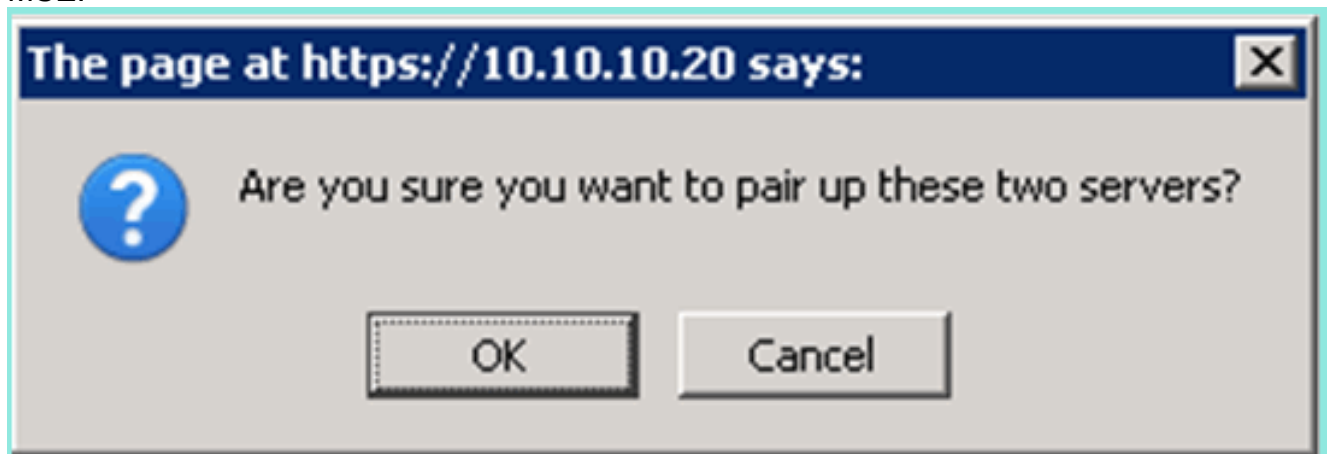
Secondary Password

Failover Type

Failback Type

Long Failover Wait seconds

5. Haga clic en **Aceptar** para confirmar el emparejamiento de los dos MSE.



NCS tarda un momento en agregar la configuración del servidor secundario.



6. Cuando haya terminado, realice cualquier cambio en los parámetros de HA. Click **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

Failback Type

Long Failover Wait seconds

7. Vea el estado HA para el progreso en tiempo real del nuevo par MSE HA.

Virtual Domain: ROOT-DOMAIN root Log Out

Home Monitor Configure Services Reports Administration

System HA Configuration : mse3355-1
Services > Mobility Services Engines > System > Services High Availability > **Current High Availability Status**

Current High Availability Status

Status Primary and secondary server synchronization in progress (66% complete)

Heartbeats Up

Data Replication Setting up

Mean Heartbeat Response Time 8 msec

Events Log

Event Description	Generated By	Timestamp	Remarks
Configuration updated	Primary	2012-Feb-15, 20:10:56 UTC	Failover mode set to AUTOMATIC.
Heartbeats have been setup successfully	Primary	2012-Feb-15, 20:10:11 UTC	-
Primary and secondary server synchronization in progress	Primary	2012-Feb-15, 20:10:09 UTC	-
Configuration successfully created	Primary	2012-Feb-15, 20:10:09 UTC	-

8. Desde NCS > Services > Mobility Services > Mobility Services Engines, confirme que el HA de MSE (conexión directa) se agrega a NCS.

The screenshot shows the Cisco Prime Network Control System interface. The top navigation bar includes Home, Monitor, Configure, Services, Reports, and Administration. The main content area is titled 'Mobility Services Engines' and displays a table with the following data:

<input type="checkbox"/>	Device Name	Device Type	IP Address	Version	Reachability Status	Secondary Server
<input type="checkbox"/>	mse3355-1	Cisco 3355 Mobility Services Engine	10.10.10.14	7.2.103.0	Reachable	mse3355-2

9. Desde la consola, también se puede ver confirmación con el comando `gethainfo.A` continuación se muestra el resultado principal y secundario:

```
[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
```

