Cisco Unified CallManager Release 4.2-PBX Interoperability: NEC IPX2400 R15 to a Cisco CMM Using T1-PRI QSIG with MGCP

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Introduction

This is an application note for connectivity of NEC IPX2400 Release 15 PBX with Cisco Unified CallManager Release 4.2 via Cisco Communication Media Module CMM-T1 as MGCP gateway using ISO QSIG protocol.

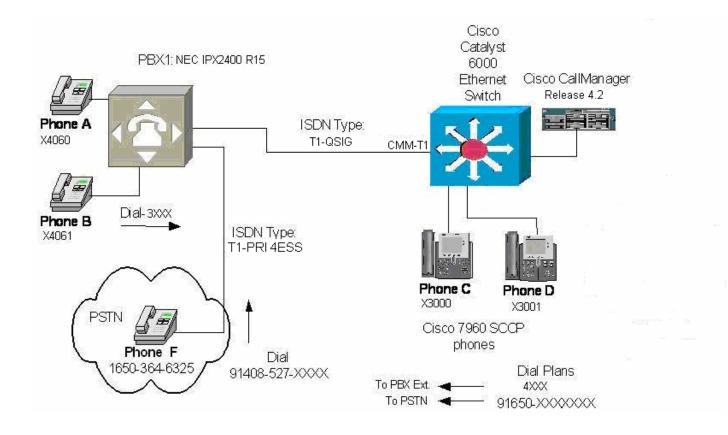
The network topology diagram (Figure 1) shows the test setup for end-to-end interoperability with the Cisco Unified CallManager connected to the PBX via Communication Media Module CMM-T1 link as MGCP gateway. Connectivity is achieved by using the PRI QSIG T1 protocol type on the MGCP gateway with Cisco Unified CallManager Service parameter QSIG variant of ISO and ISO switch type on the NEC IPX2400

This Application Note uses the Communication Media Module CMM-T1 voice gateway, however other Cisco voice gateways are also an option to use since Cisco Unified CallManager QSIG implementation does not depend on the physical interface.



Network Topology

Figure 1. Network Topology or Test Setup



Limitations

Call Transfer by join (Consultation local Transfer), Cisco IP Phone x3000 calling to Dterm phone x4060 that is Transfered to Dterm phone x4061. Cisco IP phone x3000 display shows uknown/unknown. NEC IPX2400 sends "CallTrasnferComplete" connected name and number restricted towards Cisco Unified CallManager.

Call Transfer by join (Consultation network/external Transfer), Cisco IP Phone x3000 calling to Dterm phone x4060 that is Transfered to Cisco IP phone x3001. Cisco IP phones x3000 and x3001 display shows unknown/unkown. NEC IPX2400 sends "CallTrasnferComplete" connected name and number restricted towards Cisco Unified CallManager.

Call Transfer by join (Blind network/external Transfer), Cisco IP Phone x3000 calling to Dterm phone x4060 that is Transfered to Cisco IP phone x3001. Cisco IP phone x3001 display shows unknown/unkown. NEC IPX2400 sends "CallTransferComplete" calling Name and number restricted towards Cisco Unified CallManager. This limitation is not true when SS-Path Replacement is activated Cisco Callmanager is now responsible for name/number updating when Path Replacement is invoked and accepted.

Call Forward by join (local), Cisco IP Phone x3000 calling to Dterm phone x4060 that is forwarded to Dterm phone x4061. Cisco IP phone x3000 display shows "Alerting Name" only during 'Alerting' state. When Dterm phone x4061 answers the call the display on the Cisco IP phone changes to "unknown". This behavior is due to NEC PBX sending Callforward update "**notificationWithoutDivertedToNr(1**)". Cisco



Unified CallManager uses the "DivertingLegInfo1" data to update the IP phone display in this CallForward scenario. Connected number is ignored by Cisco Unified CallManager.

Call Forward by join (network/external), Dterm Phone x4060 calling to Cisco IP phone x3000 that is forwarded to Dterm phone x4061. Calling Name is not displayed on Dterm phone x4061, the diverting number is displayed (3000).

Call back, Busy or NR, was invoked from Dterm phone x4060 to Cisco IP phone, the original calling name is not shown on the Cisco IP phone x3000. NEC PBX does not send Calling Name on a locally originated CallBack call.

NEC PBX could not restrict Calling Name, however, NEC has an option to turn off/remove name display delivery, in ASYD command (system wide) or remove name from individual stations using ANDD command, or block Name display at a trunk level using ARTD command.

System Components

Hardware Requirements

Cisco Hardware

Cisco Unified CallManager Server

Catalyst 6500

WS-SVC-CMM-6T1, Communications Media Module

NEC IPX2400

Circuit card PA-24PRT

Software Requirements

Cisco Unified CallManager: 4.2

Release 15

Cisco IOS Release or 12.3 or higher

Features

Features Supported

CLIP-Calling Line (Number) Identification Presentation

CLIR-Calling Line (Number) Identification Restriction

CNIP-Calling Name Identification Presentation

COLP-Connected Line (Number) Identification Presentation

CONP-Connected Name Identification Presentation

Send Alerting Name

Call Back/Call Completion

CT-Call Transfer (by join)

CFU-Call Forwarding Unconditional

CFB-Call Forwarding Busy

CFNR-Call Forwarding No Reply



Call Forward by Reroute

ANF-PR-Additional Network Feature Path Replacement (for Call Transfer by join)

ANF-PR-Additional Network Feature Path Replacement (for Trombone connection)

Features Not Supported

CONR- Connected Name Identification Restriction - (NEC IPX2400 could not change connected name to restricted).

COLR- Connected Line (Number) Identification Restriction - (NEC IPX2400 could not change connected number to restricted).

Q.SIG MWI- Message Waiting Indication (lamp ON, lamp OFF), the current NEC IPX2400 North American Release 15 software does not support QSIG-MWI.

Overlap sending and overlap receiving are not supported on the current NEC IPX2400 North American Release 15 software.

ANF-PR-Additional Network Feature Path Replacement (for Call Forward by join), the current NEC IPX2400 North American Release 15 software does not support Path Replacement on Call Forward by join



Configuration

Important Notice: It is important that the engineer/technician modifying the IPX2400 configuration be well versed in the NEC MAT command line. The NEC MAT command line is very precise and should only be changed by a person who is certified by NEC and has the in-depth knowledge on how to troubleshoot the system in case erratic behavior results.

Configuring the NEC2400 IPX PBX

Sequence

Physical Layer Set-up:

SW Mode→SW1→SW2→SW4

Note: You must set the switches on the PA-24PRT appropriately for QSIG operation

Enable QSIG services:

ASYD**→**ASFC

To build the QSIG route:

$ARTD \rightarrow ARTI \rightarrow ATRK \rightarrow ARSC \rightarrow ARRC \rightarrow ADPC \rightarrow ACSC \rightarrow ACIC1 \rightarrow ACIC2 \rightarrow MBRT$

To build the dial plan to access the QSIG route (Assumes dummy route has been built and ARRC is assigned properly):

ANPD→ASPA→AMND→AFRS→AOPR→ARNP

Configuration Menus and Commands

Physical Layer Set-up:

SW Mode

Set to 10 (A in HEX)

SW1

Set switch 3 to 'off' (Sets 23B+D mode)

SW2

Set switch 4 'on' and switch 5 'on' (Sets ESF framing and B8ZS lincode)

SW4

Set switch 2 to 'off' (This switch determines the ISDN protocol side emulation for the route Off=Network/On=User)

Note: To set other physical layer parameters such as LBO, alarm monitoring and Loss Pad settings please refer to the NEC USER GUIDE for the PA-24PRT. These parameters are not covered in this document. The value of these parameters will depend upon the installation of each individual Telephony network.

Enable QSIG services

ASYD

System 1, Index 186, bit 6 = 1 (ISDN service enabled) System 1, Index 375, bit 0 = 1 (avoid Bch lockup)

ASFC SFI 94 set to '0' (ANI)



Build QSIG Route

ARTD

Note: You must build two ARTD forms, one for the b-channels and one for the d-channel

