



# COMUNICACIONES UNIFICADAS

Marzo 2021

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UNIDAD 4 - CUCM

Cisco Unified Communications Manager

# Cisco Unified Communications Manager (CUCM)

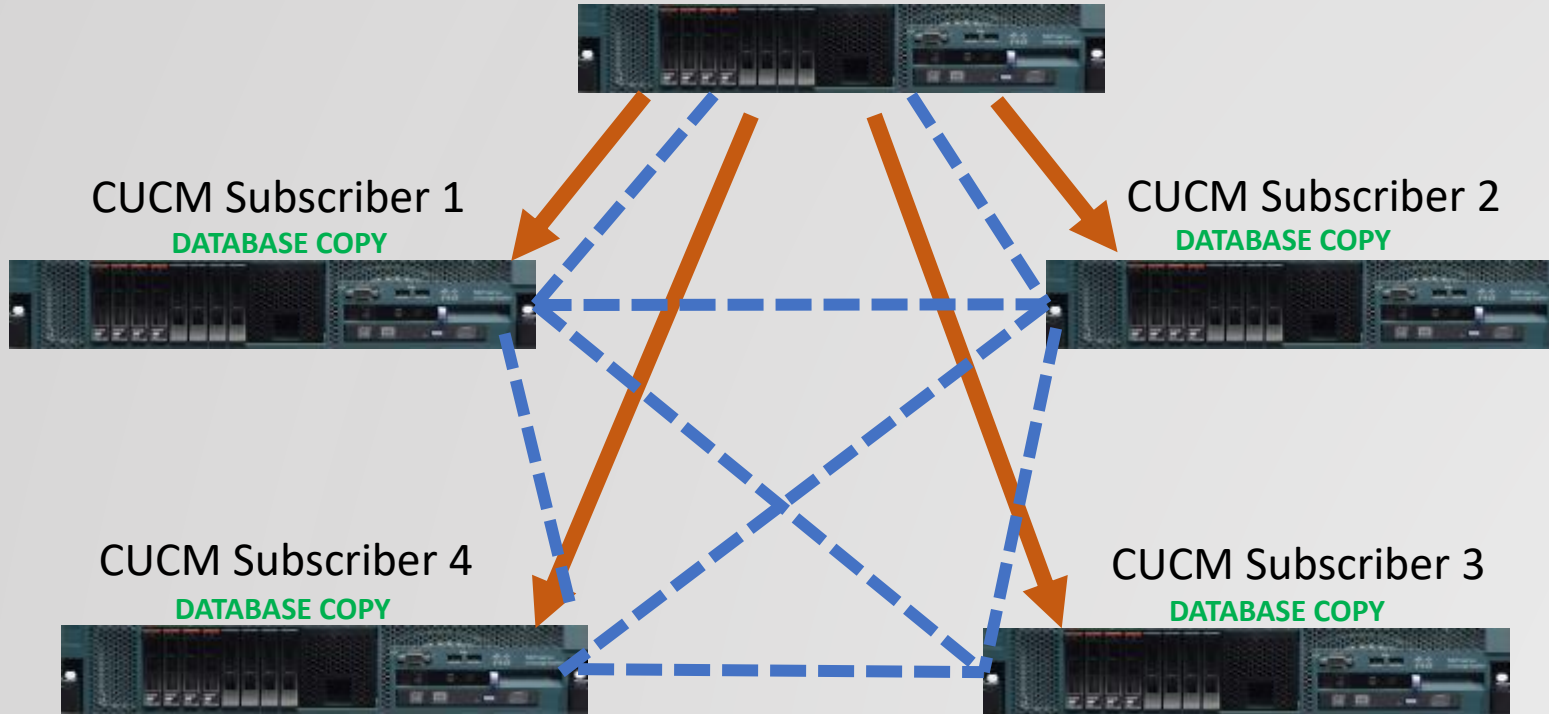


# CUCM Clustering

Database Replication  
→

CUCM Publisher  
DATABASE MASTER

IntraCluster Communication  
-----



Un cluster soporta un único Publisher y hasta 19 Subscribers:

- 8 como call-processing.
- 11 como recursos
  - TFTP
  - Conference Bridge,
  - Music on Hold
  - Etc

• El primary server de (call processing), no tiene por que cumplir el rol de publisher



# CUCM Services

## Select Server

Server\*

CUCM-PUB1--CUCM Voice/Video



Go

☐ Check All Services

## CM Services

	Service Name	Activation Status
<input type="checkbox"/>	Cisco CallManager	Deactivated
<input type="checkbox"/>	Cisco Unified Mobile Voice Access Service	Deactivated
<input type="checkbox"/>	Cisco IP Voice Media Streaming App	Deactivated
<input type="checkbox"/>	Cisco CTIManager	Deactivated
<input type="checkbox"/>	Cisco Extension Mobility	Deactivated
<input type="checkbox"/>	Cisco Extended Functions	Deactivated
<input type="checkbox"/>	Cisco DHCP Monitor Service	Deactivated
<input type="checkbox"/>	Cisco Intercluster Lookup Service	Deactivated
<input type="checkbox"/>	Cisco Location Bandwidth Manager	Deactivated
<input type="checkbox"/>	Cisco Directory Number Alias Sync	Deactivated
<input type="checkbox"/>	Cisco Directory Number Alias Lookup	Deactivated
<input type="checkbox"/>	Cisco Dialed Number Analyzer Server	Deactivated
<input type="checkbox"/>	Cisco Dialed Number Analyzer	Deactivated
<input type="checkbox"/>	Cisco Tftp	Deactivated

