

# License Calculation in CUCM release 9.x+



Document ID: 117600

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May 28, 2014

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## Introduction

This document describes how Cisco Unified Communications Manager (CUCM) Releases 9.1 and later, including 10.x, calculate their license requirements.

The purpose of this document is to describe the way CUCM performs its license calculations, show the different Database tables that are used for this as well as present a series of different scenarios that cover the most commonly seen situations.

All of the outputs and screenshots shown in this document are based on CUCM Release 9.1.1a.

## Enterprise License Manager (ELM)/CUCM Release 9.x+ Licensing Basics

All licensing for CUCM is now centralized and held on the ELM. These licenses use the Russian Doll Hierarchy, which means that each license type entitles a user to a superset of the next lower tier. Higher-tiered licenses include all of the capabilities of the lower-tiered licenses.

Licenses from the higher tier can be *borrowed* to the lower tier if required and if ELM has a certain set of licenses available. When a license is borrowed to a lower tier, it cannot be assigned again until it is released, such as when additional lower-tier licenses are added or the count of required licenses decreases. Each product announces the required license count to ELM and then ELM verifies this requirement against the number of available licenses in order to see if it can fulfill the request.

Different types of Unified Communications (UC) Licenses and their specifics with regards to CUCM are described in the Licensing section of the *Cisco Unified Communications Manager Features and Services*

## Guide, Release 9.1(1):

There are three different scenarios for CUCM Licensing:

- **User only** – This applies to users with no devices assigned. In this case, you license a user based on configured features, for example Essential when Extension Mobility is used (for Releases 9.0.1/9.1.1 only, does not apply to Release 9.1.1a and later) or Basic for Mobility/Mobile Connect/Single Number Reach (SNR).
  - ◆ Extension Mobility – Device Profile is associated to the user.
  - ◆ Mobile Connect – Mobility is enabled and Remote Destination Profile (RDP) is associated to the user.
- **Device Only** – When phones are not assigned to a user, then they are licensed per device type. A device is not associated to a user if there is no entry in the *Owner User ID* field on that device configuration page.
- **User and Device** – This applies to users with assigned devices. Then, the licenses are per device (when one device is assigned per user) or per number of devices per user (Enhanced Plus / Cisco Unified Workspace Licensing (CUWL) Standard, regardless of the device type used).

## Database Tables and Mechanisms Used to Calculate License Requirements in CUCM Release 9.x+

License resource usage is kept in the *LicensingResourceUsage* CUCM Database (DB) table.

```
admin:run sql select * from LicensingResourceUsage
```

pkid	fkenduser	em	snr	tin
77a09a6c-ece7-4a20-b950-c2d04b361777	c44b6aa1-862a-2dda-bab3-326d8f88a51e	f	t	1
588abd1d8-c13d-4f51-a043-a4c6a80d0b91	a275f434-1190-56a8-be51-6ed3c08813c3	t	t	0
7a119168-ef8f-4d5a-95f0-abfa25d2415d	NULL	f	f	0
668d98c2-c73e-4cf1-a614-e718a012fc2f	fc5b1b05-1531-a51c-3879-6eed9099c6e3	f	t	0

copper	bronze	silver	gold	telepresence	presence	unknowndevice
0	0	0	0	0	f	0
0	2	0	0	0	f	0
1	1	0	0	0	f	0
0	1	0	0	0	f	0

admin:

This table is updated each time ELM (server side) contacts the application (client side) or when you click *Update Usage Details* under License Usage Report in CUCM.

The different device license tiers are defined in the *TypeLicensedResource* CUCM DB table.

```
admin:run sql select * from typelicensedresource
```

enum	moniker	name	description
1	LICENSEDRESOURCE_TIN	Tin	Tin
2	LICENSEDRESOURCE_COPPER	Copper	Copper
3	LICENSEDRESOURCE_BRONZE	Bronze	Bronze
4	LICENSEDRESOURCE_SILVER	Silver	Silver
5	LICENSEDRESOURCE_GOLD	Gold	Gold
6	LICENSEDRESOURCE_TELEPRESENCE	Telepresence	Telepresence
7	LICENSEDRESOURCE_NOCOST	Nocost	Nocost

admin:

The way these tiers are mapped to the different devices is defined in this table on CUCM – *TypeLicenseResourceProductMap*.

```
admin:run sql select * from typelicensedresourceproductmap
enum tklicensedresource tkproduct
==== =====
166 3 16
167 7 25
1 1 30065
29 3 30066
10 3 20
16 3 21
17 3 22
18 3 23
?
admin:
```

You can correlate the tkproduct found in TypeLicenseResourceProductMap table with the TypeProduct table in order to see to what those correspond with this query:

```
admin:run sql select * from typeproduct where enum = 'tkproduct'
```

For a complete overview on the LicenseResource mapped to each device, use this CUCM DB query in order to map all three tables:

```
admin:run sql select typeproduct.name, typelicensedresource.name from typeproduct,
typelicensedresource, typelicensedresourceproductmap where
typelicensedresource.enum = typelicensedresourceproductmap.tklicensedresource
and typelicensedresourceproductmap.tkproduct = typeproduct.enum
```