| RT | 4 | (B-Channels) |
|----|---|--------------|
| | | |

| | 3 C | ning and a | | | | | | |
|-----|-------|-------------|------|-------|--------|------------|--------|--------|
| CDN | | Data | CDN | | Data | CDN | | Data |
| 001 | OSGS | 0 | 043 | BT | 1 | 085 | CSEU | 0 |
| 002 | ONSG | 2 | 044 | PRV | 0 | 086 | CSEL | 0 |
| 003 | ISGS | 0 2 3 | 04 5 | A/D | 1 | 087 | CMP | 0 |
| 004 | INSG | 2 | 046 | CW | 0 | 088 | TALK | 0 |
| 005 | TF | 3 | 047 | TPQ | 0 | 089 | FOT | 0 |
| 006 | TCL | 4 | 048 | BL | 0 | 090 | RST | 0 |
| 007 | L/T | 1 2 | 049 | TRKS | 0 | 091 | TOCI | 0 |
| 008 | RLP | 2 | 050 | DPLY | 1 | 092 | TOCD | 0 |
| 009 | TQ | 0 | 051 | ACD | 0 | 093 | ODGD | 0 |
| 010 | SMDR | 0 | 052 | 2W/4W | 0 | 094 | RLS | 0 |
| 011 | TD | 0 | 053 | FAAT | 0 | 095 | GWD | 0 |
| 012 | DR | 0 | 054 | GW | 0 | 096 | H1 | 0 0 |
| 013 | AC | ō | 055 | TCMA | ō | 097 | DT | ō |
| 014 | TNT | ō | 056 | SMDR3 | | 098 | CI | ō |
| 015 | LSG | 12 | 057 | HDT | ō | 099 | OID | ō |
| 016 | SMDR2 | | 058 | CD | ō | 100 | TKS | ō |
| 017 | H/M | õ | 059 | CCH | ō | 101 | PAD2 | ō |
| 018 | MC | õ | 060 | TC/EC | | 102 | TRM | ō |
| 019 | ANI | õ | 061 | IRE | ō | 103 | TRPX | ō |
| 020 | D | Õ | 062 | SCR | õ | 104 | LDR | ō |
| 021 | MSB | ŏ | 063 | LYER1 | | 105 | TSC | ŏ |
| 022 | MSW | ŏ | 064 | NET | ŏ | 106 | SATS | ŏ |
| 023 | TR | ŏ | 065 | INT | 10 | 107 | RVPX | ŏ |
| 024 | OC | ŏ | 066 | DC | 4 | 108 | DQ | ŏ |
| 025 | R/L | ŏ | 067 | HKS | ō | 109 | SLOV | ŏ |
| 026 | RVSD | ŏ | 068 | SCF | ŏ | 110 | SDTO | ŏ |
| 027 | TL | ŏ | 069 | SMDR4 | ň | 111 | ADVPRA | ň |
| 028 | ANS | 1 | 070 | TCMN | õ | 112 | IND | ī |
| 029 | TELP | ō | 071 | TCMC | ŏ | 113 | UUI | ō |
| 030 | PAD | 4 | 072 | MESP | ŏ | 114 | DCH | ŏ |
| 031 | OGRL | 1 | 073 | KPST | ŏ | 115 | CMRT | ŏ |
| 032 | ICRL | ī | 074 | KPPT | ŏ | 116 | PREF | ŏ |
| 033 | HD | ō | 075 | STC | ŏ | 117 | DFS | ŏ |
| 034 | GUARD | | 076 | MC2 | ŏ | 118 | BOB | ŏ |
| 035 | WINK | ō | 077 | MT | ŏ | 119 | HOICH | ŏ |
| 036 | VAD | ŏ | 078 | TONE | ŏ | 120 | IFR | ŏ |
| 037 | CLD | ŏ | 079 | PPTM | ŏ | 121 | CONV | ŏ |
| 038 | FA | ŏ | 080 | MPTM | ŏ | 121 122 | ORRT | ŏ |
| 039 | BC | õ | 081 | LPTM | ŏ | 123 | CNI | ŏ |
| 039 | TCM | õ | 082 | RSAX | ŏ | 123 | AOC | ŏ |
| 040 | TDMQ | õ | 082 | CST | ŏ | 125 | MGCOT | ŏ |
| 041 | TRSC | 0 0 | 083 | CSEG | 0 0 | 777 | MGCOT | v |
| 042 | TROC | | 004 | CDEG | | | | |

Note 1: On the B-channel ARTD table, parameter IND must be set to '1' for Name display, to disable Name display feature on the trunk change the value of IND to '0'.

Note 2: On the B-channel ARTD table, parameter DC must be set to equal the maximum number of digits in the PBX's station numbers.



RT 5 (D-channel)

| CDN 001 OSGS 002 ONSG 003 ISGS 004 INSG 005 TF 006 TCL 007 L/T 008 RLP 009 TQ 010 SMDR 011 TD 012 DR 013 AC 014 TNT 015 LSG 016 SMDR2 017 H/M 018 MC 019 ANI 020 D 021 MSB 022 MSW 023 TR 024 OC 025 R/L 026 RVSD 027 TL 028 ANS 029 TELP 030 PAD 031 OGRL 032 ICRL 033 HD 034 GUARD 035 WINK 036 VAD 037 CLD 038 FA 039 BC 041 TDMO | Data 0 0 0 0 0 0 0 0 0 0 0 0 0 | CDN 043 044 045 047 048 052 053 055 055 055 055 055 055 055 055 055 | BT PRV A/D CW TPQ BL TRKS DPLY ACD 2W/4W FAAT GW TCMA SMDR CD CCH TC/EC IRE SCR LYET INC HSS FAAT CD CCH TC/EC INC SCR INC SCR TCMA SCD HDT CD HSS STCMA SCD SCD TCMA SCD SCD SCD SCD SCD SCD SCD SCD SCD SCD | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | CDN 0856 087 0889 090 092 093 094 095 096 097 098 099 100 102 103 104 107 108 107 108 1112 1113 114 116 117 118 1120 1223 123 125 | CSEU CSEL CMP TALK FOT TOCD ODGD RLS GWD H1 DT CI OID TKS PAD2 TRM TRPX LDR TSC SATS RVPX DQ SLOV SDTO ADVPRA IND UUI DCH CMRT PREF DFS BOBCH IFR CONV ORRT CNI AOCOT | 000000000000000000000000000000000000000 |
|--|---|---|---|---|---|---|---|
| 041 TDMQ 042 TRSC | 0 | 083 084 | CST CSEG | 0 | 125 | MGCOT | 0 |



ARTI RT 4 RST 0 RSCT 0 IDRT 0 COT 0 0 0 ROCG ECCISTD HMT **SS7** TRCRST 0 RICG 0 MFCG2 0 NI2ID 0 0 0 TRSRST STSENQ OPCC CLRF T309LNK 0 0 0 MMNPASS ICTCON TRC 0 T309CON DLTK 0 VRD 0 OID 0 1 LLCRST CALN INTD PHG ō ō ō VCM NETINT JECCIS VIR 0 POOL RETMSG 0 IPINT2 0 CSMDS 0 0 DTRT ANI IPTRK FXD ō 1 0 CTCF TMPRT SRV FXJS 0 1 0000 TON RERT CODEC FXPT PASS NPI 0 DCANS 0 FXPS ō ō IRL L/T RND CPI 0 0 E911 MTC ECCIS CLBK. 10 0 TC ECCISTM 0 UALAW RA_RT 0 0 TS ECCISOB MCTFAC 0 0 1 CDCSPD ECCISIB RE 0 0 1 DVRST SPMET PR

Note: The following parameters determine the state of the following QSIG-SS features: CTCF-Call forward/Call transfer, RERT-CF Reroute, PR-Path Replacement. To set the feature enabled you must set it to '1', if you want the feature disabled change the setting to '0'.

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| AT | 'RK | | | |
|---|---|--------------|----|---------------|
| | | Starting | | Ending |
| | | RT 4 TK 1 | | RT 5 ТК 23 |
| RT | TK | LENS | TN | |
| 4 | 1 | 002130 | 1 | |
| 4 | 2 | 002131 | 1 | |
| 4 | 3 | 002132 | 1 | |
| 4 | 4 | 002133 | 1 | |
| 4 | 5 | 002134 | 1 | |
| 4 | 1 2 3 4 5 6 7 8 9 | 002135 | 1 | |
| 4 | 7 | 002136 | 1 | |
| 4 | 8 | 002137 | 1 | |
| 4 | 9 | 002140 | 1 | |
| 4 4 4 4 4 4 4 4 4 4 4 4 4 | 10 | 002141 | 1 | |
| 4 | 11 | 002142 | 1 | |
| 4 | 12 | 002143 | 1 | |
| 4 | 13 | 002144 | 1 | |
| 4 | 14 | 002145 | 1 | |
| 4 | 15 | 002146 | 1 | |
| 4 | 16 | 002147 | 1 | |
| 4 | 17 | 002150 | 1 | |
| 4 | 18 | 002151 | 1 | |
| 4 | 19 | 002152 | 1 | |
| 4 | 20 | 002153 | 1 | |
| 4 | 21 | 002154 | 1 | |
| 4 4 4 4 4 4 4 5 5 | 22 | 002155 | | |
| 4 | 23 | 002156 | 1 | |
| 5 | 1 2 | 002157 | 1 | |
| 5 | 2 | 002120 | 1 | |



| ARSC | | | | | | |
|---|---|-------------------------------------|---|---|-----------------------------------|----------------------------------|
| Tenant Route | 1 4 | | Tena Rou | | | |
| TenantDay/NighRout 1 DAY 4 | e RRI 0 1 0 1 1 1 1 1 2 1 1 3 1 1 | 2 3 4 1 1 1 1 1 1 1 1 1 | RSC Data Set 45678 11110 11110 11110 11110 | $\begin{array}{cccc} 9 & 10 & 11 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{array}$ | 000 | 4 15 0 0 0 0 0 0 0 0 |
| ARRC | 19 - 10 10 10 10 10 200 | | and a state of a state of a state | 10600 12 | | |
| * Star | | e Route A | Restriction Li | st * Ending | | |
| going Route | 2 | | going F | oute4 | | |
| - 2000-00 - 0002000000 | | | _ | | | |
| Incoming Route 4 4 4 31 31 31 | Outgoing 2 4 31 2 4 | Route I | RI A-Restrict ⁴ 1 1 1 1 1 1 | on RII | D-Restri 1 1 1 1 1 | ction |
| ADPC Stari | | ate Point | : Code Data Li | st * Ending | | |
| RT 4 | | | | RT 5 | | |
| | RT 4 5 | | PC 6 6 | | | |
| ACSC | | | | | | |
| | 1 00212 00212 00212 00212 | 2 00212 00212 | 3 4 00212 00212 00212 00212 | 5 00212 00212 | 6 00212 00212 | 7 00212 00212 |

Note: Because we are using circuit card PA-24PRT, you assign the same LENS number to each CSCG number. You must assign an even CSCG number for the b-channels and an odd CSCG number for the D-channel. If you are using circuit cards PA-2DCH + PA-24DTR the LENS assignment to the B-channels and D-channels differ, please contact NEC customer support for technical assistance.

| A | CIC1 | | | | | | |
|---------|-------------|----|---|----|------|----|------|
| | | PC | 6 | | | PC | 6 |
| PC 6 | CSCG 140 | | | PC | CSCG | PC | CSCG |



CIC 1

CIC 24

| Terminate | Point | CoteIdentificationCo | deLENS |
|---------------------------------------|-------|---|--------|
| | | | 002130 |
| 6 | | 1 2 3 4 5 6 7 8 9 | 002131 |
| 6 | | 3 | 002132 |
| 6 | | 4 | 002133 |
| 6 | | 5 | 002134 |
| 6 | | 6 | 002135 |
| 6 | | 7 | 002136 |
| 6 | | 8 | 002137 |
| 6 | | 9 | 002140 |
| 6 | | 10 | 002141 |
| 6 | | 11 | 002142 |
| 6 | | 12 | 002143 |
| 6 | | 13 | 002144 |
| 6 | | 14 | 002145 |
| 6 | | 15 | 002146 |
| 6 | | 16 | 002147 |
| 6 | | 17 | 002150 |
| 6 | | 18 | 002151 |
| 6 | | 19 | 002152 |
| 6 | | 20 | 002153 |
| 6 | | 21 | 002154 |
| େ େ େ େ େ େ େ େ େ େ େ େ େ େ େ େ େ େ େ | | 22 | 002155 |
| 6 | | 23 | 002156 |

