



Nortel Communication Server 1000

## CS 1000 to MCS 5100 Converged Desktop Type 2 Configuration Guide

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## Revision history

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### May 2007

Standard 01.01. This document is issued to support Communication Server (CS) 1000 Release 5.0. This document contains information previously contained in the following legacy document, now retired: *CS 1000 to MCS 5100 Converted Desktop Type 2 Configuration Guide (553-3001-521)*. No new content has been added for Communication Server 1000 Release 5.0. All references to Communication Server 1000 Release 4.5 are applicable to Communication Server Release 5.0.

In addition, changes for the following CRs are included:

CR Q01473312, in the section "[Feature implementation](#)" ([page 28](#)), a note is added regarding call forwarding on a converged telephone.

CR Q01377222, a note is added regarding the default configuration on-hook Handsfree.

CR Q01492694, a sentence is added regarding a virtual trunk call queued on a CDN, explaining why a DSP resource is used.

CR Q01478214, two options are added to "[Configuring MCS 5100 in the NRS for CDS](#)" ([page 86](#)). MCS 5100 is configured as a Gateway Endpoint in the first option and as a Collaborative Server in the second.

### October 2006

Standard 3.00. This document is upissued for CR Q01412328-01, to add prompt and response to LD-17 Configuration of Value Added Server (VSID) table, to set the VSID security for the SIP CD AML link to *No*. This prompts the Signaling Server to send a Cancel message to *convergeddesktop* so that the PC Client does not continue to ring after call is answered by Call Pilot.

### April 2006

Standard 2.00. This document is upissued for CR Q01291954, updating the available MCS 5100 documentation.

### **September 2005**

Standard 1.00. This document is a new document issued to support Communication Server 1000 Release 4.5, and Multimedia Communication Server 5100 Release 3.5.

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## How to get help

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This chapter explains how to get help for Nortel products and services.

### Finding the latest updates on the Nortel Web site

The content of this documentation is current at the time the product is released. To check for updates to the latest documentation for Communication Server (CS) 1000, go to [www.nortel.com](http://www.nortel.com) and navigate to the Technical Documentation page for CS 1000.

### Getting help from the Nortel Web site

The best way to get technical support for Nortel products is from the Nortel Technical Support web site:

[www.nortel.com/support](http://www.nortel.com/support)

This site provides quick access to software, documentation, bulletins, and tools to address issues with Nortel products. From this site, you can:

- download software, documentation, and product bulletins
- search the Technical Support Web site and the Nortel Knowledge Base for answers to technical issues
- sign up for automatic notification of new software and documentation for Nortel equipment
- open and manage technical support cases

### Getting help over the telephone from a Nortel Solutions Center

If you do not find the information you require on the Nortel Technical Support web site, and you have a Nortel support contract, you can also get help over the telephone from a Nortel Solutions Center.

In North America, call 1-800-4NORTEL (1-800-466-7835). Outside North America, go to the following web site to obtain the telephone number for your region:

[www.nortel.com/callus](http://www.nortel.com/callus)

### **Getting help from a specialist by using an Express Routing Code**

To access some Nortel Technical Solutions Centers, you can use an Express Routing Code (ERC) to quickly route your call to a specialist in your Nortel product or service. To locate the ERC for your product or service, go to:

[www.nortel.com/erc](http://www.nortel.com/erc)

### **Getting help through a Nortel distributor or reseller**

If you purchased a service contract for your Nortel product from a distributor or authorized reseller, contact the technical support staff for that distributor or reseller.



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## About this document

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This document is a global document. Contact your system supplier or your Nortel representative to verify that the hardware and software described are supported in your area.

### Subject

This document describes Session Internet Protocol Converged Desktop System (SIP CDS) and its configuration on Communication Server 1000 (CS 1000) and Multimedia Communication Server 5100 (MCS 5100) systems. It also provides examples of the configuration of a dialing plan and numbering plan for a mixed CS 1000/MCS 5100 network.

This document describes the design and configuration of a Converged Desktop environment between CS 1000 and MCS 5100 systems. The examples provided in this document represent only one example of design and configuration. "[Description of the network configured in this document](#)" (page 46) provides the outline of the network used as an example only.

### Note on legacy products and releases

This NTP contains information about systems, components, and features that are compatible with Nortel CS 1000 Release 4.5 and MCS 5100 Release 3.5 software. For more information on legacy products and releases, click the **Technical Documentation** link under **Support & Training** on the Nortel home page:  
[www.nortel.com](http://www.nortel.com)

### Applicable systems

This document applies to the following CS 1000 systems:

- Communication Server 1000E (CS 1000E)
- Communication Server 1000M Single Group (CS 1000M SG)
- Communication Server 1000M Multi Group (CS 1000M MG)

This document applies to all MCS 5100 systems.

## Intended audience

This document is intended to assist technical administrators responsible for designing and configuring a Converged Desktop environment between CS 1000 and MCS 5100 systems.

## Conventions

### Terminology

In this document, the following systems are referred to generically as "CS 1000 system":

- Communication Server 1000E (CS 1000E)
- Communication Server 1000M (CS 1000M)
- Meridian 1

## Related information

This section lists information sources that relate to this document.

### NTPs

The following NTP is referenced in this document:

- *IP Peer Networking Installation and Commissioning (NN43001-313)*

Refer to the following MCS 5100 documentation for additional information about CDS:

- *Provisioning Client User Guide (NN42020-105)*
- *Feature Description Guide (NN42020-125)*
- *Interworking Fundamentals (NN42020-127)*

### Online

To access Nortel documentation online, click the **Technical Documentation** link under **Support & Training** on the Nortel home page:

[www.nortel.com](http://www.nortel.com)

### CD-ROM

To obtain Nortel documentation on CD-ROM, contact your Nortel customer representative.

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# Converged Desktop Services

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## Contents

This section contains information about the following topics:

- "Introduction" (page 11)
- "Scope of this document" (page 12)
- "How Converged Desktop Services works" (page 12)
  - "Users in a mixed CS 1000/MCS 5100 network" (page 16)
  - "Converged Mode and Unconverged Mode" (page 17)
  - "CDS originating and terminating call handling" (page 17)
  - "AML ELAN numbers and VAS numbers" (page 23)
  - "Click-to-Call" (page 24)
- "Operating parameters and feature interactions" (page 24)
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- "Feature requirements" (page 27)
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- "Dialing and numbering plan issues for the mixed network" (page 28)
  - "Digit-based addresses and alphanumeric addresses" (page 29)
  - "Dialing plan issues" (page 29)
  - "DNs as MCS aliases vs. DNs as MCS usernames" (page 30)
  - "Directory Number qualification" (page 31)
  - "Converged Desktop implications" (page 33)

## Introduction

This section provides an overview of Converged Desktop Services (CDS) to give the user a perspective on what CDS is, how it works, and what it requires. This section also provides an overview of dialing plan and numbering plan issues for mixed CS 1000/MCS 5100 networks.

### Scope of this document

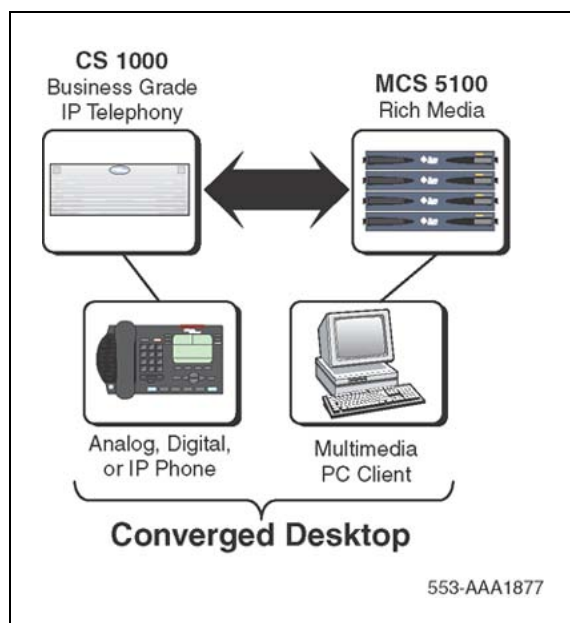
This document is intended to assist technical administrators in designing and configuring a Converged Desktop environment between CS 1000 and MCS 5100 systems. The examples provided in this document represent only one example of design and configuration. ["Description of the network configured in this document" \(page 46\)](#) provides the outline of the network used as an example only.

### How Converged Desktop Services works

Session Initiation Protocol Converged Desktop Service (SIP CDS) is a CS 1000 and MCS 5100 feature. SIP CDS allows users to have simultaneous access to multimedia features on MCS 5100, and to business grade telephony features on CS 1000 systems. The Converged Desktop feature gives users access to business grade telephony features not supported by the SIP standard, while also allowing users to take advantage of the multimedia functionality of MCS 5100. The user's existing telephone is used for telephony functionality while the PC Client delivers the multimedia features.

A Converged Desktop consists of a telephone and multimedia PC Client (PCC) software (see [Figure 1 "Converged Desktop" \(page 12\)](#)). The supported telephones include analog (500 or 2500-type) telephones, digital telephones, and IP Phones. A SIP Phone cannot be configured as a Converged Desktop. A SIP telephone can be configured on the MCS 5100 as a stand-alone device or be tied to a PC Client. In both instances, the SIP telephone receives only features associated with the MCS 5100.

**Figure 1**  
**Converged Desktop**



In Converged Mode, both the CS 1000 telephone and the MCS 5100 PC Client are integrated to provide both feature sets. In Converged Mode, the CS 1000 telephone effectively becomes the audio device for the MCS 5100 PC Client, so that any audio requirement from the MCS 5100 user (for example, Click-to-Call) is directed to the CS 1000 telephone.

A user may selectively deactivate Converged Mode, so both the MCS 5100 client and the CS 1000 telephone become stand-alone devices. This allows remote users to utilize the MCS 5100 client for both multimedia and voice functionality (for example, using a USB headset with the MCS 5100 PC Client). The voice functionality on a MCS 5100 client in Unconverged Mode is limited to the voice features supported on the MCS 5100. The CS 1000 telephone maintains its full feature set as programmed.

The Converged Desktop feature utilizes the CDS software on the Signaling Server and the SIP Trunking Application to integrate the two systems. These functions became available in CS 1000 Release 4.0.

CDS is enabled between CS 1000 and MCS 5100 using several components, including:

- SIP Trunking Application — SIP Gateway and Virtual Trunk Route
- CDS on the Signaling Server
- Application Module Link (AML) and Value Added Server (VAS) assigned to the CDS application over the common ELAN subnet
- Control Directory Number (CDN) (Converged Services Directory Number [CSDN]) to trigger messaging over the AML/VAS link associated with CDS
- Automatic Call Distribution (ACD) queue with agents — used for the Personal Call Assistant (PCA) application associated with CDS
- telephone Class of Service — used to enable Converged Desktop messaging
- telephone option for CSDN — redirects inbound calls directed to the telephone to CSDN to enable Converged Desktop signaling
- optional Recorded Announcement (RAN) route — used to play progress or delay indication to caller while waiting for PCA agent
- Converged Desktop as a part of the Service Package for the MCS Client user
- dialing plan for CS 1000 and MCS 5100

In general, when a CS 1000 user is designated as a Converged Desktop user, they receive a CS 1000 telephone and an MCS 5100 PC Client. The telephone is programmed with a Class of Service to allow CDS messaging (the options described in ["CDS configuration: overview" \(page 45\)](#)).