# CUCM Clustering

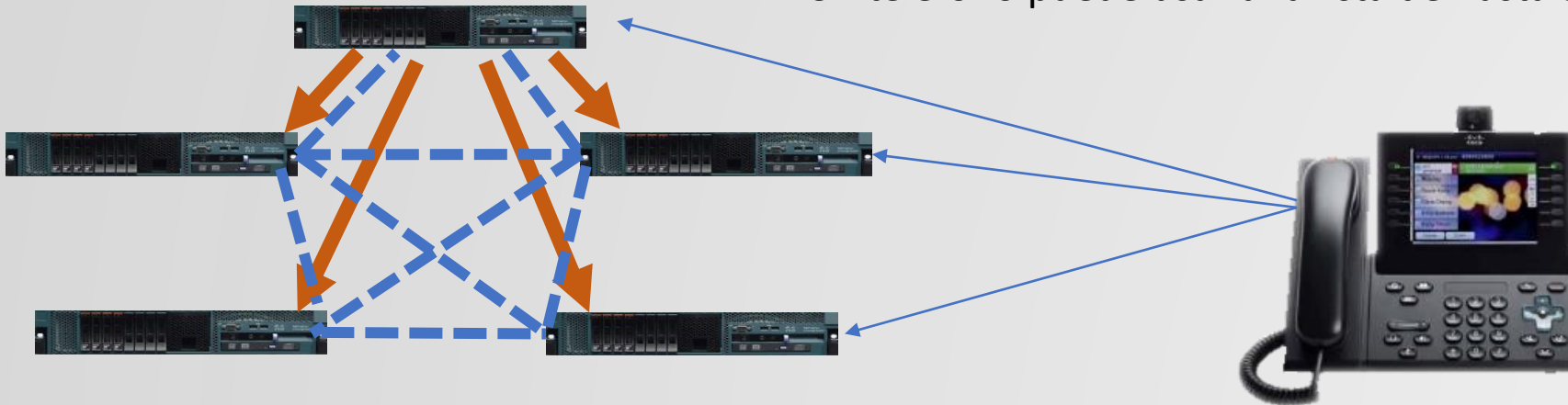
En una instalación típica, el Publisher realiza 2 funciones primarias

- Mantiene la única copia grabable de la base de datos (Informix)
- Sirve las solicitudes de TFTP

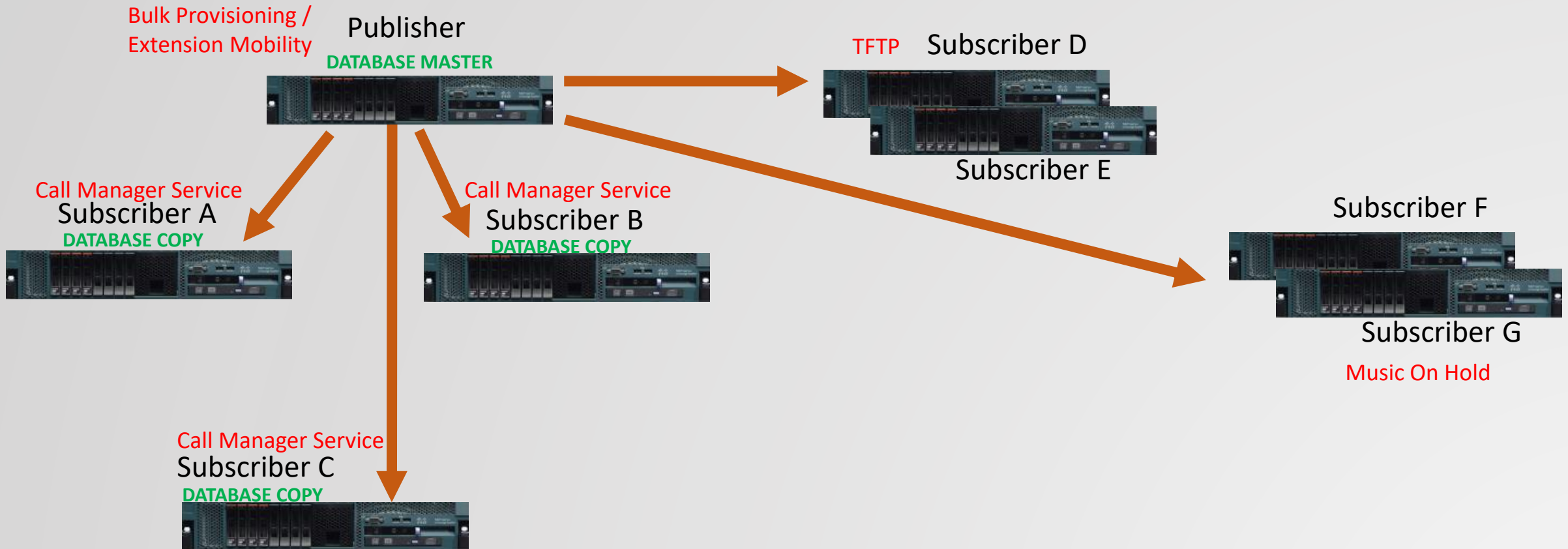
Cisco recomienda mover el role de TFTP a un Subscriber dedicado a partir de los 1000 teléfonos

Si el Publisher se rompe , el cluster continua trabajando con la ultima copia , pero no se puede agregar nuevos teléfonos.