MBRT





Build the dial plan to access the QSIG route (Assumes dummy route has been built and ARRC is assigned properly)

ANPD

| | | | | * Numberii | ng Plan D | ata List * | | |
|--------|-------------------|-------|--------|-----------------|-----------|-----------------|-------------|-----------------|
| | | St | arting | | | E | nding | |
| | | Tenar | ıt 1 | | | Ter | ant 1 | |
| | 1000 - 100-00-000 | 5 | | Normal | | Hooking | W. commence | – Busy — |
| Tenant | 1stDC | | NND | Busy Lamp Field | NND | Busy Lamp Field | NND | Busy Lamp Field |
| 1 | 0 | | 1 | Out of Service | 1 | Out of Service | 1 | Out of Service |
| | 1 | | 5 | In Service | 5 | In Service | 5 | In Service |
| | 2 | N | 2 | In Service | 2 | In Service | - | - |
| | 3 | 43 | 4 | Out of Service | 4 | Out of Service | 4 | Out of Service |
| | 4 | | 4 | Out of Service | 4 | In Service | 4 | In Service |
| | 5 | | 4 | Out of Service | 4 | Out of Service | 4 | Out of Service |
| | 6 | | (H | -3 | 6 | - | | * |
| | 7 | | | - | 6 | - | | * |
| | 8 | | 1 | Out of Service | | - | | - |
| | 9 | | | -14 | - | - | - | - |
| | * | | 3 | Out of Service | 3 | Out of Service | 3 | Out of Service |
| | # | | | -14 | - | - 2 | - | - |

ASPA

| | | | | | * Sp e | cial Access Code | List* | | |
|-----------|------------|------------------------------------|------------|--------|--------|------------------|--|----------|--|
| | | | Startir | g | | | | Ending | |
| | Con | Tena Access Cou nection Inde | ie 3 | Iormal | | G | Tenan Access Code Connection Indes | . 3 | |
| <u>TN</u> | <u>ACC</u> | CI | <u>SRV</u> | | | | | | |
| 1 | 3 | Normal | LCR | RT | : 31 | 2ndDT : 1 | AH : | 0 SUB: 0 | |
| 1 | 3 | Hooking | LCR | RT | : 31 | 2ndDT : 1 | AH : | 0 SUB: 0 | |
| 1 | 3 | Busy | LCR | RT | : 31 | 2ndDT : 0 | AH : | 0 SUB: 0 | |



AMND

| | Starting | | | E | nding | |
|--------|----------|-----|------|--------|-------------|------------|
| Tenar | 1t 1 | | | Tenant | 1 | |
| DC | 3 | | | DC | 3 | |
| Tenant | DC | MND | TOLL | AN | <u>rate</u> | <u>A/E</u> |

AFRS

| S | tarting | | E | Inding |
|---------|---------|---------------------|--------|--------|
| Tenant | | 4 | Tenant | 1 |
| Route 3 | 31 | | Route | 31 |
| NPC : | } | | NPC | 3 |
| Tenant | Route | Number Pattern Code | OPR | |
| 1 | 31 | 3 | 3 | |

AOPR

| | | | * Outgoing | Pattern Ro | n Routing Data List * | | | | | | | | |
|-------|----------|----------|------------|------------|-----------------------|------------|------|------|--|--|--|--|--|
| | | Starting | 97 - S | | Ending | | | | | | | | |
| | TDPTN | 0 | | | | TDPTN (|) | | | | | | |
| | OPR | 3 | | | | OPR 3 | 3 | | | | | | |
| | RA Order | 0 | | | | RA Order (|) | | | | | | |
| TDPTN | OPR | RA Order | RA End | Route | SKIP | PNL | OVFT | PRSC | | | | | |
| 0 | 3 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | | | | | |



ARNP

[IPX-R15_IP::LRNP]

May 17, 2006

| Starting | Ending |
|----------|---------|
| Route 4 | Route 4 |

Dterm Data (Digital Stations)

ASDT

| | | | | | | | | | * | Stat | ion | Dat | a L | ist * | | | | | | | | | | |
|--------|--------------|------------------|----------|-----------|----------|--------|----|----|----|------|-----|-----|-----|-------|--------|-------|---------|----|-------------|-----|-----|------|----|--|
| | | | | Star | ting | | | | | | | 30 | | | | | | Er | ding | g | | | | |
| | | | | TN STN | 1 406 | 50 | | | | | | | | | | | | | N 1 N 41 | 061 | | | | |
| TN | STN | LENS | TEC | RSC | SFC | ETN | KD | CG | CE | нс | HP | ни | PH | HL N | D | 12 I | 02 IC | SS | ws | IT | LNI | _ L1 | NN | |
| 1 1 | 4060 4061 | 000032 000031 | 12 12 | 1 1 | 1 | 1 1 | | | | | | | | | x x | | | | | | | | | |

ANND (Name display for Dterms)

| | * Name | Display Data List * | | | | | |
|--------------------------|---------|--------------------------|--|--|--|--|--|
| Starting | | Ending | | | | | |
| Tenant 1 Station 4060 | | Tenant 1 Station 4061 | | | | | |
| Tenant | Station | Name Display | | | | | |
| 1 | 4060 | Beasely | | | | | |
| 1 | 4061 | Landon Donovan | | | | | |



ASFC SFI 94 (used to restrict Calling Number)

| | | * Serv | Feat | ure | Restriction Class List * Ending | |
|-------------|---------------|-----------|------|-----|--|---------------------|
| | Tenant SFI | 1 94 | | | Tenant 1 SFI 94 | |
| Tenant 1 | Mode Day | SFI 94 | | | SFC Attribute Settings 4567 891011 12 0000 0000000 | 2 13 14 15 0 0 1 |

Note: To restrict 'Calling Number' you assign SFC =15 (or any SFC set to '1'), under ASDT command for the Dterm station you want to restrict.

Call Back

ASYD

ASYD - System Data 1, Index 139. No Answer Timer for CALL BACK. Assign 00H. (RAM Data is 3FH = 30 seconds.)

System Data 1, Index 68, Bit 0. 0/1: SHF and Access Code/last digit of Telephone Number + Access Code.

System Data 2, Index 0, Bit 0. Is CALL BACK enabled on a per Tenant basis? 0/1: No/Yes.

System Data 2, Index 4, Bit 0. CALL BACK and OUTGOING TRUNK QUEUING [O-2] Access Codes are same or separate? 0/1: Separate/Same.

ASFC

SFI 2 allows/restricts CallBack feature.

| | | | | * Se | rv ic | e Feat | re Re | stric | tion | Class | List * | 8 | | | | | | |
|--------------------|--------------------|-----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|---------|----------------|
| Starting | | | | | | | | Ending | | | | | | | | | | |
| | Tenai SF | nt 1 M 2 | | | | | | | | | Т | enar SF | | L 2 | | | | |
| | | | 3 <u>22</u> | | | | - 6 | _ 2 | SFC. | Attribu | te Sett | ings | 222 | | | | | |
| <u>Tenant</u> 1 | <u>Mode</u> Day | <u>SFI</u> 2 | <u>0</u> 0 | $\frac{1}{1}$ | <u>2</u> 1 | <u>3</u> 1 | <u>4</u> 1 | <u>5</u> 1 | <u>6</u> 1 | <u>7</u> 1 | <u>8</u> 1 | <u>9</u> 1 | <u>10</u> 1 | <u>11</u> 1 | $\frac{12}{1}$ | <u>13</u> 1 | 14 1 | <u>15</u> 1 |

Note: On each Dterm station Assign a SFC that has SFI=2 set to '1', using a SFC with SFI=2 set to '0' restricts CallBack.



ADSL (Assigning CallBack feature on Dterm softkey)

| | | | * Di | erm SoftKey on LCD D | ata in LDM List * | |
|----------|------------------|----------|----------|----------------------|-------------------|--|
| | | S | tarting | | Ending | |
| | | SKP | 1 | | SKP 1 | |
| | | SN | 2 | | SN 3 | |
| CKD | C11 | CKM | | DISP | | |
| SKP 1 | SN 2 | SKN O | FKY 5 | DISP CB | | |
| 1 | 2 | 1 | 0 | 00 | | |
| 1 | 2 | 2 | 0 | 00 | | |
| 1 | 2 2 | 3 | 0 | 00 | | |
| 1 | 2 | 4 | 0 | 00 | | |
| 1 | 2 | 5 | 0 | 00 | | |
| 1 | 2 | 6 | 0 | 00 | | |
| 1 | 2 2 | 7 | 0 | 00 | | |
| 1 | 2 | 8 | 0 | 00 | | |
| 1 | 2 | 9 | 0 | 00 | | |
| 1 | 2 2 | 10 | 0 | 00 | | |
| 1 | 2 2 | 11 | 0 | 00 | | |
| 1 | 2 | 12 | 0 | 00 | | |
| 1 | 2 2 | 13 | Ő | 00 | | |
| 1 | 2 | 14 | 0 | 00 | | |
| 1 | 2 2 | 15 | õ | 00 | | |
| 1 | 3 | 0 | 5 | СВ | | |
| 1 | 3 | 1 | 0 | 00 | | |
| 1 | 3 3 3 | 2 | 0 | 00 | | |
| 1 | 3 | 3 | 0 | 00 | | |
| 1 | 3 3 3 | 4 | 0 | 00 | | |
| 1 | 3 | 5 | Ō | 00 | | |
| 1 | 3 | 6 | 0 | 00 | | |
| 1 | 3 3 3 3 | 7 | 0 | 00 | | |
| 1 | 3 | 8 9 | 0 | 00 | | |
| 1 | 3 | 9 | Ō | 00 | | |
| 1 | 3 | 10 | 0 | 00 | | |
| 1 | 3 | 11 | 0 | 00 | | |
| 1 | 3 | 12 | 0 | 00 | | |
| 1 | 3 3 3 3 | 13 | Ō | 00 | | |
| 1 | 3 3 | 14 | 0 | 00 | | |
| 1 | 3 | 15 | 0 | 00 | | |



