

# ศูนย์เทคโนโลยีสารสนเทศและการสื่อสาร สป.มท.

Information and Communication Technology Center.



# IP Telephony

# Add ISR4000 To CUCM





โครงการค่าจัดหาระบบโทรศัพท์ (IP Telephony) เพื่อการสื่อสารแบบครบวงจรของกระทรวงมหาดไทย



#### Path Selection Configuration Process

- 1. Add Devices (gateways and trunks).
- 2. Build route groups from available devices.
- 3. Build route lists from available route groups.
- 4. Build route patterns pointing to route lists.



- MGCP
- เลือก Device > Gateway

Cisco Unified CM Administration For Cisco Unified Communications Solutions	
System   Call Routing   Media Resources   Advanced Features	Device  Application  User Man
	CTI Route Point Gatekeeper
Cisco Unified CM Administration	Gateway
System version: 12.5.1.13900-152	Phone Trunk
VMware Installation: 4 vCPU Intel(R) Xeon(R) Gold 6132 ( Last Successful Backup: 0 day(s) ago	Remote Destination Expressway-C Device Settings
	Headset

User administrator last logged in to this cluster on Friday, July 7, 2023 4:19:24 AM ICT, to node 10.230.1.21, frc

### - เลือก Find เพื่อตรวจสอบข้อมูลที่มีอยู่ในระบบ และเลือก Add New

cisco <sub>Fo</sub>	or Cisco Un	fied COM A	dministrat	ion			
System • Call	Routing •	Media Resources	Advanced Feat	ures 🔹 Device	<ul> <li>Application</li> </ul>	▼ Use	ser Management 👻 Bulk Administration 👻 Help 👻
Find and List (	Gateway						
Add New							
Gateways							
Find Gateways	where Nar	ne	<ul> <li>begins with</li> </ul>	~ [		Hide	e 🗸 endpoints Find Clear Filter 🔂 😑
				Select item	or enter searc	h text 🗸	✓
						9	No active query. Please enter your search criteria using the options above
Add New							



 Gateway Type\*: เลือก Gateway ที่มีอยู่ในรายการและ เลือก Next

cisco For	sco Unified CM Administration Cisco Unified Communications Solutions	
System - Call R	outing • Media Resources • Advanced Features • I	D
Add a new Gate	eway	
Next		
Select the type	of gateway you would like to add:	-
Gateway Type*	Not Selected V	Q
	Cisco ISR 4321	
Next	Cisco ISR 4331	
-	Cisco ISR 4351	
(i) *- indicate	Cisco ISR 4431	
	Cisco ISR 4451	
	Cisco ISR 4461	
	Cisco VG200	
	Cisco VG248 Gateway	
	Cisco VGD-1T3	
	Communication Media Module	
	H.323 Gateway	
	VG202	
	VG204	
	VG224	
	VG310	
	VG320	

• เลือก Next





Protocol\*: MGCP

• เลือก Next

cisco	Cisco l For Cisco U	Jnified CM A	dministratio	n		
System -	Call Routing	Media Resources	Advanced Features	•	Device 🔻	Application -
Add a new	/ Gateway					
Next						
Select the	type of gate	eway you would lik	e to add:	_		
Gateway T	ype Cisco ISI	R 4431			Change	Gateway type
Protocol*	MGCP			~		
Next						
(i) *- in	idicates requir	ed item.				

- Domain Name\*: ใส่ชื่ออุปกรณ์ตามด้วย Domain name
- Cisco Unified Communications Manager Group\*
   เลือกกลุ่ม CUCM
- Module in Slot 0: เลือกชนิดของที่อยู่ใน Slot 0

System      Call Routing      Media Resources	Advanced Features
Gateway Configuration	
Save	
- Status	
i Status: Ready	
– Gateway Details	
Product	Cisco ISR 4431
Protocol	MGCP
\Lambda Device is not trusted	
Domain Name*	COPI-Test.moi.go.th
Description	COPI-Test.moi.go.th
Cisco Unified Communications Manager Group*	01-COPI-CM_Group
- Configured Slots, VICs and Endpoints	
Module in Slot 0 ISR-3NIM-MBRD V	

