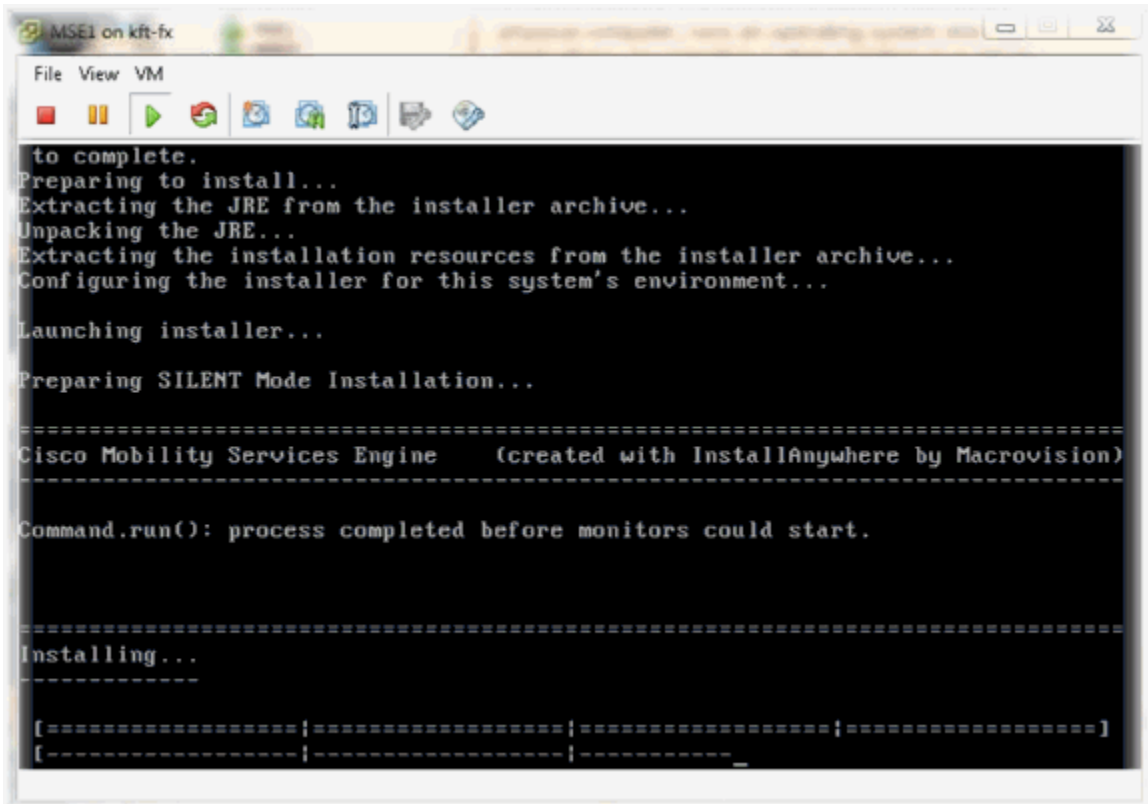# MSE HA Configuration – Prime Infrastructure 2.0

The document below is a brief description on how to configure MSE settings but is mainly focused on adding the MSE into NCS/Prime Infrastructure and forming an HA.

1. Complete the installation for MSE and verify that all network settings are met.
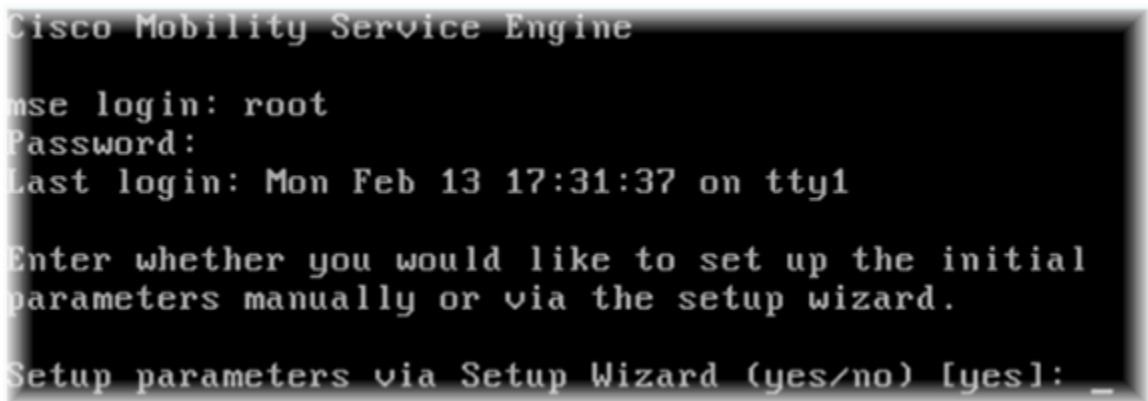
2. Initial the Setup Wizard at first login.

3. Enter the required entries (host name, domain, etc.). Enter YES at the step to Configure High Availability.

```
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. Enter the following:
   a. Select Role – [1 for Primary].
   b. Health Monitor interface – [eth0]*

```
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. Select 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 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. Enter the following:
   a. Virtual IP address – [10.10.10.11]
   b. Network Mask – [255.255.255.0]
   c. Start MSE in recovery mode – [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 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. Enter the following:
   a. Configure Eth0 - [Yes]
   b. Enter Eth0 IP address– [10.10.10.12]
   c. Network Mask – [255.255.255.0]
   d. Default Gateway – [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. The second Ethernet interface (Eth1) is not used.