ADKS (Assigns soft key pattern to Dterm station)

| | | * Dterm Key Status | Data for LDM List * | | |
|-------------------|-------------------------|----------------------------|---------------------------|---------------------------|--|
| 2 | starting | | | Ending | |
| Tenant Station | 1 4060 | | | enant 1 ation 4061 | |
| Tenant 1 1 | Station 4060 4061 | Soft Key Pattern 1 1 | Line Key Pattem 3 1 | Page Scroll Key 0 0 | |



Cisco Unified CallManager Configuration

ISO Protocol Service Parameter

| Clusterwide Parameters (Device - PRI and MGCP Gateway) | | | | | | | | | |
|--|-----------------------------|-----------------------------|--|--|--|--|--|--|--|
| Parameter Name | Parameter Value | Suggested Value | | | | | | | |
| ASN.1 ROSE OID Encoding* | Use Local Value | Use Local Value | | | | | | | |
| QSIG Variant* | ISO (Protocol Profile 0x9F) | ISO (Protocol Profile 0x9F) | | | | | | | |



CISCO UNIFIED CALLMANAGER Gateway Configuration

| 🚰 Cisco CallManager 4.2 Administr | ation - Gateway Configuration - Microsoft Inte | rnet Explorer |
|------------------------------------|---|---|
| File Edit View Favorites Tools | | |
| | Search 🔝 Favorites 🛞 Media 🎯 🖏 🚽 | |
| Address E https://cm-guanatos/CCM/ | Admin/gatewayconfig.asp?pkid={57FB9CB9-DC95-46F | 0-8DAC-12E41CA7CE44}&Action=Update&Type=52&iMGCP={ |
| System Route Plan Serv | rice Feature Device User Applicatio | n Help |
| Cisco CallManag | er Administration | CISCO SYSTEMS |
| For Cisco IP Telephony Solutions | | authors and the second s |
| | | |
| Gateway Con | figuration | Back to MGCP Configuration Back to Find/List Gateways |
| | | Dependency Records |
| | Product : Communication Media M | odule |
| | Gateway : S1/DS1-0@CMM_Intero Device Protocol: Digital Access PR | |
| | Registration: Registered with Cisc IP Address: 172.20.8.28 | |
| | IP AULIESS. 172.20.8.20 | |
| | Status: Ready | 1 |
| | Update Delete Reset Gateway | |
| | Device Information | |
| | End-Point Name* | S1/DS1-0@CMM_Interop |
| | Description | S1/DS1-0@CMM_Interop |
| | Device Pool* | |
| | Common Profile | None > ✓ |
| | Call Classification* | |
| | Network Locale | Use System Default ▼ <none> ▼</none> |
| | | |
| | Signal Packet Capture Mode | |
| | Packet Capture Duration | 60 |
| | Media Resource Group List | < None > |
| | Location | <none></none> |
| | AAR Group | <none></none> |
| | Load Information | |
| | Multilevel Precendence and Preem | ption (MLPP) Information |
| | MLPP Domain (e.g., "0000FF") | |
| | MLPP Indication | Off 🖉 |
| | MLPP Preemption | Disabled |
| | Interface Information | |
| | PRI Protocol Type* | PRI QSIG T1 |
| | Protocol Side* | Network |
| | Channel Selection Order* | Top Down |
| | Channel IE Type* | Continuous Number |
| | PCM Type* | µ-law |
| | Delay for first restart (1/8 sec ticks) | |
| | | 114 |



| 🚰 Cisco CallManager 4.2 Administr | ation - Gateway Configuration - Microsoft Inte | ernet Explorer |
|---------------------------------------|--|--|
| <u>File Edit View Favorites Tools</u> | ; <u>H</u> elp | |
| 🗢 Back 🔹 🤿 🐨 🙆 🙆 | Search 📷 Favorites 🎯 Media 🎯 🔂 🗧 | 6 |
| Address 🙋 https://cm-guanatos/CCM | Admin/gatewayconfig.asp?pkid={57FB9CB9-DC95-46 | F0-8DAC-12E41CA7CE44}&Action=Update&Type=52&iMGCP={; |
| | Delay between restarts (1/8 sec ticks) | 4 |
| | 🔽 Inhibit restarts at PRI initializatio | n |
| | 🗖 Enable status poll | |
| | Call Routing Information | |
| | Inbound Calls | |
| | Significant Digits* | |
| | Calling Search Space | phoneCSS |
| | AAR Calling Search Space | < None > |
| | Prefix DN | |
| | Outbound Calls | |
| | Calling Line ID Presentation* | Default |
| | Calling Party Selection* | Originator |
| | Called party IE number type unknown* | Cisco CallManager |
| | Calling party IE number type unknown* | Cisco CallManager |
| | Called Numbering Plan* | Cisco CallManager |
| | Calling Numbering Plan* | Cisco CallManager |
| | Number of digits to strip* | 0 |
| | Caller ID DN | |
| | SMDI Base Port* | 0 |
| | PRI Protocol Type Specific Informa | ition |
| | 🗖 Display IE Delivery | |
| | Redirecting Number IE Delivery - | Outbound |
| | Redirecting Number IE Delivery - | Inbound |
| | 🖉 Send Extra Leading Character In | |
| | Setup non-ISDN Progress Indicat | |
| | MCDN Channel Number Extension | Bit Set to Zero** |
| | 📕 Send Calling Name In Facility IE | |
| | 📕 Interface Identifier Present** | |
| | Interface Identifier Value** | 0 |
| | Connected Line ID Presentation (QSIG Inbound Call)* | Default |
| | UUIE Configuration | |
| | 📕 Passing Precedence Level Throug | gh UUIE |
| | Security Access Level | 2 |



| | Product Specific Configuration | |
|---|---|--|
| | Line Coding* | B8ZS |
| | Framing* | ESF |
| | Clock* | External 💌 |
| | Input Gain (-614 db)* | 0 |
| | Output Attenuation (-614 db)* | 0 |
| | Echo Cancellation Enable* | Enable |
| | Echo Cancel Coverage (ms)* | 64 |
| | * indicates required item ** applicable to DMS-100 protocol only *** applicable to DMS-100 protocol and DM **** may be required to force ringback from | |
| 2 | | <u>Back to MGCP Configuration</u> <u>Back to Find/List Gateways</u> |



Partitions Configuration

| 🚰 Cisco CallManager 4.2 Administration - Find and List Partitions - Microsoft Internet Explorer | | |
|---|-------------------------------|---------------------|
| File Edit View Favorites Tools Help | | |
| 🗢 Back 🔹 🔿 🖉 😰 🚰 🥘 Search 📾 Favorites 🛞 Media 🧭 🛃 🖕 🎒 | | |
| Address 🗃 https://cm-guanatos/CCMAdmin/routepartitionlist.asp?findBy=name&match=begins&pattern=&submit1=Find&rows=20 | | |
| System Route Plan Service Feature Device User Application Help | | |
| Cisco CallManager Adm | inistration | Cisco Systems |
| Find and List Partit | ions | Add a New Partition |
| 2 matching record(s) for | Partition Name begins with "" | |
| Find Partitions where Partition Name begins with Find Partitions where Partition Name begins with Find and show 20 Find items per page To list all items, click Find without entering any search text. | | |
| Matching record(s) 1 to 2 of | 2 | |
| Partition Name | Description | |
| D C Phones | Phones | |
| 🗖 👂 🕻 Incoming Trunk | Incoming Trunk | |
| Delete Selected | First Previous Next Last | Page 1 of 1 |



Calling Search Space Configuration

| 🗿 Cisco CallManager 4.2 Administration - Calling Search Space Configuration | n - Microsoft Internet Explorer | | | |
|---|--|--|--|--|
| File Edit View Favorites Tools Help | | | | |
| 🕁 Back 🔹 🔿 🚽 🙆 🕼 🛛 🐼 Search 👔 Favorites 🛞 Media 🎯 🖏 🖓 | | | | |
| Address 🗃 https://cm-guanatos/CCMAdmin/callingsearchspace.asp?pkid={9BB38172-AE11-47FB-9C2C-610642616F63} | | | | |
| System Route Plan Service Feature Device User Applic | cation Help | | | |
| Cisco CallManager Administration For Cisco IP Telephony Solutions | Cisco Systems | | | |
| Calling Search Space Configuration | <u>Add New Calling Search Space</u> <u>Back to Find/List Calling Search Spaces</u> <u>Dependency Records</u> | | | |
| Calling Search Space: Incoming TrunkCSS Status: Ready | | | | |
| Copy Update Delete | | | | |
| Calling Search Space Information | | | | |
| Calling Search Space Name* Incoming TrunkCSS | | | | |
| Description | | | | |
| Route Partitions for this Calling Search Space | | | | |
| Find Partitions containing | Find | | | |
| Available Partitions Phones | | | | |
| ▼▲ | | | | |
| Selected Partitions* (ordered by highest priority) | ◆ | | | |
| * indicates required item | | | | |



| Cisco CallManager 4.2 Administration - Calling Search Space Configuration - Microsoft Internet Explorer |
|---|
| File Edit View Favorites Tools Help |
| 🗘 Back 🔹 🤿 🖉 🚰 😡 Search 📾 Favorites 🛞 Media 🧭 🔂 🗸 🎒 |
| Address 🙋 https://cm-guanatos/CCMAdmin/callingsearchspace.asp?pkid={D6780BBF-F4F5-4866-A34F-53266134C61C} |
| System Route Plan Service Feature Device User Application Help |
| Cisco CallManager Administration |
| Calling Search Space Add New Calling Search Space |
| Configuration Back to Find/List Calling Search Space Dependency Records |
| comparation |
| Calling Search Space: phoneCSS |
| Status: Ready |
| Copy Update Delete |
| Calling Search Space Information |
| Calling Search Space Name* phoneCSS |
| Description |
| Route Partitions for this Calling Search Space |
| Find Partitions containing Find |
| Available Partitions Incoming Trunk |
| |
| |
| Selected Partitions* Phones (ordered by highest priority) |
| |
| |
| * indicates required item |