Here is a partial output of that command executed on CUCM Release 9.1.1a:

```
name name
=====
Analog Phone Tin
Cisco 6901 Tin
Cisco 6911 Copper
Cisco 6921 Copper
H.323 Client Bronze
Third-party SIP Device (Basic) Bronze
Third-party SIP Device (Advanced) Bronze
Cisco 7941 Bronze
Cisco 7945 Bronze
Cisco 7965 Bronze
Cisco 7975 Bronze
Cisco 9971 Bronze
Cisco VXC 6215 Bronze
Cisco 6945 Bronze
Cisco TelePresence EX90 Bronze
Cisco TelePresence EX60 Bronze
Cisco TelePresence Telepresence
Cisco TelePresence MX300 Telepresence
CTI Port Nocost
```

For the license requirement calculation, after you connect to the License Manager Client, the ELM on the application side runs this stored procedure:

```
admin:run sql SELECT name,value FROM TABLE (FUNCTION LicenseTotals())
(pkid,name,value,UserValue,DeviceValue)
```

**Note:** In order to see which queries are run and how it calculates the license requirements, you can view the stored procedure with this query: *admin:run sql select \* from sysprocbody where procid = '901'*.

The output of the stored procedure is sent back to ELM, which verifies the license requirements of the application and checks if they can be fulfilled (is there a need to borrow licenses from the higher tier?). After this is done, a result is sent back to the client side, which updates its DB (LicenseServer table) accordingly (compliant vs. non-compliant).

```
admin:run sql select * from licenseserver
```

```
pkid          name          priority
=====
234e7714-c87a-4054-a024-c10910123842 UCS1CUCM91P 1

fkprocessnode description gracestarttime graceleftdays
=====
866516aa-120e-4ea0-9bd4-37e756597d1b          0          0

elmlastcontactts tklicensingstate tklicensingmode
=====
1369143814      2          5

lastresourceusagecalculations elmtime
=====
2013-05-16 16:41:32          UCS1CUCM91P.coluc.com
```

```
admin:
```

In order to decode the licensing state value, you can view the TypeLicensingState table from CUCM DB. For this particular scenario, a value of two means **compliant**.

```
admin:run sql select * from TypeLicensingState
```

```
enum moniker          name          description          allow
                    provisioning
=====
1 LICENSINGSTATE_DEMO Demo Demo t
2 LICENSINGSTATE_COMPLIANT compliant Compliant t
3 LICENSINGSTATE_OVERAGE Overage Overage t
4 LICENSINGSTATE_NO_CONTACT No Contact No Contact t
5 LICENSINGSTATE_SECURITY_FAILURE Security Failure Security Failure t
6 LICENSINGSTATE_NO_PROVISIONING No Provisioning No Provisioning f
7 LICENSINGSTATE_GRACE Grace Grace t
```

```
admin:
```

The different licensing modes can be viewed in the TypeLicensingMode table. For CUCM, the licensing mode is always five, which means ELM-based.

```
admin:run sql select * from TypeLicensingMode
```

```
1 LICENSING_MODE_CAPACITY_NODES
System Capacity Licensing of Nodes in the cluster
This licensing mode is used to license SYSTEM CAPACITY
according to the nodes configured into a cluster.

2 LICENSING_MODE_UTILIZATION_DLU_BASED
System Utilization Licensing Per DLU Consumption
This licensing mode is used to license RESOURCE UTILIZATION LEVELS
within a cluster according to the devices, (phones), configured and the
associated Device License Units, (DLUs), consumed.

3 LICENSING_MODE_CAPABILITY_SW_SERVICES_AND_VERSIONS
System Capability Licensing by Software & Version
This licensing mode is used to license SYSTEM CAPABILITY
according to software and version in use on the cluster.

4 LICENSING_MODE_UTILIZATION_UCL_BASED
```

System Utilization Licensing Per UCL Consumption

This licensing mode is used to license RESOURCE UTILIZATION LEVELS within a cluster according to the user types configured and their feature and device associations. (User Connect Licensing)

5 LICENSING\_MODE\_ELM\_BASED

System Utilization Licensing Per User Consumption

This licensing mode is used to license products in an Enterprise and License tracking is done by the Enterprise License Manager according to the Endusers configured and their feature and device type associations. (Enterprise Licensing)

6 LICENSING\_MODE\_HCS\_BASED

System Utilization Licensing for HCS deployments

This licensing mode is used to license RESOURCE UTILIZATION LEVELS for Hosted Collaboration Systems(HCS) deployments. (Enterprise Licensing)

7 LICENSING\_MODE\_HCSLE\_BASED

System Utilization Licensing for HCS Large Enterpr

This licensing mode is used to license RESOURCE UTILIZATION LEVELS for Hosted Collaboration Systems Large Enterprise (HCSLE) deployments. (Enterprise Licensing)

## License Calculation Scenarios

The later sections of this document cover the different licensing scenarios for CUCM and show how the license calculation is affected by the changes performed, such as the addition of a new device, a new user, user features, or the assignment of a device to a user.

### No Phones, No Users Configured

This example shows a scenario in which there are no phones or users added to CUCM.