Un teléfono puede usar una lista de hasta 3 servidores para redundancia



# CUCM Clustering



## Version 14

Supported Versions of VMware vSphere ESXi= 6.7, 7.0 U1

[Design Guide](#)  
[Upgrade Guide](#)

Component & Capacity Point	VM Configuration Requirements <a href="#">click to download OVA file for this version</a>				
	vCPU	Physical CPU Base Frequency	vRAM	vDisk	vNIC
UCM Cluster Node	Min 2 See Notes	Min 2.00 GHz See Notes	Min 6 GB See Notes	Min 1 x 80 GB See Notes	1

Notes:

- Run [Collaboration Sizing Tool \(CST\)](#) for prescriptive guidance on VM specs.
- See [Notes](#) section for VM Configurations and [IOPS requirements](#).
- Refer to [Cisco Collaboration Infrastructure](#) for all other details on hardware and VMware support.
- Refer to [Quote Collab](#) for modeling VM placement on a user defined hardware configuration.

Here are some recommended starting points based on typical requirements; your requirements may be different:

	vCPU	Physical CPU Base Frequency	vRAM	vDisk	vNIC
<b>Small Example VM</b> ( <a href="#">Small Example Hardware</a> )	2	2.00+ GHz	6 GB	1 x 100 GB	1 (1GbE+)
<b>Medium Example VM</b> ( <a href="#">Medium Example Hardware</a> )	2	2.50+ GHz	8 GB	1 x 110 GB	1 (1GbE+)
<b>Large Example VM</b> ( <a href="#">Large Example Hardware</a> )	4	2.50+ GHz	8 GB	1 x 110 GB	1 (1GbE+)





# Cisco Unified Communications

## Product Deployment Selection

Select the product or product suite to be installed:

☒ Cisco Unified Communications Manager

-----  
Products not supported on current hardware:  
-----

Cisco Unity Connection

OK

<Tab>/<Alt-Tab> to move between elements. <Space> to select. <Enter> to proceed.

Proceed with Install

Versions on the hard drive: NONE

The version on this DVD is: 5.0(2) SR10  
Do you want to proceed with the Install?

Yes

No

### Platform Installation Wizard

This Wizard sets up the initial configuration of the platform.

Before proceeding, complete the pre-installation tasks outlined in the installation guide.

Choose <Proceed> to continue with the wizard.

Choose <Skip> to skip the configuration until later.

Choose <Cancel> to end the installation.

Proceed

Skip

Cancel

### Apply Patch

Would you like to apply an upgrade patch as part of this installation?

This option will install the software from the DVD and then prompt you for the location of the additional patch to apply after the system reboots.

Yes

No

Back

## Basic Install

This is the "Basic" installation option. This option installs the software version from the DVD and does not use any imported data. It asks for configuration information and then completes the install.

Continue

<Tab> <Alt+Tab> to move between elements <Space> to select <Enter> to proceed



## Timezone Configuraton

Choose the correct timezone from the following list:

America/Mexico\_City  
America/Miquelon  
America/Moncton  
America/Monterrey  
**America/Montevideo**  
America/Montreal  
America/Montserrat



OK

Back

Help

<Arrow Up/Down> to select, <Tab> to move to another field, <OK> to exit screen.

## Auto Negotiation Configuration

NIC speed and duplex in a virtual machine are determined by the Host.

They do not need to be configured in the Guest.

Please select "Continue" to proceed with the installation.

Continue

Back

<Tab>/<Alt-Tab> to move between elements. <Space> to select. <Enter> to proceed.

## MTU Configuration

Do you want to change the MTU size from the OS default?

No

Yes

Back

Help

<Tab>/<Alt-Tab> to move between elements. <Space> to select. <Enter> to proceed.

## DHCP Configuration

Do you want to use Dynamic Host Configuration Protocol (DHCP) on this machine?

Yes

No

Back

Help

<Tab>/<Alt-Tab> to move between elements. <Space> to select. <Enter> to proceed.

Static Network Configuration

Host Name CUCM-

IP Address

IP Mask

GW Address

OK

Back

Help



DNS Client Configuration

Do you want to enable Domain Name System (DNS) Client on this machine?



Yes

No

Back

Help

DNS Client Configuration

Primary DNS

192.168.1.1

Secondary DNS (optional)

Domain

example.com

OK

Back

Help

<Tab>/<Alt-Tab> to move between elements. <Space> to select. <Enter> to proceed.

### Administrator Login Configuration

Enter the Platform administration username and password.  
Choose Help for username and password guidelines.

Administrator ID Administrator\_

Password \*\*\*\*\*

Confirm Password \*\*\*\*\*

OK

Back

Help

<Tab>/<Alt-Tab> to move between elements. <Space> to select. <Enter> to proceed.

## Certificate Information

Enter information about your organization. This is used to generate security certificates for this node.

Organization

Unit

Location

State

Country   
United Arab Emirates  
United Kingdom (UK)  
United States

OK

Back

Help



- Si es un **Subscriber** ,
  - Se debe agregar primero:
    - Ip/Hostname previamente en el GUI del CUCM para indicar que se agrega un nuevo server al cluster



## Network Time Protocol Client Configuration

NTP Server 1

192.168.1.1

NTP Server 2

NTP Server 3

NTP Server 4

NTP Server 5

OK

Back

Help

<Tab>/<Alt-Tab> to move between elements. <Space> to select. <Enter> to proceed.

