Configure and Integrate CMS Single Combined

Contents

Introduction

This document describes how to configure and integrate Cisco Meeting Server (CMS) Single Combined.

the services to configure are Call Bridge, Webadmin, Web Bridge, Extensible Messaging and Presence Protocol (XMPP) and Lightweight Directory Access Protocol (LDAP) integration

Prerequisites

Requirements

Cisco recomends that you have knowledge of these topics:

- Cisco Unified Communications Manager (CUCM)
- Active Directory (AD)
- Certificate Authority (CA)
- Secure File Transfer Protocol (SFTP) client
- Domain Name Service (DNS) server

Components Used

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

- CMS version 2.3.7
- CUCM version 11.5.1
- Google Chrome version 69.0.3497
- WinSCP version 5.7.7
- Windows Server 2012

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.

Configure

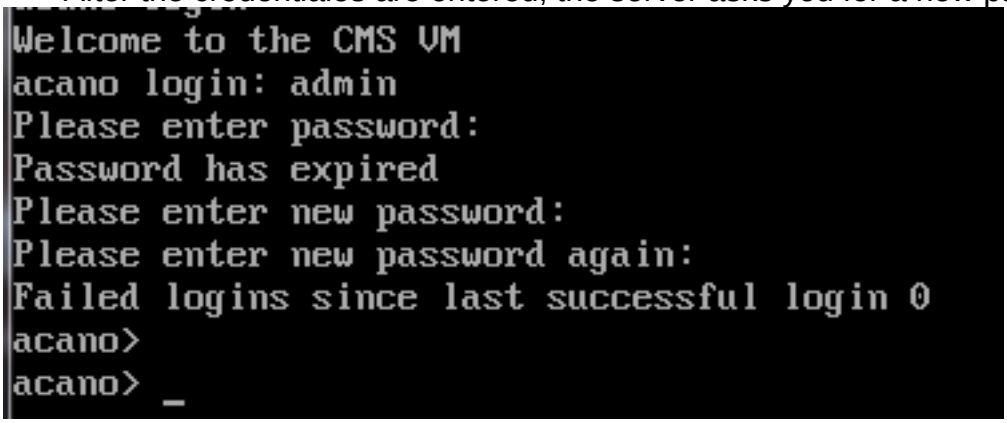
Step1. Access CMS

- The first time you Log in into CMS, the Welcome is shown in the screen and prompts to Log in
- The default credentials are:

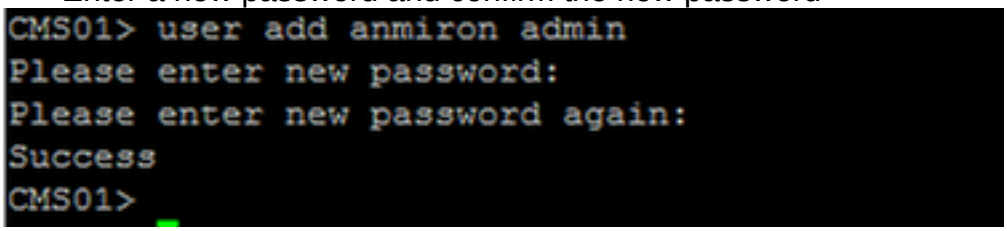
User: admin

Password: admin

- After the credentiales are entered, the server asks you for a new password



- It is recommend that a new admin user is created, it is a good practice in case you lose the password for one account.
- Enter the command: **user add <username> admin**
- Enter a new password and confirm the new password



Step 2. Change the Hostname

- This change is optional

- Run the command **hostname <name>**
- Reboot the server
- Run the command **reboot**

```
acano> hostname CMS01
A reboot is required for the change to take effect
acano>
acano> reboot
Waiting for server to stop...
Waiting for server to stop...
Waiting for server to stop...
Waiting for server to stop...
Waiting for server to stop...
Rebooting...
```

Step 3. Configure network settings

- In order to display the current settings run the command **ipv4 a**
- Add ipv4 configuration
- Run the command **ipv4 <interface> add <ipaddress>/<subnetmask> <gateway>**

```
CMS01> ipv4 a add 172.16.85.8/27 172.16.85.1
Only interface enabled: setting gateway as default egress route
CMS01>
```

- Configure the time zone
- Run the command **timezone <timezoneName>**
- In order to see all the available timezones, Run the command **timezone list**
- Add a Network Time Protocol (NTP) sever
- Run the command **ntp server add <ipaddress>**

```
CMS01> ntp server add 10.88.246.254
CMS01>
CMS01> timezone America/Mexico_City
Reboot the system to finish updating the timezone
CMS01>
CMS01> _
```

- Add a DNS server
- Run the command **dns add forwardzone <domain> <dnsip>**

```
CMS01> dns add forwardzone . 172.16.85.2
CMS01>
```

> **Note**: A specific domain can be configured for DNS lookup, however if any domain can be resolved by the DNS, then use a dot as the domain

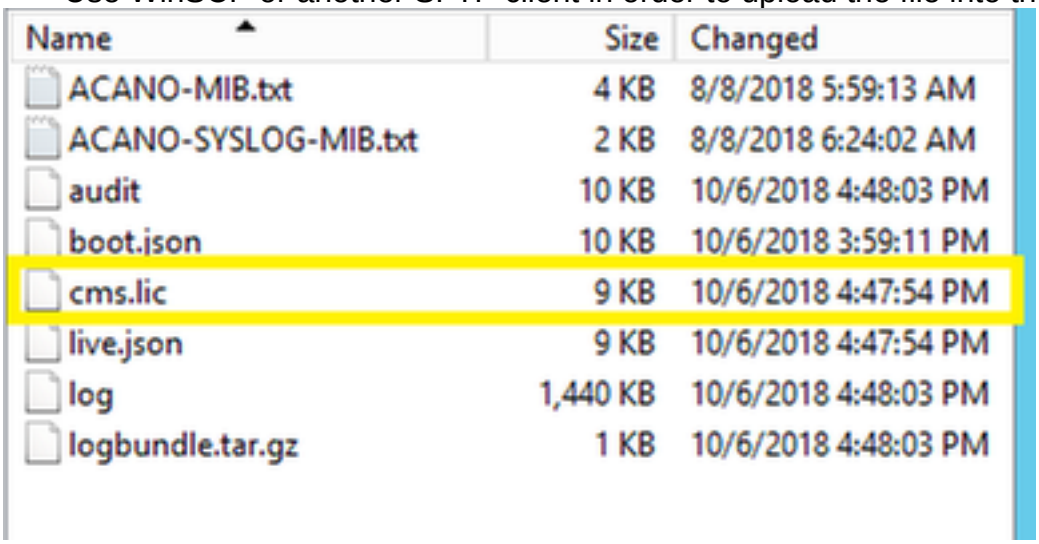
Step 4. License the CMS

- In order to configure the CMS services, it requires a license to be installed
- In order to generate and install the license the Media Access Contol (MAC) address is required, since the licenses will be matched to it.
- Run the command **iface a**
- Copy the **MAC address**
- Contact your Sales representative so a license can be generated.