| 🖆 Cisco CallManager 4.2 Administration - Calling Search Space Configuration - Micro | osoft Internet Explorer |
|---|---|
| File Edit View Favorites Tools Help | |
| 🗢 Back 🔹 🤿 🖌 🙆 🚮 🔯 Search 📾 Favorites 🛞 Media 🧭 🔂 🕁 🎒 | |
| Address 🗃 https://cm-guanatos/CCMAdmin/callingsearchspace.asp?pkid={B648DB99-9AC8-43D | 04-8A1C-0E1ACD72D942} |
| System Route Plan Service Feature Device User Application | Help |
| - 1 1 Toma | Cisco Systems |
| Cisco CallManager Administration For Cisco IP Telephony Solutions | |
| For Cisco if Telephony Solutions | |
| Calling Soarch Space | Add New Calling Search Space |
| Calling Search Space | Back to Find/List Calling Search Spaces Dependency Records |
| Configuration | Dependency Records |
| O-III - D D-th D | |
| Calling Search Space: Path ReplacementCSS Status: Ready | |
| Copy Update Delete | |
| Calling Search Space Information | |
| Calling Search Space Name* Path ReplacementCSS | |
| | |
| Description | |
| Route Partitions for this Calling Search Space | |
| Find Partitions containing | Find |
| Available Partitions | |
| | |
| | |
| | |
| Selected Partitions* Incoming Trunk | |
| Selected Partitions* Incoming Trunk (ordered by highest priority) Phones | |
| | \$ |
| | |
| * indicates required item | |
| | |



Enbloc Sending Route Pattern

| | - Route Pattern Configuration - Microsoft | Internet Explorer | |
|---|---|--|--|
| Eile Edit View Favorites Iools Help | | | |
| ⇔Back ▾ ➡ ▾ 🕝 🙆 🚰 🐼 Search 🗟 Favorites 🛞 Media 🎯 🖏 ▾ 🎒 vddress 🗃 https://cm-guanatos/CCMAdmin/routepatternconfig.asp?pkid={C4C408E3-CC2A-4F0E-8860-E10343EE8E08} | | | |
| | | | |
| System Route Plan Service | Feature Device User Application | n Help | |
| Cisco CallManager For Cisco IP Telephony Solutions | Administration | Cisco Systems | |
| Route Pattern | | <u>Add a New Route Pattern</u> Back to Find/List Route Patterns | |
| Configuration | | | |
| | | | |
| Route Pattern: 40XX Status: Ready | | | |
| | ern automatically resets the associated g | ateway or Route List | |
| Copy Update Delete | | | |
| Pattern Definition | | | |
| Route Pattern* | 40XX | | |
| Partition | < None > | | |
| Description | | | |
| Numbering Plan* | North American Numbering Plan | | |
| Route Filter | <none></none> | • | |
| MLPP Precedence | Default | | |
| Gateway or Route List* | S1/DS1-0@CMM_Interop | (Edit) | |
| Route Option | • Route this pattern | | |
| | O Block this pattern - Not Selec | sted — | |
| Call Classification* | OnNet | Allow Device Override | |
| Provide Outside Dial Tone | | Urgent Priority | |
| Require Forced Authorizat | | | |
| Authorization Level | 0 | | |
| Require Client Matter Cod | e | | |
| Calling Party Transformation | | | |
| 🔲 Use Calling Party's Extern | al Phone Number Mask | | |
| Calling Party Transform Mask | | | |
| Prefix Digits (Outgoing Calls) | | | |
| Calling Line ID Presentation | Default | | |
| Calling Name Presentation | Default | | |
| Connected Party Transforma | Treasure and the second | | |
| Connected Line ID Presentation | Default | | |
| Connected Name Presentation | Default | | |
| Called Party Transformation | 5 | | |
| Discard Digits | < None > | | |
| Called Party Transform Mask | | | |
| Prefix Digits (Outgoing Calls) | | | |



| Carrier Identification Code | | |
|-----------------------------|------------------------|-------------------------|
| Network Service Protocol | - Not Selected | |
| Network Service | Service Parameter Name | Service Parameter Value |
| - Not Selected - | Not Exist > | |



Overlap Sending Route Pattern

| Cisco CallManager 4.2 Administration - Route Pattern Configuration - Microsoft Internet Explorer | | | | |
|--|--|--|--|--|
| Eile Edit View Favorites Iools Help ↔ Back • → → · · · · · · · · · · · · · · · · · | | | | |
| Address i https://cm-guanatos/CCMAdmin/routepatternconfig.asp?pkid={D27BC1C4-7F07-4ABB-92DE-FB54034D277D} | | | | |
| System Route Plan Service Feature Device User Application Help | | | | |
| Cisco CallManager Administration For Cisco IP Telephony Solutions | | | | |
| Route Pattern Configuration | | <u>Add a New Route Pattern</u> Back to Find/List Route Patterns | | |
| Route Pattern: 9.X Status: Ready | n automatically resets the associated \mathfrak{g}_i | ateway or Route List | | |
| and a second | 9.× | | | |
| Partition | None > | T | | |
| | | <u> </u> | | |
| Description | hinak Associans block advertise | | | |
| Numbering Plan* | North American Numbering Plan | | | |
| Route Filter | <none></none> | | | |
| MLPP Precedence | Default | | | |
| Gateway or Route List* | S1/DS1-0@CMM_Interop | (Edit) | | |
| Route Option | Route this pattern | cted — | | |
| Call Classification* | C Block this pattern - Not Selec | | | |
| Provide Outside Dial Tone | Allow Overlap Sending | | | |
| ✓ Provide Outside Dial Tone ✓ Require Forced Authorization | (| Urgent Priority | | |
| Authorization Level | | | | |
| Require Client Matter Code | Jo The second se | | | |
| Calling Party Transformations | | | | |
| Use Calling Party's External | | | | |
| Calling Party Transform Mask | | | | |
| Prefix Digits (Outgoing Calls) | | | | |
| Calling Line ID Presentation | Default | | | |
| Calling Name Presentation | Default | | | |
| Connected Party Transformat | ions | | | |
| Connected Line ID Presentation | Default | | | |
| Connected Name Presentation | Default | × | | |
| Called Party Transformations | | | | |
| Discard Digits | PreDot | | | |
| Called Party Transform Mask | | | | |
| Prefix Digits (Outgoing Calls) | | | | |



| Carrier Identification Code | | |
|-----------------------------|------------------------|-------------------------|
| Network Service Protocol | - Not Selected — 🗾 💌 | |
| Network Service | Service Parameter Name | Service Parameter Value |
| - Not Selected - | Not Exist > | |



PSTN Route Pattern Configuration

| Cisco CallManager 4.2 Administration - Route Pattern Configuration - Microsoft Internet Explorer | | | |
|---|--|---|--|
| <u>Eile Edit View Favorites Iools Help</u> | | | |
| 4= Back → → → ② ② ③ ☆ ◎ Search ⓐ Favorites ④ Media ③ ◎ □ | | | |
| Address 🙆 https://cm-guanatos/CCMAdmin/routepatternconfig.asp?pkid={ED103CB2-6C22-4630-B9DF-A02A9DCAEF16} | | | |
| System Route Plan Service F | eature Device User Application | i Help | |
| Cisco CallManager A For Cisco IP Telephony Solutions | Administration | Cisco Systems autilityaantilitya | |
| Route Pattern | | Add a New Route Pattern | |
| Configuration | | <u>Back to Find/List Route Patterns</u> | |
| Route Pattern: 650364XXXX | | | |
| Status: Ready Note: Apy update to this Route Patter | n automatically resets the associated ga | ateway or Route List | |
| Copy Update Delete | | | |
| Pattern Definition | | | |
| Route Pattern* | 650364XXXX | | |
| Partition | < None > | - | |
| Description | | — | |
| Numbering Plan* | North American Numbering Plan | | |
| Route Filter | <none></none> | | |
| MLPP Precedence | Default | | |
| Gateway or Route List* | S1/DS1-0@CMM_Interop | (Edit) | |
| Route Option | • Route this pattern | | |
| | C Block this pattern -NotSelec | ted — | |
| Call Classification* | OffNet | | |
| Provide Outside Dial Tone | Allow Overlap Sending | Urgent Priority | |
| 🗖 Require Forced Authorizatio | | | |
| Authorization Level | 0 | | |
| 🗖 Require Client Matter Code | (1 4 | | |
| Calling Party Transformations | | | |
| 🔲 Use Calling Party's External | Phone Number Mask | | |
| Calling Party Transform Mask | | | |
| Prefix Digits (Outgoing Calls) | | | |
| Calling Line ID Presentation | Default | Y | |
| Calling Name Presentation | Default | | |
| Connected Party Transformat | ions | | |
| Connected Line ID Presentation | Default | | |
| Connected Name Presentation | Default | | |
| Called Party Transformations | | | |
| Discard Digits | <none></none> | | |
| Called Party Transform Mask | | | |
| Prefix Digits (Outgoing Calls) | | | |



