# **Demonstrate IP Phone Migration from Secure to Non-secure CUCM**

# Contents

| ntroduction         |  |  |  |
|---------------------|--|--|--|
| Prerequisites       |  |  |  |
| Requirements        |  |  |  |
| Components Used     |  |  |  |
| Configure           |  |  |  |
| Network Diagram     |  |  |  |
| Configurations      |  |  |  |
| <u>/erify</u>       |  |  |  |
| <b>Froubleshoot</b> |  |  |  |
| Related Information |  |  |  |

## Introduction

This document describes one of the best practices for migrating phones from secured Cisco Unified Communication Manager (CUCM) to a non-secure CUCM.

# Prerequisites

## Requirements

Cisco recommends that you have knowledge of these topics:

- CUCM
- IP Phone

## **Components Used**

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

- CUCM versions 12.5.1.16065-1 and 12.5.1.14900-63
- IP Phone model 8865 and version 12.8(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.

# Configure

## **Network Diagram**

IP\_Phone > Cisco Switch > Cisco Router > Cisco Switch > CUCM Cluster

## Configurations

These scenarios explain the phone migration from secure to non-secure CUCM cluster. During each stages, the status of Certificate Trust List (CTL) and Identity Trust List (ITL) files on the phone are documented.

- 1. Register a phone to a non-secure CUCM cluster.
- 2. Convert non-secure cluster to secure CUCM cluster.
- 3. Convert back to non-secure cluster from secure
- 4. Migrate the phone to a new non-secure CUCM cluster.

#### 1. Register a phone to a non-secure CUCM cluster.

These are the information about the non-secure source cluster.

- IP Address 10.201.251.171
- FQDN cucm1052.domain.com
- Version: 12.5.1.16065-1

Register a phone to a non-secure CUCM cluster. For this, configure Dynamic Host Configuration Protocol (DHCP) option 150 / 66 to point to the Trivial File Transfer Protocol (TFTP) IP Address (This would be the CUCM node where the TFTP service is turned ON).

For the infrastructure where you do not have the DHCP servers, you have to configure the TFTP IP manually on the physical phone.

On the physical Phone, navigate to **Settings > Admin Settings > Network Setup > Ethernet setup > IPv4 setup**.

Turn Off the DHCP and provide static IP details of your network. After that, provide the non-secure CUCM IP in the **TFTP Server 1** section as shown in the screenshot.



**Note**: This process is equivalent to changing the TFTP IP on the DHCP scope – option 150 / 66. And If the cluster is configured with domain name, then you have to set appropriate Domain Name System (DNS) servers in the DHCP scope too.



Configure the TFTP IP on the Phone

The IP phone gets register to the mentioned non-secure CUCM cluster successfully.

| cis      | Cisco Unified CM Administration<br>For Cisco Unified Communications Solutions |   |  |  |  |  |  |
|----------|---|---|--|--|--|--|--|
| System   | ▼ Call Routing ▼ Media Resources ▼ Advanced Fea                               | tures 🔻 Device 💌 Application 👻 User Management 👻 Bulk Administration 👻 Help 💌 |  |  |  |  |  |
| Phone    | Configuration   |   |  |  |  |  |  |
| 🔒 s      | ave 🗙 Delete 🗋 Copy 🎦 Reset 🧷 Apply   | Config 🖧 Add New  |  |  |  |  |  |
| - Statu  | ۶ <u> </u>  |   |  |  |  |  |  |
| <b>i</b> | Status: Ready   |   |  |  |  |  |  |
| - Asso   | ciation   | r Phone Type  |  |  |  |  |  |
| 1        | Modify Button Items   | Product Type: Cisco 8865<br>Device Protocol: SIP                              |  |  |  |  |  |
|          | The   | _ Real-time Device Status   |  |  |  |  |  |
| 2        | The Line [2] - Add a new DN   | Registration: Registered with Cisco Unified Communications Manager cucm1052   |  |  |  |  |  |
| 3        | Alerting Calls  | Active Load ID: sip8845_65.14-0-1-0201-171                                    |  |  |  |  |  |
| 4        | All Calls   | Inactive Load ID: sip8845_65.14-2-1-0001-14                                   |  |  |  |  |  |
| 5        | Answer Oldest   | Download Status: None   |  |  |  |  |  |
| 6        | The Add a new BLF Directed Call Park  | Device Information  |  |  |  |  |  |

Phone Registered with the CUCM

Log in to CUCM Administation web interface and navigate to **System > Enterprise Parameters**.

These are the parameters' value set under the Enterprise parameter page of the non-secure CUCM cluster.