Note: The process to generate the license is out of the scope of this document.

```
CMS01> iface a
Mac address 00:50:56:96:CD:2A
Configured values:
Auto-negotiation:   default
Speed:              default
Duplex:             default
MTU:                1500
Observed values:
Speed:              10000
Duplex:             full
CMS01>
CMS01>
```

- Once you have the license file, rename the file to **cms.lic**
- Use WinSCP or another SFTP client in order to upload the file into the CMS server



- Once the file is uploaded run the command **license**
- Reboot the server
- Run the command **reboot**

```
CMS01> license
Feature: callbridge status: Activated expiry: 2019-Jan-04 (88 days remain)
Feature: turn status: Activated expiry: 2019-Jan-04 (88 days remain)
Feature: webbridge status: Activated expiry: 2019-Jan-04 (88 days remain)
Feature: recording status: Activated expiry: 2019-Jan-04 (88 days remain)
Feature: personal status: Activated expiry: 2019-Jan-04 (88 days remain)
Feature: shared status: Activated expiry: 2019-Jan-04 (88 days remain)
CMS01>
CMS01> reboot
Waiting for server to stop...
```

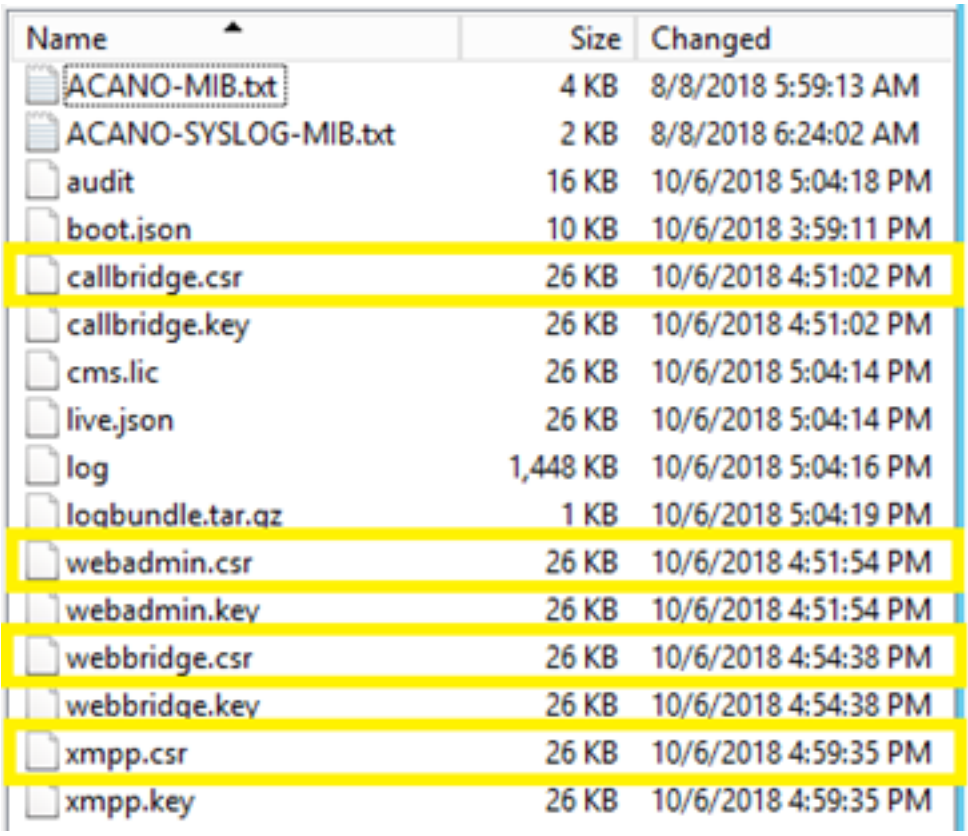
Step 5. Generate and install certificates

- Generate a Certificate Signing Request (CSR) for callbridge, webadmin, webbridge and xmpp
- Run the command **pki csr <service> CN:<servicefqdn>** for this purpose.

```
CMS01> pki csr callbridge CN:callbridge.anmiron.local
.................................
.................
Created key file callbridge.key and CSR callbridge.csr
CSR file callbridge.csr ready for download via SFTP
CMS01>
CMS01> pki csr webadmin CN:cms01.anmiron.local
.......
.................................
Created key file webadmin.key and CSR webadmin.csr
CSR file webadmin.csr ready for download via SFTP
CMS01> pki csr webbridge CN:webbridge.anmiron.local
.......
...............
Created key file webbridge.key and CSR webbridge.csr
CSR file webbridge.csr ready for download via SFTP
CMS01>
CMS01> pki csr xmpp CN:xmpp.anmiron.local
............
...
Created key file xmpp.key and CSR xmpp.csr
CSR file xmpp.csr ready for download via SFTP
```

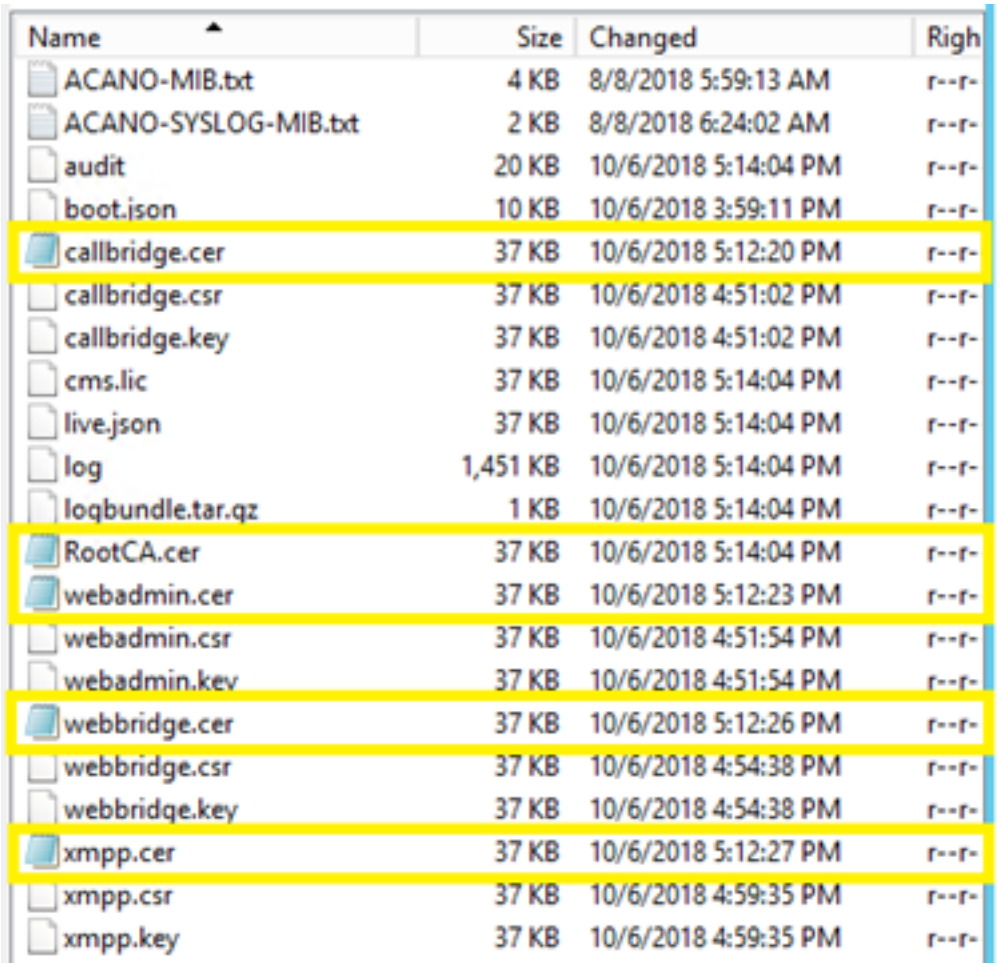
> **Note**: In this example, a single certificate for each server is created, you can create one certificate for all the services. For more information about certificate creation, review the Certificate Creation Guide

- Two files are generated after running the command: .**csr** file and a .**key** file**.** with thename of the service you assigned on previous steps.
- Download the CSR files from the CMS server. Use WinSCP or other SFTP client for this purpose.