When a call terminates to the CS 1000 telephone, the CDMV or CDMO Class of Service redirects the call to the CSDN defined on the telephone, before ringing the CS 1000 telephone. The CSDN is a CDN used for CDS. This CDN number is also configured on the Signaling Server so that it can be acquired by the CDS application when the Signaling Server starts.

When the call terminates to the CDN a message is sent over AML/VAS to the CDS as notification of the incoming call. If the call is a virtual trunk call, and queued on a CDN, a Digital Signal Processor (DSP) resource is used to play the ringback to the caller because CDN is a TDM resource. (A DSP resource is required to handle media between a TDM resource and an IP resource.) The CDS cannot determine where the call terminates, either on the CS 1000 telephone or in the SIP network; the termination location is based on the user's Advanced Screening options in the MCS 5100 Client. Therefore, the CDS instructs the Call Server to make a Virtual Trunk call to a predetermined number, as defined on the Signaling Server (the Service DN used for making a VTRK call from an Agent) and the CS 1000 dialing plan. This call reserves a Virtual Trunk in case it is required to terminate the call to a SIP device (if so configured in the user's Advanced Screening options). After the Virtual Trunk call is established, CDS sends a SIP INVITE message to the MCS 5100 using the SIP Gateway Application.

The MCS 5100 receives the INVITE message and processes it on the user's PC Client. The user's Advanced Screening options are checked for any rules that determine the destination. If no rules exist and the user is in Converged Mode, the MCS 5100 notifies the CDS application to notify the converged telephone. The CDS bridges the call and the Virtual Trunk is dropped. An MCS 5100 call notification screen-pop appears, and the CS 1000 telephone rings. The call is answered on the CS 1000 telephone and call logs are generated on the MCS 5100 PC Client. If the caller is another SIP device or Converged Desktop user, all MCS 5100 features become available for the call.

For outbound calls, the user may use their MCS client in a Click-to-Call scenario or use the keypad of their CS 1000 telephone. When using the MCS 5100 Client, the user has access to all directories available and can process a call. When the user selects a directory entry or dials a telephone number, the MCS 5100 sends an INVITE message to the CS 1000, and CDS processes the call to the CS 1000 telephone. The telephone must be answered before CDS can process the second leg of the call. When the call is answered at the CS 1000 telephone, the destination called and the two calls are bridged together. The PCA application is used for making these calls. The MCS 5100 Client activates call logs. If the destination is another SIP device, the MCS 5100 Client allows multimedia features.

In Converged Mode, incoming and outgoing calls to and from a converged telephone notify the MCS 5100. Upon notification, the MCS 5100 then provides different SIP services and features to the user. The features include the following, depending on where the call is destined, or from where it originated.

All calls to or from a Converged Desktop user receive:

- Call log — Allows a user to see who has called and when the call occurred.
- Real-time call state update — Provides the presence (status) of a user. For example, "active on the phone" or "active available".
- Presence update — Displays the status of other users if the user is added in the Friends list. The Friends list is a list of friends/users that were added (by the user) from the Personal Directory Book, Global Directory Book, or from the call logs. This feature is provided by the MCS 5100 to all PC Clients (including the Converged PCC). Activity on the telephone can update the presence on the PC Client. For example, establishing a voice call to the telephone can update your presence for all registered MCS 5100 users to a presence update such as "Active on the phone". Other presence updates include "Available", "Unavailable", or "Offline".
- Pop-up window on the converged PC Client — Opens a window when receiving a call. The user sees the caller's name and picture ID (if a picture is available). A pop-up window also opens when the user calls another Converged Desktop user or calls a stand-alone SIP user.
- Click-to-Call — Allows a user to click a contact from their PC Client and make a call. The call is initiated from the PC Client but the call is placed from the telephone. For more information, see "[Click-to-Call](#)" (page 24).

The following features are available if the call is originated on, or destined for, a SIP client:

- Application sharing — Allows users to share applications such as whiteboard functionality, clipboard transfers, instant messaging, and file transfers.
- Video — Allows users to have a video conversation. The voice portion of the conversation is provided by the telephone and the video portion is provided by the PC Client. It is possible to add video to an already initiated telephone conversation. If in Converged Mode, the video can be started manually from the PC Client. The Converged Desktop application knows from where to pick up the video because the requested video session is bound with the voice conversation. If the voice conversation is dropped, then the video session is automatically closed.



- Web co-browsing — Allows users to share a web browser. If both users have the web co-browsing feature, then one user can automatically control (or drive) the other user's web browser.

All of these features are achieved by sending originating and terminating call notifications to the MCS 5100.

### Users in a mixed CS 1000/MCS 5100 network

CS 1000 and MCS 5100 systems can interoperate directly using SIP. Both systems can be deployed in a single mixed customer network. [Table 1 "Types of users in a mixed CS 1000 and MCS 5100 customer network" \(page 16\)](#) shows the three types of users in this mixed CS 1000 and MCS 5100 customer network.

**Table 1**  
**Types of users in a mixed CS 1000 and MCS 5100 customer network**

| User                        | Description                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CS 1000 user                | <p>A CS 1000 user has an account created on the CS 1000 system. The only client available to the CS 1000 user is a client under CS 1000 control.</p> <p>This user does not have an account on the MCS 5100 system and the user cannot use clients under MCS 5100 control.</p>                                                                                                                                     |
| MCS 5100 user               | <p>An MCS 5100 user has an account created on the MCS 5100 system. The only client available to the MCS 5100 user is a client under MCS 5100 control.</p> <p>This user does not have an account on the CS 1000 system. The user cannot use clients under CS 1000 control.</p>                                                                                                                                     |
| Converged Desktop (CD) user | <p>A Converged Desktop user has two accounts:</p> <ul style="list-style-type: none"> <li>• a CS 1000 account</li> <li>• an MCS 5100 account</li> </ul> <p>The Converged Desktop user also has two available clients:</p> <ul style="list-style-type: none"> <li>• a client under CS 1000 control (for example, an IP Phone 2004)</li> <li>• a client under MCS 5100 control (the Multimedia PC Client)</li> </ul> |

A Converged PC Client always uses the CS 1000 client as an endpoint for audio streams (in this configuration, the Multimedia PC Client cannot terminate/originate audio streams). A call itself can be initiated on the CS 1000 client or on the Multimedia PC Client. The Multimedia PC Client uses the "Click-to-Call" mechanism to engage the CS 1000 client in the call.



**Note:** When a Converged Desktop user is not in a converged state, the user effectively becomes an MCS 5100 user and the CS 1000 device becomes a stand-alone voice device.

### **Converged Mode and Unconverged Mode**

An MCS 5100 client can be in one of the two following modes:

- Converged Mode — The MCS 5100 client uses the CS 1000 voice path. It also uses the AML link for CDS signaling.
- Unconverged Mode — The MCS 5100 client uses the MCS 5100 voice path. It does not use the AML link for CDS signaling.

The mode is defined when each Client is configured.

**Note:** This document assumes that the MCS 5100 client is in Converged Mode. Exceptions for Unconverged Mode are noted.

### **CDS originating and terminating call handling**

The implementation of the Converged Desktop Service includes two parts:

- outgoing call (or a telephone-originated call) notification to the MCS 5100
- incoming call (or a call terminated on a converged telephone) notification to the MCS 5100

Users in Converged Mode can be defined with two Classes of Services for Converged Desktop:

- CDMO = Converged Desktop Multimedia Only — The user has an MCS 5100 PC Client and a CS 1000 desktop telephone. The user has access to all MCS 5100 multimedia features (such as video), except Personal (PA) routing.
- CDMV = Converged Desktop Multimedia and Voice — The user has an MCS 5100 PC Client and a CS 1000 desktop telephone. The user has access to all MCS 5100 multimedia features (such as video), including PA routing.

### **Making a call**

Users can make an outgoing Converged Desktop call in two ways:

- Dial from a CS 1000 telephone.
- "Dial" from an MCS 5100 PC Client (Click-to-Call) in one of the following ways:
  - Press the **Make a call** button.
  - Select from a Call Log.

A call from the inbox to the PSTN is not supported.

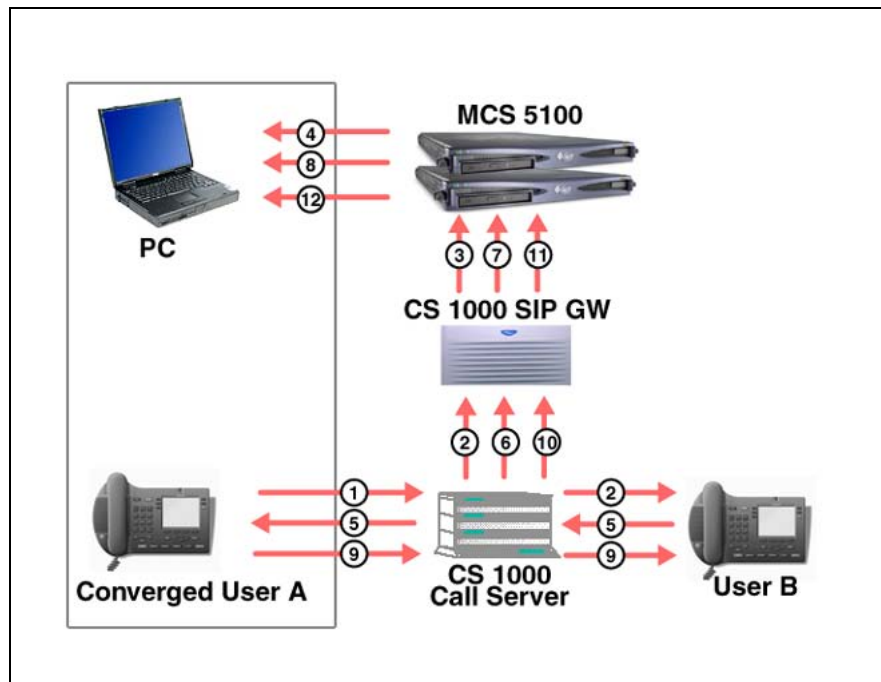
— Select from a Friends list or Directory book.

In both instances the following functionality is automatically provided:

- The Call Log is updated after the call.
- A pop-up window is generated if another CD user or SIP user was called.
- The users' Presences are updated after the call is answered.

Figure 2 "Call flow: making a call from a CS 1000 desktop telephone" (page 18) shows the call flow and messaging that occurs when a call is made from a CS 1000 desktop telephone.