   Configure eth1 interface - [skip]

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

9. Continue through the Setup Wizard.
    a. It is critical to enable the NTP server in order to synchronize the clock.
    b. The preferred time zone is 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
```

This summarizes the MSE Virtual Appliance Primary setup:

```
-------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. Enter [YES] to confirm that all setup information is correct.

```
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. A reboot is recommended after set up.

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

12. After a reboot, start the MSE services with the **/init.d/msed start** command.

```
[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. After all services have started, confirm MSE services are working properly with the
    getserverinfo command.

Operation status must show **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 ~]#
```

These steps are part of the setup for the secondary MSE VA:

1. After new install, the initial login starts the Setup Wizard. Enter the following:
    a. Configure High Availability – [Yes]
    b. Select role – [2] which indicates Secondary
    c. Health Monitor Interface – [eth0] same as Primary

```
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. Enter the following:

    a. Direct Connection – [None]
    b. IP address eth0 – [10.10.10.13]
    c. Network mask – [255.255.255.0]
    d. Default Gateway – [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. Configure eth1 interface – [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. Set the Time Zone - [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. Enable NTP server.

```
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 the remaining steps of the Setup Wizard and confirm the setup information in order to save the configuration.

```
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. Reboot and start the services the same as the previous steps for the Primary MSE.

```
[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 ~]# _
```

Perform the normal process of adding an MSE to the NCS/Prime Infrastructure Application.