Name	Size	Changed
ACANO-MIB.txt	4 KB	8/8/2018 5:59:13 AM
ACANO-SYSLOG-MIB.txt	2 KB	8/8/2018 6:24:02 AM
audit	16 KB	10/6/2018 5:04:18 PM
boot.json	10 KB	10/6/2018 3:59:11 PM
callbridge.csr	26 KB	10/6/2018 4:51:02 PM
callbridge.key	26 KB	10/6/2018 4:51:02 PM
cms.lic	26 KB	10/6/2018 5:04:14 PM
live.json	26 KB	10/6/2018 5:04:14 PM
log	1,448 KB	10/6/2018 5:04:16 PM
logbundle.tar.gz	1 KB	10/6/2018 5:04:19 PM
webadmin.csr	26 KB	10/6/2018 4:51:54 PM
webadmin.key	26 KB	10/6/2018 4:51:54 PM
webbridge.csr	26 KB	10/6/2018 4:54:38 PM
webbridge.key	26 KB	10/6/2018 4:54:38 PM
xmpp.csr	26 KB	10/6/2018 4:59:35 PM
xmpp.key	26 KB	10/6/2018 4:59:35 PM

- Sign the CSR with a Certificate Authority
- Ensure to use a template that contains **Web Client** and **Web Server Authentication**
- Upload the signed certificate to the CMS server
- Ensure to upload the **Root CA** and any **Intermediate** certificate that had signed the certificates



Name	Size	Changed	Righ
ACANO-MIB.txt	4 KB	8/8/2018 5:59:13 AM	r--r-
ACANO-SYSLOG-MIB.txt	2 KB	8/8/2018 6:24:02 AM	r--r-
audit	20 KB	10/6/2018 5:14:04 PM	r--r-
boot.json	10 KB	10/6/2018 3:59:11 PM	r--r-
callbridge.cer	37 KB	10/6/2018 5:12:20 PM	r--r-
callbridge.csr	37 KB	10/6/2018 4:51:02 PM	r--r-
callbridge.key	37 KB	10/6/2018 4:51:02 PM	r--r-
cms.lic	37 KB	10/6/2018 5:14:04 PM	r--r-
live.json	37 KB	10/6/2018 5:14:04 PM	r--r-
log	1,451 KB	10/6/2018 5:14:04 PM	r--r-
logbundle.tar.gz	1 KB	10/6/2018 5:14:04 PM	r--r-
RootCA.cer	37 KB	10/6/2018 5:14:04 PM	r--r-
webadmin.cer	37 KB	10/6/2018 5:12:23 PM	r--r-
webadmin.csr	37 KB	10/6/2018 4:51:54 PM	r--r-
webadmin.key	37 KB	10/6/2018 4:51:54 PM	r--r-
webbridge.cer	37 KB	10/6/2018 5:12:26 PM	r--r-
webbridge.csr	37 KB	10/6/2018 4:54:38 PM	r--r-
webbridge.key	37 KB	10/6/2018 4:54:38 PM	r--r-
xmpp.cer	37 KB	10/6/2018 5:12:27 PM	r--r-
xmpp.csr	37 KB	10/6/2018 4:59:35 PM	r--r-
xmpp.key	37 KB	10/6/2018 4:59:35 PM	r--r-

- In order to verify all the certificates are listed on CMS, run the command **pki list**

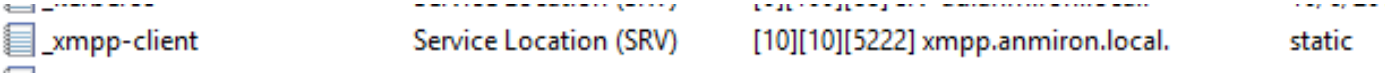
```
CMS01> pki list
User supplied certificates and keys:
callbridge.key
callbridge.csr
webadmin.key
webadmin.csr
webbridge.key
webbridge.csr
xmpp.key
xmpp.csr
callbridge.cer
webadmin.cer
webbridge.cer
xmpp.cer
RootCA.cer
CMS01>
```

Step 6. DNS Records

- Create the DNS Address (A) records for callbridge, xmpp, webadmin and webbridge
- Ensure all records point to the CMS IP Address

- Create a Service Record (SRV) for **xmpp-client**
- The service record format is

Service _xmpp-client
Protocol _tcp
Port 5222
Target Enter the XMPP FQDN, for example **xmpp.anmiron.local**



Step 7. Service Configuration

Configure the callbridge:

- Enter the command **callbridge listen <interface>**
- Enter the command **callbridge certs <callbridge-key-file> <crt-file> [<cert-bundle>]**
- The **key-file** is the key created when the CSR is created
- The **cert-bundle** is the bundle of the **Root CA** and any other intermediate certificate

```
CMS01> callbridge listen a
CMS01>
CMS01> callbridge certs callbridge.key callbridge.cer RootCA.cer
CMS01>
```

Note: The Call Bridge listen interface must not be set on an interface that is configured to use Network Address Translation (NAT) to another IP address

Configure webadmin:

- Run the command **webadmin listen <interface> <port>**
- Run the command **webadmin certs <key-file> <crt-file> [<cert-bundle>]**

```
CMS01> webadmin listen a 445
CMS01>
CMS01> webadmin certs webadmin.key webadmin.cer RootCA.cer
CMS01>
```

Note: If the webadmin and webbridge are configured in the same server, they must be configured on different interfaces or listen in different ports, the webbridge requires to listen in port 443. The webadmin is usually configured in port 445.

Configure XMPP:

- Run the command **xmpp listen <interface whitelist>**
- Run the command **xmpp domain <domain name>**
- Run the command **xmpp certs <key-file> <crt-file> [<crt-bundle>]**

```
CMS01> xmpp listen a
CMS01>
CMS01> xmpp domain anmiron.local
CMS01>
CMS01> xmpp certs xmpp.key xmpp.cer RootCA.cer
CMS01>
```

Note: The domain name must match the domain where the DNS records were created.

Configure webbridge:

- Run the command **webbridge listen <interface[:port] whitelist>**
- Run the command **webbridge certs <key-file> <crt-file> [<crt-bundle>]**
- Run the command **webbridge trust <crt-bundle>**

```
CMS01> webbridge listen a
CMS01>
CMS01> webbridge certs webbridge.key webbridge.cer RootCA.cer
CMS01>
CMS01> webbridge trust callbridge.cer
CMS01>
```

Note: The trust **crt-bundle** is the callbridge certificate and must be added to the webbridge in order for the callbridge to trust the webbridge, this will enable the **Join as a Guest** feature.

- Run the command **callbridge restart**

- Run the command **wbeadmin enable**
- Run the command **xmpp enable**
- Run the command **webbridge enable**

```
CMS01> callbridge restart
SUCCESS: listen interface configured
SUCCESS: Key and certificate pair match
SUCCESS: certificate verified against CA bundle
CMS01>
CMS01> webadmin enable
SUCCESS: TLS interface and port configured
SUCCESS: Key and certificate pair match
SUCCESS: certificate verified against CA bundle
CMS01>
CMS01> xmpp enable
SUCCESS: Callbridge activated
SUCCESS: Domain configured
SUCCESS: Key and certificate pair match
SUCCESS: certificate verified against CA bundle
SUCCESS: XMPP server enabled
CMS01>
CMS01> webbridge enable
SUCCESS: Key and certificate pair match
SUCCESS: certificate verified against CA bundle
SUCCESS: Webbridge enabled
CMS01>
```

> **Note**: The server must return **SUCCESS** for all the services, if it returns **FAILURE**, review the previous steps and validate all the configuration is correct

To allow the Call Bridge to access the XMPP service securely, it is necessary to provide a **component name** for the Call Bridge to use to authenticate with the XMPP service.