**Figure 2**  
**Call flow: making a call from a CS 1000 desktop telephone**



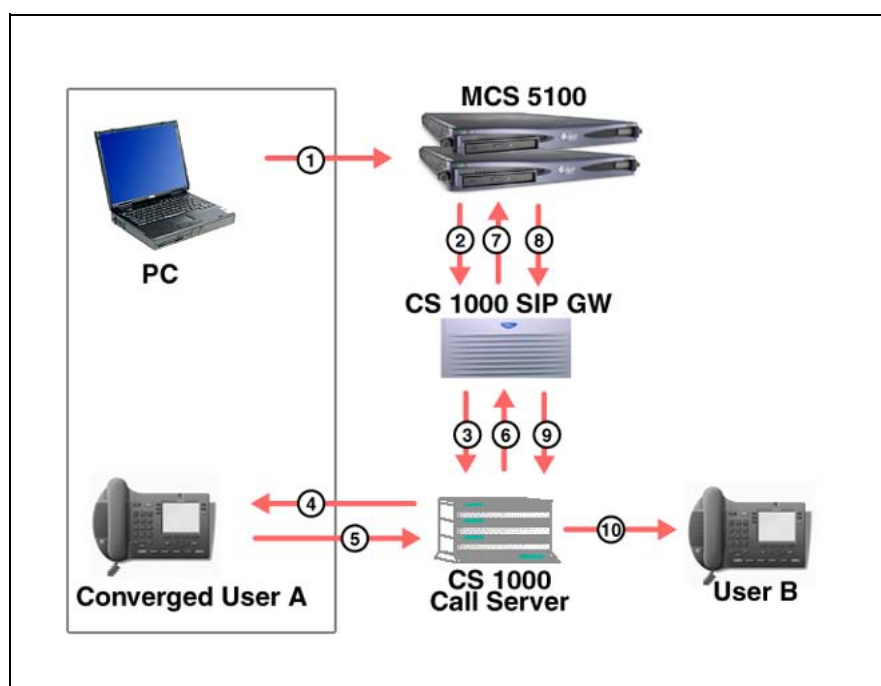
**Legend:**

- 1 Converged user A dials user B.
- 2 User B rings; Off-hook message sent.
- 3 Calling message sent.
- 4 PCC Call Log updated.
- 5 User B answers call.
- 6 Active message sent.
- 7 Active message sent.
- 8 Call timer started.

- 9 Converged user A releases.
- 1 Call disconnected; Disconnect message sent.
- 0
- 1 Release message sent.
- 1
- 1 Call timer stopped, Call Log updated.
- 2

Figure 3 "Call flow: Click-to-Call" (page 19) shows the call flow and messaging that occurs during a Click-to-Call session.

**Figure 3**  
**Call flow: Click-to-Call**



**Legend:**

- 1 Click-to-Call action initiated.
- 2 Click-to-Call Invite message sent.
- 3 One idle PCA selected to call own phone.
- 4 Converged user A rings.
- 5 User A answers.
- 6 Initial call is answered.
- 7 Call is answered.
- 8 Call made to user B.

- 9 Call between PCA and converged user A disconnected; call made from converged user A to user B.
- 1 Call placed to user B.
- 0

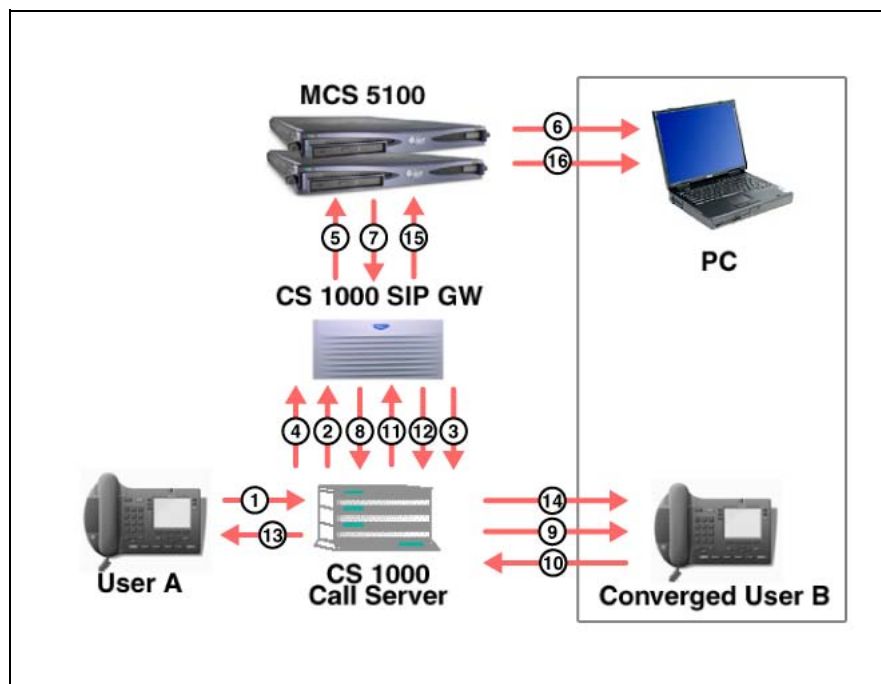
### Receiving a call

Depending on the Class of Service (CDMV or CDMO) of the converged user, the call flow will differ slightly. To receive a call, note the following:

- A CD user in CS 1000 can be defined as Multimedia Only user or Multimedia and Voice user.
- All calls to CD users are sent first to a predefined CDN queue.
- The MCS 5100 forks the call based on the user's PA setting.
- The new Class of Service (CDMO or CDMV) distinguishes the CD user from other users.
- The CSDN prompt in LD10/11 defines the CDN queue.
- A group of PCAs are defined to serve as the agents servicing CDN.
- Use AML messages for call notification and call control.

Figure 4 "Call flow: call terminating to a user with a CDMV Class of Service" (page 21) shows the call flow and messaging that occurs for a call terminating to a user with a CDMV Class of Service.

**Figure 4**  
**Call flow: call terminating to a user with a CDMV Class of Service**



**Legend:**

- 1 User A dials user B; call is forwarded to CDN.
- 2 Incoming call to CDMV user sent to CDS.
- 3 PCA selected; call made to Service DN to select a Virtual Trunk.
- 4 Virtual Trunk reserved.
- 5 INVITE message sent to CDS URL.
- 6 INVITE PC Client
  - Call Forking based on PA route
  - Call Log updated
  - Pop-up window generated

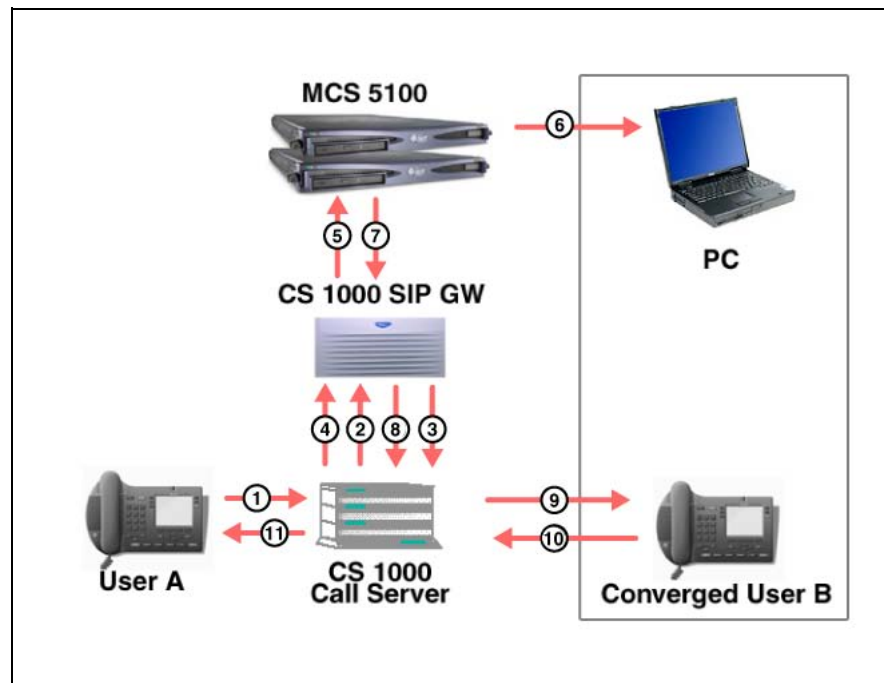
If PA settings allow a call to converged user B, then:

- 7 INVITE message sent to converged user B.
- 8 Select one idle PCA to call converged user B.
- 9 Calling converged user B.
- 1 Converged user B answers.
- 0
- 1 Call Answered message sent to CDS.
- 1

- 1 Message sent to Call Server to release Virtual Trunk and to connect user
- 2 A and converged user B.
- 13,14 Call is established between user A and converged user B.
- 1 User B is active.
- 5
- 1 Call Log updated; call timer started.
- 6

Figure 5 "Call flow: call terminating to a user with a CDMO Class of Service" (page 22) shows the call flow and messaging that occurs for a call terminating to a user with a CDMO Class of Service.

**Figure 5**  
**Call flow: call terminating to a user with a CDMO Class of Service**



**Legend:**

- 1 User A dials user B; call is forwarded to CDN.
- 2 Incoming call to CDMO user sent to CDS.
- 3 PCA selected; call made to Service DN to select a Virtual Trunk.
- 4 Virtual Trunk reserved.
- 5 INVITE message sent to CDS URL.

- 6 INVITE PC Client
  - No Call Forking
  - Call Log updated
  - Pop-up window generated
- 7 302 Moved Temporarily message sent to CDS.
- 8 Message sent to Call Server to release Virtual Trunk and to connect user A and converged user B.
- 9 Converged user B called.
- 1 Converged user B answers call.
- 0
- 1 Call is established between user A and converged user B.
- 1

When receiving a call, the functionality of the PC Client is different from that when making a call. With CDMO, a call to a converged telephone always rings the converged telephone. It does not invoke PA routing. But with CDMV, a call to a converged telephone on MCS 5100 invokes PA routing to determine if it is to ring the converged telephone or another telephone.

### AML ELAN numbers and VAS numbers

The messaging required for CDS to operate between the CS 1000 Call Server and the Signaling Server is achieved by defining two functions:

- Application Module Link (AML) — AML is the definition of a link to provide connectivity between two applications.
- Value Added Server (VAS) — VAS is the Application Layer link carried through the AML link.

A new range of AML/VAS IDs has been created for CDS. To distinguish this AML link from existing AML ELAN links, the AML ELAN link numbers and VAS numbers are:

- a range of 32–47 (inclusive) on Small Systems and CS 1000S Systems
- a range of 32–127 (inclusive) on Large Systems

with numbers greater than 32 reserved for the "logical" AML ELAN link.

These numbers enable multiple CDS gateways and multiple MCS 5100 systems to be supported on CS 1000 systems in addition to other Meridian Link products (such as Symposium, CallPilot, or IP Call Recording), which also use ELAN link numbers.

The 16 existing AML links are used for physical connections to other applications.

### Click-to-Call

The Click-to-Call feature enables users to originate voice calls from their PC Client when in Converged Mode. This feature is not available to CS 1000 telephones not configured for CDS.

**Note:** Click-to-Call operation for MCS 5100 Clients in Unconverged Mode may differ from that described.

When the call is established, a voice path is set up between the telephone of the originating converged user and the terminating side. The PC Client is not used to establish the voice path.