Translation Pattern for Incoming Calls

| Cisco CallManager 4.2 Administration - | Translation Pattern Configuration - Microsol | ft Internet Explorer | |
|--|--|---|--|
| Eile Edit <u>Vi</u> ew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp | | | |
| ⇔Back - → - 🙆 😰 🖓 🕼 🖓 Search 💿 Favorites 🛞 Media 🎯 🔂 - 🎒 | | | |
| uddress 🗃 https://cm-guanatos/CCMAdmin/translationconfig.asp?pkid={9F60469A-1FBA-48AF-8AA4-58BC550A1D02} | | | |
| System Route Plan Service F | eature Device User Application | Help | |
| Cisco CallManager Administration | | | |
| Translation Patt | ern Configuration | | |
| | | | |
| | | Add a New Translation Pattern Back to Find/List Translation Patterns | |
| Translation Pattern: 3XXX | | | |
| Status: Ready | | | |
| Copy Update Delete | | | |
| Pattern Definition | De contra | _ | |
| Translation Pattern | β××× | - | |
| Partition | <none></none> | 1 | |
| Description | | | |
| Numbering Plan* | North American Numbering Plan | 3 | |
| Route Filter | < None > | 3 | |
| Calling Search Space | phoneCSS | 1 | |
| MLPP Precedence | Default | 1 | |
| Route Option | • Route this pattern | | |
| | C Block this pattern - Not Selected | - • | |
| Provide Outside Dial Ton | e 🛛 🔽 Urgent Prio | rity | |
| Calling Party Transformation | | | |
| 🔲 Use Calling Party's Externa | l Phone Number Mask | _ | |
| Calling Party Transform Mask | | | |
| Prefix Digits (Outgoing Calls) | | | |
| Calling Line ID Presentation | Default | 1 | |
| Calling Name Presentation | Default | 1 | |
| Connected Party Transforma | ions | | |
| Connected Line ID Presentation | Default | 3 | |
| Connected Name Presentation | Default | | |
| Called Party Transformations | P | | |
| Discard Digits | <none></none> | 1 | |
| Called Party Transform Mask | | | |
| Prefix Digits (Outgoing Calls) | | | |
| * indicates required item. | | | |
| | | | |



CLIR Route Pattern Configuration

| Cisco CallManager 4.2 Administration - Route Pattern Configuration - Microsoft Internet Explorer | | | |
|--|---|--|--|
| File Edit View Favorites Iools Help | | | |
| ↔ Back → → → ② ② ③ △ ◎ QSearch Favorites ③ Media ③ ▷ → ④ Address ⑧ https://cm-guanatos/CCMAdmin/routepatternconfig.asp?pkid={C4C408E3-CC2A-4F0E-8860-E10343EE8E08} | | | |
| | | | |
| System Route Plan Service F | eature Device User Application He | ip | |
| Cisco CallManager A For Cisco IP Telephony Solutions | Administration | Cisco Systems | |
| State State | | | |
| Route Pattern | | <u>Add a New Route Pattern</u> Back to Find/List Route Patterns | |
| Configuration | | Back to Finu/List Route Patterns | |
| | | | |
| Route Pattern: 40XX | | | |
| Status: Ready Note: Any update to this Route Patter | n automatically resets the associated gateway | or Route List | |
| Copy Update Delete | | | |
| Pattern Definition | | | |
| Route Pattern* | 40>>> | | |
| Partition | <none></none> | | |
| Description | | | |
| Numbering Plan* | North American Numbering Plan 📃 | | |
| Route Filter | <none></none> | | |
| MLPP Precedence | Default | | |
| Gateway or Route List* | | <u>Edit</u>) | |
| Route Option | © Route this pattern | | |
| | C Block this pattern - Not Selected - | | |
| Call Classification* | OnNet 🔹 | Allow Device Override | |
| Provide Outside Dial Tone | Allow Overlap Sending | Urgent Priority | |
| 🗖 Require Forced Authorizatio | An a substant and substantial departments | And the second sec | |
| Authorization Level | 0 | | |
| 🗖 Require Client Matter Code | | | |
| Calling Party Transformations | | | |
| 🗖 Use Calling Party's External | Phone Number Mask | | |
| Calling Party Transform Mask | | | |
| Prefix Digits (Outgoing Calls) | | | |
| Calling Line ID Presentation | Restricted | | |
| Calling Name Presentation | Default | | |
| Connected Party Transformat | | | |
| Connected Line ID Presentation | Default 💌 | | |
| Connected Name Presentation | Default | | |
| Called Party Transformations | | | |
| Discard Digits | < None > | | |
| Called Party Transform Mask | | | |
| Prefix Digits (Outgoing Calls) | | | |



CNIR Route Pattern Configuration

| Cisco CallManager 4.2 Administration - | Route Pattern Configuration - Microsoft I | nternet Explo | rer |
|---|---|-------------------|--|
| File Edit View Favorites Tools Help | | | |
| ↔ Back + → + 🕝 🕼 🛱 🐼 Search 📾 Favorites 🛞 Media 🎯 🖏 + 🎒 | | | |
| Address 🗃 https://cm-guanatos/CCMAdmin/routepatternconfig.asp?pkid={C4C408E3-CC2A-4F0E-8860-E10343EE8E08} | | | |
| System Route Plan Service I | Feature Device User Application | Help | |
| Cisco CallManager A For Cisco IP Telephony Solutions | Administration | | CISCO SYSTEMS |
| Route Pattern Configuration | | Bac | <u>Add a New Route Pattern</u> ok to Find/List Route Patterns |
| Route Pattern: 40XX | | | |
| Status: Ready Note: Apy update to this Poute Patter | n automatically resets the associated gat | eway or Pour | te lict |
| Copy Update Delete | in automatically resets the associated gat | ionay or real | |
| Pattern Definition | | | |
| Route Pattern* | 40 | | |
| Partition | < None > | - | |
| Description | | | |
| te la substantia de la substantia | l Marth American Muscharing Disc | | |
| Numbering Plan* | North American Numbering Plan | | |
| Route Filter | < None > | - | |
| MLPP Precedence | Default | | |
| Gateway or Route List* | S1/DS1-0@CMM_Interop | 💌 (<u>Edit</u>) | |
| Route Option | Route this pattern | | |
| | O Block this pattern - Not Select | | <u> </u> |
| Call Classification* | OnNet | | Allow Device Override |
| Provide Outside Dial Tone | 🗖 Allow Overlap Sending | | Urgent Priority |
| 🗖 Require Forced Authorizati | on Code | | |
| Authorization Level | 0 | | |
| Require Client Matter Code | | | |
| Calling Party Transformations | | | |
| Use Calling Party's Externa | r Phone Number Mask | - | |
| Calling Party Transform Mask | | | |
| Prefix Digits (Outgoing Calls) | | | |
| Calling Line ID Presentation | Default | - | |
| Calling Name Presentation | Restricted | | |
| Connected Party Transformat | | | |
| Connected Line ID Presentation | | _ | |
| Connected Name Presentation | Default | • | |
| Called Party Transformations | No. of the second se | tree l | |
| Discard Digits | < None > | <u> </u> | |
| Called Party Transform Mask | ¢ | | |
| Prefix Digits (Outgoing Calls) | | | |



COLR Translation Pattern Configuration

| 🚰 Cisco CallManager 4.2 Administration - 1 | Translation Pattern Configuration - Microsoft Internet Explorer | | | | | |
|--|---|--|--|--|--|--|
| <u>Fi</u> le <u>E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp | | | | | | |
| ↔ Back • → • ② ② ③ 🖓 🖓 QSearch 📾 Favorites ③Media 🕉 🖏• 🎒 | | | | | | |
| Address Addres | nslationconfig.asp?pkid={9F60469A-1FBA-48AF-8AA4-58BC550A1D02} | | | | | |
| System Route Plan Service F | eature Device User Application Help | | | | | |
| Cisco CallManager Administration | | | | | | |
| Translation Pattern Configuration | | | | | | |
| | Add a New Translation Pattern | | | | | |
| Translation Pattern: 3XXX | Back to Find/List Translation Patterns | | | | | |
| Status: Ready | | | | | | |
| Copy Update Delete | | | | | | |
| Pattern Definition | | | | | | |
| Translation Pattern | 3XXX | | | | | |
| Partition | < None > | | | | | |
| Description | | | | | | |
| Numbering Plan* | North American Numbering Plan | | | | | |
| Route Filter | <none></none> | | | | | |
| Calling Search Space | phoneCSS 🔹 | | | | | |
| MLPP Precedence | Default 🔹 | | | | | |
| Route Option | • Route this pattern | | | | | |
| | C Block this pattern - Not Selected - | | | | | |
| Provide Outside Dial Tone | e 🔽 Urgent Priority | | | | | |
| Calling Party Transformations | | | | | | |
| Use Calling Party's External | Phone Number Mask | | | | | |
| Calling Party Transform Mask | | | | | | |
| Prefix Digits (Outgoing Calls) | | | | | | |
| Calling Line ID Presentation | Restricted | | | | | |
| Calling Name Presentation | Default 🔹 | | | | | |
| Connected Party Transformat | ions | | | | | |
| Connected Line ID Presentation | Default 🔽 | | | | | |
| Connected Name Presentation | Default | | | | | |
| Called Party Transformations | | | | | | |
| Discard Digits | < None > | | | | | |
| Called Party Transform Mask | | | | | | |
| Prefix Digits (Outgoing Calls) | | | | | | |
| * indicates required item. | | | | | | |
| | | | | | | |



CONR Route Pattern Configuration

| Cisco CallManager 4.2 Administration - Tr | ranslation Pattern Configuration - Microsoft Internet Explorer | | | | |
|--|--|--|--|--|--|
| File <u>E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp | | | | | |
| ⇔Back ▼ → → ② ② 집 십 ③ Search ⓐ Favorites ④ Media ③ 팀 ▼ 🎒 | | | | | |
| Address () https://cm-guanatos/CCMAdmin/tran | rslationconfig.asp?pkid={9F60469A-1FBA-48AF-8AA4-58BC550A1D02} | | | | |
| System Route Plan Service Fe | eature Device User Application Help | | | | |
| Cisco CallManager A For Cisco IP Telephony Solutions | dministration Cisco Systems | | | | |
| Translation Patte | ern Configuration | | | | |
| Add a New Translation Pattern | | | | | |
| | Back to Find/List Translation Patterns | | | | |
| Translation Pattern: 3XXX Status: Ready | | | | | |
| Copy Update Delete | | | | | |
| Pattern Definition | | | | | |
| Translation Pattern | 3XXX | | | | |
| Partition | <none></none> | | | | |
| Description | | | | | |
| Numbering Plan* | North American Numbering Plan | | | | |
| Route Filter | < None > | | | | |
| Calling Search Space | phoneCSS 🔹 | | | | |
| MLPP Precedence | Default | | | | |
| Route Option | © Route this pattern | | | | |
| | O Block this pattern - Not Selected - | | | | |
| Provide Outside Dial Tone 🛛 Urgent Priority | | | | | |
| Calling Party Transformations | | | | | |
| Use Calling Party's External | Phone Number Mask | | | | |
| Calling Party Transform Mask | | | | | |
| Prefix Digits (Outgoing Calls) | | | | | |
| Calling Line ID Presentation | Default 🔽 | | | | |
| Calling Name Presentation | Restricted | | | | |
| 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) | | | | | |
| * indicates required item. | | | | | |
| | | | | | |



