安裝、配置國際編號方案(INNP)並對其進行故障排除

目錄

簡介

本檔案介紹如何安裝、設定和疑難排解INNP。

Cisco Unified Communications Manager(CUCM)提供預設的北美編號方案(NANP)。 對於撥號方案要求不同的國家/地區，您可以安裝思科國際撥號方案並使用該方案建立特定於貴機構要求的唯一編號方案。

必要條件

需求

思科建議您瞭解以下主題：

- 通話路由
- 路由過濾器

採用元件

本檔案中的資訊是根據Cisco Unified CallManager 11.5。

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路正在作用，請確保您已瞭解任何指令可能造成的影響。

備份資訊

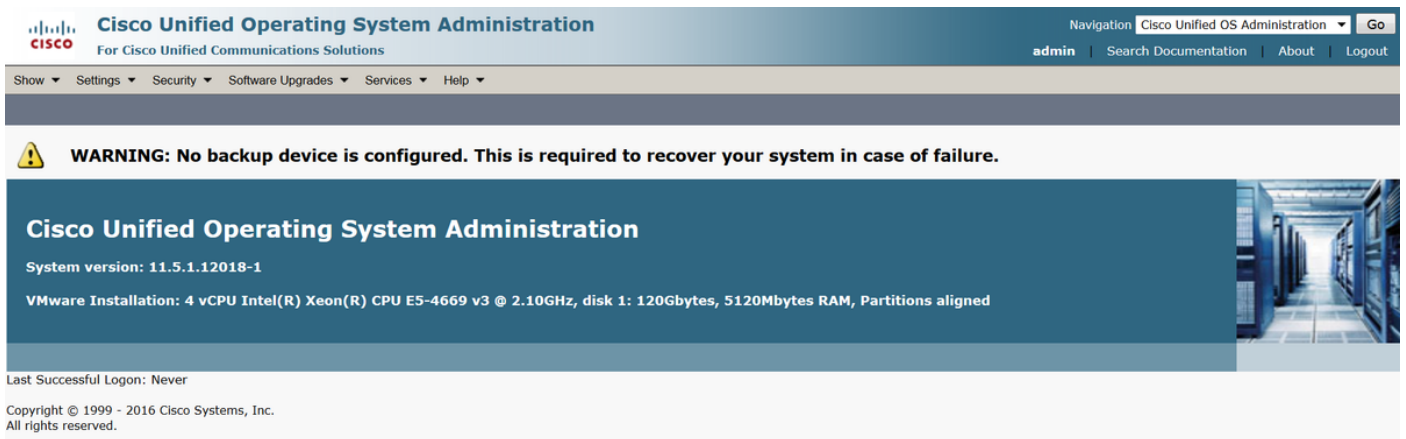如果要為北美以外的國家/地區安裝國家編號方案，請下載包含當前版本的國際撥號方案的思科選項包(COP)檔案。

COP檔案使用命名約定，可從思科網站獲取：

https://software.cisco.com/download/release.html?mdfid=278719042&softwareid=282074292&os=Linux&release=3.1.33-GB&relind=AVAILABLE&rellifecycle=&reltype=latest
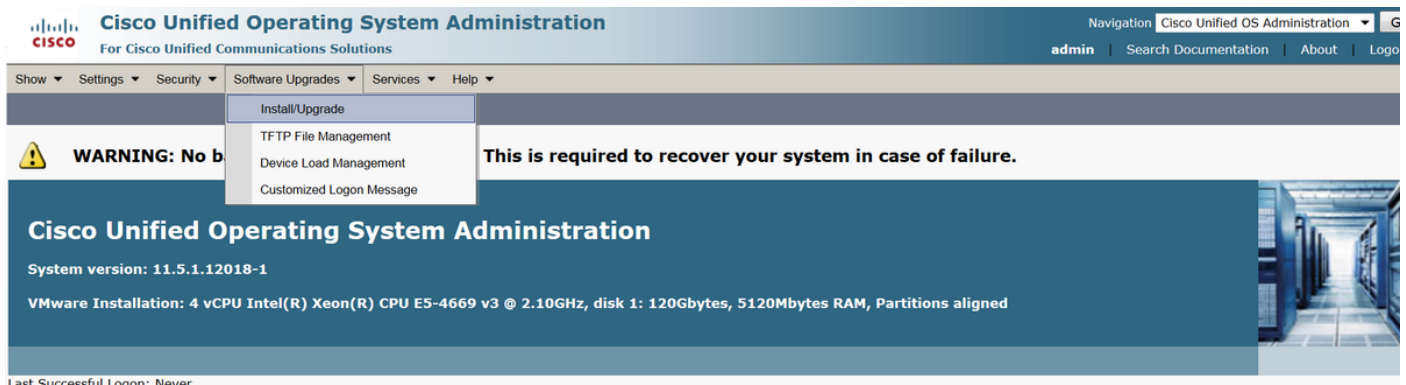
設定

