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Introduction

This document describes how the modus operandi configure directories service via Cisco Unified Communications Domain Manager 8.X (CUCDM).

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Cisco Unified Communications Domain Manager (CUCDM)
- Cisco Unified Communications Managers(CUCM)

Components Used

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

- Cisco Unified Communications Domain Manager (CUCDM) 8.X
- Cisco Unified Communications Managers (CUCM) 9.x or later

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

The Corporate/Personal Directory hosted on a CUCM can be accessed on an IP phone when the corresponding **Directories** button is pressed.

The modus operandi and response will differ depending on the value set for the Parameter Services Provisioning in CUCM (Navigate to **CUCM administration pages > System > Enterprise Parameters > Services Provisioning**).

The Services Provisioning Parameter can have these values:

- Internal
- External
- Both

Configure (not HCS deployment): Services Provisioning Set to Internal

By default the Services Provisioning parameter is set to Internal.

With this setting, the IP phone obtains the list of phone services from its configuration file instead of sending an HTTP GET message to Unified CM (or an externally hosted Directory).

These Phone services can be found under **/CCMAdmin > Device > Phone > Phone Services**.

As shown in the image, you will find a number of directory related services like:

- Corporate Directory
- Missed Calls
- Personal Directory
- Placed Calls
- Received Calls

The screenshot shows the 'Find and List IP Phone Services' interface. At the top, there are navigation tabs: System, Call Routing, Media Resources, Advanced Features, Device, Application, User Management, Bulk Administration, and Help. Below the navigation is a header for 'Find and List IP Phone Services' with buttons for 'Add New', 'Select All', 'Clear All', and 'Delete Selected'. A status bar indicates '11 records found'. The main table is titled 'IP Phone Service (1 - 11 of 11)'. It has columns for checkboxes, service names, descriptions, and a 'true/false' status. The services listed are: Corporate Directory, Extension Mobility Service, IP Phone Messenger, Intercom Calls, Missed Calls, Personal Directory, Placed Calls, Received Calls, Voicemail, blocco telefono, and testXMLscript. Red arrows point to the service names: Corporate Directory, Missed Calls, Personal Directory, Placed Calls, and Received Calls.

<input type="checkbox"/>	IP Phone Service ^	Description	
<input type="checkbox"/>	Corporate Directory	Corporate Directory	true
<input type="checkbox"/>	Extension Mobility Service	Extension Mobility Service	false
<input type="checkbox"/>	IP Phone Messenger		false
<input type="checkbox"/>	Intercom Calls	Intercom Calls	false
<input type="checkbox"/>	Missed Calls	Missed Calls	true
<input type="checkbox"/>	Personal Directory	Personal Directory	true
<input type="checkbox"/>	Placed Calls	Placed Calls	true
<input type="checkbox"/>	Received Calls	Received Calls	true
<input type="checkbox"/>	Voicemail	Voicemail	true
<input type="checkbox"/>	blocco telefono		false
<input type="checkbox"/>	testXMLscript		false

These are the configuration of XML Directory Services :

The screenshot shows the 'IP Phone Services Configuration' page. At the top, there are buttons for 'Save', 'Delete', 'Update Subscriptions', and 'Add New'. A status bar indicates 'Update successful'. The main section is titled 'Service Information' and contains the following fields: Service Name* (Corporate Directory), ASCII Service Name* (Corporate Directory), Service Description (Corporate Directory), Service URL* (Application: Cisco/CorporateDirectory), Secure-Service URL, Service Category* (XML Service), Service Type* (Directories), Service Vendor, and Service Version. There is a checkbox for 'Enable' which is checked. Below the service information is a section for 'Service Parameter Information' with a 'Parameters' field and buttons for 'New Parameter', 'Edit Parameter', and 'Delete Parameter'. At the bottom, there are buttons for 'Save', 'Delete', 'Update Subscriptions', and 'Add New'.

As shown in the image above, the Enable checkbox determines whether the service is enabled or not.

Unchecking this checkbox effectively removes this service from the List of Services that can be seen on the phone when pressing the **Directories** button.

Configure (not HCS deployment): Services Provisioning Set to External

With Services Provisioning set to **External URL** when a user presses the Directories button, the Directory Services are not provided by the XML services in CUCM. Instead the phone will fire off an HTTP GET message to the CUCM Web Server (or an externally hosted Directory like CUCDM).

The responses from the web server must contain some specific Extensible Markup Language (XML) objects that the phone can interpret and display the HTTP string the phone uses in this request is configured on CUCM:

Under **System > Enterprise Parameters > URL Directories**.

