# **Configure HCM-F Integration with Smart License Manager**

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# Introduction

This document describes how to synchronize your product instance with your Smart accounts in Cisco *Hosted Collaboration* Solution (*HCS*) 12.5 via

Cisco Hosted Collaboration Mediation Fulfillment (HCM-F)

# Prerequisites

## Requirements

Cisco recommends that you have knowledge of these topics:

Cisco Unified Communications Manager (CUCM) version 12.5

HCM-F 12.5

CUCM Smart Licensing - Direct Model

Cisco Smart Software Management (CSSM)

## **Components Used**

The information in this document is based on these software and hardware versions:

CUCM 12.5.X

HCM-F 12.5.1

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, ensure that you understand the potential impact of any command.

## **Background Information**

Hosted License Manager (HLM) runs in HCM-F as service. HLM/HCM-F has been developed to register Cisco Unified Communications Applications (UC) applications to the Smart Licensing Service running in Cisco Cloud. Once UC Applications are assigned to the Smart Licensing Service, License consumption of these applications are tracked from the CSSM portal which acts as a Single License Management Repository for HCS Partners.

The HCM-F HLM Service allows the configuration of a Smart account in HCM-F and permits any Cluster based Operations related to this Smart account from HCM-F.

The Smart Licensing Service which resides in the Cisco cloud exposes different Application programming interface (API) through the OAuth Authentication. Additionally UC Applications do expose APIs to allow HCM-F to perform multiple steps involved during the course of Cluster Operation like  $\hat{a} \in \alpha$ Assign $\hat{a} \in \alpha$  and  $\hat{a} \in \alpha$ UnAssign $\hat{a} \in \phi$ .

ence HCM-F makes use of API's exposed on both the sides to perform a Cluster Operation.

Network connectivity to the Cisco Cloud services is required for this integration:

cloudsso1.cisco.com -> 72.163.4.74 cloudsso2.cisco.com -> 173.37.144.211 cloudsso3.cisco.com -> 173.38.127.38

swapi.cisco.com -> 146.112.59.25

All communications between the HCM-F/Proxy and the Cisco Cloud services are done through TLS connection on port TCP/443.

## Configuration

As a HCS Partner admin, login to the <u>Cisco API Developer Portal</u> select **Explore > Smart Accounts &** Licensing APIs > Smart Accounts

diada cisco Cisco API Developer Port	tal	Home	Explore	Console	Support	Metrics	GraphQL <sup>bes</sup>		(	o 🕐 💿
٩	Smart Ac	COUNTS Version: 10	* <b>0</b>							
O Commerce APIs	Access Grante	٩								
Commerce Renewal APIs     Customer Experience	This set of APIs Comprehensive	allows you to search for Smart Accourty, you can get access to your software	nts. A Smart i Elicenses, ha	Account is a rdware, and	central repos subscription	itory where s through yo	you can view, sto ur Smart Account.	re, and manage licenses . Serving as a central rep	across the entire or ository, Smart Acco	ganization. unts give full
Smart Accounts & Licensing APIs     Aierts	visibility into you	ir Cisco software assets across your or	ganization. Y	bu can review	v, store, mar	age and me	ove Cisco software	a to where they are need	ed, when they are n	eeded.
Virtual Accounts     Devices										
O Licenses	Method	Endpoint	land lanast - a	counts and I	Reasoning by 7	laccounts		Descript	lion	
Smart Accounts Validate User Access V2	GET	https://swapi.cisco.com//services/	/apl/smart-a	counts-and-	licensing/v1	/accounts		Validate	User Access V1	
Validate User Access V1 Smart Recommendation for Partners	POST	https://swapi.cisco.com//services/	/api/smart-a	counts-and-)	licensing/v2	/accounts/s	earch	Smart Re	commendation for P	artners
Smart Accounts Search O Tokens	GET	https://swapi.cisco.com//services/	/api/smart-a	counts-and-	licensing/v1	/accounts/s	earch	Smart Ar	counts Search	
O User Management O Smart Licensing Using Policy										
O Subscription Services										
Plug & Play Connect APIs     Assets and Entitlement APIs										
Enterprise Agreement APIs										