SAMART	
COMTECH	

cisco	Cisco Unified CM Adr For Cisco Unified Communications	ninistration Solutions
System 👻	Call Routing  Media Resources	Advanced Features
Gateway C	Configuration	
Save	🗙 Delete 省 Reset 🧷 Apply	Config 🕂 Add New
Status		
Add s	uccessful	
-Gateway [	Details	
Product		Cisco ISR 4431
Gateway		COPI-voip-voicegw50.moi.go.th
Protocol		MGCP
🗥 Device i	is not trusted	
Domain Na	me*	COPI-voip-voicegw50.moi.go.th
Description	1	COPI-voip-voicegw50.moi.go.th
Cisco Unifie	ed Communications Manager Group*	01-COPI-CM Group
- Configure	d Slots, VICs and Endpoints——	
Module in S	Slot 0 ISR-3NIM-MBRD V	
	Subunit 1 NIM-2MET-T1E1-E1	× Begin Port 0
		W Regin Port 0
	Enclose second in the second sec	

□ Product Specific Configuration Layout

- Subunit 1: เลือก Card ให้ตรงกับที่ Plug อยู่ที่
   Slot ของอุปกรณ์
- Subunit 2: เลือก Card ให้ตรงกับที่ Plug อยู่ที่
   Slot ของอุปกรณ์
- Subunit 3: เลือก Card ให้ตรงกับที่ Plug อยู่ที่
   Slot ของอุปกรณ์
- เลือก Save





Product Specific Configuratio	n Layout		— • Global
Ž			Global
Global ISDN Switch Type	EURO	~	
Switchback Timing*	Graceful	~	
Switchback uptime-delay (min)	10		
Switchback schedule (hh:mm)	12:00		]
Type Of DTMF Relay*	Current GW Config	<b>v</b>	
Modem Passthrough*	Enable	×	
Cisco Fax Relay*	Disable	~	
T38 Fax Relay*	Disable	~	
RTP Package Capability*	Enable	~	
MT Package Capability*	Disable	~	
RES Package Capability*	Disable	~	
PRE Package Capability*	Enable	~	⊕ 10.230.1.21
SST Package Capability*	Enable	~	Click the Apply Con
RTP Unreachable OnOff*	Enable	~	chek the rippiy con
RTP Unreachable timeout (ms)*	1000		1
RTCP Report Interval (secs) $^{st}$	0		ī <b>-</b>
Simple SDP*	Enable	~	🧴 🔸 เลือก 🔾

 Global ISDN Switch Type\*: เลือกประเภท Global ISDN



โครงการค่าจัดหาระบบโทรศัพท์ (IP Telephony) เพื่อการสื่อสารแบบครบวงจรของกระทรวงมหาดไทย

#### SAMART COMTECH

#### • MGCP – E1

System      Call Routing      Media Resources	Advanced Features   Device   Application   User Management   Bulk Adv
Gateway Configuration	
🔚 Save 🗙 Delete 🎦 Reset 🖉 Apply	y Config 🕂 Add New
_ Status	
(i) Update successful	
– Gateway Details	
Product	Cisco ISR 4431
Gateway	COPI-Test.moi.go.th
Protocol	MGCP
A Device is not trusted	
Domain Name*	COPI-Test.moi.go.th
Description	COPI-Test.moi.go.th
Cisco Unified Communications Manager Group*	01-COPI-CM_Group
$_{ m \sub}$ Configured Slots, VICs and Endpoints——	
Module in Slot 0 ISR-3NIM-MBRD V	
Subunit 1 NIM-2MFT-T1E1-E1	1 V Begin Port 0 $0/1/0 = 0/1/1 = 0/1/1$
Subunit 2 NIM-4FXO	→ Begin Port 0 0/2/ 0 🗳 0/2/ 1 🗳 0/2/ 2 🗳 0/2/ 3 🗳
Subunit 3 < None >	✓ Begin Port 0