License Usage Report page from CallManager (CM) Admin:

## License Usage Report



Below is a summary of current license usage on the system. Current usage details for each type are available by pressing these data is a resource intensive process and may take several minutes to complete, depending on the size of your deployment.

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

[Update Usage Details](#)

Usage Details Last Updated: 2013-05-16 14:42:50

### License Requirements by Type

License Type	Current Usage	Report
CUWL Standard	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Enhanced Plus	0	<a href="#">Users( 0 )</a>
Enhanced	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Basic	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Essential	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
TelePresence Room	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>

### Users and Unassigned devices

Users	0	<a href="#">View Usage Report</a>
Unassigned Devices	0	<a href="#">View Usage Report</a>

### Enterprise License Manager

The licenses for this system are managed by an Enterprise License Manager server.

Server Hostname / IP Address: [UCS1CUCM91P.coluc.com](#)

Last Successful Synchronization: 2013-05-16 00:30:08

Here is the output of a Structured Query Language (SQL) query against the LicensingResourceUsage DB table:

```
admin:run sql select * from LicensingResourceUsage
pkid fkenduser em snr tin copper bronze silver gold telepresence presence unknowndevice
==== ===== == === == ===== ===== ===== ===== =====
admin:
```

## Add an Unassigned Device (6941)

This example shows a scenario in which you add a single 6941 phone type in a CUCM configuration.

**Phone Type**

**Product Type:** Cisco 6941  
**Device Protocol:** SIP

---

**Device Information**

Registration: Unknown  
IP Address: Unknown  
 Device is Active  
 Device is trusted  
MAC Address\*:   
Description:

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

Owner User ID:


Phone Personalization\*:

Services Provisioning\*:

Phone Load Name:

Click *Update Usage Details* in order to show the License Usage Report, which deletes all entries, recalculates them, and enters new, updated entries.

**- License Usage Report**

 Below is a summary of current license usage on the system. Current usage details for each type are available. These data is a resource intensive process and may take several minutes to complete, depending on the size. [View All License Type Descriptions And Device Classifications](#)

Usage Details Last Updated: 2013-05-16 15:46:52

**License Requirements by Type**

License Type	Current Usage	Report
CUWL Standard	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Enhanced Plus	0	<a href="#">Users( 0 )</a>
Enhanced	1	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 1 )</a>
Basic	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Essential	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
TelePresence Room	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>

---

**- Users and Unassigned devices**

Users	0	<a href="#">View Usage Report</a>
Unassigned Devices	1	<a href="#">View Usage Report</a>

---

**- Enterprise License Manager**

The licenses for this system are managed by an Enterprise License Manager server.  
Server Hostname / IP Address: [UCS1CUCM91P.coluc.com](#)  
Last Successful Synchronization: 2013-05-16 00:30:08

Here is the output of the SQL query against the LicensingResourceUsage DB table:

```
admin:run sql select * from LicensingResourceUsage
```

```
pkid                                fkenduser em snr tin
```

```

=====
0fd7659d-8faf-4054-8a80-a3e21b4abf4c NULL      f  f  0

copper bronze silver gold telepresence presence unknowndevice
=====
0      1      0      0      0      f      0

```

admin:

There is a new entry inserted for an unassigned device: (fkenduser = NULL), device is bronze.

One unassigned bronze device requires one enhanced license as shown here:

```

admin:run sql SELECT name,value FROM TABLE( FUNCTION LicenseTotals() )
(pkid,name,value,UserValue,DeviceValue)
name          value
=====
CUWL Standard      0
EnhancedPlus      0
Enhanced          1
Basic             0
Essential         0
TelePresence Room 0
TotalUsers        0
TotalDevices      1
Timestamp         2013-05-16 15:46:52
ElmLastContact    1368657008
Elm              UCS1CUCM91P.coluc.com
admin:

```

## Add Additional User with No Feature Assigned

This example shows a scenario in which you add a single user without any additional features assigned.



**User Information**

User Status: Active Local User

User ID\*:

Password:

Confirm Password:

PIN:

Confirm PIN:

Last name\*:

---

**Extension Mobility**

Available Profiles:

v ^

Controlled Profiles:

v ^

Default Profile:

BLF Presence Group\*:

SUBSCRIBE Calling Search Space:

Allow Control of Device from CTI

Enable Extension Mobility Cross Cluster

---

**Mobility Information**

Enable Mobility

Enable Mobile Voice Access

Maximum Wait Time for Desk Pickup\*:

Remote Destination Limit\*:

Remote Destination Profiles:

[View Details](#)

Click *Update Usage Details* in order to show The License Usage Report page:

**- License Usage Report**

**i** Below is a summary of current license usage on the system. Current usage details for each type are available. These data is a resource intensive process and may take several minutes to complete, depending on the size of the system.  
[View All License Type Descriptions And Device Classifications](#)

Usage Details Last Updated: 2013-05-16 15:58:08

**License Requirements by Type**

License Type	Current Usage	Report
CUWL Standard	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Enhanced Plus	0	<a href="#">Users( 0 )</a>
Enhanced	1	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 1 )</a>
Basic	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Essential	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
TelePresence Room	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>