- Run the command **xmpp callbridge add <component name>**
- The result shows a Secret, as shown in the image

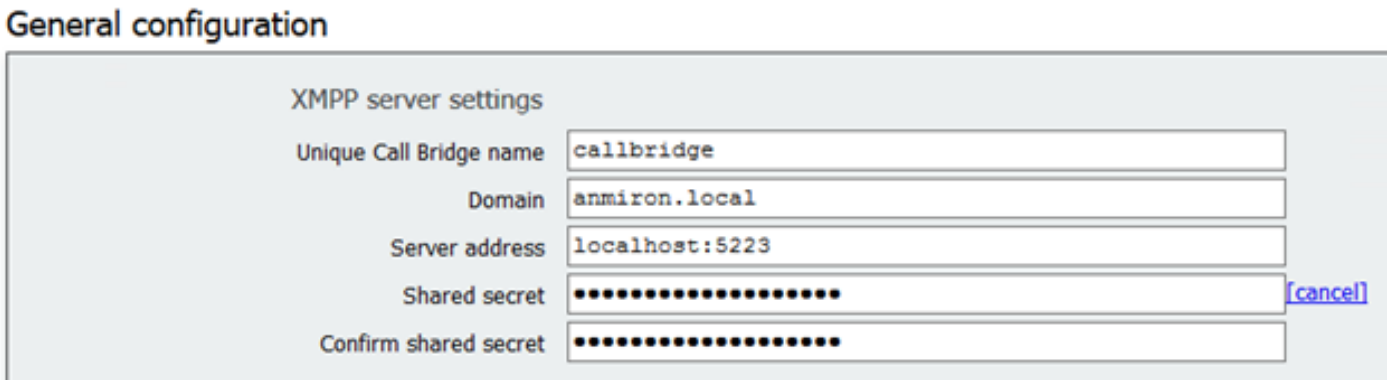
```
CMS01> xmpp callbridge add callbridge
Success              : true
Callbridge : callbridge
Domain     : anmiron.local
Secret     : 6DwNANabpumutI4pAb1
CMS01>
```

- Copy the **Secret** value
- Acess to the CMS web Interface
- Navigate to **Configuration > General**
- Enter the information

Unique Call Bridge name	Enter the name of the created callbridge, for example **callbridge**

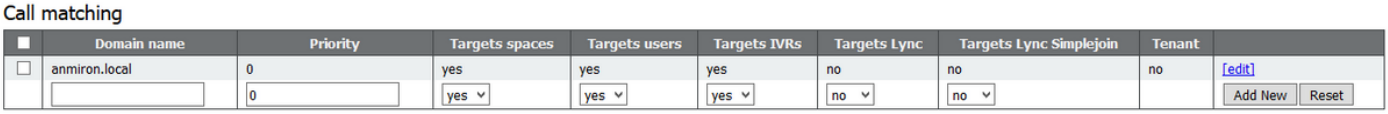
Domain Enter the domain name, for example **anmiron.local**
Server address Set the CMS IP address, for example **localhost:5223**
Shared secret Enter the Secret created in the previous step, for example **6DwNANabpumut14pAb1**

- Select **Submit**



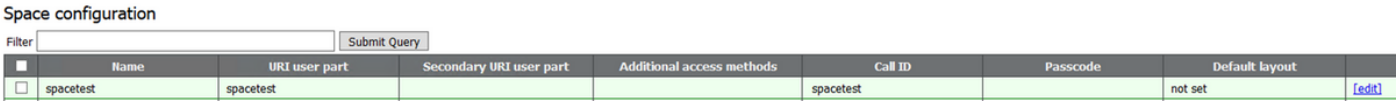
- Create an **Incoming Call Matching Rule** for Incoming calls
- Navigate to **Configuration > Incoming calls**
- Enter the information

Domain Enter the domain name of the CMS server, for example **anmiron.local**
Priority Enter a value for the priority, for eaxmple **0**
Target Spaces Select **yes**



- Create a Space for test
- Navigate to **Configuration > Spaces**
- Enter the information

Name Enter a name for the space, for example **spacetest**
URI user part Enter a URI for this space to be called, for example **spacetest**
Call ID Enter the call ID to join this space from webbridge, for example **spacetest**
Passcode Enter a number if to allow access to the space if it is required

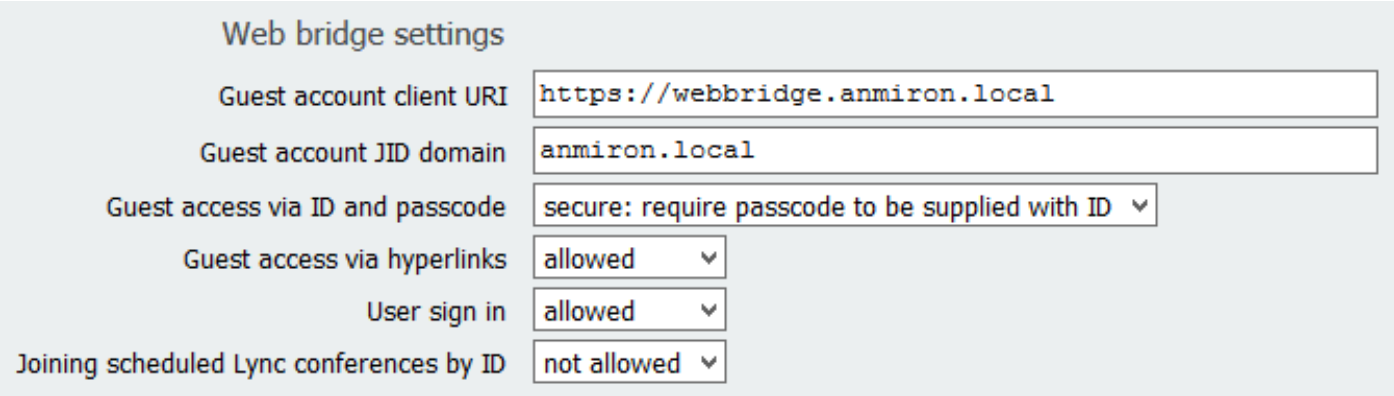


> **Note**: The **URI user part** is what the callers need to dial at the domain configured on the **Incoming Call Matching Rule**, for example, the caller has to dial **spacetest@anmiron.local**

- Navigate to **Configuration > General > Web bridge settings**
- Enter the information

Guest account client URI This is the webbridge web interface, for example **https://webbridge.anmiron.local**
Guest Account JID domain The configured domain in CMS, for example **anmiron.local**
Guest access via Select **allowed**