To configure a Smart Account in HCM-F, an API Client is required:

-di-di- citco	Cis	co A	PI Developer	Portal	Но	me	Explore	Console	Support	Metrics	GraphQL <sup>lea</sup>		ه 🕐 🥹
AP	1 Client		Organization	API Library								Request Approval API Administration	m Activity
•	Note: Oni Ext	y Mana amaily 1	gement of Modern Aut Managed APIs will nee	h.APIS will be available here. Legacy Auth.AP d to use the external.API Management platfor	's are managed from the Explore pay m for creating client credentials.	μ.							
	Sear	ch by /	UH Client Name										reate API Client
			Membership	API Client Name	Кеу						Client Secret		APIs
	0		owner	HOMF	8440155	0-ee40-41	141-adu0-e2e	e320d0c6e 🕑				•	17
												N • Shaving Page 1 of 1(3 Records)	

The Client Credentials generated in this step use the "API Service" Application Type, require the Smart Account API association and are provided for Smart Account Configuration Access in HCM-F. Once the correct client credentials and the Smart Account domain name are provided, HCM-F completes the configuration and uses the same access details to interact with Smart licensing Service.

Specifically it authenticates against cloudsso.cisco.com to botain an Oauth2.0 bearer token and then fetches all the Virtual Accounts from the Cloud License Service via swapi.cisco.com. Time taken for the Virtual accounts fetch depends on the number of Virtual accounts and Virtual account synced from Satellite. This operation takes up to an Hour. Virtual Accounts which are synced from Satellite are ignored.

## **HCM-F** Configuration Workflow for Smart Licensing

Navigate to **Infrastructure Manager > Smart Licensing > Configure Smart Account**:

Home

- Data Center Management
- Aggregation
- Customer Management
- Cluster Management
- Application Management
- Device Management
- Administration
- License Management
- Smart Licensing

Transport Mode

Configure Smart Account

Smart Account Summary

Virtual Account Summary

Cluster Summary

# **Configure Smart Account Access**

#### General Information

- Domain Name:
- Client ID:
- Client Secret:

-	

Smart Account Name:

Note: Configuring Smart account will fetch all the Virtual Accounts from th up to an Hour.Virtual Accounts which are synced from Satellite will be ign

The information here is populated with the output generated in the section addressed earlier in this document.

#### Navigate to Infrastructure Manager > Smart Licensing > Transport Mode:

Set up the transport mode in HCM-F is required for the connection of HCM-F and UC applications to CSSM.

**Note**: HCM-F 12.5.1 supports only direct Model integration i.e the Transport Mode can be set to direct or proxy

Fulfillment - Mediation   Hosted Collaboration Solution							
Service Inventory Infrastructure Manager							
Home Data Center Management Aggregation Customer Management	Configure Smart A	Account Acc	ess				
<ul> <li>Cluster Management</li> <li>Application Management</li> <li>Device Management</li> <li>Administration</li> <li>License Management</li> <li>Smart Licensing Subscription Mapper</li> </ul>	Transport Mode: Proxy Hostname/IP: Proxy Port: Authentication Gateway: CSSM Server: Note: This proxy will only be used by H	Proxy 8080 cloudsso.cisco.com swapi.cisco.com ICMF to communicate with	CSSM				
Smart Account Summary         Virtual Account Summary         Cluster Summary         License Dashboard         Service Provider Toolkit	<ul> <li>Configure Credentials</li> <li>Smart Account Domain Name:</li> <li>Client ID:</li> <li>Client Secret:</li> </ul>						

#### Navigate to **Infrastructure Manager > Smart Licensing > Virtual Account Summary:**

Name	SA Name	Access Level	0
Filters No filter applied			▼ Smar
		PUBLIC	Tr
		PRIVATE	
		PUBLIC	Co
		PUBLIC	
		PUBLIC	Si
		PUBLIC	V
		PUBLIC	VI.
		PUBLIC	CI