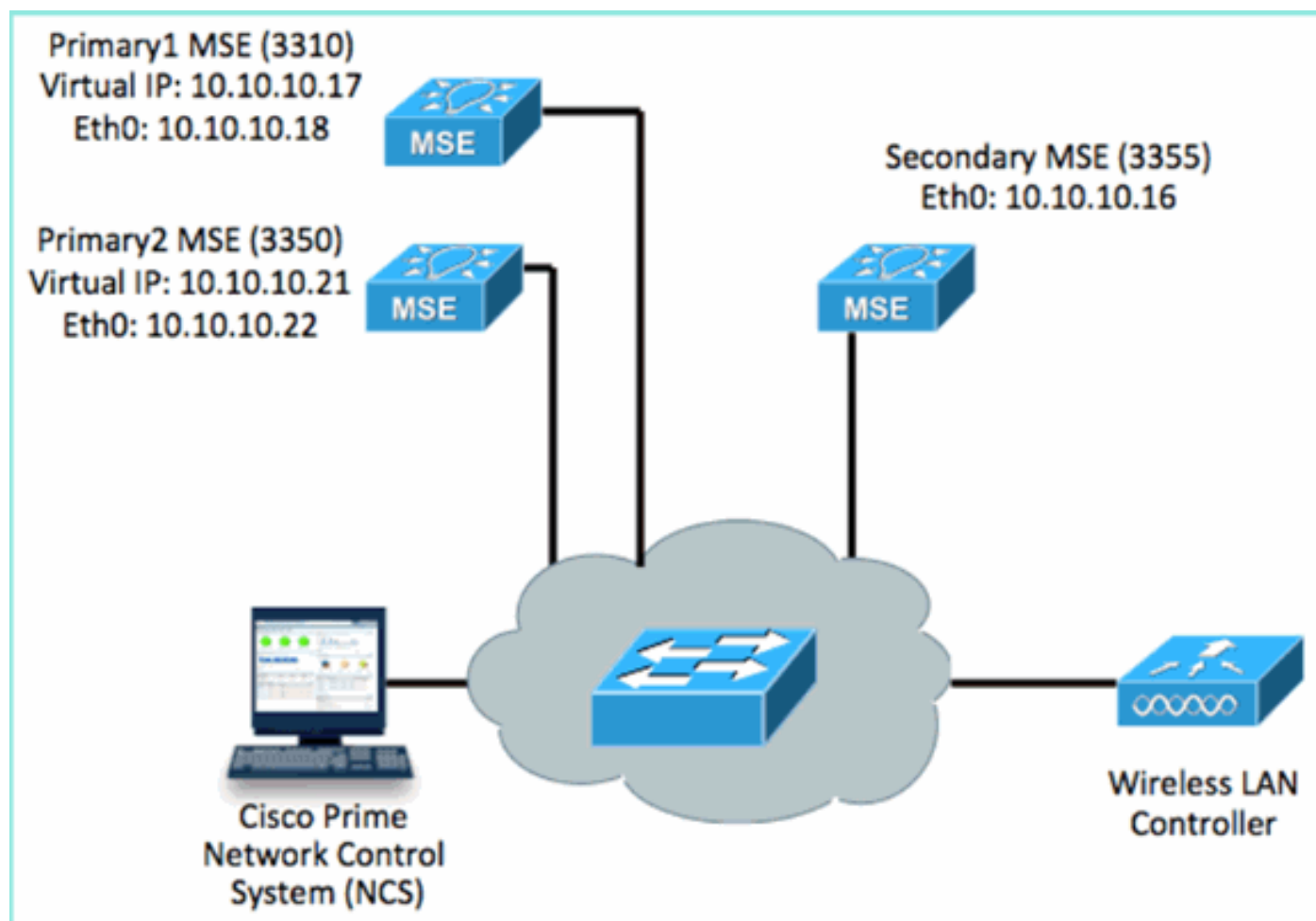
```
Health Monitor IP Address: 10.10.10.16
Virtual IP Address: Not Applicable for a secondary
Version: 7.2.103.0
UDI: AIR-MSE-3355-K9:V01:KQ45xx
Number of paired peers: 1
```

```
-----
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
```

Situación de configuración de HA para el dispositivo físico MSE

Según la matriz de emparejamiento, el máximo en la configuración HA es 2:1. Esto está reservado para el MSE-3355, que en el modo secundario, puede soportar un MSE-3310 y MSE-3350. La conexión directa no es aplicable en este escenario.