The user originates a Click-to-Call call by clicking on a number or address from such things as an address book, a call log, a buddies list, an inbox, an outbox, or by entering an address in an address field on the PC Client.

The following steps must be performed when using Click-to-Call:

- The caller makes a call from the PC Client software and the caller's telephone rings.
- The caller must answer their telephone when it rings if the desktop telephone is an analog (500/2500-type) telephone or is part of a Multiple Appearance DN (MADN) group. Answering the telephone then directs the call to the called party. However, the call is automatically answered if the desktop telephone is a digital telephone or an IP Phone and is a Single Appearance DN.

**Note:** If the caller is in an MADN group, and the answered phone is configured with the default on-hook path Handsfree, the answered phone rings the called party using handsfree, even if the call is answered using a headset. This occurs because the answered phone makes the new call to the called party using the default on-hook path.

### Operating parameters and feature interactions

The following items apply to all Converged Desktop users (including both incoming and outgoing Converged Desktop calls):

- When a Converged Desktop user is a member of a Multiple Appearance Directory Number (MADN) group, the user must be Multiple Appearance Redirection Prime (MARP) to receive the Converged Desktop Service. Or, all users in the same MADN group must be configured with the same Class of Service, so that they receive the same Converged Desktop Service.



- The CDS feature applies only to a primary DN key. Calls made or received on any other keys do not receive the Converged Desktop Service.
- If a call is answered by any non-Converged Desktop telephone, then the pop-up window, call log, and presence of the Converged Desktop user are removed after a few seconds. The timeout value for this setting is configurable (default value is 2 seconds).
- A Converged Desktop user does not receive a pop-up window if the caller is an attendant and is using the Attendant Monitor feature. An attendant call terminating to the Converged Desktop does not notify the MCS 5100.
- Group Call does not apply to a Converged Desktop caller. Initiating Group Call from a Converged Desktop user does not notify the MCS 5100.
- MCS 5100 clients can be in Converged Mode or Unconverged Mode. The selected mode determines which functionality is available, as described throughout this document.
- In the Converged Desktop Environment, voice mail is supported only on the CS 1000 telephone, not the MCS 5100 Client.

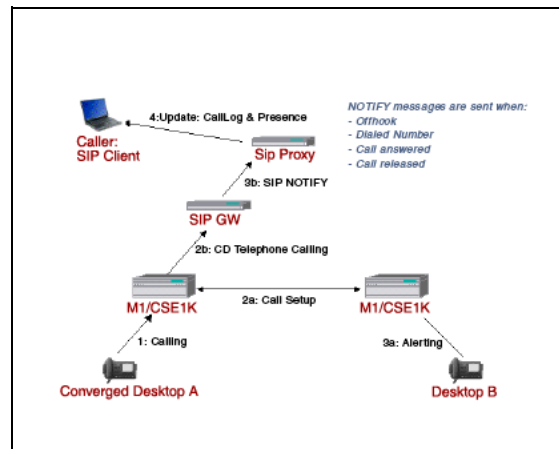
## Call walk-throughs

The figures in this section show messages exchanged between a CS 1000 system and an MCS 5100 system with different configurations. Although two CS 1000 systems appear in the figures, they collapse into one if the call is internal.

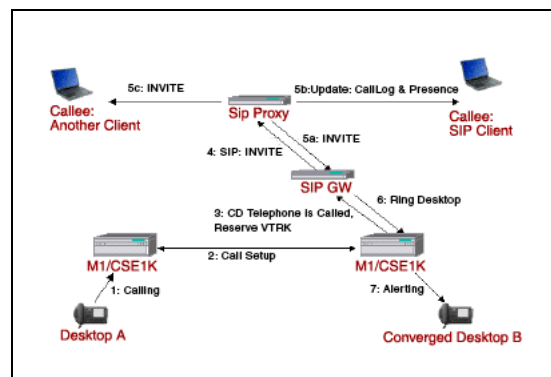
The different configurations are:

- [Figure 6 "Outgoing Converged Desktop call" \(page 26\)](#)
- [Figure 7 "Incoming call to CDMV user with forking" \(page 26\)](#)
- [Figure 8 "Incoming call to CDMV user with NO forking" \(page 26\)](#)
- [Figure 9 "Incoming call to CDMO user" \(page 27\)](#)
- [Figure 10 "Combined incoming and outgoing Converged Desktop call" \(page 27\)](#)

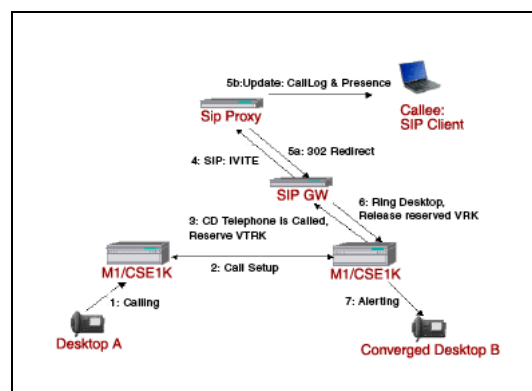
**Figure 6**  
**Outgoing Converged Desktop call**



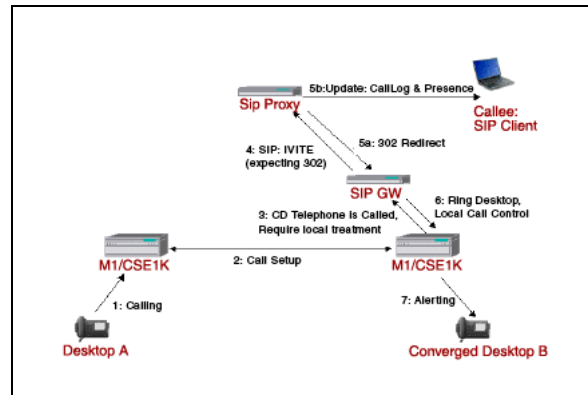
**Figure 7**  
**Incoming call to CDMV user with forking**



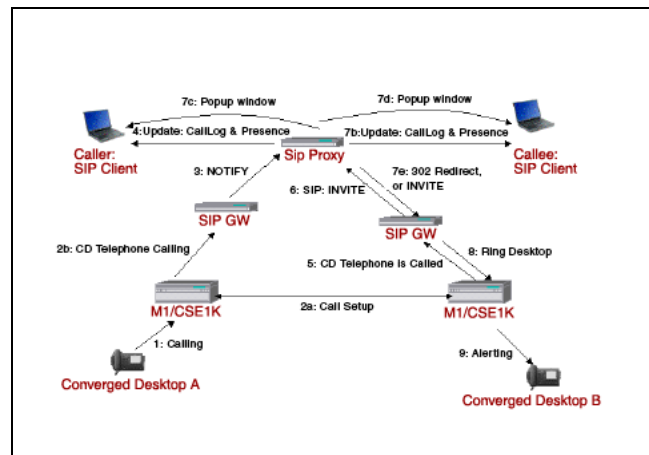
**Figure 8**  
**Incoming call to CDMV user with NO forking**



**Figure 9**  
**Incoming call to CDMO user**



**Figure 10**  
**Combined incoming and outgoing Converged Desktop call**



## Feature requirements

### CS 1000 systems

CS 1000 systems require:

- CS 1000 Release 4.0 or later software
- Nortel Symposium Call Center (NGCC) (also referred to as Next Generation Call Center) package 311 (Level 2 or 3b)
- SIP Gateway and Converged Desktop Package (SIP) package 406 (Level 2)
- ACD and PCA licenses for PCA Agents
- SIP Access Ports for the CDS application; may also need other SIP Access Ports for MCS 5100 users calling in Unconverged Mode, depending on traffic requirements
- Signaling Server with CDS and SIP Trunk applications enabled

### MCS 5100 systems

MCS 5100 systems require MCS 5100 Release 3.5 or later software.

### Product Enhancement Packages and Patches

In addition, you must ensure that all required Product Enhancement Packages (PEP) and patches are installed. For a list of the required PEPs and patches, refer to the Nortel web site at:

[www.nortel.com](http://www.nortel.com)

## Feature implementation

For CDS to operate, you must have the following conditions in place:

- MCS 5100 clients must assume the location identifier (LOC) of a CS 1000 system. This enables one MCS 5100 system to provide CDS to many CS 1000 systems, having the MCS 5100 clients assume the location identifier (LOC) of each CS 1000 system.
- The dialing plan and numbering plan between the CS 1000 systems and the MCS 5100 system must be compatible. See "[Dialing and numbering plan issues for the mixed network](#)" (page 28), and "[Examples of dialing and numbering plan configuration for mixed networks](#)" (page 35).

**Note:** If the original converged phone is call forwarded to another number, the forwarded phone is used as the terminator, however the Converged Multimedia PC Client call window for the original Converged phone continues to appear.

### Implementation summary

In order to use SIP Converged Desktop Services, the SIP Trunk Gateway must first be configured. See *IP Peer Networking Installation and Commissioning* (NN43001-313).

Configuration of the SIP CDS requires configuration on both the CS 1000 system and the MCS 5100 system. For CS 1000 configuration, refer to "[Configuring CS 1000](#)" (page 47). For MCS 5100 configuration, refer to "[Configuring MCS 5100](#)" (page 65).

## Dialing and numbering plan issues for the mixed network

In a mixed CS 1000/MCS 5100 network, special attention must be placed on addressing.

If a call is originated by a CS 1000 user and the call must terminate at an MCS 5100 user, the destination address given to the MCS 5100 system must make sense for the MCS translation engine. The same requirement applies to the call in the opposite direction — a destination address passed to the CS 1000 system by the MCS 5100 must make sense to the CS 1000 translation engine.

### Digit-based addresses and alphanumeric addresses

The CS 1000 translation engine supports only digit-based addresses. An example is 5573.

The MCS 5100 translation engine supports both digit-based and alphanumeric addresses. Examples are 3435573 and *asmith*.

#### ATTENTION

**Rule 1:** All users in a mixed CS 1000/MCS 5100 network must be accessible by all systems through a digit-based address.

On the MCS 5100 system, each username must have an alias that is all digits, or each username must be all digits.

### Dialing plan issues

The term "dialing plan" is used in a very broad sense in this context. It includes all the arrangements that determine an exact digit sequence that the user must dial to access a destination. To access a destination, a user must know an appropriate access code (for the type of destination being called) and the unique address of the destination (within a certain address space).

In most cases, a set of the following access codes may be needed:

- access code for private/UDP numbers (for example, 6)
- access code for public/local numbers (for example, 9 used for the NXX in North America and for local exchange Special Numbers (SPN) outside North America)
- access code for public/national numbers (for example, 61)
- access code for public/international numbers (for example, 6011)

No access code is needed for private/CDP numbers.

Special numbers used to access a service (for example, 911 and 411) are a special case. Depending on which system is providing the special number service (CS 1000, MCS 5100, or PSTN), the special number can be accessed as follows:

- without dialing an access code (for example, with an emergency service the user dials 911)
- with an access code (for example, with the PSTN directory service the user may be required to dial 9411).

**ATTENTION**

**Rule 2:** In a mixed CS 1000/MCS 5100 network, both systems must have the dialing plan set up in the same manner. MCS 5100 clients in Converged Mode must share the UDP LOC of the CS 1000 client with which it is converged.