1. From the Prime Infrastructure UI (Classic Theme View), go to **Systems > Mobility Services** and choose **Mobility Services Engines**.
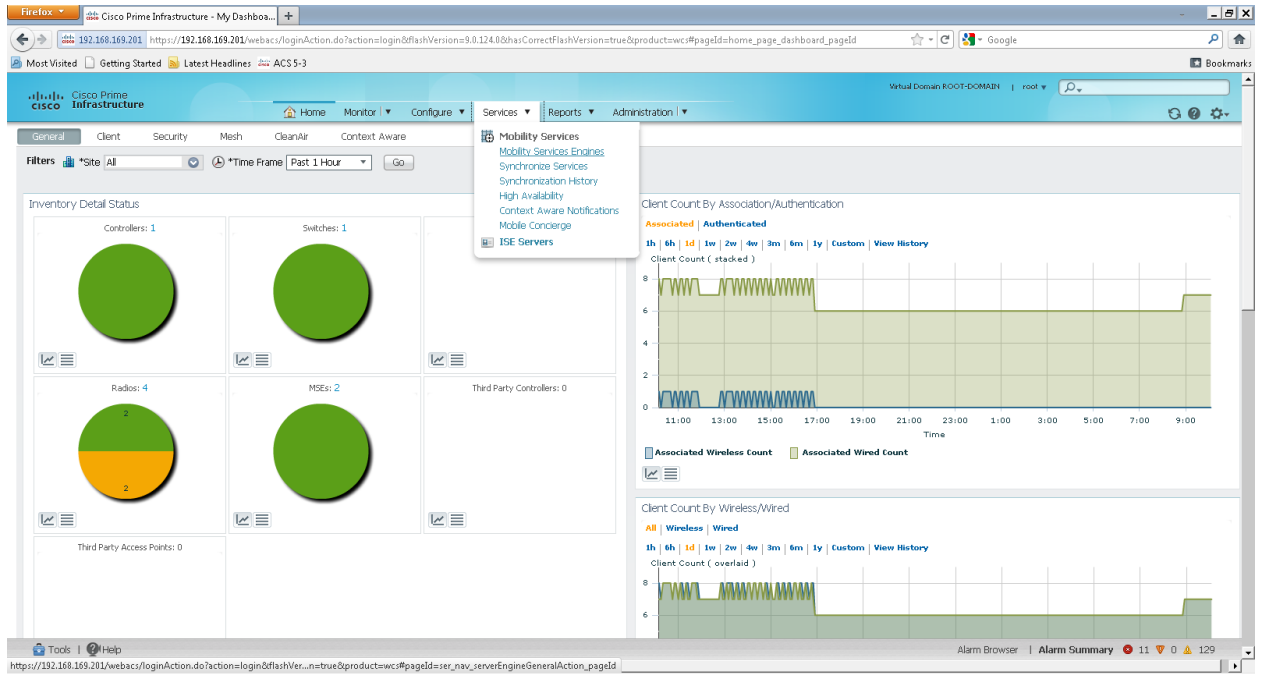
2. From the pull-down, choose **Add Mobility Services Engine**. Then, click **Go**.