Subunit1 NIM-2MFT-T1E1-E1: เลือก Port ที่ต้องการ Config เพื่อใช้งาน



#### • MGCP – E1

CISCO CISCO Unified C	ed CM Administration
System      Call Routing      Medi	ia Resources • Advanced Features • Device • Application • Us
Gateway Configuration	
Save	
Status	
i Status: Ready	
- Device Information	
Product Gateway Device Protocol A Device is not trusted	Cisco MGCP E1 Port COPI-voip-voicegw50.moi.go.th Digital Access PRI
End-Point Name *	S0/SU1/DS1-0@COPI-voip-voiceaw50.moi.ao.th
Description	S0/SU1/DS1-0@COPI-voip-voicegw50.moi.go.th
Device Pool*	01-COPI-DP v
Common Device Configuration	< None >
Call Classification *	Use System Default
NetworkLocale	< None > v
Packet Capture Mode"	None v
Packet Capture Duration	0
Media Resource Group List	01-COPI-MRGL
Location *	Hub_None v
AAR Group	< None >
Use Trusted Relay Point*	Default
Route Class Signaling Enabled*	Off v
Transmit UTF-8 for Calling P	Party Name
V150 (subset)	
Enable Protected Facility IE	
PSTN Access	

- Description: ใส่คำอธิบายเพิ่มเติม
- Device Pool\*: เลือก Device Pool
- Media Resource Group List: เลือกกลุ่ม Media Resource

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#### • MGCP – E1

Interface Information		
PRI Protocol Type*	PRI EURO	~
QSIG Variant*	No Changes	~
ASN.1 ROSE OID Encoding*	No Changes	~
Protocol Side*	User	~
Channel Selection Order*	Bottom Up	<b>v</b> ]
Channel IE Type*	Use Number when 1B	~
РСМ Туре*	A-law	~
Delay for first restart (1/8 sec tick	s)* 32	
Delay between restarts (1/8 sec ti	cks)* 4	
🗹 Inhibit restarts at PRI initializat	ion	
Enable status poll		
Unattended Port		
Enable G.Clear		



- PRI Protocol Type\*: เลือกชนิด Protocol PRI
- Protocol Side\*: ให้เลือก Protocol ที่ไม่ตรงกันกับ PABX
- Channel Selection Order: เลือกลำดับช่องสัญญาณ ที่ต้องการให้เริ่มทำงานก่อน
- Channel IE Type\*: กำหนดวิธีการเลือก Channel ซึ่ง การเลือกในช่องนี้ขึ้นอยู่กับการเชื่อมต่อในอีกด้านหนึ่ง

**Calling Search Space:** เลือก Calling Search Space

โครงการค่าจัดหาระบบโทรศัพท์ (IP Telephony) เพื่อการสื่อสารแบบครบวงจรของกระทรวงมหาดไทย



Gateway Configuration		
Save		
Subscriber Number	Default	
- Product Specific Configuration	Layout	
Line Codina*	НОВЗ	×
Framing*	CRC4	~ ~
Clock*	External	~
Input Gain (-614 db)*	0	
Output Attenuation (-614 db)*	0	
Echo Cancellation Enable*	Enable	~
Echo Cancellation Coverage (ms) $^{st}$	128	~

- Framing\*: เลือกการตรวจสอบ Framing
- Clock\*: เลือกประเภท Clock
- เลือก Save







#### • เลือก Apply Config

A CONTRACTOR OF	the second s	And a support of the support
ADD	Cont	iguration
which and participation	All the fields	at - Jacobs Insultant also date

เลือก OK

- Status Status: Ready

•

- Apply Configuration Information-

Selected Device: S0/SU1/DS1-0@COPI-Test.moi.go.th (S0/SU1/DS1-0@COPI-Test.moi.go.th; Cisco MGCP E1 Port)

Note:

Please save the configuration before continuing. When you click apply config, the device may go through a restart. When restart is initiated, calls in progress may be dropped but connected calls will be preserved unless the device pool includes SIP trunks.