For example, at a certain location, a user must be able to make a call to a UDP number by dialing the same digit string on a CS 1000 client as on an MCS 5100 client.

Rule 2 is important for a CD user. Although a CD user can enter a destination number on the Multimedia PC Client, the call itself is originated under CS 1000 control.

**DNs as MCS aliases vs. DNs as MCS usernames**

This section describes how to assign a digit-based address (that is, directory number [DN]) to an MCS 5100 user.

The following options are available to associate a DN with an MCS user:

- Provision the user's username in the form of a DN.
- Provision the user's alias in the form of a DN.

You must also do the following as part of the setup:

- Provision the user's CD alias in the form of a DN.
- Provision the user's public and private charge ID in the form of a DN.

The existing MCS practice is to provision a user with an alias in the DN form. This works for non-converged MCS 5100 users but presents problems to CD users when they initiate calls from the converged Multimedia PC Client in the Click-to-Call mode, specifically from the following locations:

- Call Logs – Inbox window
- Friends Online window
- Directory window

In the cases, if the item represents an MCS 5100 user, the call is initiated towards the destination identified by the MCS username. In the case of a CD user, the call is actually handled by the CS 1000 Call Server that can route based on DN addresses only. To ensure that the CS 1000 Call Server receives a DN-based address, the MCS 5100 replaces the username with the user's private charge ID.

**ATTENTION**

**Rule 3:** In a mixed CS 1000/MCS 5100 network with Converged Desktop users, MCS 5100 private charge IDs must be in the form of a UDP number (LOC + DN).

## Directory Number qualification

An additional aspect of using digit-based addressing is the directory number qualification.

Existing telephony systems support multiple address spaces. The address spaces include the following:

- Public address space — which is subdivided into the following categories:
  - Local numbers
  - National numbers
  - International numbers
  - Special numbers
- Private address space — which is subdivided into the following categories:
  - Level 0 regional numbers (in CS 1000, these are known as Coordinated Dialing Plan [CDP] numbers)
  - Level 1 regional numbers (in CS 1000, these are known as Universal Dialing Plan [UDP] numbers)

To be useful, a DN must be scoped within an appropriate address space. One way of achieving this is by qualifying DNs.

Both CS 1000 and MCS 5100 systems have implemented a phone-context parameter of the userinfo-field of the telephony-based SIP URI as a means to fully qualify a DN.

- A SIP URI with the user=phone-context parameter is known as a telephony-based SIP URI. For more information, see [Appendix "Parameter configuration for a SIP URI" \(page 97\)](#).
- A SIP URI without the user=phone-context parameter is known as a non-telephony-based SIP URI or a regular SIP URI.

The format of a telephony-based SIP URI is as follows:

```
sip:[directorynumber];phone-context=[phonecontext]@[domainname];
user=phone
sip:+[directorynumber]@[domainname];user=phone (for international
PSTN numbers)
```

The format of a regular SIP URI is as follows:

```
sip:[username]@[domainname]
```

**ATTENTION**

**Rule 4:** In a mixed CS 1000/MCS 5100 network, all DNs passed between the two systems must be in the form of a telephony-based SIP URI.

If Rule 4 is not followed, a CDP DN may be incorrectly interpreted as a UDP number or a public/local number as a UDP number.

**Non-telephony-based SIP URIs**

In accordance with the preceding Rule 4, non-telephony-based, or regular, SIP URIs must not be passed between systems in a mixed CS 1000/MCS 5100 network.

There is one exception to this rule — regular SIP URIs can be passed between systems in the Refer-to header.

**ATTENTION**

**Rule 5:** In a mixed CS 1000/MCS 5100 network, for routing purposes, regular SIP URIs can be passed between the two systems only within a Refer-to header.

The refer operation is not initiated by CS 1000 SIP Gateways. It is used by the MCS 5100 in the following scenarios:

- Call redirection (for example, a call transfer) initiated by the MCS 5100 — The SIP URI in the Refer-to header is analyzed only by the MCS 5100 system and has no impact on the CS 1000 system.
- Click-to-Call operation of a CD user — The SIP URI in the Refer-to header is analyzed by the CS 1000 system and has to be understood by the system. Therefore, the Username field of the SIP URI must be in the form of a DN.

**ATTENTION**

**Rule 6:** In a mixed CS 1000/MCS 5100 network with Converged Desktop users, the CS 1000 SIP Gateway must support regular SIP URIs within the Refer-to header.

If the Username field of the SIP URI is not in the form of a DN, the CS 1000 SIP Gateway handles the refer operation according to normal SIP processing. In other words, it lets the MCS system route the call to the destination indicated in the Refer-to header.

If the Username field of the SIP URI is in the form of a DN, the CS 1000 SIP Gateway configures NPI = Private and TON = CDP (the default settings; the latter having the same effect as TON = Unknown). The CS 1000 SIP Gateway then passes the processing of the refer operation to the CS 1000 Call Server.



## Converged Desktop implications

The biggest impact of the adopted addressing scheme on the Converged Desktop feature in a mixed CS 1000/MCS 5100 network is on Click-to-Call.

With Click-to-Call, Converged Desktop users initiate a call using their converged Multimedia PC Client user interface, but use their CS 1000 client to conduct the voice conversation when in Converged Mode.

The converged Multimedia PC Client provides several ways for a user to initiate Click-to-Call, including:

- using the Directory window
- using the Friends Online window
- using the Call Logs window (Outbox and Inbox tabs)
- using the Make a Call window (Dialpad, Recent, and Directory tabs)

These four user interfaces retrieve an address. The retrieved address has several origins, including:

- The address is an MCS 5100 username (as defined by an MCS 5100 administrator).
- The address was delivered by an incoming call over a route.
- The address was entered directly by the user (personal directory).
- The address was entered by an MCS 5100 administrator or retrieved from a directory (global directory).

It is very difficult for the CS 1000 system to route calls based on the retrieved address alone. The address must be either:

- explicitly qualified (in terms of phone-context) by the MCS 5100 system, or
- implicitly qualified (using a proper prefix) by the MCS 5100 system

## Problematic Click-to-Call scenarios

### **Scenario 1:**

***Click-to-Call using an incoming call log when the call has come from a route*** In this scenario, the calling party number stored in the call log must be explicitly or implicitly qualified. The MCS 5100 system must store the original phone-context in the call log.

### **Scenario 2:**

***Click-to-Call using a directory entry (Call at...)*** In this scenario, the number stored in the directory entry must include the proper prefix.

The problem arises because directory entries are created by users themselves (PA, Contact Info), MCS 5100 system administrators, or an external Directory Service (such as the Nortel Global Directory). Directory entries may not include the required access codes.

Users must be warned to ensure that all directory entries they intend to use include correct access codes. An MCS 5100 or CD user may edit their personal directory through the PA.

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# Examples of dialing and numbering plan configuration for mixed networks

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## Contents

This section contains information about the following topics:

- "Introduction" (page 35)
- "Mixed network example: UDP" (page 35)
  - "Sample network" (page 36)
  - "CS 1000 setup" (page 37)
  - "MCS 5100 setup" (page 38)
- "Mixed network example: CDP" (page 40)
  - "Sample network" (page 40)
  - "CS 1000 setup" (page 41)
  - "MCS 5100 setup" (page 38)

## Introduction

This section provides examples of a dialing plan setup for a mixed CS 1000/MCS 5100 network. The following examples are provided:

- Uniform Dialing Plan (UDP)
- Coordinated Dialing Plan (CDP)

### ATTENTION

The values given in the following examples are examples only. Actual values may differ between applications.

## Mixed network example: UDP

The following is an example of a dialing plan setup for a mixed CS 1000/MCS 5100 network. UDP numbers are used to dial among sites.

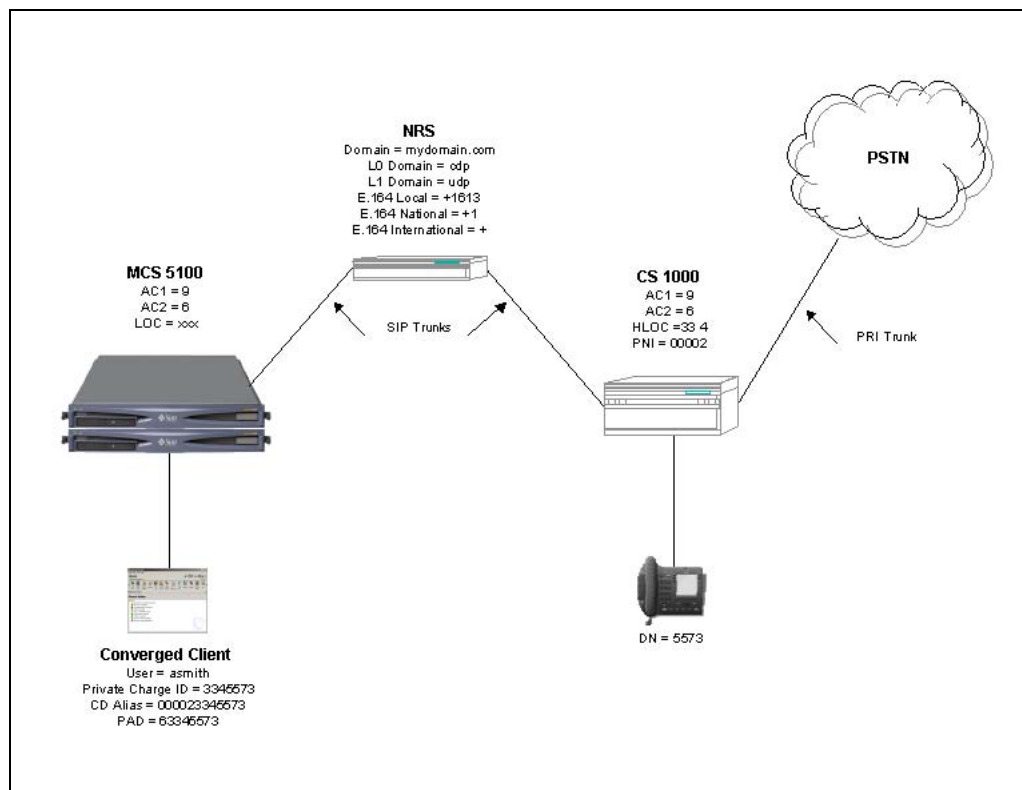
### Sample network

The sample network has the following characteristics:

- The network includes several sites.
- Each site has a mixture of CS 1000 users, MCS 5100 users, and Converged Desktop users.
- Dialing within a site is done using CDP numbers (no access code, 4-digit numbers).
- Dialing among the sites is done by dialing 6 + 7-digit UDP number.
- Local PSTN hop-off is done by dialing 9 + local number.
- AC1 = 9 is used for calls on the public network; AC2 = 6 is used for calls on the private network.
  - National dialing is done by dialing 9 + 1 + national number.
  - International dialing is done by dialing 9 + 011 + international number.

Figure 11 "Network diagram: mixed UDP" (page 36) shows this network.

**Figure 11**  
**Network diagram: mixed UDP**



## CS 1000 setup

The CS 1000 setup includes both a user setup and translation setup.