**Note**: {To see the virtual accounts associated with the smart account. Select the smart account name from the list. The Virtual Accounts page shows the list of virtual accounts.}

## **Cluster Association CSSM**

In order to  $\hat{a} \in \hat{c}assign \hat{a} \otimes \hat{c}assign \hat{a}$  a UC application to CSSM, you need to ensure both the 12.5 Cluster as well as the UC application are present and configured in the HCM-F inventory along with admin and platform credential.

Once the Smart Account configuration is done, HCM-F syncs up all the data from CSSM and update SDR, Smart Account along with the virtual account data. Once the Virtual Account Data is updated in SDR, the admin user is allowed to assign the Cluster to any Virtual Account.

This Cluster operation is referred to as "Cluster Assignment", and the Removal of Cluster from VA is termed as "Cluster unAssignment". Cluster moves from one VA to another are referred to as "Cluster ReAssignment".

To Assign a cluster to CSSM, navigate to

#### **Infrastructure Manager > Smart Licensing > Virtual Account Summary:**

Select the Virtual Account you want to utilize.



Cluster Assignment: Slect Assign:

General Information	
Name:	HCS-DEMO
Description:	Virtual account for HCS demo
Smart Account Name:	BU Production Test
Domain Name:	buproductiontest.cisco.com
License Mode:	HCS V
Cominercial Access Level:	PUBLIC
Commercial Access Level: Clusters Assigned to	PUBLIC
Assign Rofreeh Unassi	n

Select the UC application you want to assign and select the Assign Button:

Assign	Clusters to HCS-DEMO	
	Name	Туре
Filters	lo filter applied	
	cl1-alfa	CUCM
	cluster2-test	CUCXN

Once the Assignment has completed, the UC application shows up as assigned to the Virtual Account (VA) you used:

#### (Smart Licensing > Cluster Summary

v	Smart	Lice	nsing
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Transport Mode

Configure Smart Account

Smart Account Summary

Virtual Account Summary

**Cluster Summary** 

- License Dashboard
- Service Provider Toolkit

#### **Cluster Summary** Refresh Version Smart Account Name Type No filter applied Filters CUCM 12.5 cl1-alfa cluster2-test CUCXN 12.5 K < 1 > X 1 - 2 of 2 items

# What happens when you assign a UC application to the Smart Licensing Service via HCM-F?

This is the HLM Workflow that is executed:

- Verification
- License Mode Change
- Transport Mode Change
- Registration

This can be seen in to the Jobs section (Infrastructure Manager > Administration > Jobs):