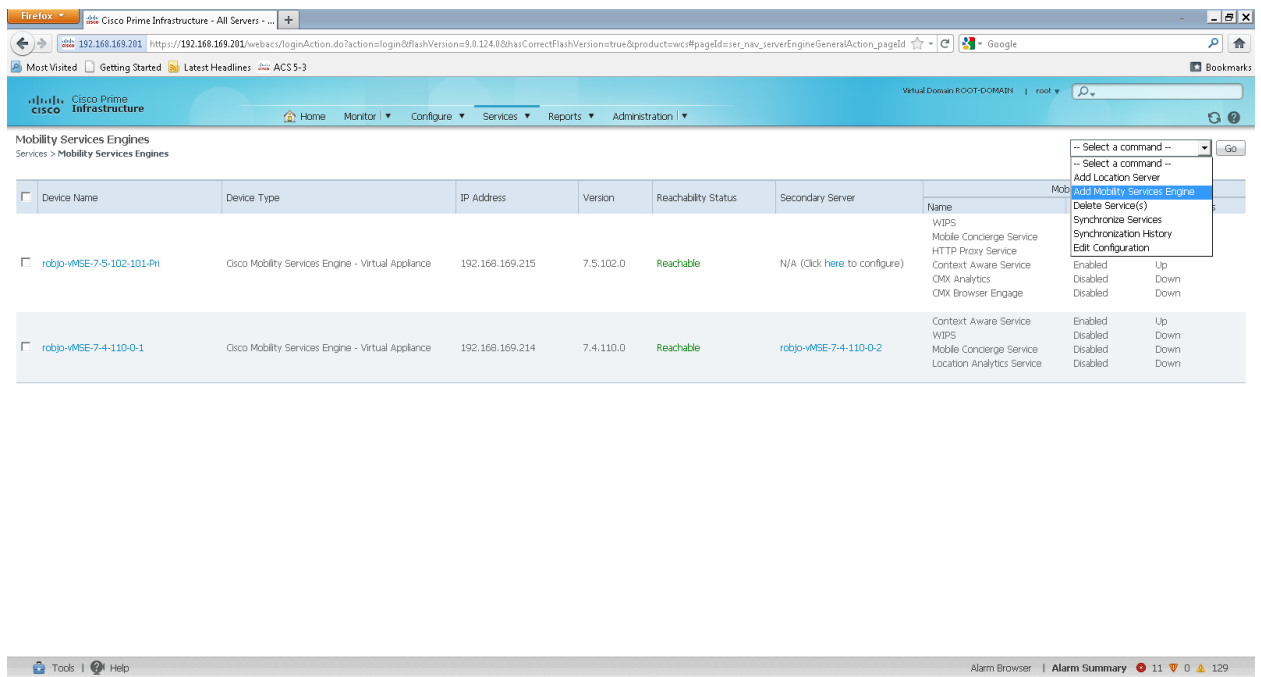
3. Follow the configuration wizard for MSE. In this document's scenario, the values are:
   a. Enter Device Name
   b. IP address – [This must be the Virtual IP address]