### User setup

The CS 1000 user setup involves both the general user setup and the Converged Desktop user setup.

**General user setup** The general user setup applies to both stand-alone and Converged Desktop users. The general user setup involves the following:

- Configure the user's extension as a 4-digit number.  
For example: extension = 5573
- Configure the 3-digit HLOC codes for user groups (that is, customers).  
For example: HLOC = 334
- The HLOC and user's extension creates the user's UDP number. The number is unique within an Enterprise: HLOC + Extension.  
For example: UDP Number = 3345573
- Configure the Private Network Identifier (PNI) for user groups (that is, customers).  
For example: PNI = 00002
- PNI, HLOC, and the user's extension create the Global user ID that is globally unique: PNI + HLOC + Extension.  
For example: Global ID: 000023345573

**Converged Desktop user setup** The Converged Desktop user setup involves the following:

- Configure the user's Class of Service (CLS) to include CDMO or CDMV.
- Configure the Converged Desktop Service (CDS) parameters.
- CS 1000 SIP Services use the user's global ID within CD-related signaling (for example: INVITE and NOTIFY).

### Translation setup

The translation setup involves the following:

- Configure CDP routing (Distant Steering Codes [DSC] and Local Steering Codes [LSC]) (based on the 4-digit CDP numbers).
- Configure UDP routing (AC2, HLOCs, and LOCs) (based on the 6 + 7-digit UDP number).
- Configure PSTN routing (AC1, NXX, NPA, SPN, and so on) according to the preceding access codes.
- Configure the CS 1000 SIP Trunk Gateways at each site with appropriate phone-context strings:

- UDP phone-context  
For example: phone-context="udp"
- CDP phone-context  
For example: phone-context="cdp.udp"
- Public/Local phone-context  
For example: phone-context="+1613"
- Public/National phone-context  
For example: phone-context="+1"

### **MCS 5100 setup**

The MCS 5100 setup involves includes both a user setup and translation setup.

#### **User setup**

The MCS 5100 user setup involves both the general user setup, stand-alone user setup, and the Converged Desktop user setup.

**General user setup** The general user setup applies to both stand-alone and Converged Desktop users. The general user setup involves the following:

- Configure the user's username as an alphanumeric address.  
For example: Username = asmith
- Configure the user's private charge ID as the UDP number.  
For example: Private Charge ID = 3345573

**Stand-alone user setup** The stand-alone user setup involves the following:

- Do not include the CDS in the service package.
- Configure the user's alias as the Global ID.  
For example: Alias = 000023345573

**Note:** The alias for a stand-alone user is unique to the Network Routing Service (NRS) of the CS 1000 system. It cannot be a DN within any DN range used in the CS 1000 NRS Level0 or Level1 Domain configuration.

**Converged Desktop user setup** The Converged Desktop user setup involves the following:

- Include the CDS in the service package.
- There is no need to define the user's "regular" alias.
- Configure the user's CD alias as the Global ID:  
For example: CD Alias = 000023345573

- Configure the user's Preferred Audio Device (PAD) as: 6 + UDP number.  
For example: PAD = 63345573
- The number 6 is the access code configured for UDP calls as configured on CS 1000. The configured values must match in both configurations.

### Translation setup

The MCS 5100 translation setup includes pretranslation setup, private telephony routes setup, and gateway telephony routes setup.

**Pretranslation setup** Configure pretranslations to support CS 1000-to-MCS 5100 calls to do the following:

- If the UDP number qualifier is received, insert 6.  
For example, if number qualifier="udp", insert 6.
- If the CDP number qualifier is received, insert 6 + HLOC.  
For example, if number qualifier="cdp.udp", insert 6334.
- If the Public/Local number qualifier is received, insert 9.  
For example, if number qualifier="+1613", insert 9.
- If the Public/National number qualifier is received, insert 91.  
For example, if number qualifier="+1", insert 91.
- If the Public/International number is received, insert 9011.  
For example, DN starts with "+", insert 9011.

**Private telephony routes** Configure private telephony routes to support CS 1000-to-MCS 5100 calls and MCS 5100-to-MCS 5100 calls as follows:

- Local termination using UDP dialing  
(to/from digits 6 + HLOC, length 8, remove 1, prefix PNI)  
For example: to/from digits 6334, length 8, remove 1, prefix 00002
- Local termination for CDP dialing  
(to/from digits LSC, length 4, remove 0, prefix PNI + HLOC)  
For example: to/from digits 5, length 4, remove 0, prefix 00002334

**Gateway telephony routes** Configure gateway telephony routes to support MCS 5100-to-CS 1000 calls as follows:

- Outgoing routes using UDP dialing  
(to/from digits 6 + LOC, length 8, remove 1, use UDP number qualifier)  
For example: to/from digits 6334, length 8, remove 1, number qualifier="udp", Gateway Route Type = private
- Outgoing routes using CDP dialing  
(to/from digits DSC, length 4, remove 0, use CDP number qualifier)  
For example: to/from digits 2 to 7, length 4, remove 0, number qualifier="cdp.udp", Gateway Route Type = private

## Mixed network example: CDP

The following is an example of a dialing plan setup for a mixed CS 1000/MCS 5100 network. CDP numbers are used to dial among sites.

### Sample network

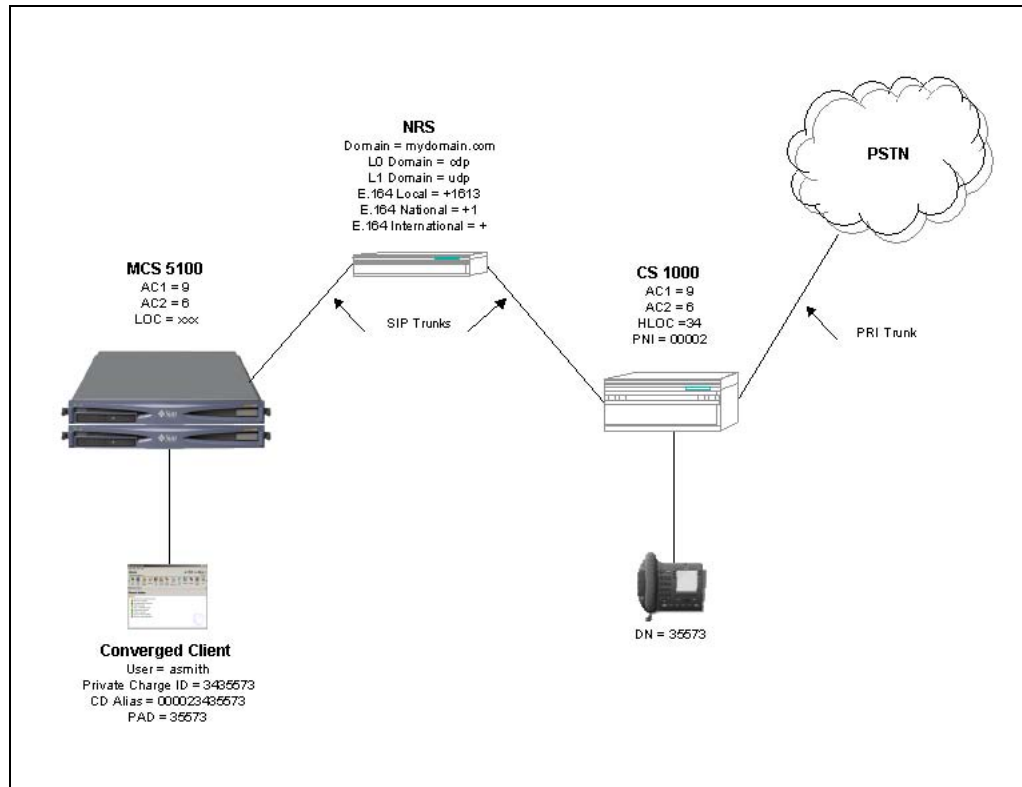
The sample network has the following characteristics:

- The network includes several sites.
- Each site has a mixture of CS 1000 users, MCS 5100 users, and Converged Desktop users.
- Dialing within a site and between sites is done using CDP numbers (no access code, 5-digit numbers).
- Local PSTN hop-off is done by dialing 9 + local number.
- AC1 = 9 is used for calls on the public network; AC2 = 6 is used for calls on the private network.
  - National dialing is done by dialing 9 + 1 + national number.
  - International dialing is done by dialing 9 + 011 + international number.

Figure 12 "Network diagram: mixed CDP" (page 41) shows this network.



**Figure 12**  
**Network diagram: mixed CDP**



### CS 1000 setup

The CS 1000 setup includes both a user setup and translation setup.

#### User setup

The CS 1000 user setup involves both the general user setup and the Converged Desktop user setup.

**General user setup** The general user setup applies to both stand-alone and Converged Desktop users. The general user setup involves the following:

- Configure the user's extension as a 5-digit number.  
For example: extension = 35573
- The user's extension creates the user's CDP number. The number is unique within an Enterprise.  
For example: CDP Number = 35573
- Configure the HLOC codes for user groups (that is, customers).  
For example: HLOC = 34

**Note:** Although the network is CDP-only, some UDP configuration is necessary to support MCS 5100 private charge ID, which is always presented as a UDP number.

- Configure the Private Network Identifier (PNI) for user groups (that is, customers).  
For example: PNI = 00002
- PNI, HLOC, and the user's extension create the Global user ID that is globally unique: PNI + HLOC + Extension.  
For example: Global ID: 000023435573

**Converged Desktop user setup** The Converged Desktop user setup involves the following:

- Configure the user's Class of Service (CLS) to include CDMO or CDMV.
- Configure the Converged Desktop Service (CDS) parameters.
- CS 1000 SIP Services use the user's global ID within CD-related signaling (for example: INVITE and NOTIFY).

### Translation setup

The translation setup involves the following:

- Configure CDP routing (Distant Steering Codes [DSC] and Local Steering Codes [LSC]) based on the 5-digit CDP numbers.
- Configure minimal UDP routing (AC2, HLOCs, and so on) to support incoming calls using UDP numbers.
- Configure PSTN routing (AC1, NXX, NPA, SPN, and so on) according to the preceding access codes.
- Configure the CS 1000 SIP Trunk Gateways at each site with appropriate phone-context strings:
  - CDP phone-context  
For example: phone-context="cdp.udp"
  - UDP phone-context  
For example: phone-context="udp"
  - Public/Local phone-context  
For example: phone-context="+1613"
  - Public/National phone-context  
For example: phone-context="+1"

### MCS 5100 setup

The MCS 5100 setup includes both a user setup and translation setup.

## User setup

The MCS 5100 user setup involves both the general user setup, stand-alone user setup, and the Converged Desktop user setup.