這是安裝INNP命令檔案的過程。

步驟1.登入到OS Admin。

步驟2.導覽至Software Upgrade > Install/Upgrade，如下圖所示：

選擇源：此處我們使用SFTP伺服器執行安裝/升級。

來源：遠端檔案系統

目錄：/

伺服器:在此，您必須保持SFTP應用程式運行筆記型電腦/台式機IP地址。

使用者名稱：SFTP使用者名稱。

使用者密碼：SFTP使用者的密碼。

傳輸協定：SFTP

步驟3.選擇Next，然後出現如下圖所示的螢幕。

您必須為INNP選擇正確的複製檔案，然後選擇下一步。

螢幕如下圖所示。選擇Next。

步驟4.正在安裝：

步驟5.安裝完成。

對群集中的所有節點執行相同的操作。

INNP設定

步驟1.在Cisco Unified CM管理下，導航至**呼叫路由>撥號方案安裝程式**。

步驟2.按一下Find並選擇INNP，如下圖所示：

步驟3.如圖所示，按一下Install。

完成複製檔案安裝後，在所有節點上重新啟動CM服務。

INNP中的子句

```
First understand the clauses in the INNP:
# P: Digit pattern -- PATTERN TAG
# T: Type of Number -- I(nternational) or N(ational)
# W:  Network Specific Facilities -- OP or OPXXXX(alternate carriers)
# U: Urgent pattern? (Call extended immediately on match)


# [2-6]XXXXX
P: [2-6]XXXXX                    LOCAL-6-DIGIT


# [2-6]XXXXXX
P: [2-6]XXXXXX                   LOCAL-7-DIGIT


# [2-6]XXXXXXX
P: [2-6]XXXXXXX                  LOCAL-8-DIGIT



# Long Distance Calls

# 0+11+[2-6]XXXXXXX
P: 0                            NATIONAL-ACCESS
P: 11                           AREA-CODE
P: [2-6]XXXXXXX                 LOCAL-8-DIGIT
T: N


# 0+2[02]+[2-6]XXXXXXX
P: 0                            NATIONAL-ACCESS
P: 2[02]                        AREA-CODE
P: [2-6]XXXXXXX                 LOCAL-8-DIGIT
T: N


# 0+33+[2-6]XXXXXXX
P: 0                            NATIONAL-ACCESS
P: 33                           AREA-CODE
P: [2-6]XXXXXXX                 LOCAL-8-DIGIT
T: N



# Services, Mobile & Non Geographic Calls

# 100
P: 100                          SERVICE
U: Y


# 101
P: 101                          SERVICE
U: Y


# 80[01589]X+XXX+XXX
P: 80[01589]X                   LOCAL-PREFIX-8-MOBILE
P: XXX                          MOBILE-ACCESS
P: XXX                          MOBILE-SUBSCRIBER
T: N


# 81XX+XXX+XXX
P: 81XX                         LOCAL-PREFIX-8-MOBILE
P: XXX                          MOBILE-ACCESS
P: XXX                          MOBILE-SUBSCRIBER
```

```
T: N

# 8128+XXX+XXX
P: 8128                          LOCAL-PREFIX-8-MOBILE
P: XXX                           MOBILE-ACCESS
P: XXX                           MOBILE-SUBSCRIBER
T: N

# 8149+XXX+XXX
P: 8149                          LOCAL-PREFIX-8-MOBILE
P: XXX                           MOBILE-ACCESS
P: XXX                           MOBILE-SUBSCRIBER
T: N
```

有關更多詳細資訊，請參閱以下有關INNP條款的連結：

http://www.cisco.com/web/software/282074292/122537/INNP.txt

根據以上資訊，我們將建立路由過濾器。

範例：

您的要求是建立僅允許本地呼叫的本地呼叫過濾器。

案例：分機3001必須呼叫本地移動號碼，從7、8和9開始。

分機3001必須呼叫本地座機號碼（8位）。

分機3001必須阻止STD和全國呼叫撥號。

步驟1.建立新分割槽 — PT-LOCAL

導航至**呼叫路由>控制類>分割槽**。

Partition Configuration

Save Delete Reset Apply Config Add New

Status

Status: Ready

Partition Information

Name* [PT-LOCAL]

Description [PT-LOCAL]

Time Schedule [< None >]

Time Zone ● Originating Device

○ Specific Time Zone [(GMT) Etc/GMT]

Save Delete Reset Apply Config Add New

*- indicates required item.