## Logs Walkthrough (HLM Logs set to Detailed)

1. HLM gets a cluster assigns request from the database and checks if the cluster is eligible:

```
2019-06-26 13:17:35,199 INFO [53] Getting the Instance of Cluster Assignment Agent ClusterAssignmentRequ
2019-06-26 13:17:35,199 DEBUG [53] AgentMessageDispatcher::process -- Agent with instance >SMART_LIC_CLU
2019-06-26 13:17:35,199 INFO [169] processing Agent SMART_LIC_CLUSTER_OPERATION
2019-06-26 13:17:35,332 DEBUG [169] isProgressInfoChanged : true
2019-06-26 13:17:35,332 DEBUG [169] job.getStatusInfo: :Verification - Inprogress|License Mode Change -
2019-06-26 13:17:35,357 INFO [169] jobKID from create: 26
2019-06-26 13:17:35,357 DEBUG [169] Update method at End : JobDTOcom.cisco.hcs.HLM.smartlic.dto.JobDTO (
sDRJobPK: 26
jobId: null
jobType: PROVISIONING
description: Assignment of Cluster cl-beta to HCS-DEMO Started
JobEntity: JOB_ENTITY_SMARTACCOUNT
entityName: null
status: IN PROGRESS
isModifiable: true
isDeletable: true
isRestartable: false
isCancelable: false
progressInfo: {Verification=Inprogress, License Mode Change=Not Started, Transport Mode Change=Not Start
errorDescription: null
recommendedAction: null
```

```
<com.cisco.hcs.hcsagent.message.smartlic.ClusterAssignmentResp>
<messageType>ClusterAssignmentResp</messageType>
<source>
<serviceName>ClusterAssign</serviceName>
<instance>SMART_LIC_CLUSTER_OPERATION</instance>
</source>
<destination>
<serviceName>SDRUI</serviceName>
<instance>HCS-SMARTLIC-LIB0</instance>
</destination>
<sessionID>5fbb89a2-c62b-4d85-b385-3648c8010413</sessionID>
<transactionID>b2e1cfe6-b8fb-462c-a874-374e19afd110</transactionID>
<fault>false</fault>
<Fork>false</Fork>
<requeueCount>0</requeueCount>
<jobId>26</jobId>
<responseCode>PASS</responseCode>
<responseDesc>SmartLicNoError</responseDesc>
<smartLicRespCode defined-in="com.cisco.hcs.hcsagent.message.smartlic.ClusterOperationsResponse">PASS</s</pre>
<smartLicRespReason defined-in="com.cisco.hcs.hcsagent.message.smartlic.ClusterOperationsResponse">Smart
<smartLicRespCode>PASS</smartLicRespCode>
<smartLicRespReason>SmartLicNoError</smartLicRespReason>
</com.cisco.hcs.hcsagent.message.smartlic.ClusterAssignmentResp>
```

#### 3. HLM changes the product type in CUCM to HCS:

```
2019-06-26 13:17:35,646 DEBUG [33] First pool session created: SDRSyncSession@f11306
2019-06-26 13:17:35,650 INFO [169] UCAppDeploymentModeConnection: Opening secure connection to: https://
2019-06-26 13:17:35,650 INFO [169] UCAppDeploymentModeConnectionPort successfully opened
2019-06-26 13:17:35,652 DEBUG [33] Pool session created: SDRSyncSession@2cd71b
2019-06-26 13:17:35,659 DEBUG [33] Pool session created: SDRSyncSession@a4e538
2019-06-26 13:17:35,667 DEBUG [33] Pool session created: SDRSyncSession@b3c0d9
2019-06-26 13:17:35,667 INFO [33] Pool is valid. Pool create time in Ms: 1561547855646, poolRunning: fai
2019-06-26 13:17:35,667 INFO [33] Created 4 pool sessions.
```

