

# Configure and Troubleshoot Device Mobility

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## Introduction

This document describes how to configure and troubleshoot Device Mobility feature.

## Prerequisites

## Requirements

Cisco recommends that you have knowledge of these topics:

- Cisco Database Layer Monitor service running on the same server as the Cisco CallManager service.
- Cisco TFTP service running on at least one server in the cluster.

## Components Used

The information in this document is based on Cisco Unified Communication Manager (CUCM) Version: 11.5.1.12018-1

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

## Background Information

Cisco device mobility is a feature, which allows CUCM to determine whether the phone is at its home location or at a roaming location. It also uses the device IP subnets to determine the exact location of the phone. By enabling device mobility within a cluster, mobile users can roam from one site to another and acquire the site-specific settings. CUCM then uses these dynamically

allocated settings for call routing, codec selection, media resource selection, and so forth.

The dynamically reconfigured location settings ensure that voice quality and allocation of resources are appropriate for the new phone location:

- When a mobile user moves to another location, Call Admission Control (CAC) can ensure video and audio quality with the appropriate bandwidth allocations.
- When a mobile user makes a PSTN call, the phone can access the local gateway instead of the home gateway.
- When a mobile user calls the home location, CUCM can assign the appropriate codec for the region.

## Configure

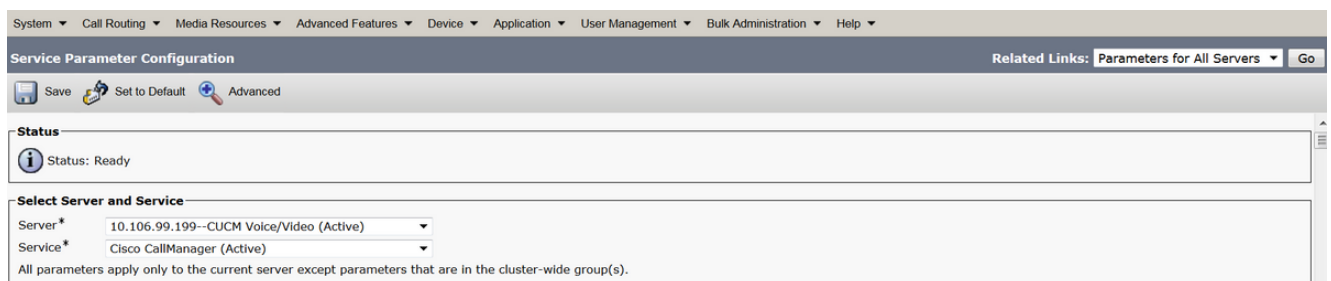
### Configurations

Follow these steps to configure Device Mobility feature.

Step 1. Enable the device mobility mode in the Service Parameter Configuration or Phone Configuration page.

#### Service Parameter Configuration

1. Navigate to **System > Service Parameters**, under Cisco Unified Communications Manager Administration.
2. From the **Server**, select the server that is running the Cisco CallManager service.
3. From the **Service**, select the **Cisco CallManager service**. The Service Parameters Configuration displays the window as shown in the image:



4. To enable the Device Mobility Mode service parameter, select **On**, as shown in the image:

Clusterwide Parameters (Device - Phone)		
<a href="#">Always Use Prime Line *</a>	False	False
<a href="#">Always Use Prime Line for Voice Message *</a>	False	False
<a href="#">Built-in Bridge Enable *</a>	Off	Off
<a href="#">Device Mobility Model *</a>	On	Off
<a href="#">Display Device Mobility Location During Phone Registration *</a>	True	True
<a href="#">Auto Answer Timer *</a>	1	1

#### Phone Configuration page

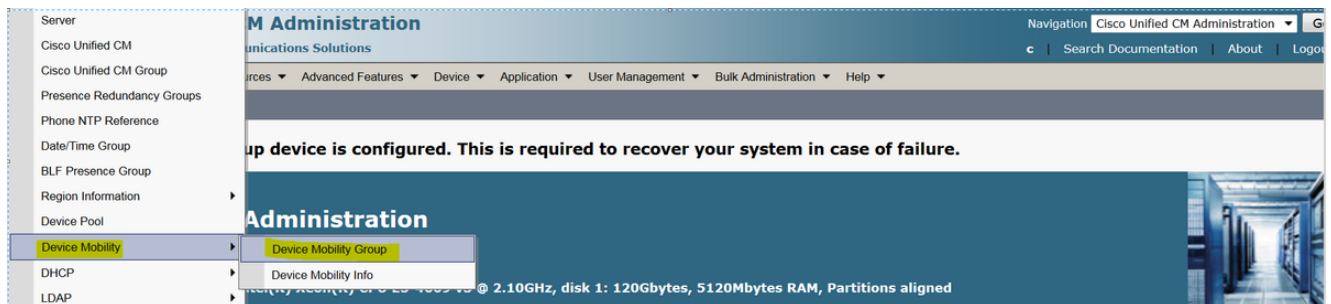
1. Navigate to **Device > Phone** under CUCM.
2. Find and select the device you with you to configure for device mobility feature.
3. From the **Device Mobility Mode**, select **On** to enable device mobility, select **Off** to disable device mobility, or **Default**, which ensures that the phone uses the configuration from the Device Mobility Mode service parameter.