CallBack Service Parameters

| Clusterwide Parameters (Feature - Call Back) | | | | |
|--|---------------------------------|---|------------------------------------|--|
| Parameter Name | Parameter Value | | Suggested Value | |
| Call Back Enabled Flag* | True | | True | |
| Call Back Notification Audio File Name* | CallBack.raw | | CallBack.raw | |
| Connection Proposal Type* | Connection Retention | • | Connection Retention | |
| Connection Response Type* | Default to Connection Retention | • | Default to Connection Retention | |
| Call Back Request Protection T1 Timer (sec)* | 10 | | 10 | |
| Call Back Recall T3 Timer (sec)* | 20 | | 20 | |
| Call Back Calling Search Space | < None > | | | |
| No Path Reservation* | True | | True | |
| Set Private Numbering Plan for Call Back* | False | | False | |
| | | | | |

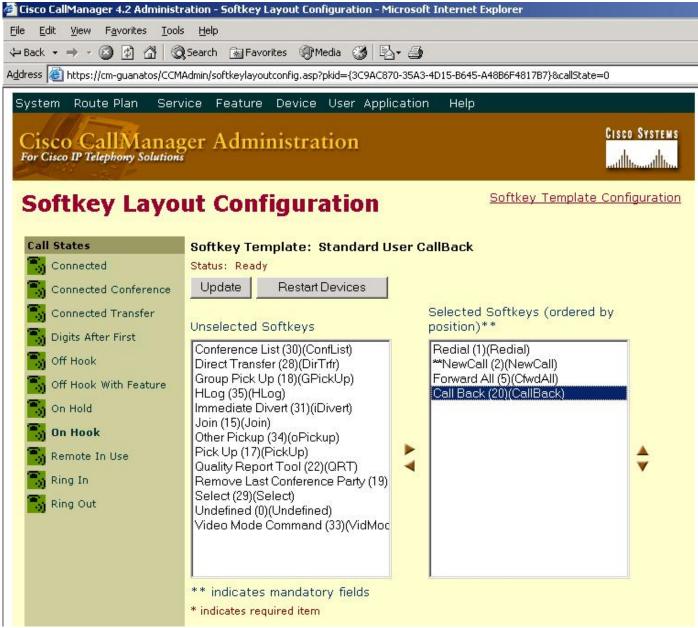


CallBack Softkey Configuration

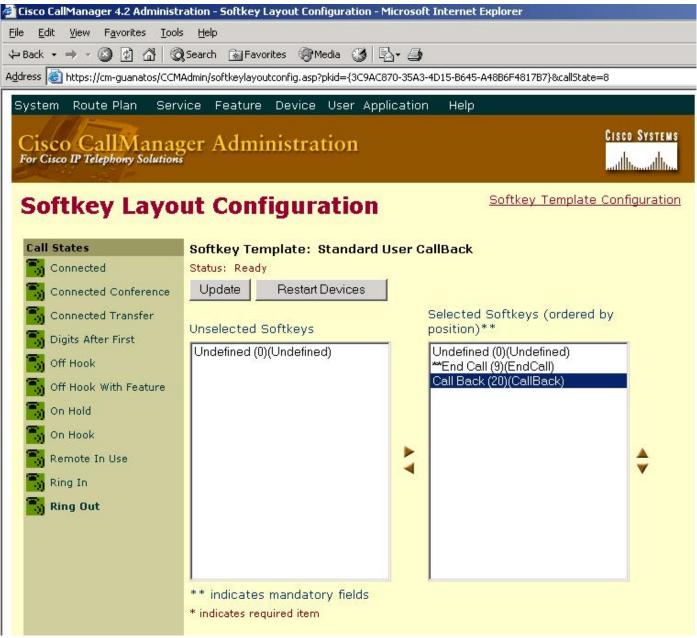
| e Edit View Favorites Tools | Help | | | |
|--|--|---|--|--|
| Back 🔹 🔿 🖌 🙆 🛱 🕺 🧟 S | earch 🔝 Favorites 🎯 Media 🎯 🔂 🕁 🎒 | | | |
| dress 🗃 https://cm-guanatos/CCMAdmin/softkeytemplateconfig.asp?pkid={3C9AC870-35A3-4D15-B645-A48B6F4817B7} | | | | |
| ystem Route Plan Servic | e Feature Device User Application Hel | p | | |
| Cisco CallManage | er Administration | CISCO SYSTEMS | | |
| Softkey Temp | late Configuration | <u>Add New Softkey Template</u> <u>Configure Softkey Layout</u> <u>Dependency Records</u> ack to Find/List Softkey Templates | | |
| Softkey Template: Stand Status: Ready | ard User CallBack | | | |
| Copy Update Delete | Restart Devices | | | |
| Softkey Template Name* | Standard User CallBack | | | |
| Description | Standard Softkey Template for CallManager only | | | |
| Add Application E | elete Application | | | |
| Application | Cisco CallManager | | | |
| | | | | |

* indicates required item











Path Replacement Service Parameter

| Clusterwide Parameters (Feature - Path Replacement) | | | |
|--|---------------------|--|-----------------|
| Parameter Name | Parameter Value | | Suggested Value |
| Path Replacement Enabled* | True | | False |
| Path Replacement on Tromboned Calls* | True | | True |
| Start Path Replacement Minimum Delay Time (sec)* | 0 | | 0 |
| Start Path Replacement Maximum Delay Time (sec)* | 0 | | 0 |
| Path Replacement T1 Timer (sec)* | 30 | | 30 |
| Path Replacement T2 Timer (sec)* | 15 | | 15 |
| Path Replacement PINX ID | | | |
| Path Replacement Calling Search Space | Path ReplacementCSS | | |
| | | | |

MWI lamp On/Off Configuration

Note: Not Applicable. Standard QSIG SS-MWI is not supported on NEC IPX2400 R15

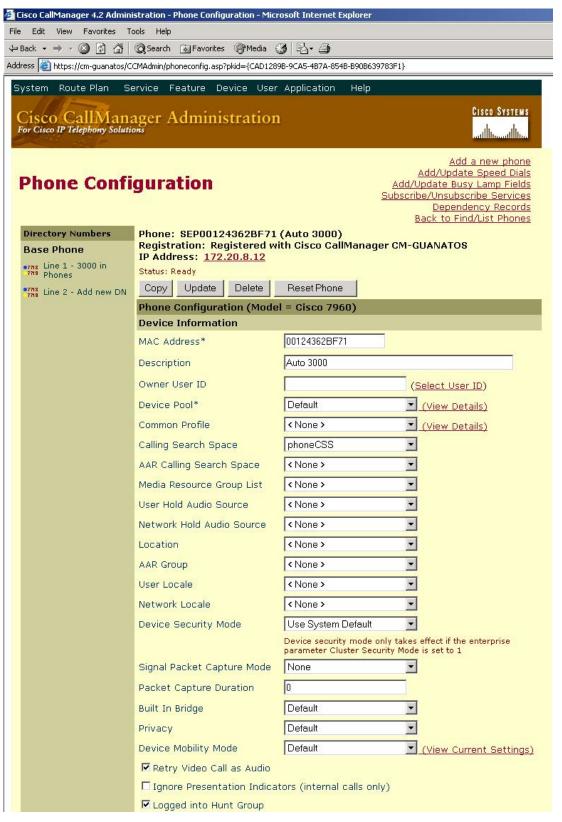


Forward by Reroute Service Parameter

| Parameter Name | Parameter Value | | Suggested Value |
|---|--------------------------------|----------|-----------------------------------|
| Forward Maximum Hop Count* | 12 | | 12 |
| Forward No Answer Timer (sec)* | 12 | _ | 12 |
| Max Forward Hops to DN* | 12 | | 12 |
| Retain Forward Information* | False | | False |
| Forward By Reroute Enabled* | True | | False |
| Transform Forward by Reroute Destination* | True | | True |
| Include Voice Mailbox Address in QSIG Call Diversion APDUs* | False | | False |
| Always Forward Switch Voice Mail Calls* | True | _ | True |
| Forward By Reroute T1 Timer (sec)* | 10 | | 10 |
| Include Original Called Info for Q.SIG Call Diversions* | Only after the first diversion | _ | Only after the first diversion |
| Max Forward UnRegistered Hops to DN* | 0 | | 0 |



Cisco IP phone Configuration (SCCP)





| Cisco CallManager 4.2 Administration - Phone Configuration - Microsoft Internet Explorer | | |
|--|-----------------------------|---|
| Eile Edit View Favorites Tools Help | | |
| ⇔Back + → - 🙆 🙆 🖓 🔯 Search 📾 Favorites 🐲 Media 🍏 🖏 + 🎒 | | |
| Address 🗃 https://cm-guanatos/CCMAdmin/phoneconfig.asp?pkid={CAD1289B-9CA5-4B7A-854B-B90B639783F1} | | |
| | Phone Button Template I | nformation |
| | Phone Button Template* | Standard 7960 |
| | Softkey Template Inform | ation |
| | Softkey Template | Standard User CallBack |
| | Expansion Module Inform | nation |
| | Module 1 | <none></none> |
| | Module 2 | < None > |
| | Firmware Load Informati | ion (leave blank to use default) |
| | Phone Load Name | |
| | Module 1 Load Name | (Module 1 selection required) |
| | Module 2 Load Name | (Module 2 selection required) |
| | Cisco IP Phone - Externa | I Data Locations (leave blank to use default) |
| | Information | |
| | Directory | |
| | Messages | |
| | Services | |
| | Authentication Server | |
| | Proxy Server | |
| | Idle | |
| | Idle Timer (seconds) | |
| | Extension Mobility (Devi | ce Profile) Information |
| | Enable Extension Mobilit | y Feature |
| | Log Out Profile | - Not Selected - |
| | Log In User ID | < None > |
| | Log In Time | < None > |
| | Log Out Time | < None > roxy Function (CAPF) Information |
| | Certificate Operation | No Pending Operation |
| | Authentication Mode | By Authentication String |
| | Authentication String | Generate String |
| | Key Size (bits) | 1024 |
| | Operation Completes By** | : : : : : (YYYY : MM : DD : HH) |
| | Certificate Operation Statu | |
| | | and Preemption (MLPP) Information |
| | MLPP Domain | (e.g., "0000FF") |
| | MLPP Indication | |
| | MLPP Preemption | Default |



Product Specific Configuration Disable Speak

| Disable Speakerphone | | |
|----------------------------------|----------|---|
| Disable Speakerphone and Headset | | |
| PC Port* | Enabled | • |
| Settings Access* | Enabled | • |
| Gratuitous ARP* | Enabled | • |
| PC Voice VLAN Access* | Enabled | - |
| Video Capabilities* | Disabled | • |
| Auto Line Select* | Disabled | • |
| Web Access* | Enabled | • |
| | | |

* indicates a required item. ** Indicates time on Publisher.