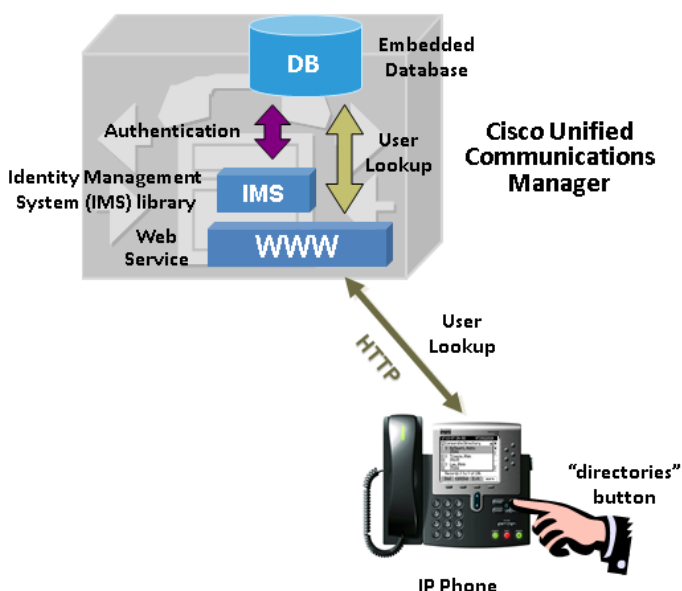
By default, Cisco Unified IP Phones are configured to perform user lookups against CUCM's embedded Directory database (DB).

The default URL under URL directories would be similar to this:

<http://X.X.X.X:8080/ccmcip/xmldirectory.jsp> (where X.X.X.X is the IP address of CUCM)

The image shown, depicts a scenario in which you use a phone and press the Directories button to query CUCM's Directory DB (with Services Provisioning set to External)

However, it is possible to change this configuration so that the lookup is performed against another external Directory Database (for example CUCDM)



This is a trace example of an IP phone pressing the **Directories** button with Services Provisioning set to External.

1. Open a secure Shell Commands (SSH) session to the CUCM CLI and activate the sniffer on CUCM admin:

```
utils network capture eth0 size ALL count 100000 file TestDirectory
```

```
Executing command with options:size=ALL count=100000  
interface=eth0src=dest= port=ip=
```

2. Press the Directories button on the Phone Then after you have pressed the Directories button on the phone, press Control-C on the SSH session to stop the sniffer.

3. Search for your sniffer trace:admin:file list **activelog/platform/clicapTURE1.cap**

```
capture1_1.capTestDirectory.capdir count = 0, file count = 2
```

4. Transfer the sniffer from CUCM to an SFTP location:admin:file get **activelog/platform/cli/TestDirectory.cap**

Please wait while the system is gathering files info ...done.

Sub-directories were not traversed.

Number of files affected: 1

Total size in Bytes: 2490

Total size in Kbytes: 2.4316406

Would you like to proceed [y/n]?

SFTP server IP: X.X.X.X

SFTP server port [22]:

User ID: administrator

Password: *****

Download directory: /

Transfer completed.

Looking at the sniffer, you can now filter based on HTTP.

There will be an original HTTP request from the phone to the external Directory location:

No.	Time	Source	Destination	Protocol	Info
24	14:56:32.517211	10.20.50.5	10.48.55.75	HTTP	GET /ccmcip/xmlldirectory.jsp?locale=English_United_States&name=SEP0ABCDEFGHILM HTTP/1.1

Hypertext Transfer Protocol

GET /ccmcip/xmldirectory.jsp?locale=English_United_States&name=SEP0ABCDEFGHILM HTTP/1.1\r\n

[Expert Info (Chat/Sequence): GET

/ccmcip/xmldirectory.jsp?locale=English_United_States&name=SEP0ABCDEFGHILM HTTP/1.1\r\n]

[Message: GET

/ccmcip/xmldirectory.jsp?locale=English_United_States&name=SEP0ABCDEFGHILM HTTP/1.1\r\n]

[Severity level: Chat]

[Group: Sequence]

Request Method: GET

Request URI: /ccmcip/xmldirectory.jsp?locale=English_United_States&name=SEP0ABCDEFGHILM

Request Version: HTTP/1.1

And consequently an HTTP response from the external directory (in this case CUCM) to the phone:

No.	Time	Source	Destination	Protocol	Info
26	14:56:32.782065	10.48.55.75	10.20.50.5	HTTP/XML	HTTP/1.1 200 OK