步驟2.建立新的CSS - CSS-Local

導航至**呼叫路由>控制類別>呼叫搜尋空間**。

在此CSS中，您保留PT-LOCAL分割槽。

步驟3.建立路由器過濾器。

導覽至Call Routing > Route Filter。

按一下「Add New」，如下圖所示：

如圖所示，選擇編號方案。

Route Filter Configuration

➡ Next

Status

ⓘ Status: Ready

Route Filter Information

Numbering Plan* [India Numbering Plan ▾]

[Next]

ⓘ *- indicates required item.

這些過濾器是根據要求建立的。

Route Filter Name*	Local
Numbering Plan	India Numbering Plan
Clause	(LOCAL-PREFIX-7-MOBILE EXISTS AND MOBILE-ACCESS EXISTS AND MOBILE-SUBSCRIBER EXISTS) OR (LOCAL-PREFIX-8-MOBILE EXISTS AND MOBILE-ACCESS EXISTS AND MOBILE-SUBSCRIBER EXISTS) OR (LOCAL-PREFIX-9-MOBILE EXISTS AND MOBILE-ACCESS EXISTS AND MOBILE-SUBSCRIBER EXISTS) OR (LOCAL-8-DIGIT EXISTS)

Clause Information

To add a clause within this Route Filter, click Add Clause. [Add Clause]

[Edit Clause] [Remove Clause]

LOCAL-PREFIX-7-MOBILE	EXISTS ▾	**AND**
MOBILE-ACCESS	EXISTS ▾	**AND**
MOBILE-SUBSCRIBER	EXISTS ▾	

OR

[Edit Clause] [Remove Clause]

LOCAL-PREFIX-8-MOBILE	EXISTS ▾	**AND**
MOBILE-ACCESS	EXISTS ▾	**AND**
MOBILE-SUBSCRIBER	EXISTS ▾	

OR

[Edit Clause] [Remove Clause]

LOCAL-PREFIX-8-MOBILE	EXISTS ▼		AND
MOBILE-ACCESS	EXISTS ▼		AND
MOBILE-SUBSCRIBER	EXISTS ▼		

OR

[Edit Clause] [Remove Clause]

LOCAL-PREFIX-9-MOBILE	EXISTS ▼		AND
MOBILE-ACCESS	EXISTS ▼		AND
MOBILE-SUBSCRIBER	EXISTS ▼		

OR

[Edit Clause] [Remove Clause]

| LOCAL-8-DIGIT | EXISTS ▼ |

[Save] [Delete] [Copy] [Reset] [Apply Config] [Add New]

步驟4.建立路由模式。

導覽至Call Routing > Route/Hunt > Route Pattern。

Pattern Definition

Route Pattern*	9.@	Here we have created the 9.@ pattern
Route Partition	PT-LOCAL ▼	Keep the PT-LOCAL partition
Description		
Numbering Plan*	INNP ▼	Select the numbering plan
Route Filter	Local ▼	Select the Route Filter created for Local calling.
MLPP Precedence*	Default ▼	
☐ Apply Call Blocking Percentage		
Resource Priority Namespace Network Domain	< None > ▼	
Route Class*	Default ▼	
Gateway/Route List*	Chandra-CUCM ▼ (Edit)	
Route Option	⦿ Route this pattern	
	○ Block this pattern No Error ▼	
Call Classification*	OffNet ▼	
External Call Control Profile	< None > ▼	

☐ Allow Device Override ☑ Provide Outside Dial Tone ☐ Allow Overlap Sending ☐ Urgent Priority

Connected Party Transformations

| Connected Line ID Presentation* | Default ▼ |
| Connected Name Presentation* | Default ▼ |

Called Party Transformations

Discard Digits	< None > ▼
Called Party Transform Mask	
Prefix Digits (Outgoing Calls)	
Called Party Number Type*	Cisco CallManager ▼
Called Party Numbering Plan*	Cisco CallManager ▼

ISDN Network-Specific Facilities Information Element

| Network Service Protocol | -- Not Selected -- ▼ |
| Carrier Identification Code | |

Network Service	Service Parameter Name	Service Parameter Value
-- Not Selected -- ▼	< Not Exist >	

[Save] [Delete] [Copy] [Add New]