• Cluster security Mode is set as 0, this confirms the cluster is non-secure.

| Cocurity Daramators   |          |   |
|-----------------------|----------|---|
| Security Parameters   |          |   |
| Cluster Security Mode | 0        |   |
| Cluster SIPOAuth Mode | Disabled |   |
| LBM Security Mode *   | Insecure | - |

Cluster Security Mode is Set to 0

• **Prepare Cluster for Rollback to pre 8.0** is set as **False.** So, the content of the ITL & CTL files are retained with appropriate values.

| Γ | Value Check Heudelsy (10015)              | 24    |   |
|---|---|-------|---|
|   | Prepare Cluster for Rollback              |       |   |
|   | Prepare Cluster for Rollback to pre 8.0.* | False | × |
|   |   |       |   |

Prepare Cluster for Rollback to pre 8.0 is Set as False

Since the cluster is non-secure, there is no CTL file in the TFTP server. You can verify this by running the command **show ctl** on the Secure Shell (SSH) session of the CUCM node.



CTL File is not present

On the physical phone, you can confirm that there is no CTL file installed. However, you do see the ITL file.

ITL is present due to Security by Default (SBD) feature in the CUCM. For more information about SBD, please click <u>here</u>.

On the physical phone Navigate to Settings > Admin settings > Security setup > Trust list.

Here you can find the status of both the CTL and the ITL files.

CTI is not installed on the phone.



CTL File on the Phone

Phone has the ITL file.

|               | ITL file                                   | the second               |
|---------------|--|--------------------------|
| ITL signature | 41 5B 60 5D 2B 45 6<br>69 89 07 BB 96 D4 4 | F 77 95 C8<br>A 92 90 52 |
| TVS           | cucm1052.                                  | ,ı.com Ø                 |
| CAPF server   | CAPF-3cd81f4b Ø                            |                          |
| TFTP server   | cucm1052                                   | .com O                   |
| TFTP server   | cucm1052-<br>ECcom                         | 0                        |
| Exit          |  |                          |

ITL File on the Phone

#### 2. Convert non-secure cluster to secure CUCM cluster.

Enable mixed-mode by running the command **utils ctl set-cluster mixed-mode** on the Command Line Interface (CLI) of the CUCM Publisher. This converts the cluster from non-secure to secure.



Convert to a Secure Cluster

After running the command, restart the Cisco CallManager (CCM) & Cisco CTIManager (CTI) services on all the nodes in the cluster.

| սիչի, Cisco Unified Serviceability |   |         |                   |                          | Navigation Cisco Unified Serviceability |
|------------------------------------|---|---------|-------------------|--------------------------|---|
| cisco                              | For Cisco Unified Communications Solutions          |         |                   |                          | admin About L                           |
| 6larm + 1                          | frace = Tgols = grmp = galHome = Help =             |         |                   |                          |   |
| Control Ce                         | nter - Feature Services                             |         |                   |                          | Report Linux: Service Activation        |
| Start                              | Stop 🍌 Restart 🔇 Refresh Page                       |         |                   |                          |   |
| Status                             |   |         |                   |                          |   |
| Cisco                              | CTIManager Service Restart Operation was Successful |         |                   |                          |   |
| Select Se                          | erver   |         |                   |                          |   |
| Server*                            | cucm1052. comCUCM Voice/Video v Go                  |         |                   |                          |   |
|                                    |   |         |                   |                          |   |
| Performa                           | ince and Monitoring Services                        |         |                   |                          |   |
|                                    | Service Name  | Status  | Activation Status | Start Time               | Up Time                                 |
| 0                                  | Cisco Serviceability Reporter                       | Started | Activated         | Thu Nov 30 00:36:16 2023 | 0 days 00:26:57                         |
| 0                                  | Cisco CallManager SNMP Service                      | Started | Activated         | Thu Nov 30 00:36:18 2023 | 0 days 00:26:55                         |
| Directory                          | Services  |         |                   |                          |   |
|                                    | Service Name  | Status  | Activation Status | Start Time               | Up Time                                 |
| 0                                  | Cisco DirSync                                       | Started | Activated         | Thu Nov 30 00:36:19 2023 | 0 days 00:26:54                         |
| CM Servi                           | ces   |         |                   |                          |   |
|                                    | Service Name  | Status  | Activation Status | Start Time               | Up Time                                 |
| 0                                  | Cisco CallManager                                   | Started | Activated         | Thu Nov 30 01:02:34 2023 | 0 days 00:00:39                         |
| 0                                  | Cisco Unified Mobile Voice Access Service           | Started | Activated         | Thu Nov 30 00:43:30 2023 | 0 days 00:19:43                         |
| 0                                  | Cisco IP Voice Media Streaming App                  | Started | Activated         | Thu Nov 30 00:36:03 2023 | 0 days 00:27:10                         |
| 0                                  | Cisco CTIManager                                    | Started | Activated         | Thu Nov 30 01:03:03 2023 | 0 days 00:00:10                         |
| 0                                  | CISCO EXCENSION MODILICY                            | scarceo | ACUVACED          | IND NOV 30 00:43:30 2023 | 0 days 00:19:43                         |
| 0                                  | Cisco DHCP Monitor Service                          | Started | Activated         | Thu Nov 30 00:36:21 2023 | 0 days 00:26:52                         |
| 0                                  | Cisco Interduster Lookup Service                    | Started | Activated         | Thu Nov 30 00:36:22 2023 | 0 days 00:26:51                         |
| 0                                  | Cisco Location Bandwidth Manager                    | Started | Activated         | Thu Nov 30 00:36:01 2023 | 0 days 00:27:12                         |
| 0                                  | Cisco Directory Number Alias Sync                   | Started | Activated         | Thu Nov 30 00:36:25 2023 | 0 days 00:26:48                         |