Back to top of page Back to Find/List Phones

i



| 🚰 Cisco CallManager 4.2 Administr | ation - Directory Number Configuratio | n - Microsoft Internet Explorer | |
|--|---|--|-----------------|
| Eile Edit View Favorites Tools Help | | | |
| ⇔Back + → - 🙆 😰 🚰 🔯 Search 📷 Favorites 🐲 Media 🧭 🛃 + 🎒 | | | |
| Address 🙆 https://cm-guanatos/CCM/ | Admin/directorynumber.asp?NumPlanMapID= | ={A8AA92DF-A69F-40E0-8C44-52E20D0D41DC} | |
| System Route Plan Serv | rice Feature Device User Ap | plication Help | |
| C' LO IN | | | CISCO SYSTEMS |
| C1SCO Callivianae For Cisco IP Telephony Solutions | er Administration | | |
| BRUE SEP | | | IIIIIteIIIIIte. |
| Directory Nu | mber Configurat | ion Configure Device (SEPO | |
| | | Depend | dency Records |
| Associated With | Directory Number: 3000 (Ph | iones) | |
| SEP00124362BF71 7960 (Line 1) | Status: Ready Note: Any update to this Directory M | Number automatically resets the associated | d devices |
| | Update Remove from De | 1 | |
| | Directory Number | | |
| | Directory Number* | 3000 | |
| | Partition | Phones 👻 | |
| | Directory Number Settings | | 1 |
| | Voice Mail Profile | < None > | |
| | | (Choose <none> to use default)</none> | |
| | Calling Search Space | phoneCSS | |
| | User Hold Audio Source | < None > 💌 | |
| | Network Hold Audio Source | < None > • | |
| | Auto Answer | Auto Answer Off | |
| | AAR Settings | | |
| | Void | ce Mail AAR Destination Mask AA | |
| | AAR | | None > 💌 |
| | C Remove this destination | from the call forwarding history | |
| | | n the call forwarding history | |
| | Call Forward and Pickup Sett | | |
| | Voic | e Mail Coverage/ Destination Calling Search | Space |
| | Forward All | None > | - |
| | Forward Busy Internal | None > | - |
| | Forward Busy External | None > | • |
| | | | |
| | Forward No Answer Internal | None> | - |
| | Forward No Answer External | None > | |
| | Forward No Coverage Internal | None > | |
| | Forward No Coverage External | None > | • |
| | Forward Unregistered Internal | None > | • |
| | Forward Unregistered External | travest Alexandre State | |
| | No Answer Ring Duration | (seconds) | |
| | Call Pickup Group | <none> (<u>View Details</u>)</none> | |
| | | | |

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| MLPP Alternate Party Setting | gs | |
|---|----------------------|--|
| Target (Destination) | | |
| Calling Search Space | < None > | |
| No Answer Ring Duration | (seconds) | |
| Line Settings for all Devices | | |
| Alerting Name | O. Sanchez | |
| Line Settings for this Device | | |
| Display (Internal Caller ID) | O. Sanchez | |
| Line Text Label | O. Sanchez | |
| External Phone Number Mask | | |
| Message Waiting Lamp Policy | Use System Policy 💌 | |
| Ring Setting (Phone Idle) | Use System Default 💌 | |
| Ring Setting (Phone Active)** | Use System Default 💌 | |
| Call Pickup Group Audio Alert Setting(Phone Idle) | Use System Default 💌 | |
| Call Pickup Group Audio Alert Setting(Phone Active) | Use System Default 💌 | |
| Multiple Call / Call Waiting S | ettings | |
| Maximum Number of Calls* | 4 (1 - 200) | |
| Busy Trigger* | 2 (<= Max. Calls) | |
| Forwarded Call Information | Display | |
| Caller Name | 🗖 Caller Number | |
| 🗖 Redirected Number | 🔽 Dialed Number | |
| * indicates required item; changes to Line or Directory Number settings require restart. ** Ring Setting (Phone Active) applies to this line when any line on the phone has a call in progress. Note: If you are using a language other than English for Display (Internal Caller ID) or Line Text Label text, make sure the correct character set (shown below) is selected. Text displays | | |
| incorrectly if the wrong characterset is selected. (English characters are included in all character sets.) Character Set Western European (Latin 1) | | |

Cisco CMM-T1 Configuration

CMM_Interop# show version Cisco IOS Software, Cat6K-lc Software (wscmm-IPVOICE-M), Version 12.4(5a), RELEA SE SOFTWARE (fc3) Technical Support: http://www.cisco.com/techsupport Copyright (c) 1986-2006 by Cisco Systems, Inc. Compiled Sat 14-Jan-06 04:52 by alnguyen

ROM: System Bootstrap, Version 12.2(1r)T2, RELEASE SOFTWARE (fc1)

CMM_Interop uptime is 2 weeks, 22 hours, 21 minutes System returned to ROM by reload System image file is "bootflash:wscmm-ipvoice-mz.124-5a.bin"

cisco WS-SVC-CMM Cat6k Voice Linecard (R7000) processor (revision 0xFF) with 196 608K/65536K bytes of memory. Processor board ID SAD0825032A R7000 CPU at 400MHz, Implementation 39, Rev 3.3, 256KB L2 Cache Last reset from power-on 1 FastEthernet interface 1 Gigabit Ethernet interface 93 Serial interfaces 6 Channelized T1/PRI ports 32768K bytes of processor board bootflash (Read/Write)

Configuration register is 0x2

CMM_Interop#

CMM_Interop#sh run Building configuration...

Current configuration : 2246 bytes 1 version 12.4 service timestamps debug datetime msec service timestamps log datetime msec no service password-encryption 1 hostname CMM_Interop boot-start-marker boot-end-marker enable password cisco no aaa new-model resource policy mmi polling-interval 60 no mmi auto-configure no mmi pvc mmi snmp-timeout 180 no ip domain lookup ip host CM-GUANATOS 172.20.8.254 isdn switch-type primary-qsig



```
controller T1 1/0
pri-group timeslots 1-24 service mgcp
!
controller T1 1/1
pri-group timeslots 1-24 service mgcp
1
controller T1 1/2
1
controller T1 1/3
1
controller T1 1/4
!
controller T1 1/5
!
!
١
interface GigabitEthernet1/0
ip address 172.20.8.29 255.255.255.0
no ip proxy-arp
no negotiation auto
no keepalive
١
interface Serial1/0:23
no ip address
encapsulation hdlc
no logging event link-status
isdn switch-type primary-qsig
isdn incoming-voice voice
isdn bind-13 CCM-manager
no cdp enable
!
interface Serial1/1:23
no ip address
encapsulation hdlc
no logging event link-status
isdn switch-type primary-qsig
isdn protocol-emulate network
isdn incoming-voice voice
isdn T310 120000
isdn bind-13 CCM-manager
no cdp enable
ip default-gateway 172.20.8.1
ip route 0.0.0.0 0.0.0.0 172.20.8.1
1
no ip http server
!
!
control-plane
!
!
voice-port 1/0:23
compand-type u-law
!
voice-port 1/1:23
CCM-manager mgcp
CCM-manager music-on-hold
CCM-manager config server CM-GUANATOS
CCM-manager config
!
```



mgcp mgcp call-agent CM-GUANATOS 2427 service-type mgcp version 0.1 mgcp dtmf-relay voip codec all mode out-of-band mgcp rtp unreachable timeout 1000 action notify mgcp modem passthrough voip mode nse mgcp package-capability rtp-package no mgcp package-capability res-package mgcp package-capability sst-package mgcp package-capability pre-package no mgcp timer receive-rtcp mgcp sdp simple mgcp fax t38 inhibit mgcp rtp payload-type g726r16 static ! mgcp profile default ! ! ! ١ ١ line con 0 password cisco line vty 0 4 password cisco login ! ! end



Acronyms

| Acronym | Definitions | |
|------------------------------|---|--|
| ANF-PR | Additional Network Feature Path Replacement | |
| AOC | Advice-of-charge. Information element is sent with the connection setup information for incoming Euro-ISDN connections. The AOC IE is used for call charge calculation. | |
| CISCO UNIFIED CALLMANAGER | Cisco Unified CallManager | |
| CCBS | Call Completion to Busy Subscriber | |
| CCNR | Call Completion on No Reply | |
| CFB | Call Forwarding on Busy | |
| CFNR | Call Forwarding No Reply | |
| CFU | Call Forwarding Unconditional | |
| CLIP | Calling Line (Number) Identification Presentation | |
| CLIR | Calling Line (Number) Identification Restriction | |
| СММ | Communication Media Module (CMM) is a Cisco Catalyst [®] 6500 Series and Cisco 7600 Series line card that provides flexible and high-density T1/E1 gateways | |
| CNIP | Calling Name Identification Presentation | |
| CNIR | Calling Name Identification Restriction | |
| COLP | Connected Line (Number) Identification Presentation | |
| COLR | Connected Line (Number) Identification Restriction | |
| CONP | Connected Name Identification Presentation | |
| CONR | Connected Name Identification Restriction | |
| СТ | Call Transfer | |
| MWI | Message Waiting Indicator | |
| PSTN | Public Switched Telephone Network | |



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