OK Cancel

	CISCO Cisco Unified CM Administration For Cisco Unified Communications Solutions	• เลือก Reset
	System   Call Routing   Media Resources   Advanced Features	
	Gateway Configuration	
	🔚 Save 🗙 Delete 🎦 Reset 🥢 Apply Config 🕂 Add New	
[	Status Add successful	
Novice Reset		
Reset Restart		<ul> <li>เลือก Reset</li> </ul>
⊂ Status		
(i) Status: Ready		- Igoli Restart
Reset Information	BL Test mai as th /60/601 /D61-0@CODI-Test mai as the	<ul> <li>เลือก Close</li> </ul>
Cisco MGCP E1 Port) If a device is not registered with Cisco Ur device is registered, to restart a device w device and bring it back up, click the <b>Res</b> resetting/restarting the device, click <b>Clos</b>	nified Communications Manager, you cannot reset or restart it. If a ithout shutting it down, click the <b>Restart</b> button. To shut down a <b>et</b> button. To return to the previous window without ie.	
Note: Resetting a gateway/trunk/media devices /media devices. Restarting a gateway/me gateway/media devices, if possible. Other Resetting/restarting a H323 device does configuration loaded by Cisco Unified Cor	<b>drops</b> any calls in progress that are using that gateway/trunk dia devices tries to preserve the calls in progress that are using that devices wait until calls are complete before restarting or resetting. not physically reset/restart the hardware; it only reinitializes the nmunications Manager.	
Reset Restart Close		



#### • MGCP - FXO

System    Call Routing    Media Resources	Advanced Features •	Device 💌	Application -	User Managemen	t 🕶 Bulk /	Admir
Gateway Configuration						
🔜 Save 🗙 Delete 省 Reset 🧷 Apply	/ Config 🕂 Add New					
- Status						
i Status: Ready						
- Gateway Details						
Product	Cisco ISR 4431					
Gateway	COPI-Test.moi.go.th					
Protocol	MGCP					
\Lambda Device is not trusted						
Domain Name*	COPI-Test.moi.go.th					
Description	COPI-Test.moi.go.th					
Cisco Unified Communications Manager Group*	01-COPI-CM_Group			~		
- Configured Slots, VICs and Endpoints						
Module in Slot 0 ISR-3NIM-MBRD V						
Subunit 1 NIM-2MFT-T1E1-E1	Begin Port 0	0/1/ 0	0/1/1			
Subunit 2 NIM-4FXO	✓ Begin Port 0	0/2/ 0	0/2/1	0/2/ 2 🗳	0/2/ 3 🔍	3
Subunit 3 < None >	✓ Begin Port 0					-

• NIM-4FXO: เลือก Port ที่ต้องการ Config เพื่อใช้งาน



System   Call Routing   Media Resources   Advanced Features   Device	<ul> <li>Port Type*: เลือก Loop Start</li> </ul>
Gateway Configuration	• เลือก Next
Status Status: Ready	
Port Selection Port Type* Loop Start	
Next	
(i) *- indicates required item.	



ateway Configuration		- Description: เละเายงกายเพทหมท
Save		<ul> <li>Device Pool*: เลือก Device Pool</li> </ul>
Status Status: Ready		• Media Resource Group List: เลือก Media Resource
Device Information		• Calling Search Space: เลือก Calling Search Space
Product	Cisco MGCP FXO Port	
Sateway	COPI-Test.moi.go.th	System      Call Routing      Media Resources      Advanced Features      Device      An
Device Protocol	Analog Access	System • Call Routing • Media Resources • Advanced • Catales • Device • Ap
L Device is not trusted		Gateway Configuration
ind-Point Name *	AALN/S0/SU2/0@COPI-Test.moi.go.th	
Jescription	AALN/S0/SU2/0@COPI-Test.moi.go.th	Save
evice Pool*	01-COPI-DP v	
common Device Configuration	<pre>&lt; None &gt; v</pre>	┌ Port Information (Loop Start) ─────
ledia Resource Group List	01-COPI-MRGL V	Port Direction* Bothways
'acket Capture Mode*	None 🗸	Attendant DN* losoos
acket Capture Duration	0	Profix DN
Calling Search Space	01_COPI_class_2	Prefix DN
AR Calling Search Space	< None > v	Unattended Port
ocation*	Hub None v	ק אר
AR Group	<pre></pre>	Attendant DN*: เสหมายเลขทตองการเหรบสายเมอมสา
Network Locale	< None > v	
Use Trusted Relay Point*	Default v	69211201
Transmit UTF-8 for Calling Pa	arty Name	• เลือก รวงค
Called Party Transformation CSS	S < None > v	BRIGH JAVE