### Security Configuration

Enter the system security password. This password is used to secure communication between cluster nodes and will also be used by DRS for encryption of backup tar files. Choose Help for username and password guidelines.

Security Password

Confirm Password

OK

Back

Help

## Security Configuration

Enter the system security password. This password is used to secure communication between cluster nodes and will also be used by DRS for encryption of backup tar files. Choose Help for username and password guidelines.

Security Password

Confirm Password

OK

Back

Help

<Tab>/<Alt-Tab> to move between elements. <Space> to select. <Enter> to proceed.

## SMTP Host Configuration

Do you want to configure a Simple Mail Transfer Protocol (SMTP) host for this machine?

Yes

No

Back

Help

<Tab>/<Alt-Tab> to move between elements. <Space> to select. <Enter> to proceed.

## Smart Call Home Enable Page

☐ Enable Smart Call Home on System Start

☐ Enable Anonymous Call Home on System Start

☐ Remind me later to configure Smart Call Home

☒ Disable All Call Home on System Start

OK

Back

<Tab>/<Alt-Tab> to move between elements, <Space> to select, <Enter> to proceed.



## Application User Configuration

The Application User username and password are used to log into the Application administrative webpage(s).

Application User Username

Administrator\_\_\_\_\_

Application User Password

\*\*\*\*\*

Confirm Application User Password

\*\*\*\*\*

OK

Back

Help

Tab>/<Alt-Tab> to move between elements. <Space> to select. <Enter> to proceed.

## Platform Configuration Confirmation

The Platform Configuration is complete.

Select OK to continue or Back to change the configuration.

Warning: Once you select OK, you will no longer be able to modify the Platform Configuration.

OK

Back

Cancel

<Tab>/<Alt-Tab> to move between elements. <Space> to select. <Enter> to proceed.

# CUCM - GUI

**Cisco Unified CM Administration**  
For Cisco Unified Communications Solutions

Navigation

administrator | [Search Documentation](#) | [About](#) | [Logout](#)

System ▾ | [Call Routing](#) ▾ | [Media Resources](#) ▾ | [Advanced Features](#) ▾ | [Device](#) ▾ | [Application](#) ▾ | [User Management](#) ▾ | [Bulk Administration](#) ▾ | [Help](#) ▾

## Cisco Unified CM Administration

System version: 10.5.1.10000-7

VMware Installation: 4 vCPU Intel(R) Xeon(R) CPU X5450 @ 3.00GHz, disk 1: 80Gbytes, 8192Mbytes RAM, Partitions aligned



- Server
- Cisco Unified CM
- Cisco Unified CM Group
- Presence Redundancy Groups
- Phone NTP Reference
- Date/Time Group
- BLF Presence Group
- Region Information ▶
- Device Pool
- Device Mobility ▶
- DHCP ▶
- LDAP ▶

- SAML Single Sign-On
- Cross-Origin Resource Sharing (CORS)
- Location Info ▶
- MLPP ▶
- Physical Location
- SRST
- Enterprise Parameters
- Enterprise Phone Configuration
- Service Parameters
- Security ▶
- Application Server
- Licensing ▶
- Geolocation Configuration
- Geolocation Filter
- E911 Messages

System ▾

Call Routing ▾

Media Resources ▾

Advanced Features ▾

Device ▾

Application ▾

User Management ▾

AAR Group

Dial Rules ▶

Route Filter

Route/Hunt ▶

SIP Route Pattern

Intercom ▶

Class of Control ▶

Client Matter Codes

Forced Authorization Codes

Translation Pattern

Call Park

Directed Call Park

Call Pickup Group

Directory Number

Dial Plan Installer

Meet-Me Number/Pattern

Route Plan Report

Transformation ▶

Mobility ▶

Logical Partition Policy Configuration

External Call Control Profile

HTTP Profile

Call Control Discovery ▶

Global Dial Plan Replication ▶



System ▾

Call Routing ▾

Media Resources ▾

Advanced Features ▾

Device ▾

Application ▾

User Management ▾

Annunciator

Conference Bridge

Media Termination Point

Music On Hold Audio Source

Fixed MOH Audio Source

Music On Hold Server

Video On Hold Server

Transcoder

Media Resource Group

Media Resource Group List

MOH Audio File Management

Mobile Voice Access

Announcement



System ▾

Call Routing ▾

Media Resources ▾

Advanced Features ▾

Device ▾

Application ▾

User Management ▾

Voice Mail ▶

SAF ▶

EMCC ▶

Cluster View

Intercompany Media Services ▶

Fallback ▶

VPN ▶

Called Party Tracing

ILS Configuration

Call Control Agent Profile

Directory Number Alias Lookup And  
Sync

System ▾ Call Routing ▾ Media Resources ▾ Advanced Features ▾ Device ▾ Application ▾ User Management ▾

CTI Route Point

Gatekeeper

Gateway

Phone

Trunk

Remote Destination

Device Settings ▶ 1

System ▾ Call Routing ▾ Media Resources ▾ Advanced Features ▾ Device ▾ Application ▾ User Management ▾