請確保測試擴展具有正確的CSS(CSS-Local)。

Directory Number *	3001		☐ Urgent Priority
Route Partition	PT-CUG ▼		
Description	Phone A		
Alerting Name	Phone A		
ASCII Alerting Name	Phone A		
External Call Control Profile	< None > ▼		

☑ Allow Control of Device from CTI

Line Group	Test	**Edit Line Group**
Associated Devices	SEP00E16DBA5FD5 MVA	**Edit Device** **Edit Line Appearance**

∨ ∧

Dissociate Devices		

─Directory Number Settings

Voice Mail Profile	< None > ▼	(Choose <None> to use system default)
Calling Search Space	CSS-Local ▼	

驗證

驗證設定：

步驟1.在**撥號號碼分析器**下，導覽至**分析>電話**。
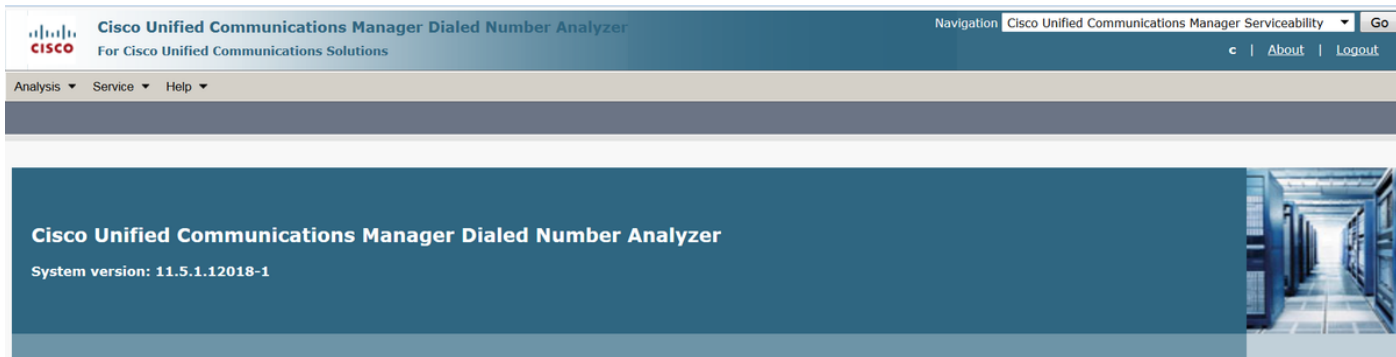
輸入分機3001並按一下**Find**。

Device Information (Model = Cisco 7841)

Registration	Registered with Cisco Unified CallManager 10.106.99.199
IP Address	10.106.99.249
MAC Address	00E16DBA5FD5
Device Name	00E16DBA5FD5
Description	Auto 3003
Owner User ID	cisco3
Device Pool	HQ
Call Classification	OnNet
Calling Search Space	None
AAR Calling Search Space	None
Media Resource Group List	None
Device Time Zone	Etc/GMT

Association Information

◉ Line [1] - 3001 in PT-CUG

○ Line [2] - 3006 in PT-CUG

○ Line [3] - 8888 (no partition)

Analyzer Input

Dialed Digit Settings

○ Directory URI [   ]

◉ Dialed Digits [944262527]

步驟2.按一下**Do Analysis**時，系統會顯示一頁面，其中包含所有詳細資訊和正確篩選條件，如下圖所示：

Cisco Unified Communications Manager Dialed Number Analyzer Results

Expand All Collapse All

▼ **Results Summary**
  ▶ **Calling Party Information**
  • **Dialed Digits** = 944262527
  • **Match Result** = RouteThisPattern
  ▼ **Matched Pattern Information**
    ○ **Pattern** = 9.@
    ○ **Partition** = PT-LOCAL
    ○ **Time Schedule** =
  • **Called Party Number** = 944262527
  • **Time Zone** = Etc/GMT
  • **End Device** = Chandra-CUCM
  • **Call Classification** = OffNet
  • **InterDigit Timeout** = NO
  • **Device Override** = Disabled
  • **Outside Dial Tone** = NO
▼ **Call Flow**
  ▼ **Route Pattern** :Pattern= 9.@
    ○ **Positional Match List** = 9:44262527
    ○ **DialPlan** = India Numbering Plan
    ▼ **Route Filter**
      • **Filter Name** = Local
      • **Filter Clause** = (LOCAL-PREFIX-7-MOBILE EXISTS AND MOBILE-ACCESS EXISTS AND MOBILE-SUBSCRIBER EXISTS) OR (LOCAL-PREFIX-8-MOBILE EXISTS AND MOBILE-ACCESS EXISTS AND MOBILE-SUBSCRIBER EXISTS) OR (LOCAL-PREFIX-9-MOBILE EXISTS AND MOBILE-ACCESS EXISTS AND MOBILE-SUBSCRIBER EXISTS) OR (LOCAL-8-DIGIT EXISTS)
    ○ **Require Forced Authorization Code** = No
    ○ **Authorization Level** = 0