Restart the CCM and CTI Services

Now on the physical phone, you could see the presence of the CTL file.



CTL File on the Phone

ITL file remained with the same values.

|                 | ITL file                                   | R-                       |
|-----------------|--|--------------------------|
| ITL signature   | 41 5B 60 5D 2B 45 6<br>69 89 07 BB 96 D4 4 | F 77 95 C8<br>A 92 90 52 |
| TVS             | cucm1052.                                  | .com Ø                   |
| CAPF server     | CAPF-3cd81f4b Ø                            |                          |
| TFTP server     | cucm1052.                                  | i.com Ø                  |
| <br>TFTP server | cucm1052-<br>ECcom                         | 0                        |
| Exit            |  |                          |

ITL File on the Phone

## **3.** Convert back to non-secure cluster from secure.

In order to convert the cluster from secure to non-secure, you need to run the command **utils ctl set-cluster non-secure-mode** on the CLI of the CUCM Publisher.



Convert to a Non-Secure Cluster

Restart the CCM and CTI services on all the nodes in the cluster for making the change to reflect in all the nodes in the CUCM cluster.

After converting the cluster to non-secure, the CTL does not contain the CUCM and TFTP entries. CTL file contains only the CAPF entry.

|               | CTL file   |
|---------------|--|
| CTL signature | 44 BC 8F 15 5C 41 85 EB C3 68<br>CB 1F BE D2 F5 14 05 A1 7E 9E |
| CAPF server   | CAPF-3cd81f4b Ø  |
| -             |  |
|               |  |
|               |  |
| Exit          |  |

CTL File on the Phone

ITL file remained with the same entries.



ITL File on the Phone



**Note**: Changing the **Device Security Profile** in the phone configuration page (in the CUCM Administration web page) to either secure or non-secure has no effect on the ITL or CTL files. So, you can keep the setting like how it was before and no need to alter them.

4. Migrate the phone to a new non-secure CUCM cluster.



**Note**: Before you proceed with migration, it is good practice to restart the Trust Verification Service (TVS) and TFTP services on all the nodes (only on these services enabled nodes) in the source cluster. This eliminates any hung or leak sessions in the TVS / TFTP service.

Log in to CUCM Administation web interface and navigate to **System > Enterprise Parameters**.

Set the value of **Prepare Cluster for Rollback to pre 8.0** to **True**. Then proceed with clicking the **Apply Config** and the **Reset** buttons.

Help section for this parameter is provided in this screenshot.

| Prepare Cluster for Rollback<br>Prepare Cluster for Rollback to pre 8.0_* | True  | v  | False |
|---|---|--|-------|
| Phone URL Parameters  | ⊕ 10.201.251.171  |  |       |
| URL Directories URL Idle URL Idle Time                                    | Prepare Cluster for Rollback to pre 8.0: Enable this opti<br>preparing to rollback your cluster to a pre 8.0 Cisco Ur<br>Communications Manager release. Phone services tha<br>example, extension mobility) will NOT work when this | ion if you are<br>nified<br>at use https(for<br>s parameter is set | 0     |
| URL Information URL Messages  | to True, however, users will be able to continue making<br>basic phone calls. IMPORTANT: Changing this parame<br>PHONES TO RESET.   | g and receiving<br>ter will cause ALL                              |       |
| IP Phone Proxy Address URL Services                                       |   | ок   |       |

Information on the Prepare Cluster for Rollback to pre 8.0 Parameter

Monitor the phone registration counts on the cluster (via Real Time Monitoring Tool - **RTMT**) before and after changing the parameter value. This way can validate whether these changes are applied to all the devices in the cluster or not.

On the physical phone, you could see only the CAPF entries in both the ITL & CTL files. You can also observe this by opening phone web page in the web browser.