**General user setup** The general user setup applies to both stand-alone and Converged Desktop users. The general user setup involves the following:

- Configure the user's username as an alphanumeric address.  
For example: Username = asmith
- Configure the user's private charge ID as the UDP number.  
For example: Private Charge ID = 3435573

**Stand-alone user setup** The stand-alone user setup involves the following:

- Do not include the CDS in the service package.
- Configure the user's alias as the Global ID.  
For example: Alias = 000023435573

**Converged Desktop user setup** The Converged Desktop user setup involves the following:

- Include the CDS in the service package.
- There is no need to define the user's "regular" alias.
- Configure the user's CD alias as the Global ID: PNI + HLOC + CDP number.  
For example: CD Alias = 000023435573
- Configure the user's Preferred Audio Device (PAD) as: CDP number.  
For example: PAD = 35573

## Translation setup

The MCS 5100 translation setup includes pretranslation setup, private telephony routes setup, and gateway telephony routes setup.

**Pretranslation setup** Configure pretranslations to support CS 1000-to-MCS 5100 calls to do the following:

- If the CDP number qualifier is received, ignore the phone-context.  
For example, if number qualifier="cdp.udp", leave the digits as is.
- If the UDP number qualifier is received, insert 6.  
For example, if number qualifier="udp", insert 6.
- If the Public/Local number qualifier is received, insert 9.  
For example, if number qualifier="+1613", insert 9.
- If the Public/National number qualifier is received, insert 91.

For example, if number qualifier="+1", insert 91.

- If the Public/International number is received, insert 9011.  
For example, DN starts with "+", insert 9011.

**Private telephony routes setup** Configure private telephony routes to support CS 1000-to-MCS 5100 calls and MCS 5100-to-MCS 5100 calls as follows:

- Local termination for CDP dialing  
(to/from digits LSC, length 5, remove 0, prefix PNI + HLOC)  
For example: to/from digits 3, length 5, remove 0, prefix 0000234

**Gateway telephony routes setup** Configure gateway telephony routes to support MCS 5100-to-CS 1000 calls as follows:

- Outgoing routes using CDP dialing  
(to/from digits DSC, length 5, remove 0, use CDP number qualifier)  
For example: to/from digits 2, length 5, remove 0,  
number qualifier="cdp.udp", Gateway Route Type = private

---

# CDS configuration: overview

---

## Contents

This section contains information about the following topics:

["Introduction" \(page 45\)](#)

["Configuration notes" \(page 45\)](#)

["Description of the network configured in this document" \(page 46\)](#)

## Introduction

In order to use SIP Converged Desktop Services, the SIP Trunk Gateway must first be configured. See *IP Peer Networking Installation and Commissioning (NN43001-313)* for detailed instructions.

Configuration of SIP CDS on CS 1000 requires configuration on both the Call Server and the Signaling Server. See ["Configuring CS 1000" \(page 47\)](#) for detailed instructions on configuring these elements.

SIP CDS must also be configured on MCS 5100. Refer to ["Configuring MCS 5100" \(page 65\)](#) for detailed instructions.

## Configuration notes

You must configure UDP/Home Location (HLOC) codes using an Access Code (either AC 1 or AC2) and the ESN Data Block with Local Termination Feature (LTER). You must also configure a Route List Block entry (RLI) to delete the HLOC when the CS 1000 recognizes a user has dialed within its own customer (Home Location) or when a converged MCS 5100 user is dialing within the CS 1000 Home Location. This feature is needed for the MCS 5100 PC Clients in a Click-to-Call call from a Friends list or call log.

## Description of the network configured in this document

The user will encounter one of many CDS configuration situations. This section describes the basic characteristics of the network to which the configuration described in the rest of this document applies. The intent is to provide a configuration example which the user can then adapt to their particular situation.

The network configured in this document has the following characteristics:

- The CS 1000 system is a CS 1000M system.
- The NRS is used to route all Converged Desktop calls.
- The network supports both pure UDP and CDP calls dialing plans, as seen from the users' perspective.
- The dialing range of MCS overlaps that of CS 1000 in a "split-range" manner — half of the overlap is directed to the MCS side and the other half is directed to the CS 1000 side. DSCs are used to direct the calls accordingly.

The following entities are used in this network:

- SIP Domains:
  - Service Domain — mydomain.com
  - Level 1 Domain — udp
  - Level 0 Domain — cdp
- SIP Gateway route — myGWRoute
- SIP Gateway route list — my RouteList
- SIP Trunk group — my TrkGroup
- CDS Class of Service — cdCOS
- MCS Application Server — MyMCSAppSrv

The sample configuration uses the following IP addresses:

- IP Telephony node — 12.123.1.123
- MCS Application server — 12.234.3.234

---

# Configuring CS 1000

---

## Contents

This section contains information about the following topics:

- "Before you begin" (page 47)
- "CS 1000 SIP configuration and UDP location dialing" (page 47)
  - "Configuring the Call Server" (page 47)
  - "Configure the Signaling Server using CS 1000 Element Manager" (page 55)
  - "Verifying configuration" (page 62)
  - "Configuring the Converged Desktop User" (page 64)

## Before you begin

### ATTENTION

Some values in these instructions are taken from the values in ["Description of the network configured in this document" \(page 46\)](#), and from example numbering plans described in ["Examples of dialing and numbering plan configuration for mixed networks" \(page 35\)](#). Note that actual values may differ between applications.

Before you begin configuring CDS on the CS 1000, you must have a SIP Trunk Gateway configured. The SIP Trunk must have Insert ESN Access Code (INAC) configured for incoming LOC calls. Refer to *IP Peer Networking Installation and Commissioning (NN43001-313)* for details.

Ensure that CDS calls are routed over the SIP Trunk Gateway that is associated with the CDS application.

## CS 1000 SIP configuration and UDP location dialing

### Configuring the Call Server

The following is a summary of the tasks in this section:

1. ["LD 15 Configure CLID and HLOC." \(page 48\).](#)
2. ["LD 17 Configure the Application Module Link \(AML\)." \(page 49\).](#)

3. "LD 17 Configure Value Added Server (VAS)." (page 49).
4. "LD 23 Configure Automatic Call Distribution (ACD) Directory Number (DN)." (page 50).
5. "LD 23 Configure Control Directory Number (CDN)." (page 50).
6. "LD 86 Configure ESN Data Block with AC1 and AC2 (if not already defined)." (page 50).
7. "LD 90 Configure Home Location Code (HLOC)." (page 51).
8. "LD 86 Configure Access Code (AC1 or AC2)." (page 52).
9. "LD 86 Configure Digit Manipulation." (page 52).
10. "LD 86 Configure Home Location Code." (page 52).
11. One of the following:
  - "LD 90 Configure Service DN for Converged Desktop." (page 53).
  - "LD 87 Configure Steering Code to be used as the Service DN for making Virtual Trunk call from Agent." (page 54).

In the case where the customer has used all Special Numbers (SPN), a CDP Distance Steering Code (DSC) can be used as a Service DN.

12. "LD 11 Configure Personal Call Assistant (PCA)." (page 54).

#### LD 15 Configure CLID and HLOC.

| Prompt  | Response | Description                                                                            |
|---------|----------|----------------------------------------------------------------------------------------|
| REQ     | CHG      | Change existing data block.                                                            |
| CUST    |          | Customer number                                                                        |
|         | 0-99     | Range for Large Systems and CS 1000E system                                            |
|         | 0-31     | Range for Small Systems, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T |
| TYPE    | NET      | Networking                                                                             |
| AC2     | LOC      | Access Code 2                                                                          |
| ISDN    | YES      | Integrated Services Digital Network allowed.                                           |
| -PNI    | 2        | Private Network Identifier                                                             |
|         |          | PNI cannot be zero (0).                                                                |
| -HLOC   | 334      | Home Location Code (ESN) (1-7 digits)                                                  |
|         |          | This must be the same HLOC as configured under CLID.                                   |
| -CLID   | Yes      | Allow Calling Line Identification option.                                              |
| --ENTRY | 0        | CLID entry to be configured (Table 0 for CLID)                                         |
| ---HLOC | 334      | Home Location Code (ESN)                                                               |



| Prompt | Response | Description                                                                                                                                                                                                            |
|--------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -PFX1  | 613      | Prefix 1                                                                                                                                                                                                               |
| -PFX2  | 962      | Prefix 2                                                                                                                                                                                                               |
| DITI   | Yes      | DID to TIE connections allowed.<br><br>To connect external DID and internal network TIE trunks for the customer (which allows an external trunk to be transferred across an internal network TIE trunk), set DITI=YES. |

**LD 17 Configure the Application Module Link (AML).**

| Prompt | Response   | Description                                                                                                                                                                                                                                                       |
|--------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| REQ    | CHG        | Change existing data.                                                                                                                                                                                                                                             |
| TYPE   | ADAN       | Action Device And Number                                                                                                                                                                                                                                          |
| - ADAN | NEW ELAN x | Action Device And Number<br><br>Where x is the ELAN Link number:<br>x = 32 to 47 (inclusive) for Small Systems<br>x = 32 to 127 (inclusive) for Large Systems<br><br>AML link number within the preceding range implies that the transport is over TCP/RUDP link. |
| CTYP   | ELAN       | AML over Ethernet card type                                                                                                                                                                                                                                       |

**LD 17 Configure Value Added Server (VAS).**

| Prompt | Response | Description                                                                                                                                                                                                                         |
|--------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| REQ    | CHG      | Change existing data.                                                                                                                                                                                                               |
| TYPE   | VAS      | Value Added Server configuration                                                                                                                                                                                                    |
| VAS    | NEW      | New Value Added Server data block                                                                                                                                                                                                   |
| - VSID | 32-500   | VAS Identifier<br><br>= 32 to 47 for Small Systems and CS 1000S<br>= 32 to 127 for Large Systems<br><br>Nortel recommends that the VAS Identifier match the ELAN Link number configured in the last step (LD 17 — Configuring AML). |
| - ELAN | x        | Associate Value Added Server ID (VSID) x with Application Module Link over Ethernet (ELAN) x                                                                                                                                        |

| Prompt | Response | Description                                                                                                         |
|--------|----------|---------------------------------------------------------------------------------------------------------------------|
|        |          | <b>Note:</b> The AML ELAN link number must match the number provisioned in the last step (LD 17 — Configuring AML). |

**LD 23 Configure Automatic Call Distribution (ACD) Directory Number (DN).**

| Prompt | Response | Description                                                                                |
|--------|----------|--------------------------------------------------------------------------------------------|
| REQ    | NEW      | Add new data.                                                                              |
| TYPE   | ACD      | Automatic Call Distribution data block                                                     |
| CUST   | xx       | Customer number as defined in LD 15.<br>(Customer number associated with this data block.) |
| ACDN   | 5300     | ACD Directory Number                                                                       |

**LD 23 Configure Control Directory Number (CDN).**

| Prompt | Response | Description                                                                                                                                                                                                                                                 |
|--------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| REQ    | NEW      | Add new data.                                                                                                                                                                                                                                               |
| TYPE   | CDN      | Control Directory Number data block<br><br>This is a special DN created to specify a destination ACD DN to which incoming calls are directed. Multiple CDNs can direct calls to the same ACD DN providing different treatments based on the CDN parameters. |
| CUST   | xx       | Customer number as defined in LD 15.<br>(Customer number associated with this data block.)                                                                                                                                                                  |
| CDN    | 5200     | Control DN                                                                                                                                                                                                                                                  |
| CDSQ   | YES      | CDN queue is used for Converged Desktop Service.                                                                                                                                                                                                            |
| DFDN   | x...x    | Local Default ACD DN<br><br><b>IMPORTANT:</b> The Local Default ACD DN must match ACDN configured in the previous step (LD 23 – Configuring ACD DN).<br><br>Up to 4 digits; up to 7 digits with Directory Number Expansion (DNXP) package 150.              |
| CNTL   | YES      | Control DN is in control.                                                                                                                                                                                                                                   |
| VSID   | <cr>     | Value Added Service ID                                                                                                                                                                                                                                      |

**LD 86 Configure ESN Data Block with AC1 and AC2 (if not already defined).**

| Prompt | Response   | Description                            |
|--------|------------|----------------------------------------|
| REQ    | NEW<br>CHG | Add new data.<br>Change existing data. |
| CUST   | xx         | Customer number                        |

| Prompt | Response | Description                 |
|--------|----------|-----------------------------|
| FEAT   | ESN      | Electronic Switched Network |
| AC1    | 9        | NARS/BARS Access Code 1     |
| AC2    | 6        | NARS/BARS Access Code 2     |

Configuring HLOC is necessary to properly handle a UDP number sent by the MCS 5100 based on the Private Charge ID of the MCS 5100 user profile. The MCS 5100 always qualifies this number as a UDP number. HLOC will already have been configured if UDP is used. Even if only CDP is used, you must still configure HLOC.