✔ Device is trusted

MAC Address*	A40CC3957CC7	
Description	SEPA40CC3957CC7	
Device Pool*	Default	<a href="#">View Details</a>
Common Device Configuration	< None >	<a href="#">View Details</a>
Phone Button Template*	Standard 9951 SIP	
Softkey Template	Standard User	
Common Phone Profile*	Standard Common Phone Profile	<a href="#">View Details</a>
Calling Search Space	CSS-CUG	
AAR Calling Search Space	< None >	
Media Resource Group List	< None >	
User Hold MOH Audio Source	< None >	
Network Hold MOH Audio Source	< None >	
Location*	Hub_None	
AAR Group	< None >	
User Locale	< None >	
Network Locale	< None >	
Built In Bridge*	Default	
Privacy*	Default	
<b>Device Mobility Mode*</b>	<b>On</b>	<a href="#">View Current Device Mobility Settings</a>

## Step 2. Configure a Device Mobility Group.

1. Navigate to **System > Device Mobility > Device Mobility Group**, as shown in the image:



2. As shown in the image, click on **Add New** and enter the name and description.

Save Delete Copy Add New

**Status**  
 Status: Ready

**Device Mobility Group Information**

Name\* DMG  
 Description Device Mobility Group

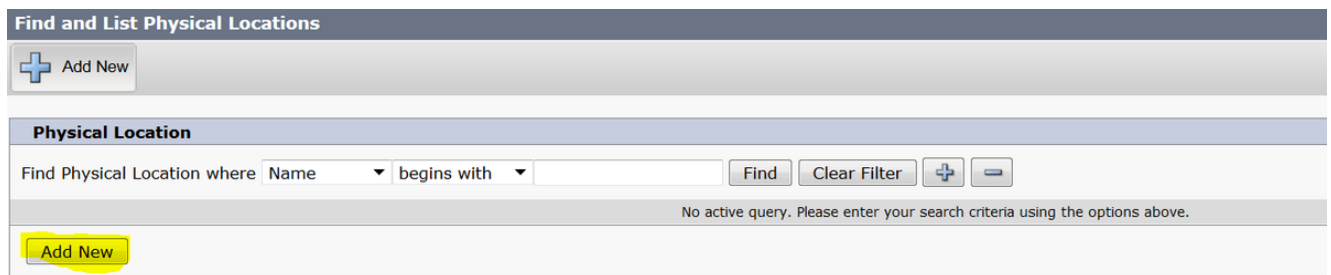
Save Delete Copy Add New

3. Click **Save** to save the device mobility group information to the database.

## Step 3. Configure a Physical Locations.

1. Navigate to **System > Physical Location**.

2. As shown in the image, click on **Add New**

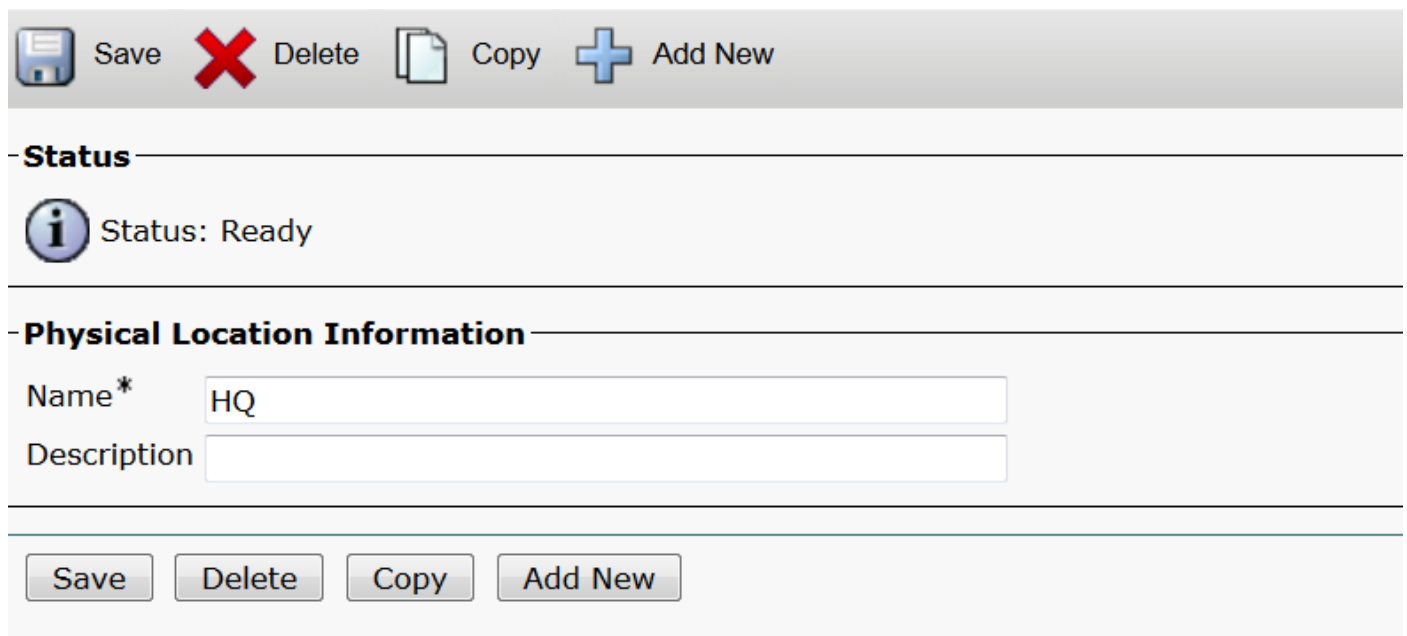


3. Enter the name and description.

4. To save the physical location information in the database, click **Save**.

**Note:** Here the physical location is simply a label but plays an important role in order to select the roaming device pool.

This image shows a sample output:



Step 4: Configure a Device Pool.

1. Navigate to **System > Device Pool**.

2. Here you can either find/select an existing device pool or create new device pool.

3. To create new device pool click on **Add New**.

4. This is the key factor to consider while you configure or update the existing device pool:

- Physical Location
- Device Mobility Group
- Device Mobility calling search Space

This image shows a sample lab output:

## -Roaming Sensitive Settings-

Date/Time Group*	CMLocal	▼
Region*	Default	▼
Media Resource Group List	MRGL-Mulicast	▼
Location	< None >	▼
Network Locale	< None >	▼
SRST Reference*	Disable	▼
Connection Monitor Duration****		
Single Button Barge*	Default	▼
Join Across Lines*	Default	▼
Physical Location	HQ	▼
Device Mobility Group	DMG	▼
Wireless LAN Profile Group	< None >	▼

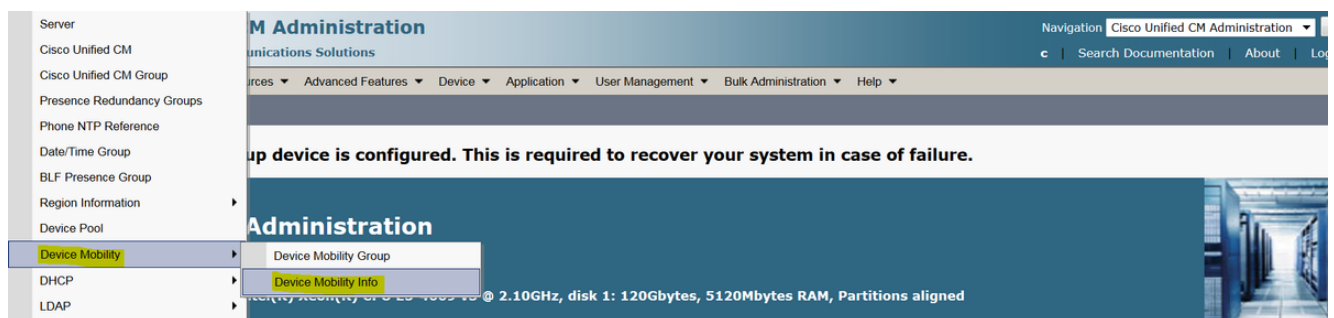
[View Details](#)

## Device Mobility Related Information\*\*\*\*

Device Mobility Calling Search Space	CSS-Local	▼
AAR Calling Search Space	< None >	▼
AAR Group	< None >	▼
Calling Party Transformation CSS	< None >	▼
Called Party Transformation CSS	< None >	▼

## Step 5. Configuring a Device Mobility Info

1. Navigate to **System > Device Mobility > Device Mobility Information**, as shown in the image:



2. Click on **Add New -Name -Subnet**

Name : You can keep the desire name and it is mandatory field.

Subnet: Here subnet means starting address of the subnet mask.

Subnet Mask (bits size) : This is same as network subnet mask.

**Note:** If you entered incorrect IP with respect to subnet mask CUCM prompt the error message.

Selected Device Pools : Here you can keep the device pool which override the home device pool configuration.