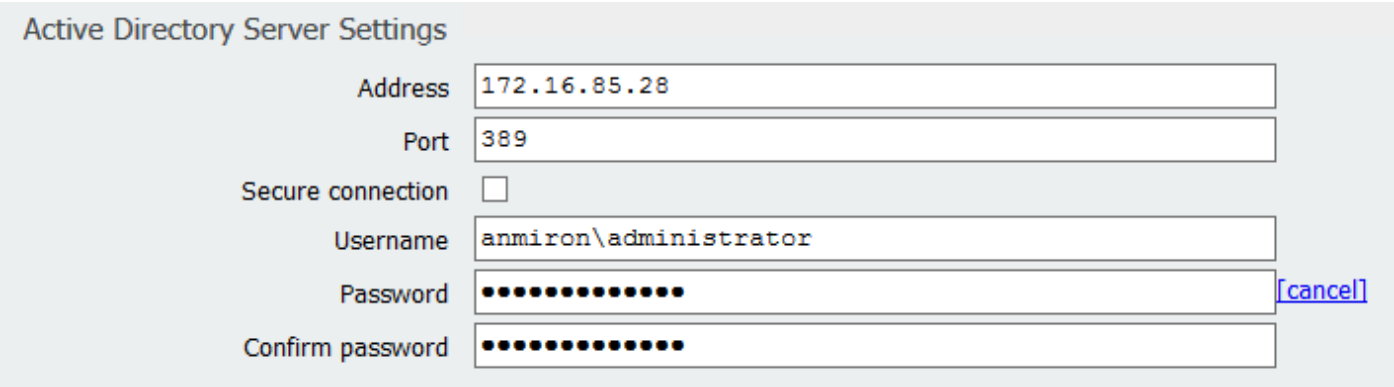
hyperlink

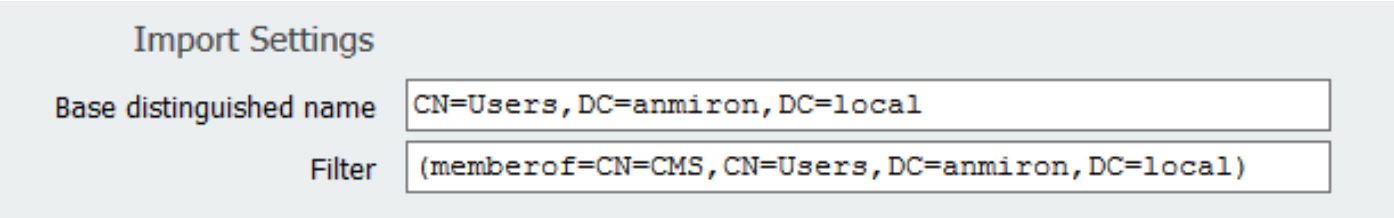


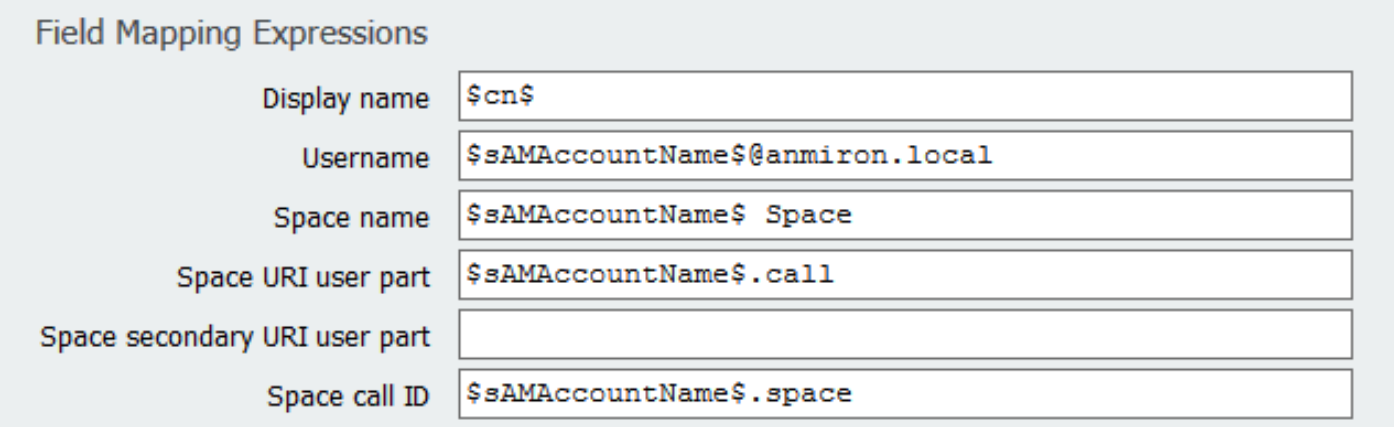
Step 8. Integrate LDAP

- Open the CMS web interface
- Navigate to **Configuration > Active Directory**
- Enter the information

Address	The LDAP server IP address, for example **172.16.85.28**
Port	This is **389** if you are using a non-secure connection and **636** if secure connection i required
Username	Enter an Administrator of LDAP server, for example **anmiron\administrator**
Password	Enter the password of the Administrator user
Base Distinguished name	This is a setting from Active directory, for example **CN=Users, DC=anmiron, DC=l**
Filter	This is a setting from Active directory, for example **(memberof=CN=CMS, CN=Use DC=anmiron, DC=local)**
Display Name	How the user name is shown, for example **cn**
Username	The Log in ID for the user, for example **$sAMAccountName$@anmiron.local**
Space Name	How the space is shown, for example **$sAMAccountName$ Space**
Space URI user part	The URI to be dialed, for example **$sAMAccountName$.call**
Space Call ID	The Call ID to be used from webbridge, for example **$sAMAccountName$.space**



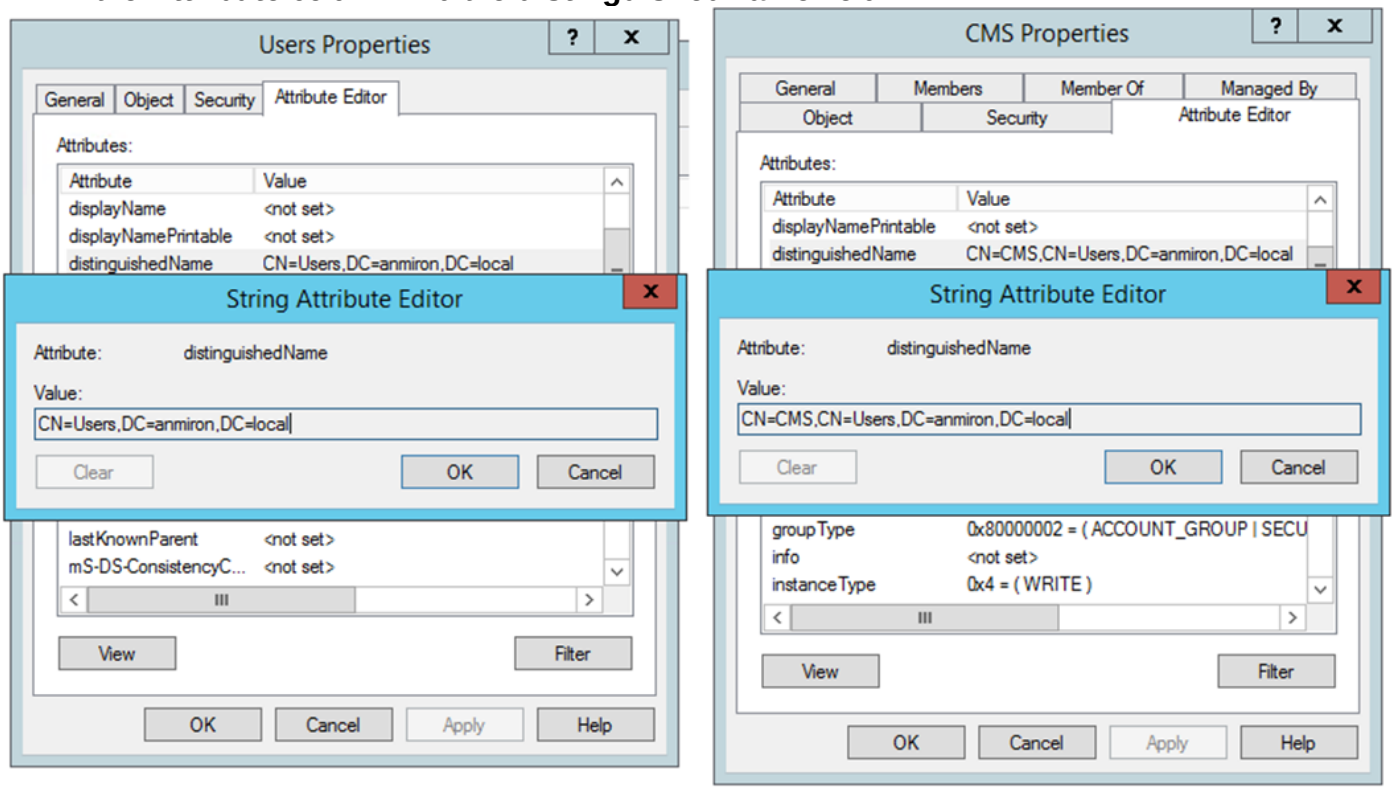




- Select **Submit**
- Select **Sync now**

Base distinguished name and Filter are settings from the Active Directory. This example contains basic information to obtain the information with Attribute editor on Active Directory. In order to open the **Attribute editor**, enable **Advanced Features** on **Active Directory.** Navigate to **Users and Computers > View** and select **Advanced Features**