Cisco Unified CM Assistant  
Configuration Wizard

Plugins

System ▼

Call Routing ▼

Media Resources ▼

Advanced Features ▼

Device ▼

Application ▼

User Management ▼

Application User

End User

User/Phone Add ▶

SIP Realm

User Settings ▶

Self-Provisioning

Assign Presence Users

Navigation

Cisco Unified CM Administration



Go

Navigation

Cisco Unified CM Administration



Administrator

Cisco Unified Reporting

Cisco Unified CM Administration

Disaster Recovery System

Cisco Unified Serviceability

Cisco Unified OS Administration

Cisco Unified IM and Presence Reporting

# Cisco Unified Reporting




- Reportes ya Pre Definidos
  - Útil para ver situación actual previo a una Actualización

Report Descriptions
Unified CM Cluster Overview
Unified CM Data Summary
Unified CM Database Replication Debug
Unified CM Database Status
Unified CM Device Counts Summary
Unified CM Device Distribution Summary
Unified CM Directory URI and GDPR Duplicates
Unified CM Extension Mobility
Unified CM GeoLocation Policy

Unified CM GeoLocation Policy with Filter
Unified CM Lines Without Phones
Unified CM Multi-Line Devices
Unified CM Phone Category
Unified CM Phone Feature List
Unified CM Phone Locale Installers



Report Descriptions
Unified CM Cluster Overview
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Unified CM Lines Without Phones
Unified CM Multi-Line Devices
Unified CM Phone Category
Unified CM Phone Feature List
Unified CM Phone Locale Installers

 OK: Report opened successfully.

## Unified CM Data Summary

Provides a summary view of data in the Unified CM data

Generated on 08/08/2025 10:10:10 AM by [redacted]

### Unified CM Cluster Name

Cluster Name	Publisher Name/IP
StandAloneCluster	CUCM-PUB1

### System Summary

Counts of items configured under the System menu

Property	Value
Servers	3
Cisco Unified CM	2
Cisco Unified CM Group	1
NTP Server	0
Date Time Settings	1
Presence Group	1
Region	1
Device Pool	1
Device Mobility Group	0
Device Mobility Info	0
DHCP Server	0
DHCP Subnet	0

Location	3
Physical Location	0
SRST	2
Mlpp Domain	1
Phone Security Profiles	152
SIP Trunk Security Profiles	1
Application Server	0

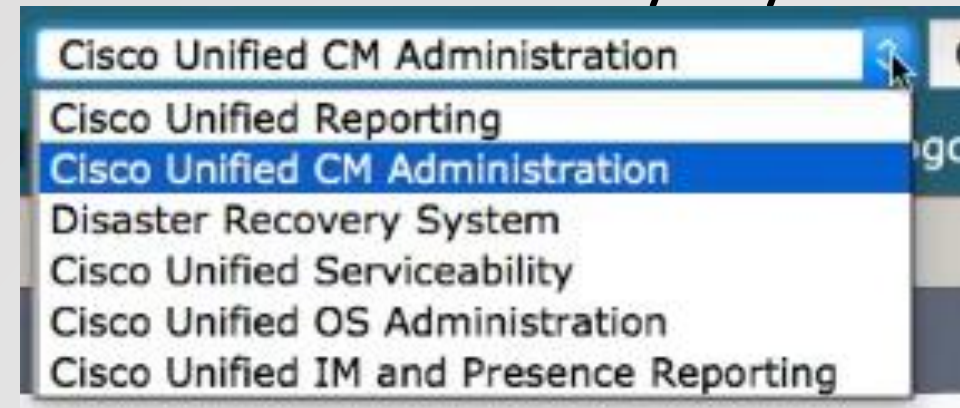
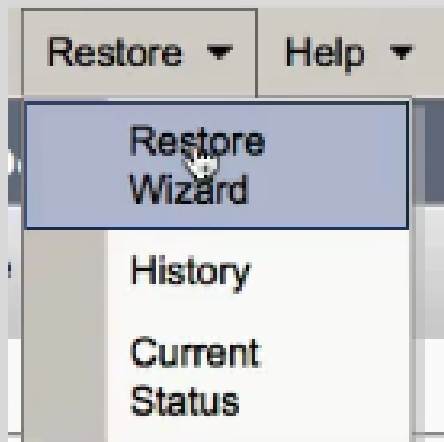
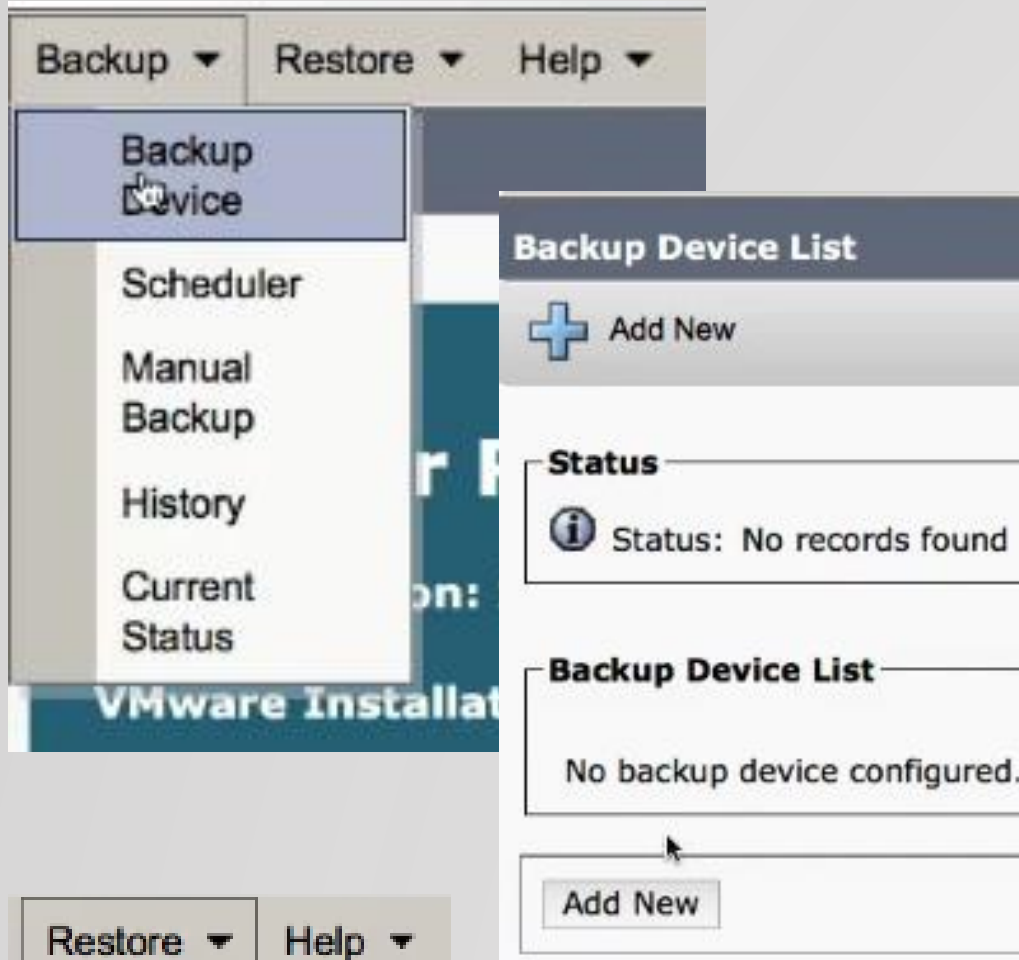
### Call Routing Summary