**- Users and Unassigned devices**

Users	0	<a href="#">View Usage Report</a>
Unassigned Devices	1	<a href="#">View Usage Report</a>

**- Enterprise License Manager**

The licenses for this system are managed by an Enterprise License Manager server.  
Server Hostname / IP Address: [UCS1CUCM91P.coluc.com](#)  
Last Successful Synchronization: 2013-05-16 00:30:08

For this scenario, there is no change since no user features were configured for this user. The DB tables show the same situation:

```
admin:run sql select pkid from enduser where userid = 'jbardy'
pkid
=====
dd420dcf-7bf8-206f-d8a3-5510aafaf254
admin:
```

```
admin:run sql select * from LicensingResourceUsage where
fkenduser = 'dd420dcf-7bf8-206f-d8a3-5510aafaf254'
```

```
pkid fkenduser em snr tin
==== ===== == == ==
copper bronze silver gold telepresence presence unknowndevice
===== ===== ===== ===== ===== =====
admin:
```

In total, there is one entry, which corresponds to the unassigned device as shown here:

```
admin:run sql select * from LicensingResourceUsage

pkid                                     fkenduser em snr tin
=====                                     ===== == == ==
7d489860-2856-4868-8b7f-a52697621b59 NULL      f f 0

copper bronze silver gold telepresence presence unknowndevice
===== ===== ===== ===== ===== =====
0      1      0      0      0      f      0

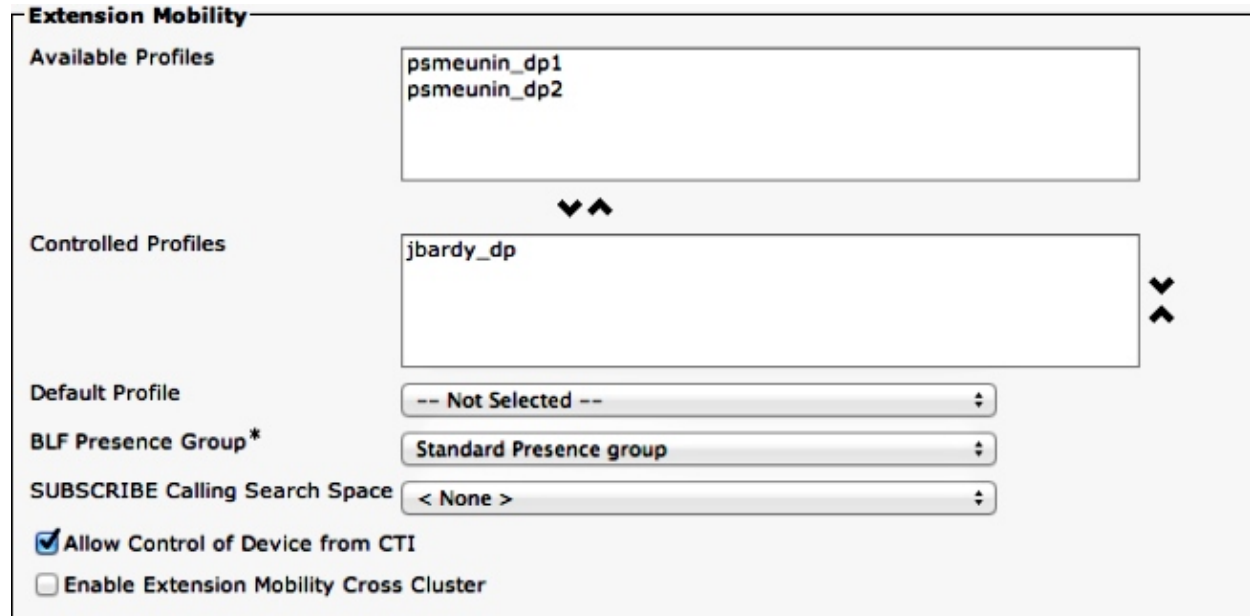
admin:
```

Based on the previous information, you can see that the license requirements remain the same:

```
admin:run sql SELECT name,value FROM TABLE( FUNCTION LicenseTotals() )
(pkid,name,value,UserValue,DeviceValue)
name          value
=====
CUWL Standard 0
EnhancedPlus 0
Enhanced      1
Basic         0
Essential     0
TelePresence Room 0
TotalUsers    0
TotalDevices  1
Timestamp     2013-05-16 15:58:08
ElmLastContact 1368657008
Elm           UCS1CUCM91P.coluc.com
admin:
```

## Enable Extension Mobility (EM) for the User

This example shows a scenario in which you add the EM feature for a previously configured user.



The screenshot shows the 'Extension Mobility' configuration page. It features several sections:

- Available Profiles:** A list box containing 'psmeunin\_dp1' and 'psmeunin\_dp2'.
- Controlled Profiles:** A list box containing 'jbardy\_dp'. To the right of this box are two arrow icons (down and up) for moving items between the available and controlled lists.
- Default Profile:** A dropdown menu currently set to '-- Not Selected --'.
- BLF Presence Group\*:** A dropdown menu set to 'Standard Presence group'.
- SUBSCRIBE Calling Search Space:** A dropdown menu set to '< None >'.
- Checkboxes:** Two checkboxes are located at the bottom: 'Allow Control of Device from CTI' (checked) and 'Enable Extension Mobility Cross Cluster' (unchecked).