Hypertext Transfer Protocol

HTTP/1.1 200 OK\r\n

[Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]

[Message: HTTP/1.1 200 OK\r\n]

[Severity level: Chat]

[Group: Sequence]

Request Version: HTTP/1.1

Response Code: 200

X-Frame-Options: SAMEORIGIN\r\n

Set-Cookie: JSESSIONID=CC2685E493C848543BCE84D2AEC39448; Path=/ccmcip/; HttpOnly\r\n

Content-Type: text/xml;charset=UTF-8\r\n

Content-Length: 897\r\n

[Content length: 897]

Date: Sun, 31 Aug 2014 12:56:32 GMT\r\n

Server: \r\n

\r\n

eXtensible Markup Language

```
<?xml
  version="1.0"
  encoding="UTF-8"
  ?>
<CiscoIPPhoneMenu>
  <MenuItem>
    <Name>
      Missed Calls
    </Name>
    <URL>
      Application: Cisco/MissedCalls
    </URL>
  </MenuItem>
  <MenuItem>
    <Name>
      Received Calls
    </Name>
    <URL>
      Application: Cisco/ReceivedCalls
    </URL>
  </MenuItem>
  <MenuItem>
    <Name>
      Placed Calls
    </Name>
    <URL>
      Application: Cisco/PlacedCalls
    </URL>
  </MenuItem>
  <MenuItem>
    <Name>
```

```

        Personal Directory

        </Name>

    <URL>

        Application: Cisco/PersonalDirectory

    </URL>

</MenuItem>

<MenuItem>

    <Name>

        Corporate Directory

    </Name>

    <URL>

        Application: Cisco/CorporateDirectory

    </URL>

</MenuItem>

<Prompt>

    Select a directory

</Prompt>

</CiscoIPPhoneMenu>

```

Configure in a HCS Deployment

In order to be able to accommodate Directory access to CUCDM, this configuration on CUCM and CUCDM is required:

1. Log in to the CUCM Publisher.
2. Navigate to Enterprise Parameters.
3. Change the Services Provisioning parameter value to **Both**.
4. Change the URL Directories parameter value under Phone URL Parameters to **http://CUCDM_Server_IP/bvsmweb/directoryservices.cgi**.
5. Delete all URLs under Secured Phone URL Parameters.
6. Navigate to **Device > Device Settings > Phone Services**.
7. Disable the Corporate Directory and Personal Directory. (uncheck the **enable** button. it will disable the CUCM directories services)

In CUCDM, the directory access needs to be configured as:

1. Log into CUCDM as a Provider.
2. Navigate to **General Administration > Customers**.

3. Click on **Preferences**.
4. Enable ShowCorporateDir and ShowPersonalDir.
5. Check the Current Settings box

6. Navigate to **General Administration > Customers > Corporate IP address** (where the corporate ip address is the CUCDM natted IP)

Users can be removed from the directory checking the Exclude from directory setting:

Location Administration > End User > Ex directory

Verify

When the user presses the **Directories** Button, the phone will fetch the URL under System/Enterprise Parameters/Directory URL.

In this case it will send the HTTP request to CUCDM example:

[http:// Y.Y.Y.Y/bvsmweb/directoryservices.cgi?device=SEP121234341211](http://Y.Y.Y.Y/bvsmweb/directoryservices.cgi?device=SEP121234341211)

Note:Y.Y.Y.Y corresponds to the CUCDM IP address and would typically be a global address accessible by all customers.

CUCDM will then respond with Corporate Directory and Personal Directory.

Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<CiscoIPPhoneMenu><MenuItem>
<Name>Corporate Directory</Name>
<URL>http://Y.Y.Y.Y/bvsmweb/corpdirectory.cgi?device=SEP121234341211</URL>
</MenuItem>
<MenuItem>
<Name>Personal Directory</Name>
<URL>http://Y.Y.Y.Y/bvsmweb/personaldirectory.cgi?device=SEP121234341211&service=directory</URL>
</MenuItem></CiscoIPPhoneMenu>
```

Note: The IP address in the Corporate Directory and Personal Directory URL (here depicted as Y.Y.Y.Y) must be configured in CUCDM on a per customer basis as shown above in point 6.

Provided Services Details:

Corporate IP Address

10.48.50.60

If this IP address is incorrect, your phones will effectively still show entries for Personal Directory

and Corporate Directory. However, selecting either of these entries will result in failure. (the Phone generating an error message).

Troubleshoot

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