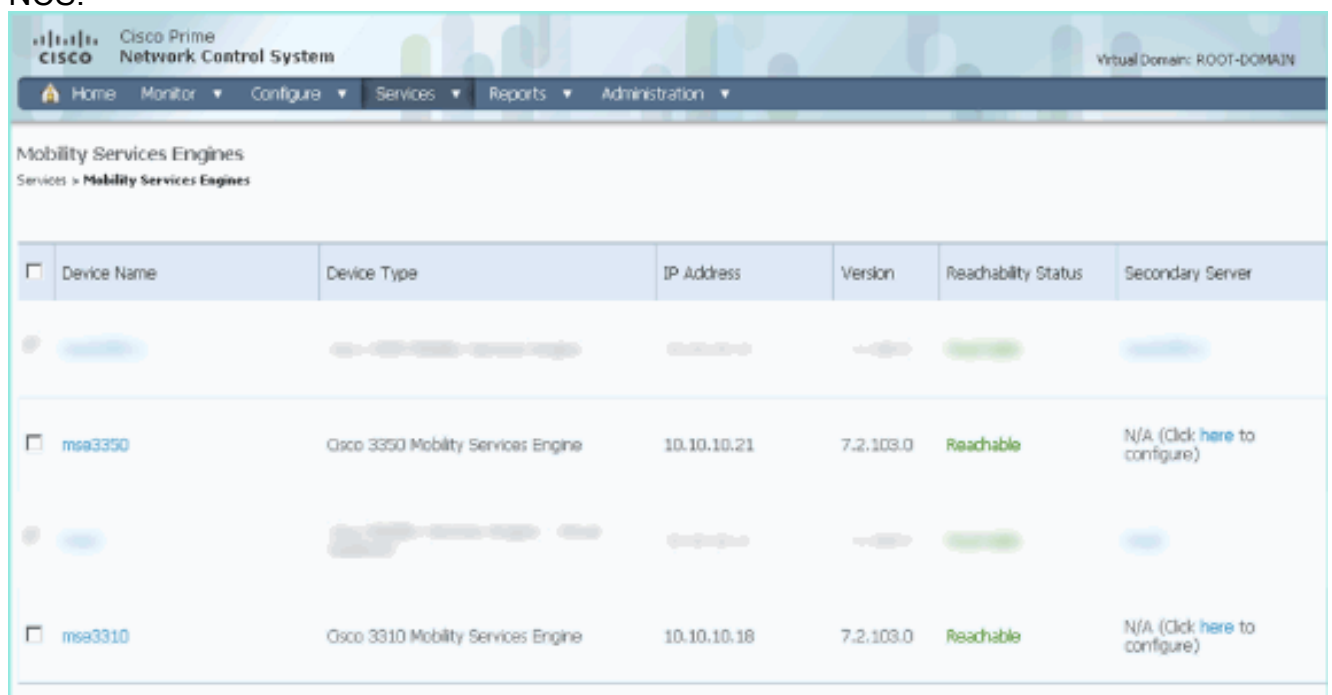
1. Configure cada uno de estos MSE para demostrar el escenario 2:1 HA:

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. Después de configurar todos los MSE, agregue Primary1 y Primary2 a NCS.



The screenshot shows the Cisco Prime Network Control System interface. The top navigation bar includes Home, Monitor, Configure, Services, Reports, and Administration. The main content area is titled "Mobility Services Engines" and displays a table of configured devices. The table has columns for Device Name, Device Type, IP Address, Version, Reachability Status, and Secondary Server. Three devices are listed: mse3310, mse3350, and mse3355. mse3310 and mse3350 are marked as "Reachable", while mse3355 is marked as "Not Reachable".

<input type="checkbox"/>	Device Name	Device Type	IP Address	Version	Reachability Status	Secondary Server
<input type="checkbox"/>	mse3310	Cisco 3310 Mobility Services Engine	10.10.10.18	7.2.103.0	Reachable	N/A (Click here to configure)
<input type="checkbox"/>	mse3350	Cisco 3350 Mobility Services Engine	10.10.10.21	7.2.103.0	Reachable	N/A (Click here to configure)
<input type="checkbox"/>	mse3355	Cisco 3355 Mobility Services Engine	10.10.10.16	7.2.103.0	Not Reachable	N/A (Click here to configure)


3. Haga clic para configurar el servidor secundario (como se muestra en ejemplos anteriores). Comience con cualquiera de los MSE principales.