4. HLM instructs the service Cisco HCS provisioning Adapter (CHPA) to assign the cluster into CSSM:

```
2019-06-26 13:17:39,102 DEBUG [169] Agent: sending to [chpa]
-------
<com.cisco.hcs.hcsagent.message.chpa.GetTransportSettingsRequest>
<messageType>GetTransportSettingsRequest</messageType>
<source>
<serviceName>ClusterAssign</serviceName>
</source>
<destination>
<serviceName>chpa</serviceName>
</destination>
<sessionID>getTransport-4</sessionID>
<fault>false</fault>
<Fork>false</Fork>
```

```
<requeueCount>0</requeueCount>
<deviceId>
<type>ApplicationInstance</type>
<key class="com.cisco.hcs.sdr.v10_0.KIDInt">
<internalValue>4</internalValue>
</key>
</deviceId>
<clusterName>cl-beta</clusterName>
</com.cisco.hcs.hcsagent.message.chpa.GetTransportSettingsRequest>
_ _ _ _ _ _ _ _ _ _
2019-06-26 13:17:39,104 DEBUG [169] Agent: Sent message to chpa(null)
2019-06-26 13:17:39,104 INFO [169] UCAppTimerTask , Timer Task started at:Wed Jun 26 13:17:39 CEST 2019
2019-06-26 13:17:39,104 DEBUG [169] com.cisco.hcs.HLM.smartlic.core.clusterops.utils.UCAppTimerRegister
2019-06-26 13:17:39,104 DEBUG [81655] UCAppTimerTask , Timer Task Attempt of Retry 0
2019-06-26 13:17:39,104 INFO [169] JMS Message is Processed and leaving out from JMS thread
2019-06-26 13:17:44,207 DEBUG [45] KeepAliveConsumerProcessor::process -- enter
2019-06-26 13:17:44,207 DEBUG [94] KeepAliveConsumerProcessor::process -- enter
2019-06-26 13:17:44,208 DEBUG [45] KeepAliveConsumerProcessor::process -- received broadcast message for
2019-06-26 13:17:44,208 DEBUG [45] noChange -- sdrcnf is Alive
2019-06-26 13:17:44,208 DEBUG [45] KeepAliveMonitor::setExpiresBy:
2019-06-26 13:17:44,208 DEBUG [94] KeepAliveConsumerProcessor::process -- received broadcast message for
2019-06-26 13:17:44,208 DEBUG [45] now: 26/06/2019 01:17:44.208
2019-06-26 13:17:44,208 DEBUG [94] noChange -- sdrcnf is Alive
2019-06-26 13:17:44,208 DEBUG [45] expected by: 26/06/2019 01:19:44.208
2019-06-26 13:17:44,208 DEBUG [94] KeepAliveMonitor::setExpiresBy:
2019-06-26 13:17:44,208 DEBUG [94] now: 26/06/2019 01:17:44.208
2019-06-26 13:17:44,208 DEBUG [94] expected by: 26/06/2019 01:19:44.208
2019-06-26 13:17:46,105 INFO [36] Perfmon Category in Publish Counter update is Cisco HCS License Manage
2019-06-26 13:17:46,106 DEBUG [36] AgentJmx: JMS connection already up, reusing connection
2019-06-26 13:17:49,420 INFO [63] smartLicAuditProcessor::process enter...
2019-06-26 13:17:50,075 INFO [66] smartLicAuditProcessor::process enter...
```

5. The cluster assignment is successful:

```
2019-06-26 13:17:50,390 INFO [68] LicUsageAuditProcessor::process enter...
2019-06-26 13:17:52,331 DEBUG [53]
AgentMessageDispatcher -- Received msq by RouteBuilder[ClusterAssign-null] :
-----
<com.cisco.hcs.hcsagent.message.chpa.GetTransportSettingsResponse>
<messageType>GetTransportSettingsResponse</messageType>
<source>
<serviceName>chpa</serviceName>
<instance>3998890f-ac1c-4ee8-baf8-6b0d2331387b</instance>
</source>
<destination>
<serviceName>ClusterAssign</serviceName>
</destination>
<sessionID>getTransport-4</sessionID>
<fault>false</fault>
<Fork>false</Fork>
<requeueCount>0</requeueCount>
<deviceId>
<type>ApplicationInstance</type>
<key class="com.cisco.hcs.sdr.v10_0.KIDInt">
<internalValue>4</internalValue>
</key>
</deviceId>
```

```
<responseCode>PASS</responseCode>
<responseReason>chpaNoError</responseReason>
<clusterName>cl-beta</clusterName>
<mode>HTTP/HTTPS Proxy</mode>
<url></url>
<ipAddress>proxy.esl.cisco.com</ipAddress>
<port>8080</port>
</com.cisco.hcs.hcsagent.message.chpa.GetTransportSettingsResponse>
```

progressInfo: {Verification=Pass, License Mode Change=Not Applicable, Transport Mode Change=Not Application=Pass, License Not Application=Pass errorDescription: null recommendedAction: null jobTypeChanged: true descriptionChanged: true JobEntityChanged: true entityNameChanged: false statusChanged: true isModifiableChanged: false isDeletableChanged: false isRestartableChanged: false isCancelableChanged: false progressInfoChanged: false errorDescriptionChanged: false recommendedActionChanged: false }