#### • เลือก Apply Config

OK

Apply Configuration	
r Status	• เลือก
i Status: Ready	
Apply Configuration Information	
Selected Device: AALN/S0/SU2/0@COPI-Test.moi.go.th (AALN/S0/SU2/0@COPI-Test.moi.go.th; Cisco MGCP FXO Port)	
<b>Note:</b> Please save the configuration before continuing. When you click apply config, the device may go through a restart. When restart is initiated, calls in progress may be dropped but connected calls will be preserved unless the device pool includes SIP trunks.	
OK Cancel	



#### เลือก Reset

🎦 Reset 🔖 Restart	
Status	
i Status: Ready	
Reset Information	
Selected Device: AALN/S0/SU2 Cisco MGCP FXO Port) If a device is not registered with Ci device is registered, to restart a de device and bring it back up, click th resetting/restarting the device, clic	<b>2/0@COPI-Test.moi.go.th (AALN/S0/SU2/0@COPI-Test.moi.go.th;</b> isco Unified Communications Manager, you cannot reset or restart it. If a evice without shutting it down, click the <b>Restart</b> button. To shut down a ne <b>Reset</b> button. To return to the previous window without ck <b>Close</b> .
Note: Resetting a gateway/trunk/media o /media devices. Restarting a gatew gateway/media devices, if possible Resetting/restarting a H323 device configuration loaded by Cisco Unifi	devices <b>drops</b> any calls in progress that are using that gateway/trunk way/media devices tries to preserve the calls in progress that are using that . Other devices wait until calls are complete before restarting or resetting. e does not physically reset/restart the hardware; it only reinitializes the ed Communications Manager.

- เลือก Reset
- เลือก Restart
- เลือก Close

SAMART COMTECH

# Delete ISR4000 Port (E1, FXO)



Cisco Unified CM Administration For Cisco Unified Communications Solutions	
System ▼ Call Routing ▼ Media Resources ▼ Advanced Features ▼	Device  Application  User Management CTI Route Point Gatekeeper
<b>Cisco Unified CM Administration</b> System version: 12.5.1.13900-152 VMware Installation: 4 vCPU Intel(R) Xeon(R) Gold 6132 ( Last Successful Backup: 0 day(s) ago	Gateway Phone Trunk Remote Destination Expressway-C Device Settings
	Headset



SAMA COMTE

# Delete ISR4000 Port (E1, FXO)



Cisco Unified CM Administration For Cisco Unified Communications Solutions	• ใส่ Gateway ที่ต้องการลบ Port และกด Find
System   Call Routing   Media Resources   Advanced Features   Device   Application   User Management   Bulk Administration   Help	
Find and List Gateway	
Add New	
Gateways	
Find Gateways where Description <ul> <li>COPI-Test.moi.go.th</li> <li>Hide</li> <li>endpoints</li> <li>Find</li> <li>Clear Filter</li> <li>Gelect item or enter search text</li> </ul> Image: Copie of the search text     Image: Copie of the search text     Image: Copie of the search text     Image: Copie of the search text	
No active query. Please enter your search criteria usin	
Add New	
System   Call Routing   Media Resources   Advanced Features   Device   Application   User Management   Bulk Administration   Help	
Find and List Gateway	
Add New 🔠 Select All 🔛 Clear All 💥 Delete Selected 🎦 Reset Selected 🧷 Apply Config to Selected	
<mark>┌ Status</mark>	
1 records found	
Gateways (1 - 1 of 1)	Rows per Page 50 v
Find Gateways where Description	

		Select	t item or enter search text v					
		Device Name *	Description	Device Pool	Calling Search Space	Device Type	Status	IPv4 Address
		COPI-Test.moi.go.th	COPI-Test.moi.go.th			Cisco ISR 4431	See Endpoints	None
Add Nev	Select All	Clear All Delete Selected Reset Selected Ap	oply Config to Selected					

• เลือก See Endpoints

โครงการค่าจัดหาระบบโทรศัพท์ (IP Telephony) เพื่อการสื่อสารแบบครบวงจรของกระทรวงมหาดไทย