疑難排解

配置的路由過濾器工作正常，但有一個問題。如果用兩位數字區號撥打STD號碼，呼叫就會通過。

範例：如果撥打號碼080 26252728，它會使用本地過濾器路由呼叫。

Cisco Unified Communications Manager Dialed Number Analyzer Results

[Expand All] [Collapse All]

▼ **Results Summary**
  ▶ **Calling Party Information**
  • **Dialed Digits** = 908026252728
  • **Match Result** = RouteThisPattern
  ▼ **Matched Pattern Information**
      ○ **Pattern** = 9.@
      ○ **Partition** = PT-LOCAL
      ○ **Time Schedule** =
  • **Called Party Number** = 908026252728
  • **Time Zone** = Etc/GMT
  • **End Device** = Chandra-CUCM
  • **Call Classification** = OffNet
  • **InterDigit Timeout** = NO
  • **Device Override** = Disabled
  • **Outside Dial Tone** = NO
▼ **Call Flow**
  ▼ **Route Pattern :Pattern**= 9.@
      ○ **Positional Match List** = 9:0:80:26252728
      ○ **DialPlan** = India Numbering Plan
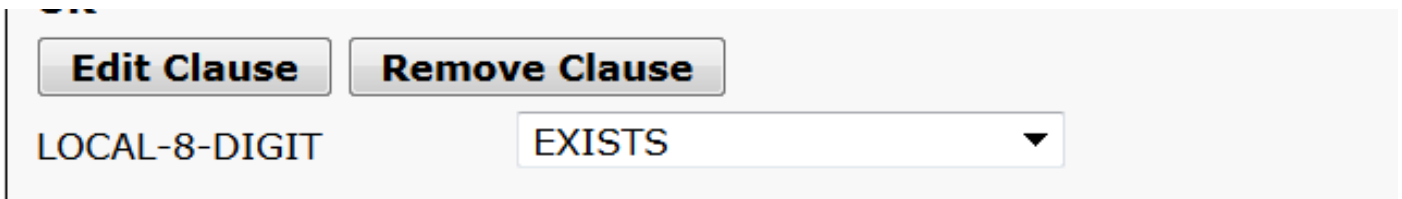   ▼ **Route Filter**
          • **Filter Name** = Local
          • **Filter Clause** = (LOCAL-PREFIX-7-MOBILE EXISTS AND MOBILE-ACCESS EXISTS AND MOBILE-SUBSCRIBER EXISTS) OR (LOCAL-PREFIX-8-MOBILE EXISTS AND MOBILE-ACCESS EXISTS AND MOBILE-SUBSCRIBER EXISTS) OR (LOCAL-PREFIX-9-MOBILE EXISTS AND MOBILE-ACCESS EXISTS AND MOBILE-SUBSCRIBER EXISTS) OR (LOCAL-8-DIGIT EXISTS)

其原因是允許呼叫**Local-8-digit** number，並且它與8位匹配（不包括區號）。

因此，此處必須在過濾器中明確定義以阻止本地過濾器的區號。

步驟1.導覽至**本地8位元的Router filter**和**Edit Clause**。

步驟2.選擇AREA-CODE **DOES-NOT-EXIST**並保存過濾器，如下圖所示：

篩選器如下所示：

Edit Clause	Remove Clause		
AREA-CODE	DOES-NOT-EXIST ▼		**AND**
LOCAL-8-DIGIT	EXISTS ▼		

Save	Delete	Copy	Reset	Apply Config	Add New

步驟3.使用兩位數字區號執行STD編號的DNA。

Cisco Unified Communications Manager Dialed Number Analyzer Results

Expand All	Collapse All

▼ **Results Summary**

    ▶ **Calling Party Information**

    • **Dialed Digits** = 908026252728

    • **Match Result** = BlockThisPattern

    • **Route Block Cause** = Unallocated Number

    • **Called Party Number** =

    ▼ **Matched Pattern Information**

        ○ **Pattern** =

        ○ **Partition** =

    • **Pattern Type** =

    • **Time Zone** = Etc/GMT

    • **Outside Dial Tone** = NO

▼ **Call Flow**

    • **Note: Information Not Available**

▼ **Alternate Matches**

    • **Note: Information Not Available**

附註：必須顯式地阻止不需要的模式。