- For this example a group called **CMS** is created
- Open the **Users and Computers** feature on AD
- Select right one **User** and open the properties
- Navigate to **Attribute Editor**
- In the **Attribute** column find the **distinguishedName** field

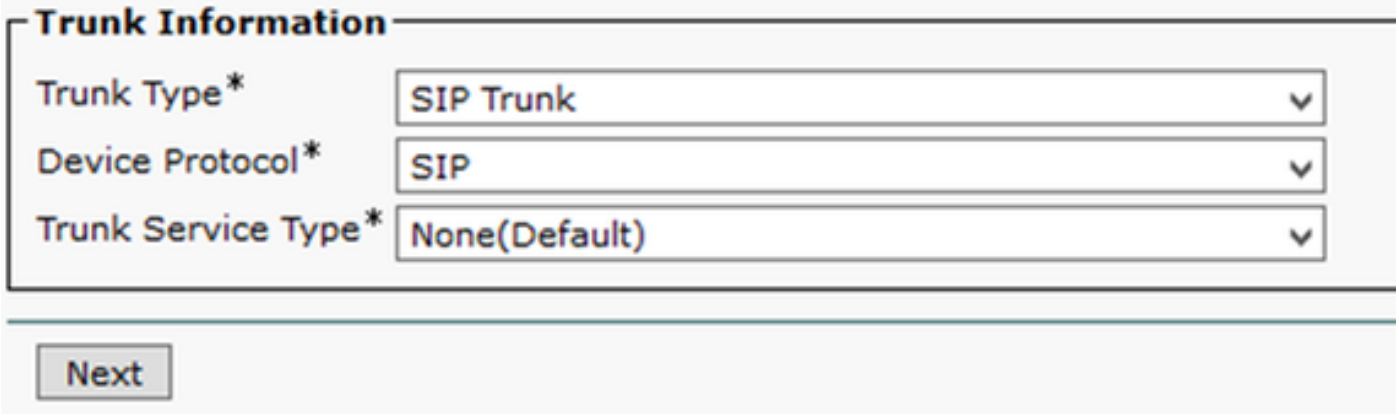


Note: For more information in regards the LDAP filters, visit the CMS deployment Guide

Step 9. Configure CUCM

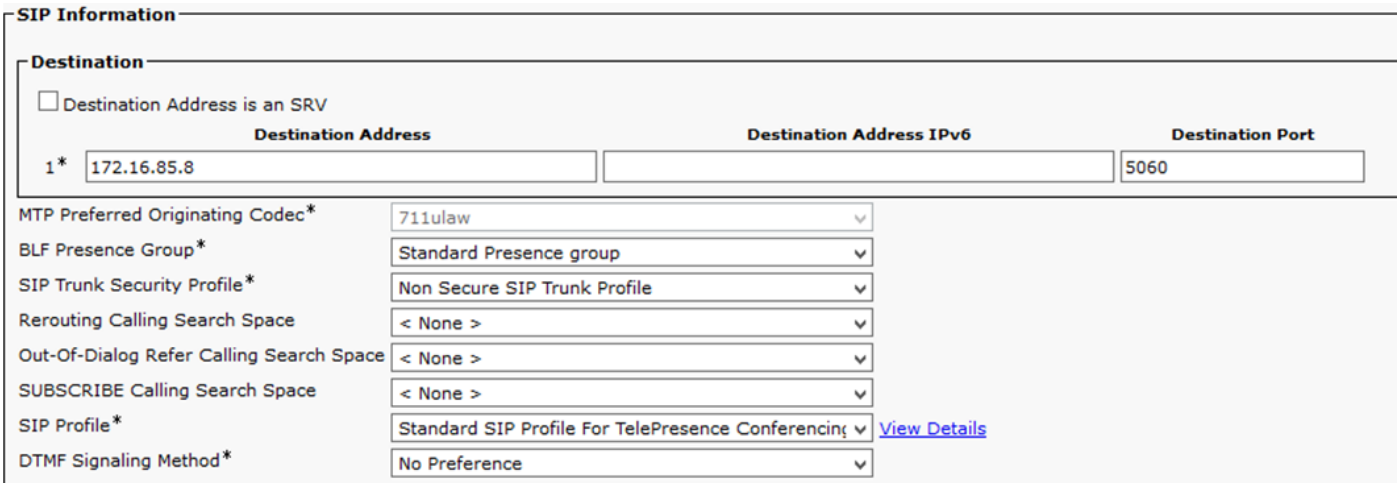
- Open the web interface of CUCM

- Navigate to **Device > Trunks**
- Select **Add New**
- In the **Trunk Type** drop-down menu select **SIP Trunk**
- Select **Next**



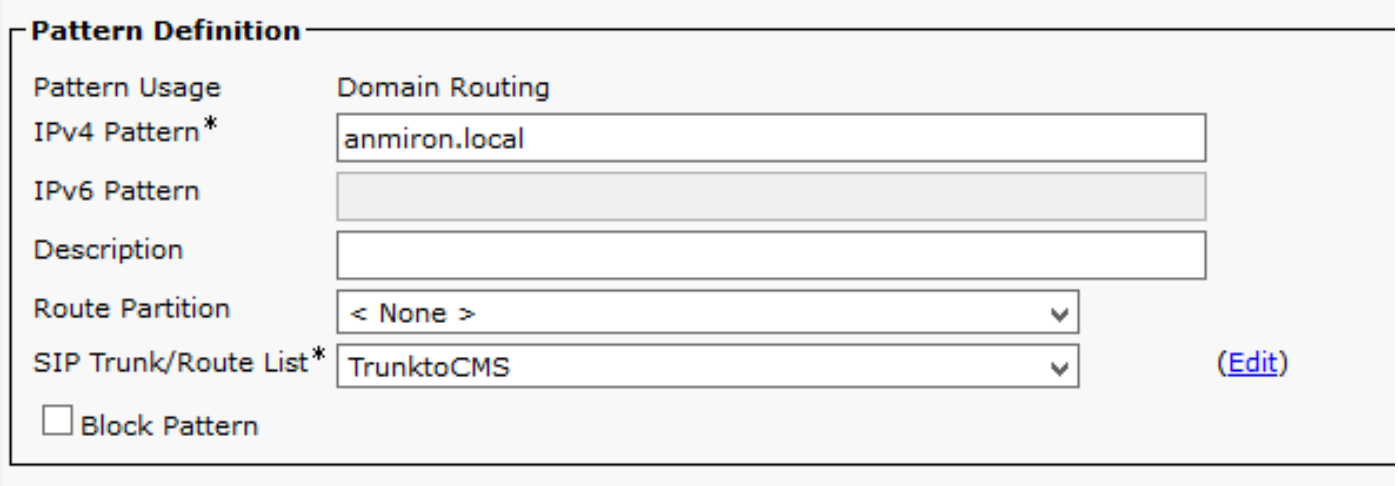
- Enter the information

Device Name Enter a name for the SIP Trunk, for example **TrunktoCMS**
Destination Address Enter the CMS IP address or the Call Bridge FQDN, for example **172.16.85.8**
Destination Port Enter the port where the CMS listens, for example **5060**
SIP Trunk Security Profile Select the Secure Profile, for example **Non Secure SIP Trunk Profile**
SIP Profile Select **Standar SIP Profile for TelePresence Conferencing**