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

4. Introduzca los parámetros para el MSE secundario: Nombre de dispositivo secundario: por ejemplo, [mse-3355-2] Dirección IP secundaria - [10.10.10.16] Complete los parámetros restantes. Click **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 ⓘ	<input type="password" value="•••••"/>
Secondary Platform UDI	AIR-MSE-3355-K9:V01:KQ4 
Failover Type ⓘ	<input type="text" value="Manual"/>
Failback Type ⓘ	<input type="text" value="Manual"/>
Long Failover Wait ⓘ	<input type="text" value="10"/> seconds

5. Espere un breve momento para que se configure la primera entrada secundaria.

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



6. Confirme que se agrega el servidor secundario para el primer MSE principal.

Mobility Services Engines
Services > Mobility Services Engines

<input type="checkbox"/>	Device Name	Device Type	IP Address	Version	Reachability Status	Secondary Server
<input type="checkbox"/>	mse3350	Cisco 3350 Mobility Services Engine	10.10.10.21	7.2.103.0	Reachable	mse3355-2

7. Repita los pasos 3 a 6 para el segundo MSE principal.

Mobility Services Engines
Services > Mobility Services Engines

<input type="checkbox"/>	Device Name	Device Type	IP Address	Version	Reachability Status	Secondary Server
<input type="checkbox"/>	mse3350	Cisco 3350 Mobility Services Engine	10.10.10.21	7.2.103.0	Reachable	mse3355-2
<input type="checkbox"/>	mse3310	Cisco 3310 Mobility Services Engine	10.10.10.18	7.2.103.0	Reachable	N/A (Click here to configure)

8. Finalice con parámetros HA para el segundo MSE primario.

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	<input type="text" value="mse3355-2"/>
Secondary IP Address	<input type="text" value="10.10.10.16"/>
Secondary Password ⓘ	<input type="password" value="•••••"/>
Failover Type ⓘ	<input type="text" value="Manual"/> ▼
Failback Type ⓘ	<input type="text" value="Manual"/> ▼
Long Failover Wait ⓘ	<input type="text" value="10"/> seconds

9. Guarde las configuraciones.

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 ⓘ	<input type="password" value="•••••"/>
Secondary Platform UDI	AIR-MSE-3355-K9:V01:KQ- <input type="text" value=""/>
Failover Type ⓘ	<input type="text" value="Manual"/> ▼
Failback Type ⓘ	<input type="text" value="Manual"/> ▼
Long Failover Wait ⓘ	<input type="text" value="10"/> seconds

10. Verifique el estado para el progreso de cada uno de los MSE principales.

HA Configuration : mse3310
 Services > Mobility Services Engines > System > Services High Availability > Current High Availability Status

Current High Availability Status

Status: Primary and secondary server synchronization in progress (60% complete)

Heartbeats: Up

Data Replication: Setting up

Mean Heartbeat Response Time: 8 msec

Events Log

Event Description	Generated By	Timestamp
Heartbeats have been setup successfully	Primary	2012-Feb-17, 20:54:36 UTC
Primary and secondary server synchronization in progress	Primary	2012-Feb-17, 20:54:32 UTC
Configuration successfully created	Primary	2012-Feb-17, 20:54:32 UTC

11. Confirme que los MSE Primarios1 y Primarios2 estén configurados con un MSE Secundario.

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
mse3310	Cisco 3310 Mobility Services Engine	10.10.10.10	7.2.103.0	Reachable	mse3355-2

12. En NCS > Services > Mobility Services, elija High Availability.

Cisco Prime Network Control System

Home Monitor Configure Services Reports Administration

- Mobility Services
 - Mobility Services Engines
 - Synchronize Services
 - Synchronization History
 - High Availability
 - Context Aware Notifications
 - MSAP
- Identity Services

Tenga en cuenta que 2:1 se confirma para el MSE-3355 como secundario para MSE-3310 y MSE-3350.

The screenshot shows the Cisco Prime Network Control System interface. The top navigation bar includes Home, Monitor, Configure, Services, Reports, and Administration. The main content area is titled 'Mobility Services Engines' and 'Services > High Availability'. Below this is a table with columns for Secondary Server Name, Secondary HM IP Address, Secondary Device Type, Version, and Associated Primary Mobility Service Engines (Device Name, Device Type, Heartbeats).