Counts of items configured under the Call Routing menu.

Property	Value
Application Dial Rules	0
Directory Lookup Dial Rules	0
SIP Dial Rule	0
Route Groups	1
Route List	0
Route Patterns	0
Line Group	0
Hunt List	0
Hunt Pilot	0
SIP Route Pattern	0
Time Period	1
Time Schedule	1
Partition	4
Calling Search Space	0



# Disaster Recovery System



**Status**  
Status: Ready

**Backup device name**  
Backup device name\*

**Select Destination\***

**Network Directory**

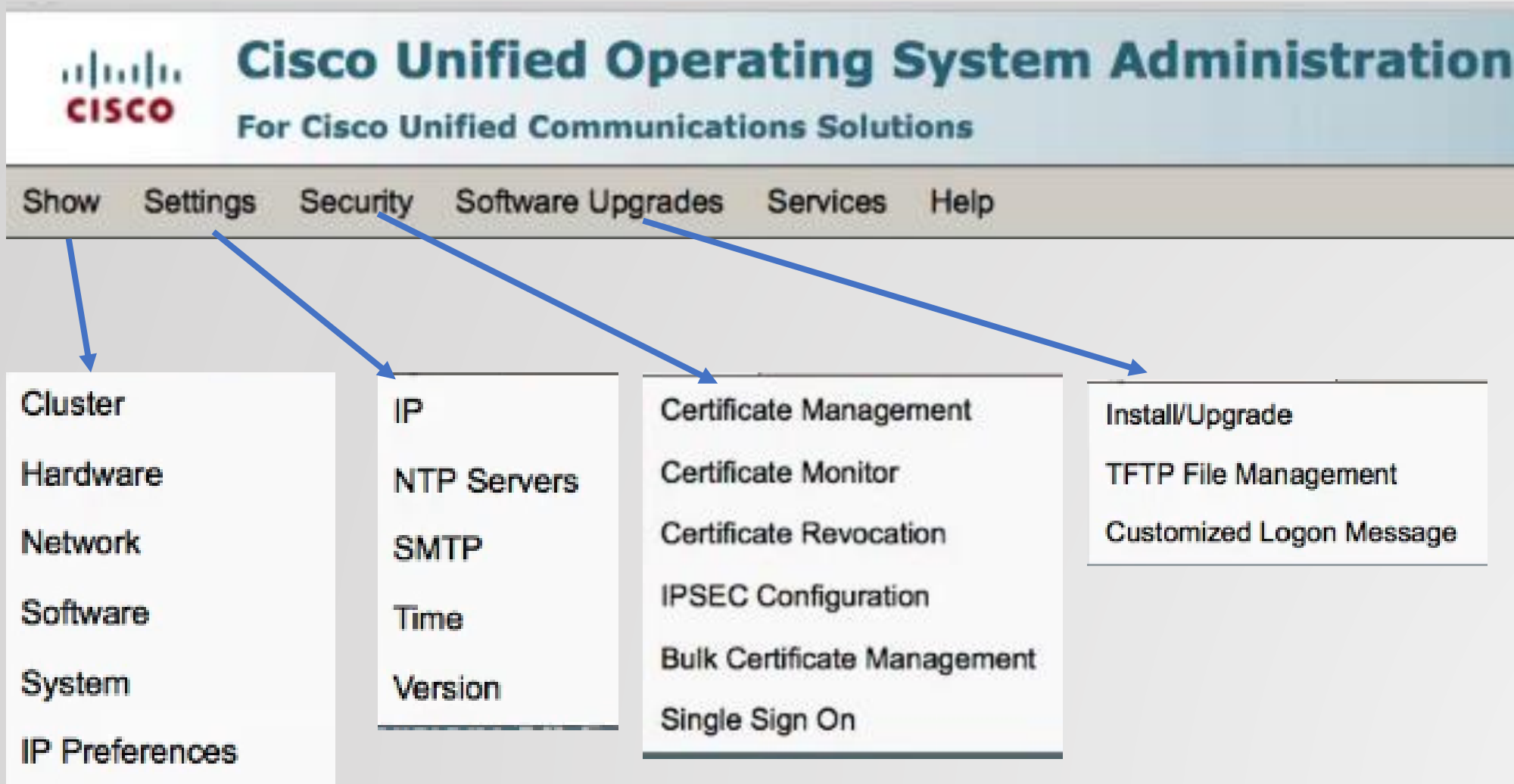
Host name/IP address	<input type="text"/>
Path name	<input type="text"/>
User name	<input type="text"/>
Password	<input type="password"/>