ITL File



ITL File on the Phone

CTL File



CTL File on the Phone

Before you start the migration, it is good to validate the ITL & CTL files in few phones to ensure the changes have taken place.

Now the phones are ready for the migration.

Migrating the phones from source cluster to the destination cluster. Currently, both the clusters are non-secure.

#### Source cluster:

- IP Address 10.201.251.171
- FQDN cucm1052.domain.com
- Version: 12.5.1.16065-1

#### **Destination Cluster:**

- IP Address 10.88.11.163
- FQDN cucmpub.domain.com
- Version : 12.5.1.14900-63

On the physical phone set the **TFTP Server 1** value to the Destination new cluster IP address and click the **Apply** button.



**Note**: This process is equivalent to changing the TFTP ip on the DHCP scope – option 150 / 66. If the destination cluster is in the different domain, then you have to set appropriate DNS servers in the DHCP scope too.

|   |                  | IPv4 setup | >    |           |        |     | G- |
|---|------------------|------------|------|-----------|--------|-----|----|
|   | 6 DNS server 2   |            |      | And and a | an and |     |    |
|   | 7 DNS server 3   | the second |      |           |        | SE. |    |
|   | 8 Alternate TFTP |            |      |           |        | Off |    |
|   | 9 TFTP server 1  |            | 10   | 88        | 11     | 163 |    |
| - | 10 TFTP server 2 |            |      |           |        |     |    |
|   | Exit Apply       |            | Reve | rt        |        | Ø   |    |

Configure the TFTP IP on the Phone

Click the **Continue** button, this retains the old CTL and ITL files (contains only the CAPF entry) from the source cluster.

| IPv2   | 4 setup  |
|--|--|
| 6 DNS server 2   |  |
| Trust lis  | st installed   |
| A trust list is installe<br>server is not in the<br>address may not be<br>the Trust List. Press<br>changes without era | ed on this phone. If the new TFTP<br>Trust List, changing the TFTP<br>successful. Press Erase to erase<br>Continue to continue applying<br>asing the Trust List. |
| Erase  | Continue   |

Pressing the Continue Button can retain the old CTL and ITL Files

# Verify

The phone is registered to the destination cluster successfully.

| O & https://oucmpub.ramebalaimp.com/8443/comadmin/phoneFindList.do?lookup=false&unultiple=true&recEnt=18ccolCnt=17                | \$                          | ල ව                                 |
|---|-----------------------------|-------------------------------------|
| alada. Cisco Unified CM Administration<br>Cisco Unified Communications Solutions  | Navigation Cisco Unified CM | Administration v<br>agent1 About Lo |
| -System + CaliRouting + NediaResources + Advanced Features + Device + Application + User Management + Buk Administration + Help + |                             |                                     |
| Find and List Phones  | Related Links: Actively Lo  | gged In Device Report 👻             |
| 👍 Add New 👍 Add New From Template 🏢 Select Al 🌐 Clear Al 🎇 Cheles Selected National Selected                                      | 6                           | Generate PRT for Selected           |
| r Status  |                             |                                     |
| I records found   |                             |                                     |
| Phone (1 - 1 of 1)  |                             | Rows per Page 50                    |
| Find Phone where Device Name  v contains v AC76268/7465 [Find] Clear Filter w Select item or enter search text v                  |                             |                                     |
| Device Name(line)     Description     Device Protocol     Status     Last Registered     Last Active     Unified CM               | IPv4 Address                | Copy Super Co                       |
| SEPACTERAD7465 Auto 5013 Default SIP Registered Now curripub  | 10.99.32.51                 | 0 0                                 |
| Add New Add New From Template) [Select AI] [Clear AI] [Delete Selected] [Reset Selected] [Apply Config to Selected]               |                             | Generate PRT for Selected           |

Phone Registered with the CUCM

The phone contains the destinations cluster Trust list entries.

| ITL file |               |  |        |
|----------|---------------|--|--------|
|          | ITL signature | 7D B9 4C 65 E4 33 3B 65 04 E1<br>92 77 E7 08 2C 56 CA 4E 34 4A |        |
|          | TVS           | cucmpub  | .com Ø |
| -        | TVS           | cucmsub2   | .com Ø |
|          | CAPF server   | CAPF-c6408134 🛇  |        |
| 1.       | TVS           | cucmsub1.  | .com Ø |
|          | Exit          |  |        |

ITL File on the Phone

# Troubleshoot

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

# **Related Information**

- <u>Understand CUCM Security By Default and ITL Operation and Troubleshooting</u>
- <u>CUCM Mixed Mode with Tokenless CTL</u>

- Security Guide for Cisco Unified Communications Manager, Release 12.5(1)
  Cisco Technical Support & Downloads