Secondary Server Name	Secondary HM IP Address	Secondary Device Type	Version	Associated Primary Mobility Service Engines		
				Device Name	Device Type	Heartbeats
mse3355-2	10.10.10.16	Cisco 3355 Mobility Services Engine	7.2.103.0	mse3310 mse3350	Cisco 3310 Mobility Services Engine Cisco 3350 Mobility Services Engine	Up Up

A continuación se muestra un ejemplo de salida de la configuración HA desde la consola de los tres MSE cuando se utiliza el comando **gethainfo**:

```
[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

La validación final para HA en NCS muestra el estado como activo completo tanto para MSE-3310 como para MSE-3350.

The image displays two screenshots of the Cisco Prime Network Control System (NCS) interface, showing the High Availability (HA) configuration and status for two different Mobility Services Engines (MSEs): mse3310 and mse3350.

Top Screenshot: HA Configuration : mse3310

Services > Mobility Services Engines > System > Services High Availability > Current High Availability Status

Current High Availability Status

Status	Active
Heartbeats	Up
Data Replication	Up
Mean Heartbeat Response Time	5 msec

Events Log

Event Description	Generated By
Active	Primary
Heartbeats have been setup successfully	Primary
Primary and secondary server synchronization in progress	Primary
Configuration successfully created	Primary

Bottom Screenshot: HA Configuration : mse3350

Services > Mobility Services Engines > System > Services High Availability > Current High Availability Status

Current High Availability Status

Status	Active
Heartbeats	Up
Data Replication	Up
Mean Heartbeat Response Time	4 msec

Events Log

Event Description	Generated By
Active	Primary
Heartbeats have been setup successfully	Primary
Primary and secondary server synchronization in progress	Primary
Configuration successfully created	Primary

Resolución de problemas básicos de MSE HA

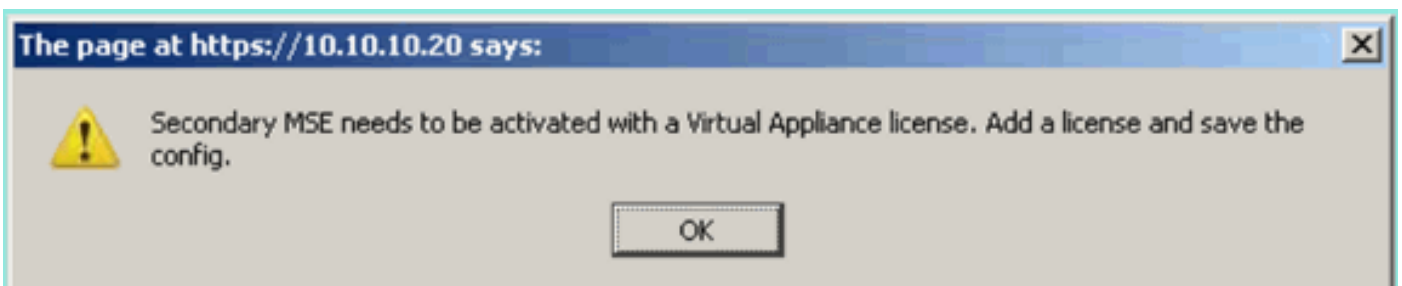
Al agregar el MSE secundario, puede ver un mensaje como este:



Es posible que se haya producido un problema durante el script de configuración.

- Ejecute el comando **getserverinfo** para verificar la configuración de red adecuada.
- También es posible que los servicios no hayan comenzado. Ejecute el comando **/init.d/mseed start**.
- Vuelva a ejecutar el script de configuración si es necesario (**/mse/setup/setup.sh**) y guárdelo al final.

El dispositivo virtual para MSE también requiere una licencia de activación (L-MSE-7.0-K9). De lo contrario, NCS solicita información al agregar el VA MSE secundario. Obtenga y agregue la licencia de activación para el VA MSE.



Si cambia el rol HA en el MSE, asegúrese de que los servicios estén completamente detenidos. Por lo tanto, detenga los servicios con el comando **/init.d/mseed stop** y, a continuación, ejecute de nuevo el script de configuración (**/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]#
```

Utilice el comando **gethainfo** para *Obtener información de alta disponibilidad* en el MSE. Esto proporciona información útil para la resolución de problemas o la supervisión del estado y los cambios de HA.

```
[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
-----
```