Click *Update Usage Details* in order to show the License Usage Report:

*Note:* For CUCM Release 9.0/9.1, this feature requires the Essential license.

**- License Usage Report**



Below is a summary of current license usage on the system. Current usage details for each type are available. These data is a resource intensive process and may take several minutes to complete, depending on the size of the system.

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

[Update Usage Details](#)

Usage Details Last Updated: 2013-05-16 16:02:29

**License Requirements by Type**

License Type	Current Usage	Report
CUWL Standard	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Enhanced Plus	0	<a href="#">Users( 0 )</a>
Enhanced	1	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 1 )</a>
Basic	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Essential	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
TelePresence Room	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>

**- Users and Unassigned devices**

Users	0	<a href="#">View Usage Report</a>
Unassigned Devices	1	<a href="#">View Usage Report</a>

**- Enterprise License Manager**

The licenses for this system are managed by an Enterprise License Manager server.  
 Server Hostname / IP Address: [UCS1CUCM91P.coluc.com](#)  
 Last Successful Synchronization: 2013-05-16 00:30:08

The license requirements have not changed. Although Cisco does not license for EM, there is an entry added for this user (feature):

```
admin:run sql select * from LicensingResourceUsage where
fkenduser = 'dd420dcf-7bf8-206f-d8a3-5510aafaf254'
```

```
pkid                                fkenduser                                em snr tin
=====
02e2222b-6cb2-4175-9129-ff7421292d58 dd420dcf-7bf8-206f-d8a3-5510aafaf254 t f 0

copper bronze silver gold telepresence presence unknowndevice
=====
0 0 0 0 0 f 0
```

admin:

In total, there are two entries: one for the unassigned device and one for the user with EM enabled:

```
admin:run sql select * from LicensingResourceUsage
```

```
pkid                                fkenduser                                em snr tin
=====
fe631c14-2889-4e14-8b89-a3c188b7d415 NULL f f 0
02e2222b-6cb2-4175-9129-ff7421292d58 dd420dcf-7bf8-206f-d8a3-5510aafaf254 t f 0

copper bronze silver gold telepresence presence unknowndevice
=====
0 1 0 0 0 f 0
0 0 0 0 0 f 0
```

admin:

Again, you do not see any changes in the license requirements:

```

admin:run sql SELECT name,value FROM TABLE( FUNCTION LicenseTotals() )
(pkid,name,value,UserValue,DeviceValue)
name          value
=====
CUWL Standard 0
EnhancedPlus 0
Enhanced      1
Basic         0
Essential     0
TelePresence Room 0
TotalUsers   0
TotalDevices 1
Timestamp    2013-05-27 11:05:49
ElmLastContact 1369607564
Elm          UCS1CUCM91P.coluc.com
admin:

```

## Enable Instant Messaging (IM) for the User

This example shows a scenario in which you enable IM for the user.

**Service Settings**


Home Cluster

Enable User for Unified CM IM and Presence (Configure IM and Presence in the associated UC Service Profile)

UC Service Profile: Use Default [View Details](#)

Click *Update Usage Details* in order to show the License Usage Report for CUCM Release 9.1.1a and later.

**License Usage Report**

 Below is a summary of current license usage on the system. Current usage details for each type are available. These data is a resource intensive process and may take several minutes to complete, depending on the size of the system.

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

Update Usage Details Usage Details Last Updated: 2013-05-16 16:02:29

License Requirements by Type		
License Type	Current Usage	Report
CUWL Standard	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Enhanced Plus	0	<a href="#">Users( 0 )</a>
Enhanced	1	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 1 )</a>
Basic	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Essential	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
TelePresence Room	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>

---

**Users and Unassigned devices**

Users	0	<a href="#">View Usage Report</a>
Unassigned Devices	1	<a href="#">View Usage Report</a>

---

**Enterprise License Manager**

The licenses for this system are managed by an Enterprise License Manager server.

Server Hostname / IP Address: [UCS1CUCM91P.coluc.com](#)

Last Successful Synchronization: 2013-05-16 00:30:08

The license requirements have not changed. Although Cisco does not license for EM and IM, there is one entry for this user for both user features enabled (*em* and *presence* columns with *t* = true value).

```
admin:run sql select * from LicensingResourceUsage where
fkenduser = 'dd420dcf-7bf8-206f-d8a3-5510aafaf254'
```

```
pkid                                fkenduser                                em snr tin
=====
63f29eb3-4f88-4a6d-8644-27e56caa3525 dd420dcf-7bf8-206f-d8a3-5510aafaf254 t f 0

copper bronze silver gold telepresence presence unknowndevice
=====
0      0      0      0      0      t      0
```

admin:

In total, there are two entries, one for the unassigned device and one for the user with EM / IM enabled:

```
admin:run sql select * from LicensingResourceUsage
```

```
pkid                                fkenduser                                em snr tin
=====
0e8accd0-bf1c-4f03-b394-20e95d1eec1b NULL f f 0
63f29eb3-4f88-4a6d-8644-27e56caa3525 dd420dcf-7bf8-206f-d8a3-5510aafaf254 t f 0

copper bronze silver gold telepresence presence unknowndevice
=====
0      1      0      0      0      f      0
0      0      0      0      0      t      0
```

admin:

You do not see any changes in license requirements caused by this modification:

```
admin:run sql SELECT name,value FROM TABLE( FUNCTION LicenseTotals() )
(pkid,name,value,UserValue,DeviceValue)
```

```
name                                value
=====
CUWL Standard                        0
EnhancedPlus                        0
Enhanced                            1
Basic                                0
Essential                            0
TelePresence Room                    0
TotalUsers                          0
TotalDevices                        1
Timestamp                            2013-05-27 11:05:49
ElmLastContact                       1369607564
Elm                                   UCS1CUCM91P.coluc.com
```

admin:

## Enable Mobility for the User

This example shows a scenario in which you enable Mobility for the same user and see how it will influence license calculations in CUCM.

**Mobility Information**

Enable Mobility

Enable Mobile Voice Access

Maximum Wait Time for Desk Pickup\*


Remote Destination Limit\*

Remote Destination Profiles

[View Details](#)

Click *Update Usage Details* in order to show the License Usage Report for CUCM Release 9.1.1a and later:

**License Usage Report**

 Below is a summary of current license usage on the system. Current usage details for each type are available. Note that gathering these data is a resource intensive process and may take several minutes to complete, depending on the size of the system.

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

Usage Details Last Updated: 2013-05-16 16:05:39

**License Requirements by Type**

License Type	Current Usage	Report
CUWL Standard	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Enhanced Plus	0	<a href="#">Users( 0 )</a>
Enhanced	1	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 1 )</a>
Basic	1	<a href="#">Users( 1 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Essential	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
TelePresence Room	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>

**Users and Unassigned devices**

Users	1	<a href="#">View Usage Report</a>
Unassigned Devices	1	<a href="#">View Usage Report</a>

**Enterprise License Manager**

The licenses for this system are managed by an Enterprise License Manager server.

Server Hostname / IP Address: [UCS1CUCM91P.coluc.com](#)

Last Successful Synchronization: 2013-05-16 00:30:08

The license requirements have changed as seen in the previous image, one Basic license is added. The DB tables show that there is still only one entry for this End User; however, the SNR column is now flagged as t.

```
admin:run sql select * from LicensingResourceUsage where
fkenduser = 'dd420dcf-7bf8-206f-d8a3-5510aafaf254'
```

```
pkid                               fkenduser                               em snr tin
=====
fbb955fa-f633-4b5d-8064-f8ba67250831 dd420dcf-7bf8-206f-d8a3-5510aafaf254 t t 0
```

```
copper bronze silver gold telepresence presence unknowndevice
=====
0 0 0 0 0 t 0
```

admin:

In total, there are two entries in the LicensingResourceUsage table: one for the unassigned device and one for the user:

```
admin:run sql select * from LicensingResourceUsage
```

```
pkid                                fkenduser                                em snr tin
=====
86e2f48e-c395-4474-b039-cd842773ae93 NULL                                f f 0
fbb955fa-f633-4b5d-8064-f8ba67250831 dd420dcf-7bf8-206f-d8a3-5510aafaf254 t t 0

copper bronze silver gold telepresence presence unknowndevice
=====
0          1          0          0          0          f          0
0          0          0          0          0          t          0
```

```
admin:
```

As already seen from the webpage, the license requirements are increased with one Basic, which corresponds to this user with the Mobility feature enabled.

```
admin:run sql SELECT name,value FROM TABLE( FUNCTION LicenseTotals() )
(pkid,name,value,UserValue,DeviceValue)
```

```
name                                value
=====
CUWL Standard                        0
EnhancedPlus                         0
Enhanced                             1
Basic                                 1
Essential                             0
TelePresence Room                    0
TotalUsers                           1
TotalDevices                          1
Timestamp                            2013-05-27 11:39:46
ElmLastContact                       1369607564
Elm                                    UCS1CUCM91P.coluc.com
```

```
admin:
```

## Assign the Device to the User

This example shows a scenario in which you assign a previously added device to a user and see how CUCM calculates licenses.



**Phone Type**

**Product Type:** Cisco 6941  
**Device Protocol:** SCCP

---

**Device Information**

Registration: Unknown  
IP Address: Unknown

Device is Active  
 Device is trusted

MAC Address\*:

Description:

Device Pool\*:  [View Details](#)

Privacy\*:

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

Owner User ID:


Phone Personalization\*:

Services Provisioning\*:

Phone Load Name:

Click *Update Usage Details* in order to show the License Usage Report for CUCM Release 9.1.1a and later:

**- License Usage Report**

 Below is a summary of current license usage on the system. Current usage details for each type are available these data is a resource intensive process and may take several minutes to complete, depending on the size of the system.  
[View All License Type Descriptions And Device Classifications](#)