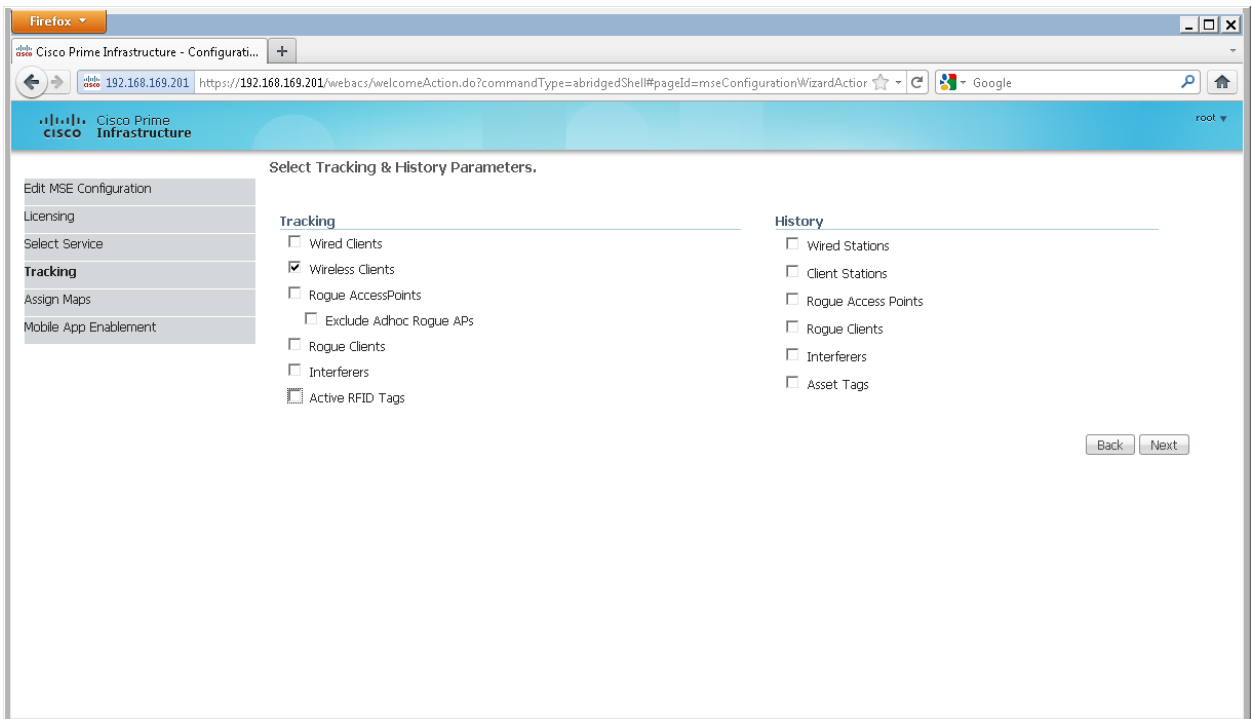   c. Username and Password (per initial setup)
   d. Click **Next**.
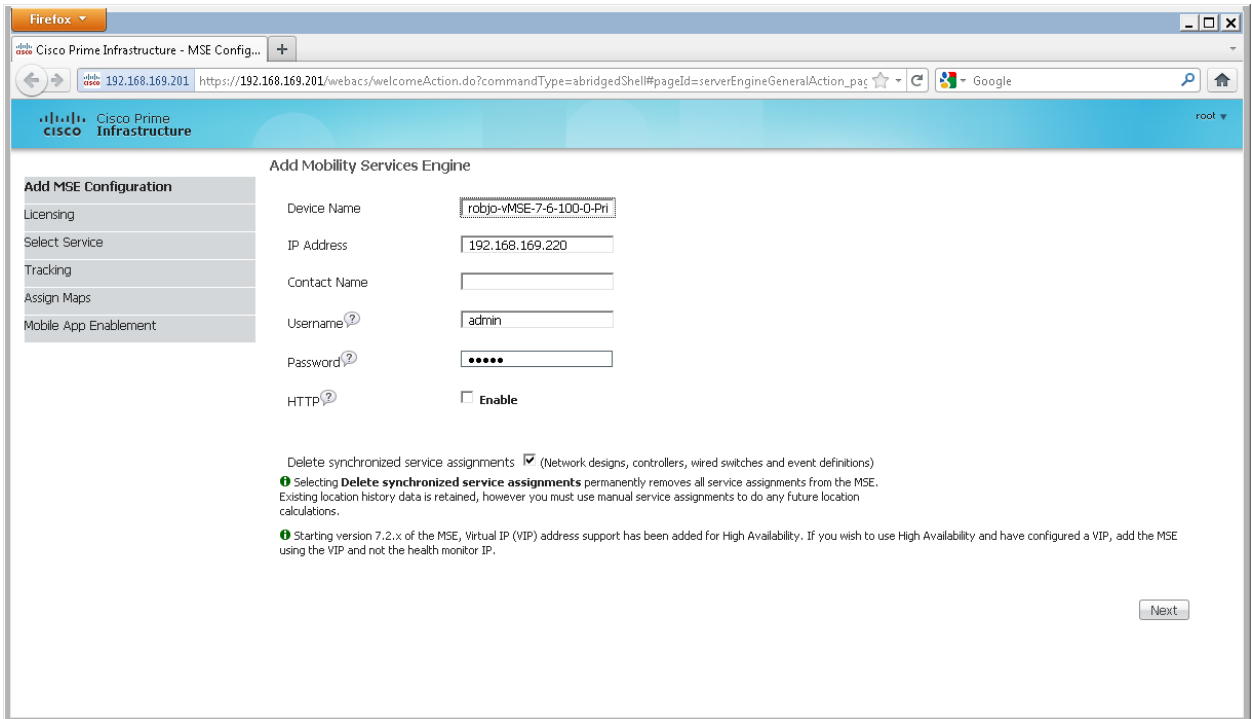
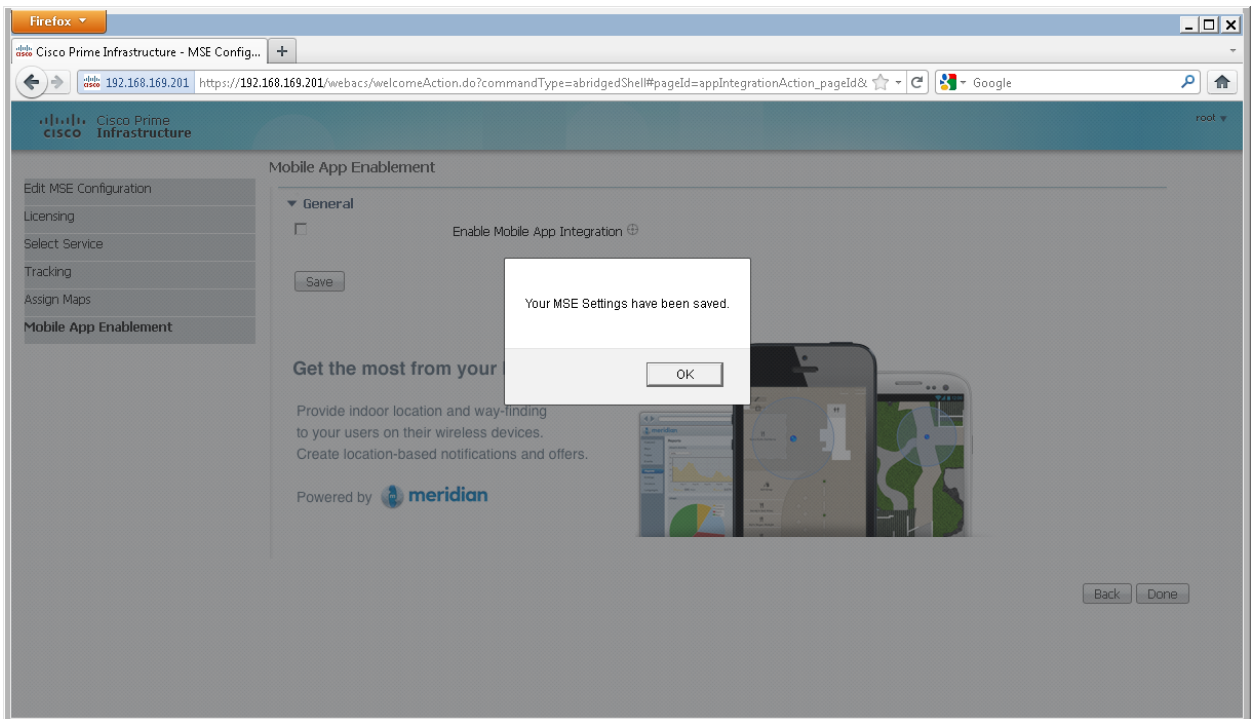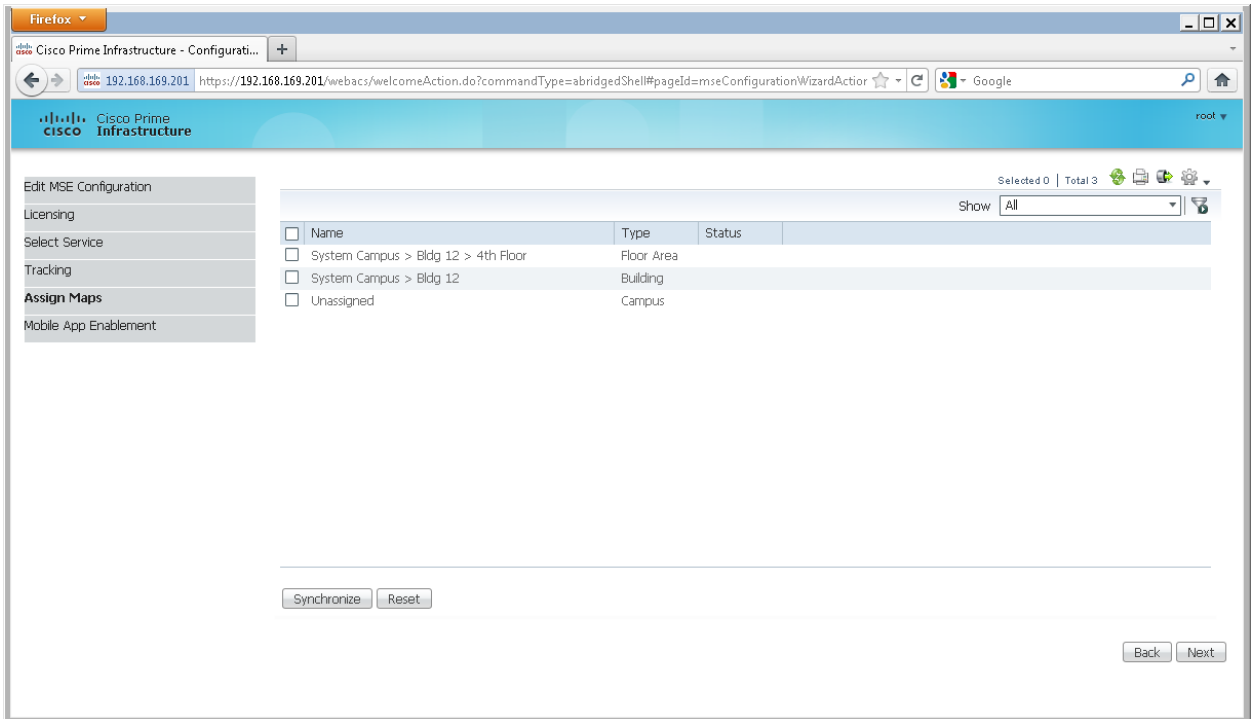4. Add