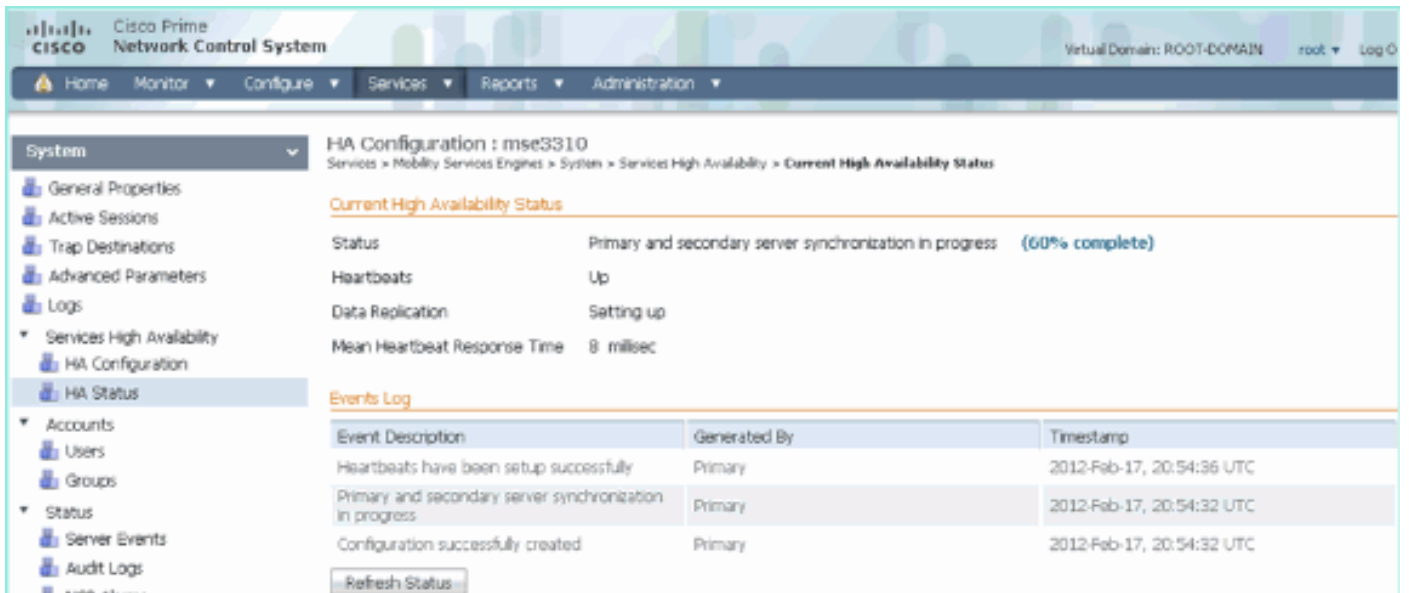
```
Health Monitor IP Address 10.10.10.22
Virtual IP Address: 10.10.10.21
Version: 7.2.103.0
UDI: AIR-MSE-3350-K9:V01:MXQ839xx
Failover type: Manual
Failback type: Manual
Failover wait time (seconds): 10
Instance database name: mseos3
Instance database port: 1524
Dataguard configuration name: dg_mse3
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

Además, la vista de alta disponibilidad de NCS es una excelente herramienta de gestión para obtener visibilidad de la configuración de HA para MSE.



The screenshot displays the Cisco Prime Network Control System (NCS) interface. The top navigation bar includes 'Home', 'Monitor', 'Configure', 'Services', 'Reports', and 'Administration'. The main content area is titled 'HA Configuration : mse3310' and shows the 'Current High Availability Status' for the system. The status is 'Primary and secondary server synchronization in progress (60% complete)'. Other details include 'Heartbeats: Up', 'Data Replication: Setting up', and 'Mean Heartbeat Response Time: 8 msec'. Below this, an 'Events Log' table provides a history of events.

Event Description	Generated By	Timestamp
Heartbeats have been setup successfully	Primary	2012-Feb-17, 20:54:36 UTC
Primary and secondary server synchronization in progress	Primary	2012-Feb-17, 20:54:32 UTC
Configuration successfully created	Primary	2012-Feb-17, 20:54:32 UTC

Información Relacionada

- [Guía de configuración de MSE \(dispositivo virtual y físico\)](#)
- [Configuración de alta disponibilidad de MSE](#)
- [Pedidos](#)
- [Soporte Técnico y Documentación - Cisco Systems](#)