- Select **Save**
- Select **Reset**
- Navigate to **Call routing > SIP Route pattern > Add New > Select Domain Routing**
- Enter the information

IPv4 Pattern Enter the domain configured to CMS, for example **anmiron.local**
SIP Trunk/Route List Select the previous created SIP Trunk, **TrunktoCMS**

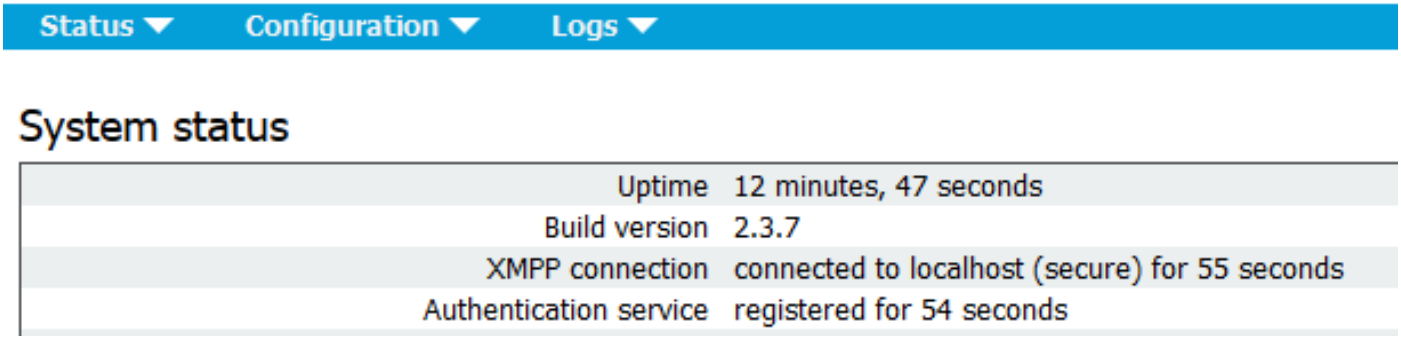


- Select **Save**

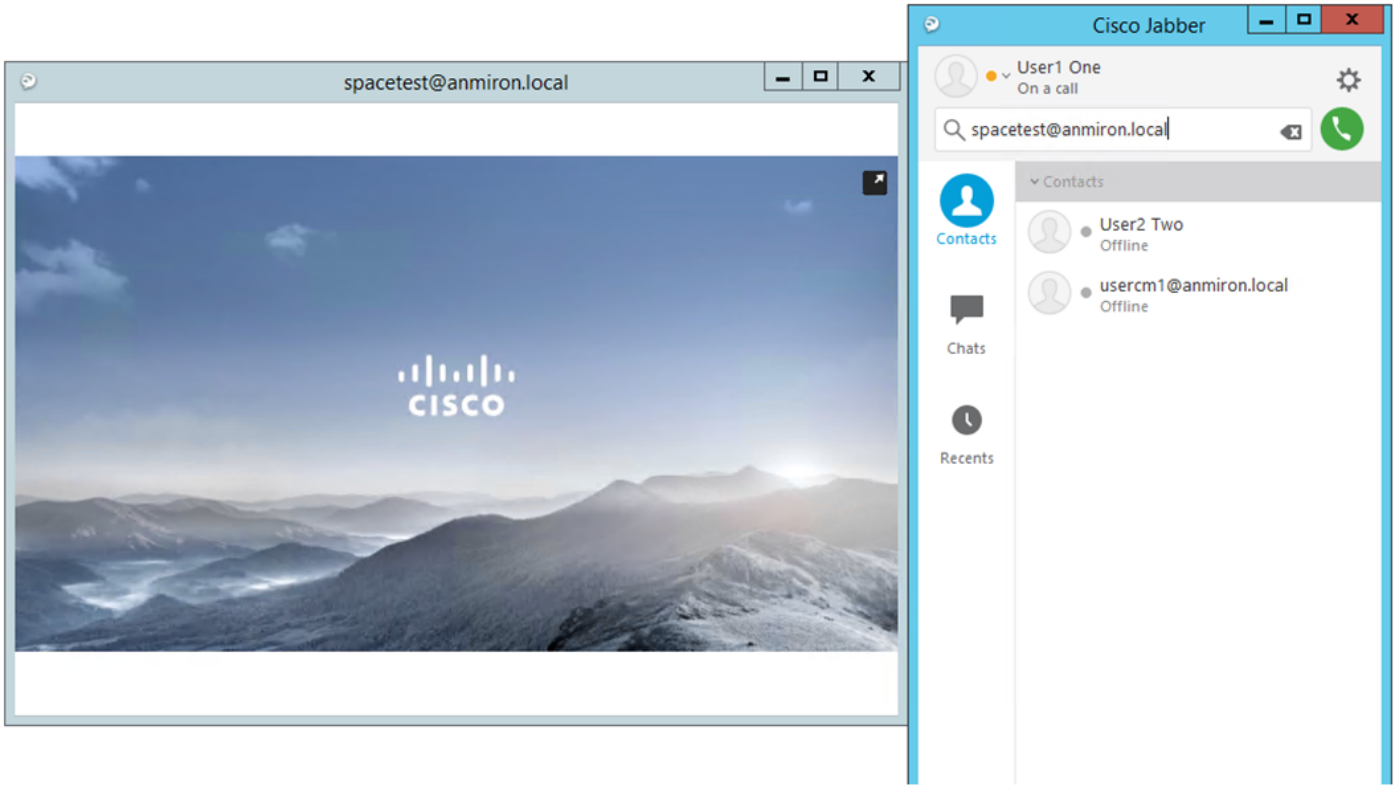
Verify

Callbridge and XMPP communication

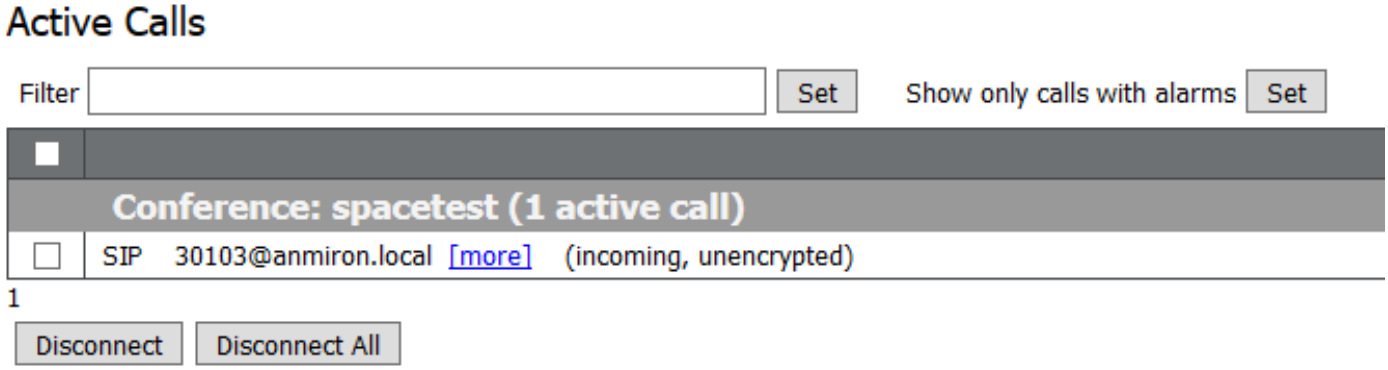
- Open the web interface of CMS
- Navigate to **Status > General**
- The XMPP connection status must be connected to localhost