This image shows a sample lab Output:

---

**- Device Mobility Info Information**

Name\*

Subnet\*

Subnet Mask (bits size)\*

---

**- Device Pools for this Device Mobility Info**

Available Device Pools

▼ ▲

Selected Device Pools\*

---

Please make a note of below important key in order to work device mobility feature.

- The device must use "device CSS" instead of DN "line CSS".
- You have to configure only one Device Mobility Group.
- Physical location
- Device Mobility Info
- Roaming CSS in order to allow calling for roaming device.

## Verify

1. Please verify all the configuration once to work device mobility.
2. In the **Phone Configuration** Page, navigate to **Device > Phone > Find the device** and click on **View Current Device Mobility Settings**. Then check whether the correct roaming device pool selected as per the device mobility Information (IP address range).

Privacy\*

Device Mobility Mode\*  [View Current Device Mobility Settings](#)

## - Current Device Mobility Settings

Device Name*	SEPA40CC3957CC7
Cisco Unified Communications Manager Group*	Default
Roaming Device Pool	HQ
Location	< None >
Region*	Default
Network Locale	< None >
AAR Group	< None >
AAR Calling Search Space	< None >
Device Calling Search Space	CSS-Local
Media Resource Group List	MRGL-Mulicast
SRST*	Disable

## Troubleshoot

Scenario: The IP Phone is in default device pool.

Requirement: When Phone roam in another location and get IP address in the range of 10.106.99.23X, it has to select the HQ device pool as roaming device pool and need local calling privilege.

Solution: Here we need to focus on belows:

Step 1. First check whether the device mobility feature enable on the device.

Privacy*	Default
Device Mobility Mode*	On

[View Current Device Mobility Settings](#)

Step 2. Check **View Current Device Mobility Settings** from phone configuration page.

### - Current Device Mobility Settings

Device Name*	SEPA40CC3957CC7
Cisco Unified Communications Manager Group*	Default
Roaming Device Pool	-- Not Selected --
Location	< None >
Region*	Default
Network Locale	< None >
AAR Group	< None >
AAR Calling Search Space	< None >
Device Calling Search Space	CSS-CUG
Media Resource Group List	MRGL-Mulicast
SRST*	SRST-MOH

As per the above output you could see roaming device pool not selected.

Step 3. Check the Device Mobility Information (IP address range) configured correctly and device pool associated with device mobility information.

### - Device Mobility Info Information

Name*	Phone A
Subnet*	10.106.99.0
Subnet Mask (bits size)*	24

### - Device Pools for this Device Mobility Info

Available Device Pools	BR DP-Roaming Default
Selected Device Pools*	HQ

Step 4. Check the roaming device pool (here HQ) configured correctly.



Roaming Sensitive Settings	
Date/Time Group*	CMLocal
Region*	Default
Media Resource Group List	MRGL-Mulicast
Location	< None >
Network Locale	< None >
SRST Reference*	Disable
Connection Monitor Duration***	
Single Button Barge*	Default
Join Across Lines*	Default
Physical Location	< None >
Device Mobility Group	DMG
Wireless LAN Profile Group	< None >

[View Details](#)

As per the above output, you may see the Physical Location was set to **None** and hence roaming device pool not selected.

Please note, to work with device mobility feature you have to confirm Physical Location, Device Mobility Group, Device Mobility Information correctly configured.

Step 5. Update the configuration for Physical Location in HQ device pool and check the **View Current Device Mobility Settings** from phone configuration page.

Roaming Sensitive Settings	
Date/Time Group*	CMLocal
Region*	Default
Media Resource Group List	MRGL-Mulicast
Location	< None >
Network Locale	< None >
SRST Reference*	Disable
Connection Monitor Duration***	
Single Button Barge*	Default
Join Across Lines*	Default
Physical Location	HQ
Device Mobility Group	DMG
Wireless LAN Profile Group	< None >

[View Details](#)

Step 6. Verify the CSS as well on roaming device pool configuration:

### Device Mobility Related Information\*\*\*\*

Device Mobility Calling Search Space	CSS-Local
AAR Calling Search Space	< None >
AAR Group	< None >
Calling Party Transformation CSS	< None >
Called Party Transformation CSS	< None >

Step 7. Check the **View Current Device Mobility Settings** from phone configuraion page.

### - Current Device Mobility Settings

Device Name*	SEPA40CC3957CC7
Cisco Unified Communications Manager Group*	Default
Roaming Device Pool	HQ
Location	< None >
Region*	Default
Network Locale	< None >
AAR Group	< None >
AAR Calling Search Space	< None >
Device Calling Search Space	CSS-Local
Media Resource Group List	MRGL-Mulicast
SRST*	Disable