all available licenses, click **Next**.
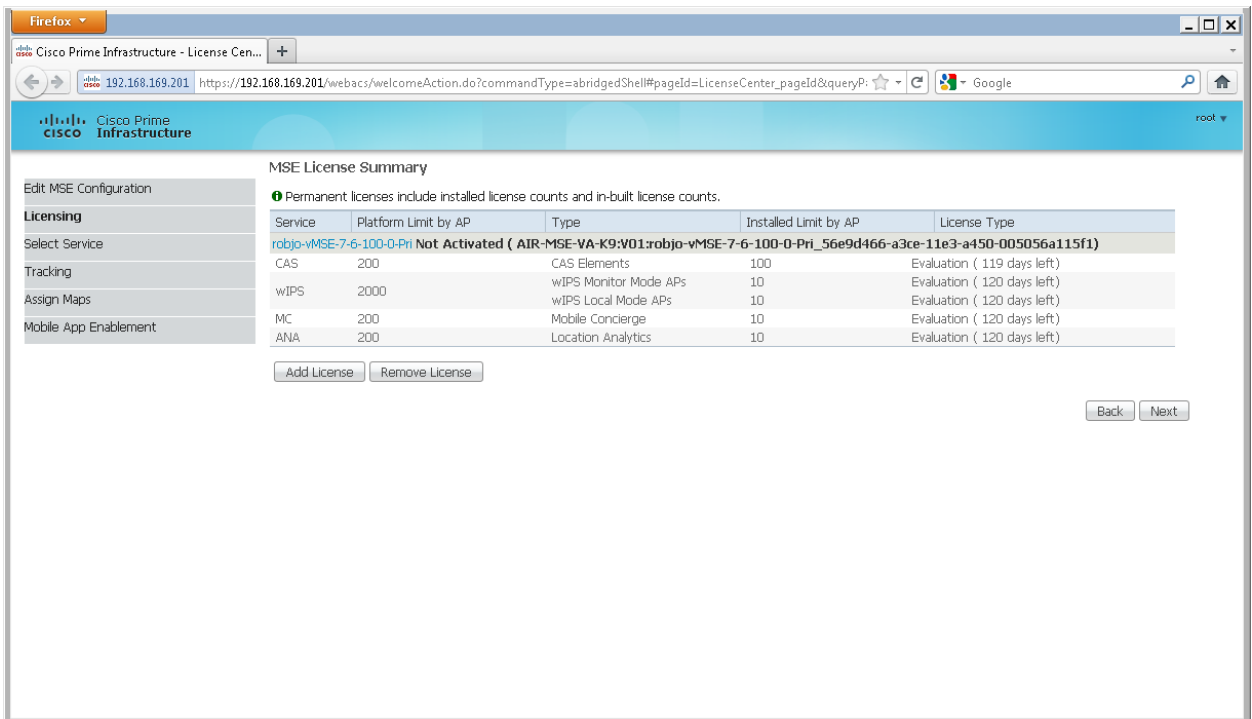
5. Select MSE services, click **Next**.
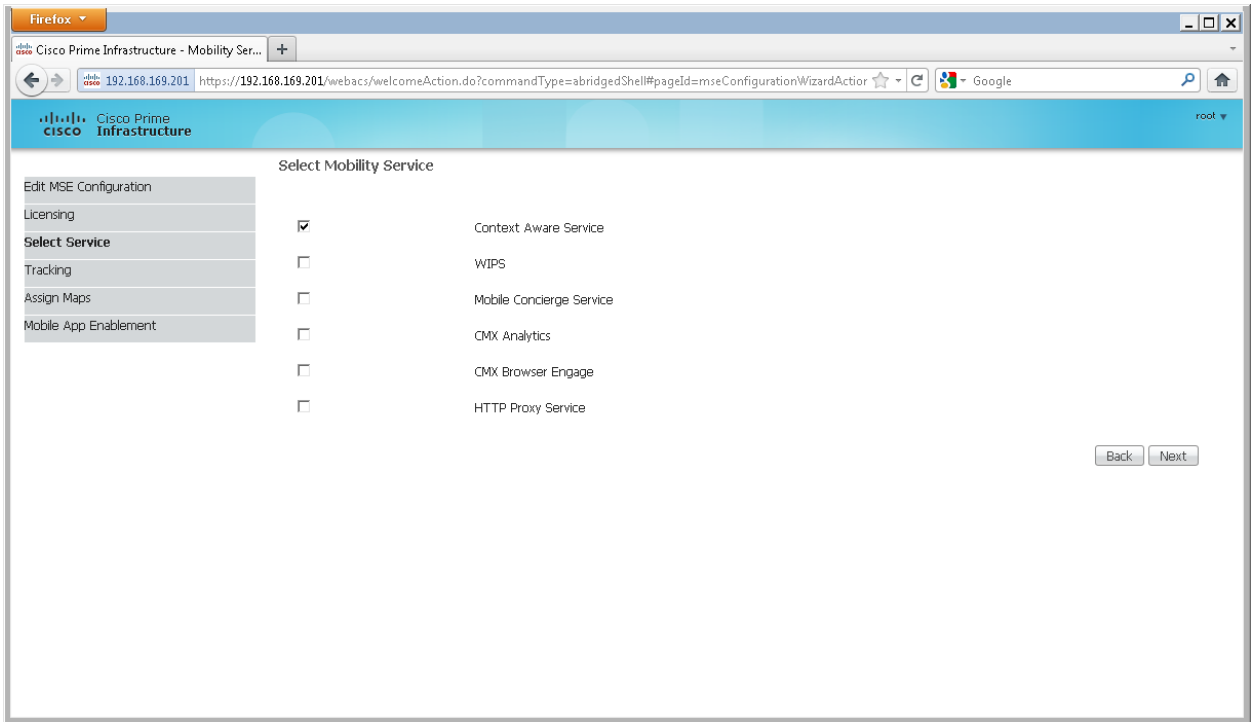
6. Enable tracking parameters, click **Next**.