Usage Details Last Updated: 2013-05-16 15:58:08

**License Requirements by Type**

License Type	Current Usage	Report
CUWL Standard	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Enhanced Plus	0	<a href="#">Users( 0 )</a>
Enhanced	1	<a href="#">Users( 1 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Basic	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Essential	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
TelePresence Room	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>

**- Users and Unassigned devices**

Users	1	<a href="#">View Usage Report</a>
Unassigned Devices	0	<a href="#">View Usage Report</a>

**- Enterprise License Manager**

The licenses for this system are managed by an Enterprise License Manager server.  
Server Hostname / IP Address: [UCS1CUCM91P.coluc.com](#)  
Last Successful Synchronization: 2013-05-16 00:30:08

The license requirements have changed from one Enhanced and one Basic to one Enhanced. The DB tables are updated accordingly. There is still one entry for this End User, but now it also has a bronze column value

set to *I*, which corresponds to the assigned device (1x6941).

```
admin:run sql select * from LicensingResourceUsage where
fkenduser = 'dd420dcf-7bf8-206f-d8a3-5510aafaf254'
```

```
pkid                                fkenduser                                em snr tin
=====
95038f98-8967-4af8-aa61-1b86a1a7ba71 dd420dcf-7bf8-206f-d8a3-5510aafaf254 t t 0

copper bronze silver gold telepresence presence unknowndevice
=====
0      1      0      0      0              t      0
```

admin:

You can also see that the unassigned device entry has been removed from the LicensingResourceUsage table and is not taken into account anymore when it calculates license usage.

```
admin:run sql select * from LicensingResourceUsage
```

```
pkid                                fkenduser                                em snr tin
=====
95038f98-8967-4af8-aa61-1b86a1a7ba71 dd420dcf-7bf8-206f-d8a3-5510aafaf254 t t 0

copper bronze silver gold telepresence presence unknowndevice
=====
0      1      0      0      0              t      0
```

admin:

As shown earlier from the webpage, the license requirement is changed from one Enhanced (End User) and one Basic (6941) to one Enhanced, which now covers the Mobility feature and assigned device (6941 phone).

```
admin:run sql SELECT name,value FROM TABLE( FUNCTION LicenseTotals() )
(pkid,name,value,UserValue,DeviceValue)
```

```
name                                value
=====
CUWL Standard                        0
EnhancedPlus                         0
Enhanced                             1
Basic                                0
Essential                            0
TelePresence Room                    0
TotalUsers                           1
TotalDevices                         0
Timestamp                            2013-05-27 11:46:22
ElmLastContact                       1369607564
Elm                                   UCS1CUCM91P.coluc.com
admin:
```

## Add a Second Unassigned Device (9971)

This example shows a scenario in which you add a second device, a 9971 phone, to CUCM and check what changes it makes.

**Phone Type**

**Product Type:** Cisco 9971  
**Device Protocol:** SIP

---

**Device Information**

Registration: Unknown  
IP Address: Unknown

Device is Active  
 Device is trusted

MAC Address\*:

Description:

Device Pool\*:  [View Details](#)

Common Device Configuration:  [View Details](#)

Click *Update Usage Details* in order to show the License Usage Report:

**License Usage Report**

Below is a summary of current license usage on the system. Current usage details for each type are available by pressing "Update Usage Details". Note that collecting these details may take some time. [View All License Type Descriptions And Device Classifications](#)

Usage Details Last Updated: 2013-05-27 11:59:36

License Requirements by Type			
License Type	Current Usage		Report
CUWL Standard	0		<a href="#">Users( 0 )   Unassigned Devices( 0 )</a>
Enhanced Plus	0		<a href="#">Users( 0 )</a>
Enhanced	2		<a href="#">Users( 1 )   Unassigned Devices( 1 )</a>
Basic	0		<a href="#">Users( 0 )   Unassigned Devices( 0 )</a>
Essential	0		<a href="#">Users( 0 )   Unassigned Devices( 0 )</a>
TelePresence Room	0		<a href="#">Users( 0 )   Unassigned Devices( 0 )</a>

---

Users and Unassigned devices		
Category	Count	Report
Users	1	<a href="#">View Usage Report</a>
Unassigned Devices	1	<a href="#">View Usage Report</a>

The license requirements have been updated to two Enhanced licenses. The DB tables show that a second entry has been added with the bronze column set to *I*, which corresponds to one 9971 phone. You can also see that the device is not assigned to any user (fkenduser = NULL).

```
admin:run sql select * from LicensingResourceUsage
```

```
pkid                                     fkenduser                               em snr tin
=====
39442ae8-ea5a-4a42-92be-4822e7ee8c53 dd420dcf-7bf8-206f-d8a3-5510aafaf254 t t 0
6ba309b9-eb86-496b-8718-75b6f13878f1 NULL f f 0
```

```
copper bronze silver gold telepresence presence unknowndevice
=====
0 1 0 0 0 t 0
0 1 0 0 0 f 0
```

```
admin:
```

The license requirement is now updated to two Enhanced (one for a user with Mobility enabled / 6941 phone assigned and one for an unassigned 9971 phone).

```
admin:run sql SELECT name,value FROM TABLE( FUNCTION LicenseTotals() )
(pkid,name,value,UserValue,DeviceValue)
name value
=====
CUWL Standard 0
```

```

EnhancedPlus      0
Enhanced          2
Basic             0
Essential         0
TelePresence Room 0
TotalUsers        1
TotalDevices      1
Timestamp         2013-05-27 11:59:36
ElmLastContact   1369607564
Elm               UCS1CUCM91P.coluc.com
admin:

```

## Assign a Second Device to the Same User

This example demonstrates how the license count changes when the 9971 phone is assigned to the previously configured user; remember that this user already has a 6941 phone assigned to him.