Number of backups to store on Network Directory: 2

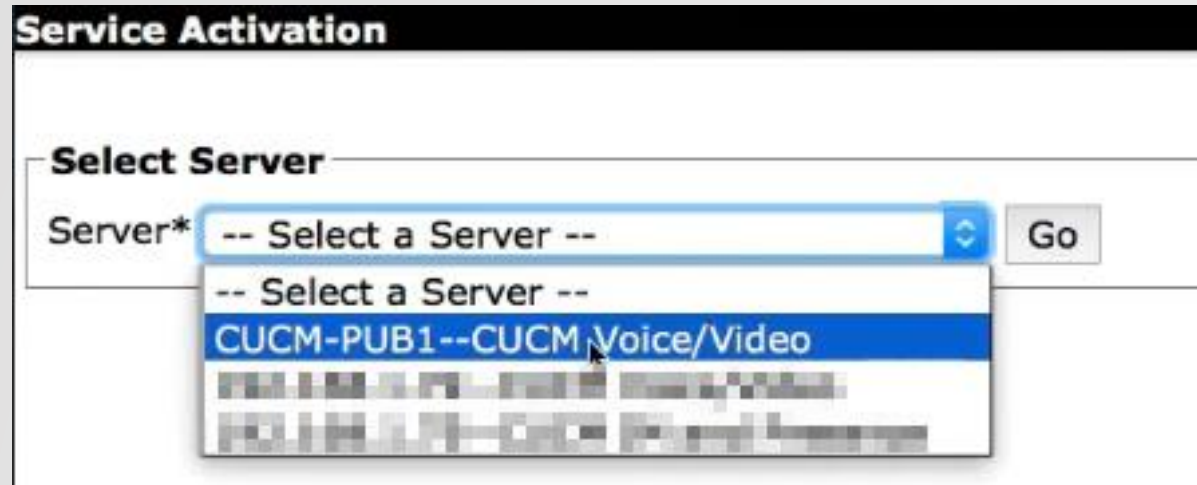
Puede ser un SFTP

# OS Administration

Algunas tareas se pueden hacer desde la línea de Comando



# Cisco Unified Serviceability



# Cisco Unified Serviceability

Select Server

Server\*

CUCM-PUB1--CUCM Voice/Video

Go

☐ Check All Services

CM Services

	Service Name	Activation Status
<input type="checkbox"/>	Cisco CallManager	Deactivated
<input type="checkbox"/>	Cisco Unified Mobile Voice Access Service	Deactivated
<input type="checkbox"/>	Cisco IP Voice Media Streaming App	Deactivated
<input type="checkbox"/>	Cisco CTIManager	Deactivated
<input type="checkbox"/>	Cisco Extension Mobility	Deactivated
<input type="checkbox"/>	Cisco Extended Functions	Deactivated
<input type="checkbox"/>	Cisco DHCP Monitor Service	Deactivated
<input type="checkbox"/>	Cisco Intercluster Lookup Service	Deactivated
<input type="checkbox"/>	Cisco Location Bandwidth Manager	Deactivated
<input type="checkbox"/>	Cisco Directory Number Alias Sync	Deactivated
<input type="checkbox"/>	Cisco Directory Number Alias Lookup	Deactivated
<input type="checkbox"/>	Cisco Dialed Number Analyzer Server	Deactivated
<input type="checkbox"/>	Cisco Dialed Number Analyzer	Deactivated
<input type="checkbox"/>	Cisco Tftp	Deactivated



# Cisco Unified Serviceability

## CTI Services

	Service Name	Activation Status
<input type="checkbox"/>	Cisco IP Manager Assistant	Deactivated
<input type="checkbox"/>	Cisco WebDialer Web Service	Deactivated
<input type="checkbox"/>	Self Provisioning IVR	Deactivated

## CDR Services

	Service Name	Activation Status
<input type="checkbox"/>	Cisco SOAP - CDRonDemand Service	Deactivated
<input type="checkbox"/>	Cisco CAR Web Service	Deactivated

## Database and Admin Services

	Service Name	Activation Status
<input type="checkbox"/>	Cisco Bulk Provisioning Service	Deactivated
<input checked="" type="checkbox"/>	Cisco AXL Web Service	Activated
<input type="checkbox"/>	Cisco UXL Web Service	Deactivated
<input type="checkbox"/>	Cisco TAPS Service	Deactivated