7. It is optional to assign maps and synchronize MSE services. Click **Done** to complete adding the MSE to the NCS/Prime Infrastructure.

The next screenshot shows that the Primary MSE VA has been added. Now, complete these steps in order to add the Secondary MSE VA:

1. Locate the Secondary Server column, and click the link to configure.

2. Add the Secondary MSE VA using the configuration in this scenario:
    a. Secondary Device Name
    b. Secondary IP Address
    c. Secondary Password* – [default or from setup script]
    d. Failover Type* – [Automatic, or Manual]
    e. Fallback Type*
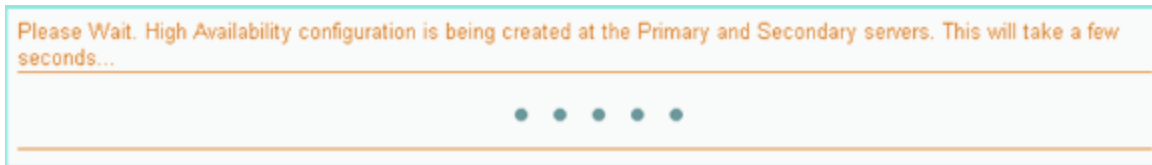   f. Long Failover Wait*
    g. Click **Save**.

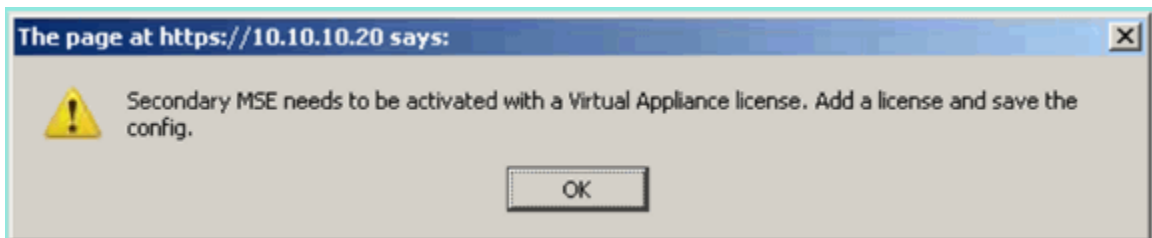   *Click the information icon or refer to MSE documentation if required.
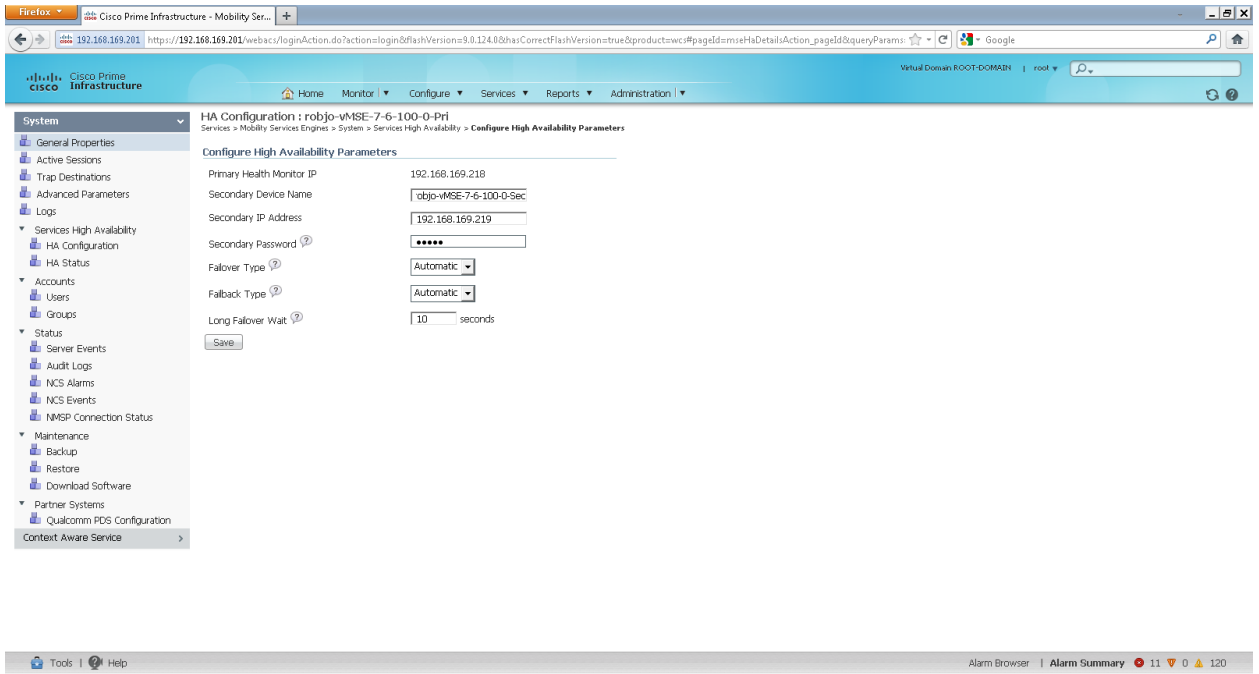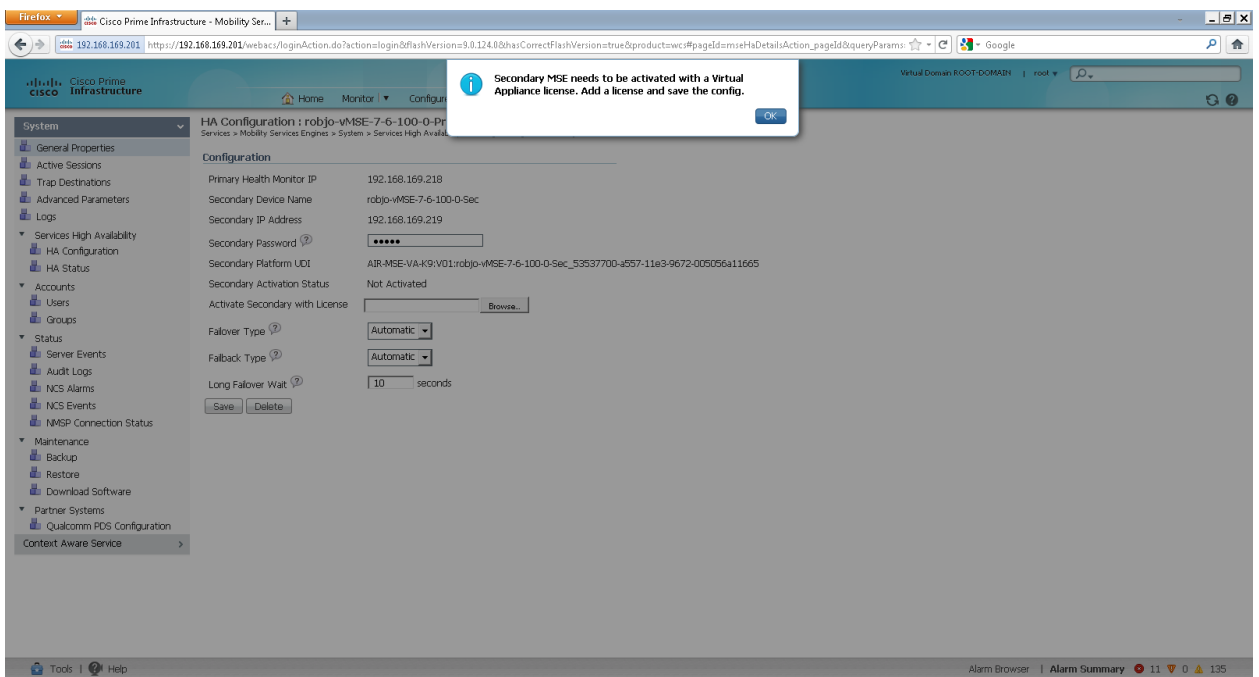
3. Click **OK** when the prompts to pair up the two MSEs.
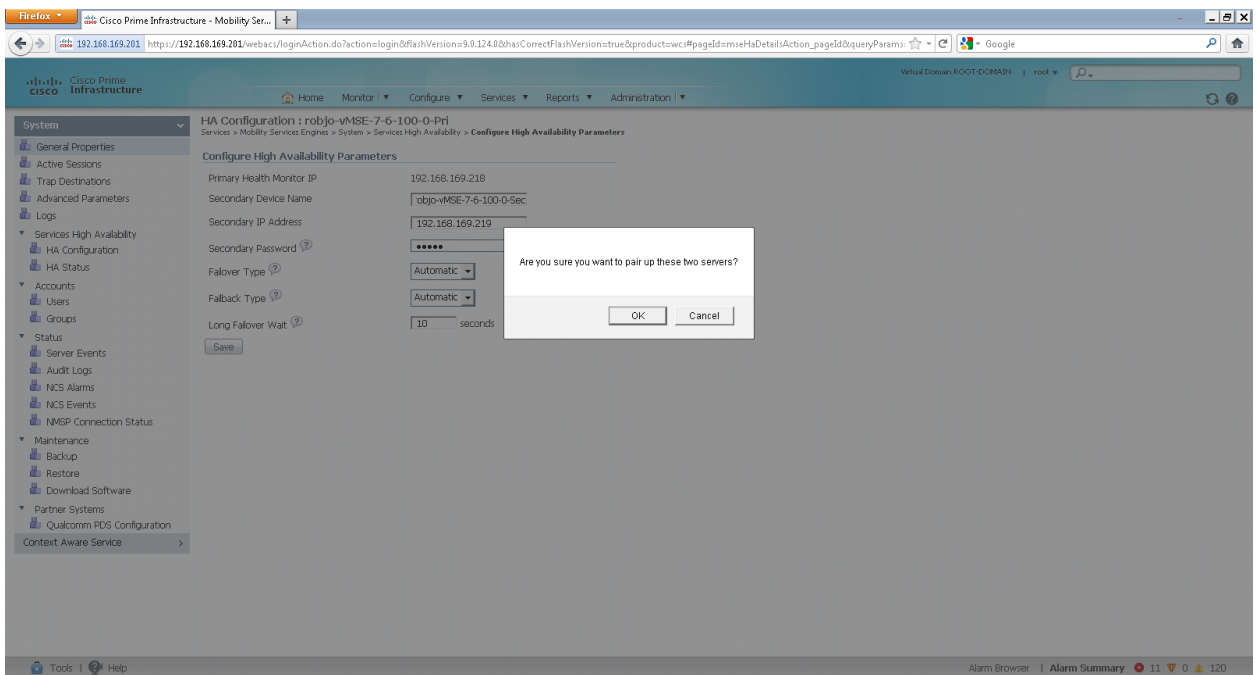
The NCS/Prime Infrastructure takes a few seconds to create the configuration.