- Make a call from a device registered on CUCM
- Dial the URI **spacetest@anmiron.local**

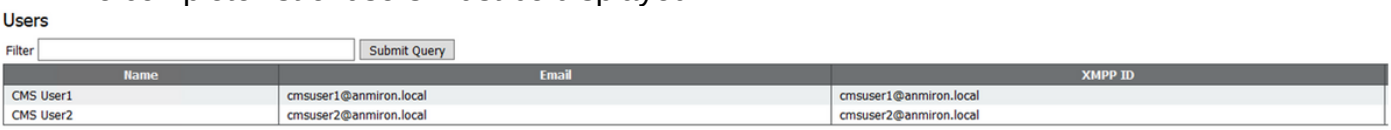


- Open the web interface of CMS
- Navigate to **Status > Calls**
- The call must be shown as **Active Call**



LDAP Syncronization with CMS

- Open the CMS web interface
- Navigate to **Status > Users**
- The complete list of users must be displayed



- Navigate to **Configuration > Spaces**
- Ensure that every user has its own space created

Space configuration

Filter Submit Query

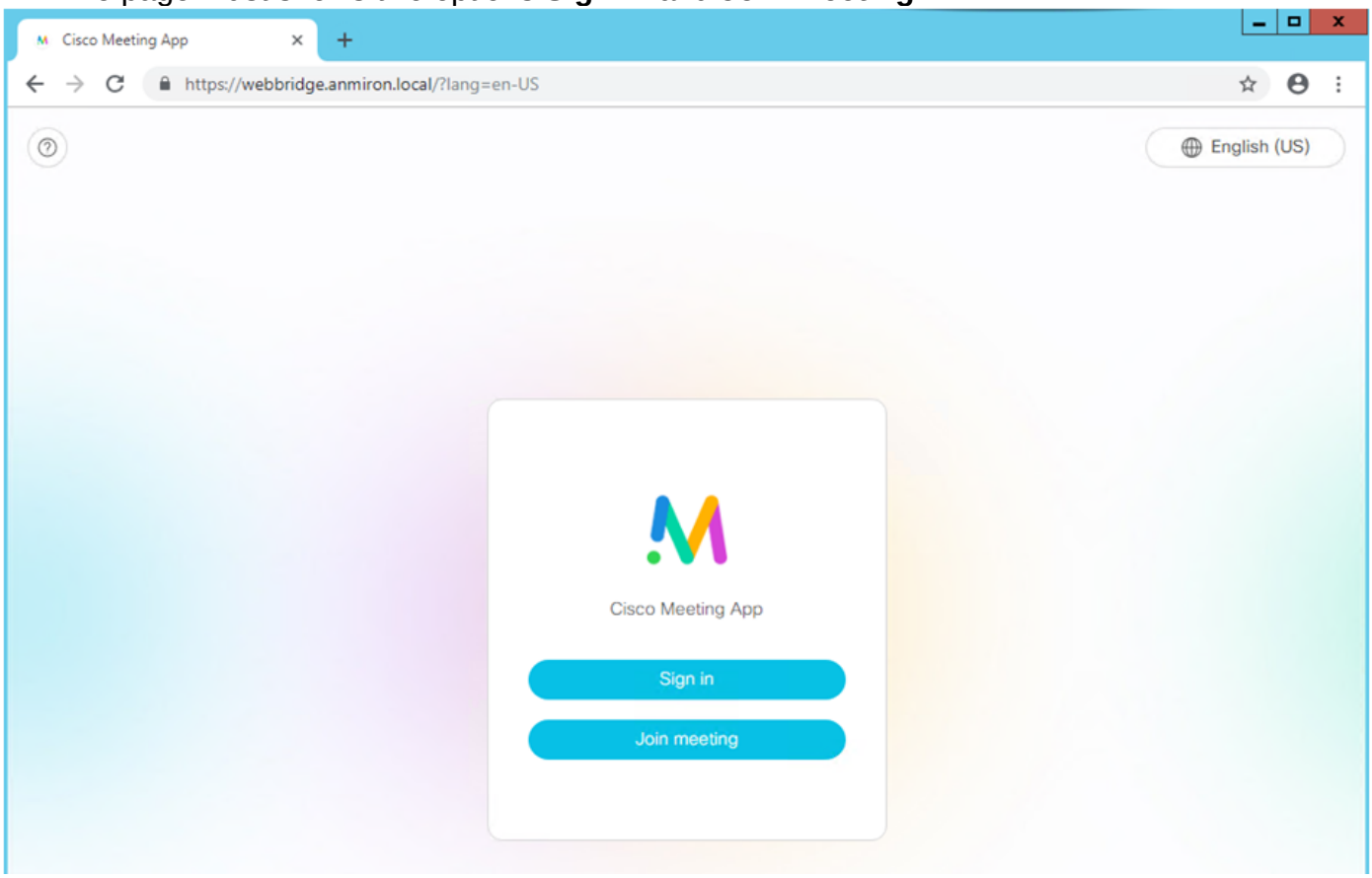
	Name	URI user part	Secondary URI user part	Additional access methods	Call ID	Passcode	Default layout	
	cmsuser1 Space	cmsuser1.call			cmsuser1.space		not set	[edit]
	cmsuser2 Space	cmsuser2.call			cmsuser2.space		not set	[edit]
	spacetest	spacetest			spacetest		not set	[edit]
							not set	Add New Reset

1

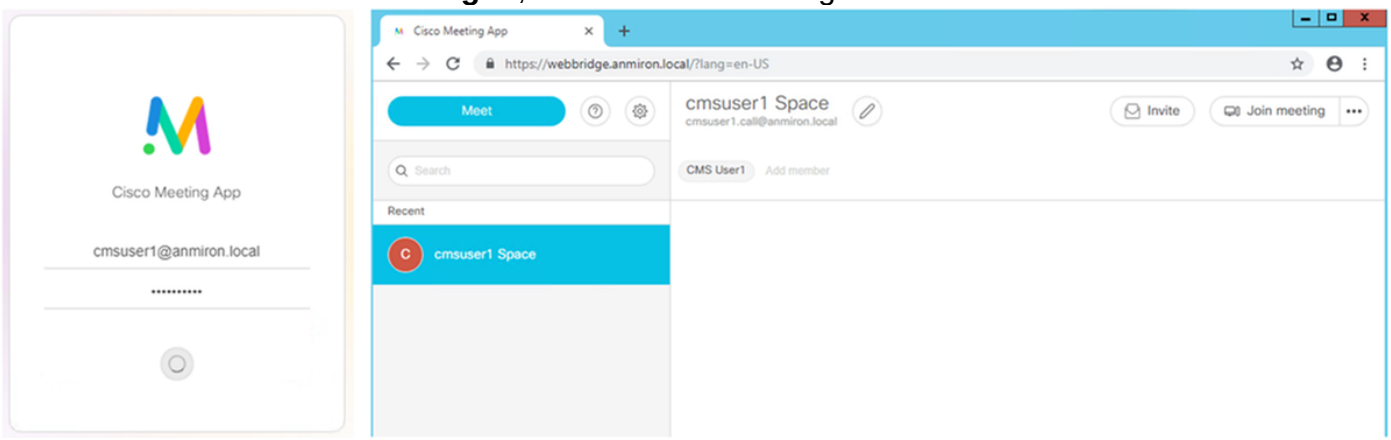
Delete

Access to Webbridge

- Use the Web Browser to access the web page configured for the webbridge service, https://webbridge.anmiron.local
- The page must shows two options **Sign in** and **Join meeting**



- The users previously integrated from AD must be able to Log in
- Select **Sign in**
- Enter the **Username** and **Password**
- The user must be able to **Log in**, as shown in the image



Troubleshoot

There is currently no specific troubleshooting information available for this configuration.