# Delete ISR4000 Port (E1, FXO)



• เลือก Port E1 หรือ Port FXO ที่ต้องการลบ และเลือก Delete Selected

System      Call Routing      Media	a Resources • Advanced Features • Device • Application	on • User Management • Bulk Administration • Help •					
Find and List Gateway							
Add New Eslect All	Clear All 🙀 Delete Selected 🎦 Reset Selected 🧧	Apply Config to Selected					
_ Status							
2 records found							
Gateways (1 - 2 of 2)						Rows	per Page 50 🗸
Find Gateways where Name	✓ contains ✓ @COPI-Test.moi.go.th	Show 🗸 endpoints Find Clear Filter 🕂 🛥					
	Select item or enter sea	rch text 🗸					
	Device Name Description Device Pool Calling Search Space Device Type Status IPv4 Address						
	AALN/S0/SU2/0@COPI-Test.moi.go.th	AALN/S0/SU2/0@COPI-Test.moi.go.th	01-COPI-DP	01_COPI_class_2	Cisco MGCP FXO Port	None	None
S0/SU1/DS1-0@COPI-Test.moi.go.th 01-COPI-DP 01_COPI_class_2 Cisco MGCP E1 Port None None							
Add New Select All Clear All Delete Selected Apply Config to Selected							





### Delete ISR4000



#### • Delete Gateway ISR 4000

CISCO Cisco Unified CM Administration For Cisco Unified Communications Solutions	n
System   Call Routing   Media Resources   Advanced Features	Device      Application      User Management      CTI Route Point
	Gatekeeper Gateway
CISCO UNITICO CM ADMINISTRATIO System version: 12.5.1.13900-152	Phone Trunk
VMware Installation: 4 vCPU Intel(R) Xeon(R) Gold 613 Last Successful Backup: 0 day(s) ago	Expressway-C Device Settings
	Headset

• เลือก Device > Gateway

User administrator last logged in to this cluster on Friday, July 14, 2023 4:38:56 AM ICT, to node 10.230.1.21, from 1

### Delete ISR4000



cisco	Cisco Un For Cisco Uni	nified CM A	dministra	ntio	n							
System 👻	Call Routing •	Media Resources	Advanced Fe	atures	Device	Application		r Management	▼ Bu	Ik Administration	• H	lelp 🔻
Find and I	List Gateway											
Add N	lew											
Gateway	ys											
Find Gateways where Description 🗸		✓ contains	~	COPI-Test.moi.go.th		Hide	vendpoint: F		ind Clear Filter			
				(	Select item o	enter searc	h text 🗸			<i>.</i>		
							(	No active quer	y. Please	e enter your sear	ch crite	ria usir
Add New	1											

• ใส่ Gateway ที่ต้องการลบ Port และกด Find

### Delete ISR4000



• เลือก Gateway ที่ต้องการลบ และเลือก Delete Selected

System • Call Routing • Media Re	esources • Advanced Features • Devic	e  Application  User Management	<ul> <li>Bulk Administration - He</li> </ul>	ip 🕶						
Find and List Gateway										
Add New Eslect All	Clear All 🙀 Delete Selected 蠀 Res	et Selected 🛛 🧷 Apply Config to Selected								
Status										
1 records found										
Gateways (1 - 1 of 1)							Rows per Page 50 v			
Find Gateways where Description <ul> <li>contains</li> <li>OPI-Test.moi.go.th</li> <li>Hide</li> <li>endpoints</li> <li>Find</li> <li>Clear Filter</li> <li>Gelect item or enter search text</li> </ul>										
<u> </u>	Device Name *	Description	Device Pool	Calling Search Space	Device Type	Status	IPv4 Address			
	COPI-Test.moi.go.th	COPI-Test.moi.go.th			Cisco ISR 4431	See Endpoints	None			
Add New Select All Clear All	Delete Selected Reset Selected Apply	Config to Selected								





ศูนย์เทคโนโลยีสารสนเทศและการสื่อสาร สป.มท. Information and Communication Technology Center.

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# Thanks and Regards.