**Phone Type**

**Product Type: Cisco 9971**  
**Device Protocol: SIP**

---

**Device Information**

Registration: Unknown  
IP Address: Unknown

Device is Active  
 Device is trusted

MAC Address\*:

Description:

Device Pool\*:  [View Details](#)

Common Device Configuration:  [View Details](#)

---

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

Owner User ID:

Phone Personalization\*:

Click *Update Usage Details* in order to show the License Usage Report:

**License Usage Report**

Below is a summary of current license usage on the system. Current usage details for each type are available by pressing "Update Usage Details". Note that collecting these data may take some time.  
[View All License Type Descriptions And Device Classifications](#)

Usage Details Last Updated: 2013-05-27 12:04:25

License Type	Current Usage	Report
CUWL Standard	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Enhanced Plus	1	<a href="#">Users( 1 )</a>
Enhanced	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Basic	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
Essential	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>
TelePresence Room	0	<a href="#">Users( 0 )</a>   <a href="#">Unassigned Devices( 0 )</a>

---

**Users and Unassigned devices**

Users	1	<a href="#">View Usage Report</a>
Unassigned Devices	0	<a href="#">View Usage Report</a>

The License requirements have been updated to one Enhanced Plus. The DB tables show that there is one entry for the end user, now with bronze column value set to 2, which corresponds to the two assigned phones (one 6941 and one 9971).

```
admin:run sql select * from LicensingResourceUsage where
fkenduser = 'dd420dcf-7bf8-206f-d8a3-5510aafaf254'
```

pkid	fkenduser	em	snr	tin
5d759af1-5a38-4f6c-a7f9-ab818c2692e8	dd420dcf-7bf8-206f-d8a3-5510aafaf254	t	t	0

copper	bronze	silver	gold	telepresence	presence	unknowndevice
0	2	0	0	0	t	0

admin:

You can also see that in total there is one entry in LicensingResourceUsage; the previous entry for the unassigned device (9971 phone) has been now removed.

```
admin:run sql select * from LicensingResourceUsage
```

pkid	fkenduser	em	snr	tin
5d759af1-5a38-4f6c-a7f9-ab818c2692e8	dd420dcf-7bf8-206f-d8a3-5510aafaf254	t	t	0

copper	bronze	silver	gold	telepresence	presence	unknowndevice
0	2	0	0	0	t	0

admin:

The license requirements have been updated to one Enhanced Plus (Mobility enabled and two devices assigned to the user).

```
admin:run sql SELECT name,value FROM TABLE( FUNCTION LicenseTotals() )
(pkid,name,value,UserValue,DeviceValue)
```

name	value
CUWL Standard	0
EnhancedPlus	1
Enhanced	0
Basic	0
Essential	0
TelePresence Room	0
TotalUsers	1
TotalDevices	0
Timestamp	2013-05-27 12:04:25
ElmLastContact	1369607564
Elm	UCS1CUCM91P.coluc.com

admin:

## Extension Mobility Considerations

Before CUCM Release 9.1.1a when EM was enabled on the device, the Owner User ID was greyed out as shown here.

EM disabled (Owner User ID active):

<b>Extension Information</b>	
<input type="checkbox"/> Enable Extension Mobility	
Log Out Profile	-- Use Current Device Settings --
Log in Time	< None >
Log out Time	< None >

Device Mobility Mode*	Default
Owner User ID	< None >
Phone Personalization*	Default

EM enabled (Owner User ID greyed out):

<b>Extension Information</b>	
<input checked="" type="checkbox"/> Enable Extension Mobility	
Log Out Profile	-- Use Current Device Settings --
Log in Time	< None >
Log out Time	< None >

Device Mobility Mode*	Default
Owner User ID	< None >
Phone Personalization*	Default

CUCM Release 9.1.1a introduced a few changes with license usage. Cisco bug ID CSCue14471 describes the details.

CSCue14471 – Change license calculations for Extension Mobility

Modifications in CUCM to EM calculation in CUCM Release 9.1.1a and later:

- Change the LicenseTotals SQL that omit EM-only users from the consumption of Essential licenses. This means that users who do not have any physical devices associated or Mobility configuration do not consume any Essential licenses.
- Change the Essential user GUI child page to not display EM-only users, because they no longer consume a license.
- Change the phone page to not disable Owner ID association even if an EM profile is present.
- Remove the **EM Enabled** information text in the user license reports (summary and details) since it no longer applies (text display only).
- No changes to the Administrative XML Layer (AXL) until CUCM Release 10.0; there are no predefined licensing queries.