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

● ● ● ● ●

The NCS/Prime Infrastructure will prompt if the Secondary MSE VA requires an activation license (L-MSE-7.0-K9).

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. Click **OK** and locate the License File to activate Secondary.

5. Once the Secondary MSE VA has been activated, click **OK** to complete the configuration.
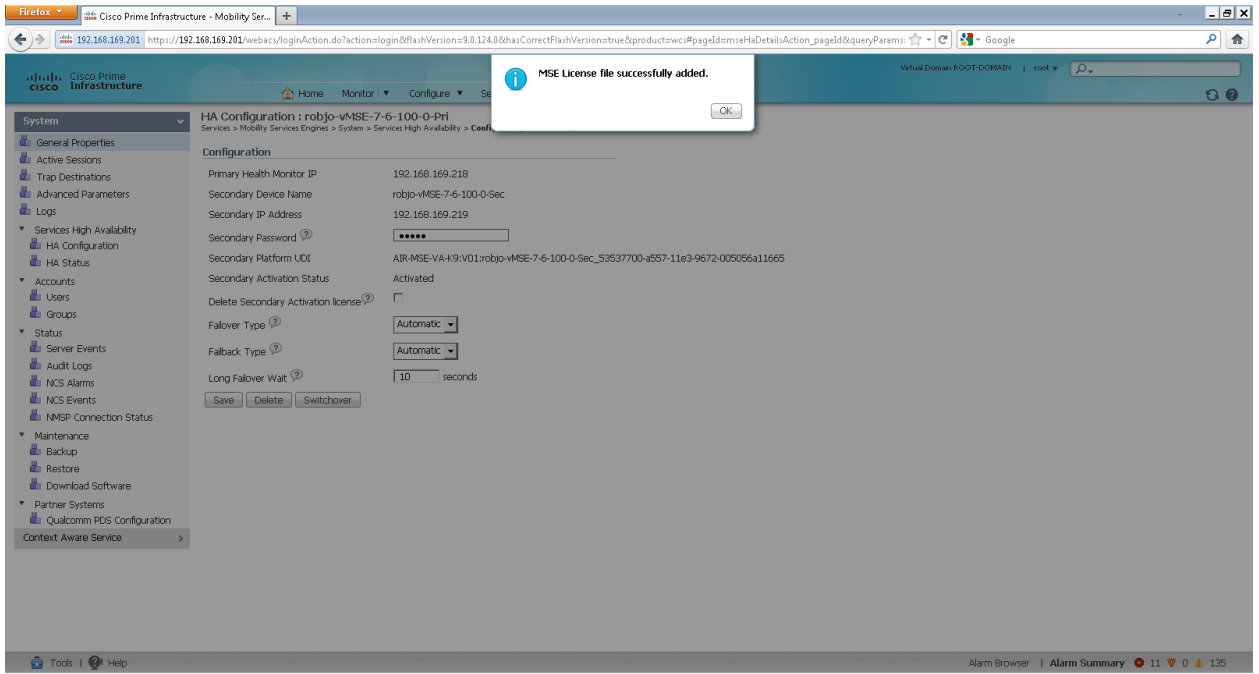
6. Click HA Status on Either MSE to see the Join status