# Cisco Unified Serviceability

**Select Server**

Server\*

☒ Check All Services

---

**CM Services**

	Service Name
<input checked="" type="checkbox"/>	Cisco CallManager
<input checked="" type="checkbox"/>	Cisco Unified Mobile Voice Access Service
<input checked="" type="checkbox"/>	Cisco IP Voice Media Streaming App
<input checked="" type="checkbox"/>	Cisco CTIManager
<input checked="" type="checkbox"/>	Cisco Extension Mobility
<input checked="" type="checkbox"/>	Cisco Extended Functions
<input checked="" type="checkbox"/>	<b>Cisco DHCP Monitor Service</b>
<input checked="" type="checkbox"/>	Cisco Intercluster Lookup Service
<input checked="" type="checkbox"/>	Cisco Location Bandwidth Manager
<input checked="" type="checkbox"/>	Cisco Directory Number Alias Sync
<input checked="" type="checkbox"/>	Cisco Directory Number Alias Lookup
<input checked="" type="checkbox"/>	Cisco Dialed Number Analyzer Server
<input checked="" type="checkbox"/>	Cisco Dialed Number Analyzer
<input checked="" type="checkbox"/>	Cisco Tftp

No conviene correr el servicio DHCP monitor en mas de un servidor en el clúster .

Si el CUCM va a actuar de DHCP server tiene que haber unos solo

**Service Activation**

**Status:**

☒ Ready

**Select Server**

Server\*

☒ Check All Services

Activating/Deactivating services will take a while... Please wait for the page to refresh.

Cancel

OK



# Cisco Unified Serviceability



# Cisco Unified Serviceability


- Si subi un archivo al **TFTP File Managment** y quiero que ese archivo este disponible , es necesario reiniciar el servicio
- Un Servicio que esta Activo puede no haber Arrancado ( Started)

CM Services			
	Service Name	Status:	Activation Status
<input type="radio"/>	Cisco CallManager	Started	Activated
<input type="radio"/>	Cisco Unified Mobile Voice Access Service	Started	Activated
<input type="radio"/>	Cisco IP Voice Media Streaming App	Started	Activated
<input type="radio"/>	Cisco CTIManager	Started	Activated
<input type="radio"/>	Cisco Extension Mobility	Started	Activated
<input type="radio"/>	Cisco DHCP Monitor Service	Started	Activated
<input type="radio"/>	Cisco Intercluster Lookup Service	Started	Activated
<input type="radio"/>	Cisco Location Bandwidth Manager	Started	Activated
<input type="radio"/>	Cisco Directory Number Alias Sync	Started	Activated
<input type="radio"/>	Cisco Directory Number Alias Lookup	Started	Activated
<input type="radio"/>	Cisco Dialed Number Analyzer Server	Started	Activated
<input type="radio"/>	Cisco Dialed Number Analyzer	Started	Activated
<input checked="" type="radio"/>	Cisco Tftp	Started	Activated

Control Center - Feature Services

 Start

 Stop

 Restart

 Refresh Page

# CUCM - CLI

- Conexión por SSH
- Cisco “Linux”

```
Command Line Interface is starting up, please wait ...
```

```
Welcome to the Platform Command Line Interface
```

```
VMware Installation:
```

```
    4 vCPU: Intel(R) Xeon(R) CPU           X5450  @ 3.00GHz  
    Disk 1: 80GB, Partitions aligned  
    8192 Mbytes RAM
```

```
admin: █
```

# CUCM - CLI


admin:█



```
admin:
  delete*
  file*
  help
  license*
  quit
  run*
  set*
  show*
  unset*
  utils*
```

# CUCM – CLI - show

admin:show



```
show Login*
show account
show accountlocking
show cert*
show cli*
show csr*
show ctl
show date
show diskusage*
show dscp*
show environment*
show hardware
show ipsec*
show itl
show logins
show media*
show memory*
show myself
show network*
show open*
show packages*
show password*
show perf*
show process*
show registry
show risdb*
show samltrace*
show session*
show smtp
show stats*
show status
show tech*
show timezone*
show tlsresumptiontime
show trace
show ups*
```

```
admin:show network
      show network all
      show network cluster
      show network dhcp*
      show network eth0
      show network failover
      show network ip_conntrack
      show network ipprefs*
      show network ipv6*
      show network max_ip_conntrack
      show network ntp*
      show network route
      show network status
```

```
admin:show network eth0
Ethernet 0
DHCP      : disabled           Status      : up
IP Address : 192.168.1.71      IP Mask     : 255.255.255.000
Link Detected: yes           Mode        : Auto enabled, Full,
Duplicate IP : no
```

```
DNS
Not configured.
Gateway    : 192.168.1.71 on Ethernet 0
```



# CUCM – CLI – Database Replication / Shutdown

- Al hacer cambio y que no se vena reflejados , es un síntoma de problemas en la replicación de la base de datos

```
admin:utils dbreplication repair all
----- utils dbreplication repair -----

Replication Repair is now running in the background.
Use command 'utils dbreplication runtimestate' to check its progress

Output will be in file cm/trace/dbl/sdi/ReplicationRepair.2015_11_25_10_03_21.out

Please use "file view activelog cm/trace/dbl/sdi/ReplicationRepair.2015_11_25_10_03_21.out" command to see the output
```

Antes de Sacar el Publisher offline asegurarse que la base este replicada  
utils dbreplication status

```
admin:utils system shutdown

Do you really want to shutdown ?

Enter (yes/no)? █
```