#### LD 90 Configure Home Location Code (HLOC).

| Prompt | Response   | Description                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| REQ    | NEW        | Add new data.                                                                                                                                                                                                                                                                                                                                                                                                     |
| CUST   | xx         | Customer number as defined in LD 15.                                                                                                                                                                                                                                                                                                                                                                              |
| FEAT   | NET        | Network translation tables                                                                                                                                                                                                                                                                                                                                                                                        |
| TRAN   | AC1 or AC2 | Translator                                                                                                                                                                                                                                                                                                                                                                                                        |
| TYPE   | HLOC       | Home Location Code.<br><b>Note:</b> HLOC must match what MCS 5100 is sending.                                                                                                                                                                                                                                                                                                                                     |
| HLOC   | 334        | Home Location code.                                                                                                                                                                                                                                                                                                                                                                                               |
| DMI    | 1-255      | Digit Manipulation Index numbers<br><b>Note:</b> DMI range is dependent on which Package is used.<br>(0) No digit manipulation required<br>(0)-31CDP<br>(0)-255 NARS and BARS<br>(0)-999 NARS and BARS with FNP<br><br>DMI is only prompted when the Directory Number Expansion (DNXP) package 150 is equipped and SDRR = LDID.<br><br>The maximum number of Digit Manipulation tables is defined by prompt MXDM. |

Configuring AC1 or AC2 is necessary to properly handle a UDP number sent by the MCS 5100 based on the Private Charge ID of the MCS 5100 user profile. The MCS 5100 always qualifies this number as a UDP number. AC1 or AC2 will already have been configured if UDP is used. Even if only CDP is used, you must still configure AC1 or AC2.

#### LD 86 Configure Access Code (AC1 or AC2).

| Prompt | Response | Description                                              |
|--------|----------|----------------------------------------------------------|
| REQ    | CHG      | Change existing data block.                              |
| CUST   | xx       | Customer number as defined in LD 15.                     |
| FEAT   | ESN      | Electronic switched network                              |
| ...    |          |                                                          |
| AC1    | xxxx     | 1-4 digit Flexible Numbering Plan Access Code 1.         |
| or     |          | The access code cannot conflict with the numbering plan. |
| AC2    |          |                                                          |

Removal of the HLOC digits is necessary so that local termination is possible. Configuring digit manipulation is necessary to properly handle a UDP number sent by the MCS 5100 based on the Private Charge ID of the MCS 5100 user profile. The MCS 5100 always qualifies this number as a UDP number. Digit manipulation will already have been configured if UDP is used. Even if only CDP is used, you must still configure digit manipulation.

#### LD 86 Configure Digit Manipulation.

| Prompt | Response | Description                                   |
|--------|----------|-----------------------------------------------|
| REQ    | NEW      | Add new data.                                 |
| CUST   | xx       | Customer number as defined in LD 15.          |
| FEAT   | DGT      | Digit manipulation data block                 |
| DMI    | 3        | Digit Manipulation Index numbers              |
| DEL    | 3        | Number of leading digits to be Deleted (HLOC) |

#### LD 86 Configure Home Location Code.

| Prompt | Response | Description           |
|--------|----------|-----------------------|
| REQ    | CHG      | Change existing data. |
| CUST   | xx       | Customer number       |
| FEAT   | NET      | Feature               |

| Prompt | Response | Description              |
|--------|----------|--------------------------|
| HLOC   | 334      | Home Location Code       |
| -DMI   | 3        | Digit Manipulation Index |

**LD 90 Configure Service DN for Converged Desktop.**

| Prompt | Response   | Description                                                                                                                                                                                                                                                                                                       |
|--------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| REQ    | NEW        | Add new data.                                                                                                                                                                                                                                                                                                     |
| CUST   | xx         | Customer number as defined in LD 15.<br>(Customer number associated with this telephone.)                                                                                                                                                                                                                         |
| FEAT   | NET        | Network translation tables                                                                                                                                                                                                                                                                                        |
| TRAN   | AC1 or AC2 | Access code, where:<br>AC1 = NARS/BARS<br>AC2 = NARS                                                                                                                                                                                                                                                              |
| TYPE:  | SPN        | Special Number translation (Special code translation block)<br><br>Configure the CDS Service DN as an SPN, and point it to the SIP trunk. This number is only internal between the Call Server and the Signaling Server for reserving the Virtual Trunk when routing the terminating CD call out to the MCS 5100. |
| SPN    | 5100       | Special Number.<br><br>The same DN must be used in the config.ini file in the Service DN field on the Signaling Server.                                                                                                                                                                                           |
| - FLEN | xx         | Flexible length number of digits<br><br>Flexible length is the exact number of digits the system expects to receive before accessing a trunk and outpulsing those digits.                                                                                                                                         |
| -RLI   | xxx        | Route List Index for Converged Desktop Service Class of Service (CLS)<br><br>The RLI number must point to the SIP Virtual Trunk on the desired Signaling Server. For example, if the CDN and SPN are configured on Signaling Server 1, then this RLI must use the route configured on Signaling Server 1.         |

In the case where the customer has used all Special Numbers (SPN), a CDP Distant Steering Code (DSC) can be used as a Service DN.

**ATTENTION**

Do this only if the Service DN has not already been configured as a Special Number in LD 90 on "[LD 90 Configure Service DN for Converged Desktop](#)." (page 53).

**LD 87 Configure Steering Code to be used as the Service DN for making Virtual Trunk call from Agent.**

| Prompt | Response | Description                                                                                                                                                               |
|--------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| REQ:   | NEW      | Add new data block.                                                                                                                                                       |
| CUST   | xx       | Customer number as defined in LD 15.<br>(Customer number associated with this telephone.)                                                                                 |
| FEAT:  | CDP      | Coordinated Dialing Plan                                                                                                                                                  |
| TYPE   | DSC      | Distant Steering Code                                                                                                                                                     |
| DSC    | x...x    | Service DN                                                                                                                                                                |
| -FLEN  | (0)-24   | Flexible length number of digits<br><br>Flexible length is the exact number of digits the system expects to receive before accessing a trunk and outputting those digits. |
| -DSP   | aaa      | Display, where aaa = LSC, LOC, DN.                                                                                                                                        |
| -RRPA  | (NO) YES | Remote Radio Paging Access                                                                                                                                                |
| -RLI   | xxx      | Route List to be accessed for Distant Steering Code.<br><br>Virtual Route RLI with no DMI changes.                                                                        |
| -CCBA  | (NO) YES | Collect Call Blocking                                                                                                                                                     |
| -NPA   | xxxxxxx  | NPA code, maximum 7 digits                                                                                                                                                |
| -NXX   | xxxxxxx  | NXX code, maximum 7 digits                                                                                                                                                |

**LD 11 Configure Personal Call Assistant (PCA).**

| Prompt | Response | Description                                                                                                               |
|--------|----------|---------------------------------------------------------------------------------------------------------------------------|
| REQ:   | NEW      | Add new data block to the system.                                                                                         |
| TYPE:  | PCA      | Personal Call Assistant                                                                                                   |
| TN     |          | Terminal Number                                                                                                           |
|        | l s c u  | Format for Large System and CS 1000E system,<br>where l = loop, s = shelf, c = card, u = unit                             |
|        | c u      | Format for Small System, CS 1000S system,<br>Media Gateway 1000B, and Media Gateway 1000T,<br>where c = card and u = unit |
| CUST   | xx       | Customer number as defined in LD 15.<br>(Customer number associated with this telephone.)                                 |
| TGAR   | xx       | Trunk Group Access Restriction                                                                                            |

| Prompt | Response             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NCOS   | (0)-99               | Make sure this value is non-blocking.<br>Network Class of Service Group.<br><b>IMPORTANT:</b> Ensure this value is high enough to allow calls on SIP trunks.                                                                                                                                                                                                                                                                                      |
| CLS    | UNR                  | Unrestricted Class of Service.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| KEY    | 0 ACD 5308 cccc zzzz | Telephone function key assignments<br>Automatic Call Distribution (ACD) key<br>Where:<br><ul style="list-style-type: none"> <li>• yyyy = ACD DN configured in LD 23 for Converged Desktop use</li> <li>• cccc = CLID table entry of (0)-N, where N = the value entered at the SIZE prompt in LD 15 minus 1</li> </ul> zzzz = agent's position ID (zzzz can be up to 4 digits; up to 7 digits with Directory Number Expansion [DNXP] package 150). |
|        | 2 MCN 3604           | Multiple Call Non-Ringing key<br>Where yyyy = DN<br>The DN can be up to 4 digits; up to 7 digits with Directory Number Expansion (DNXP) package 150. Once the MCN key has been defined, the MARP prompt appears.<br>Since MCN and DN are used by the feature to originate calls, the same DN can be applied to all PCAs.                                                                                                                          |

### Configure the Signaling Server using CS 1000 Element Manager

To configure SIP Converged Desktop Services using CS 1000 Element Manager, follow the steps in [Procedure 1 "Configuring SIP CDS on the Signaling Server"](#) (page 55).

**Note:** The SIP Trunk Gateway must be configured for SIP CDS. Refer to *IP Peer Networking Installation and Commissioning (NN43001-313)* for detailed instructions.

#### Procedure 1

#### Configuring SIP CDS on the Signaling Server

| Step | Action |
|------|--------|
|------|--------|

- |   |                                                                                                    |
|---|----------------------------------------------------------------------------------------------------|
| 1 | Log in to Element Manager.                                                                         |
| 2 | Select <b>IP Telephony &gt; Nodes: Servers, Media Cards &gt; Configuration</b> from the navigator. |

The **Node Configuration** web page opens, as shown in [Figure 13 "Node configuration web page"](#) (page 56).

**Figure 13**  
**Node configuration web page**

- 3 Click **Edit** next to the node for which SIP CDS is to be configured.

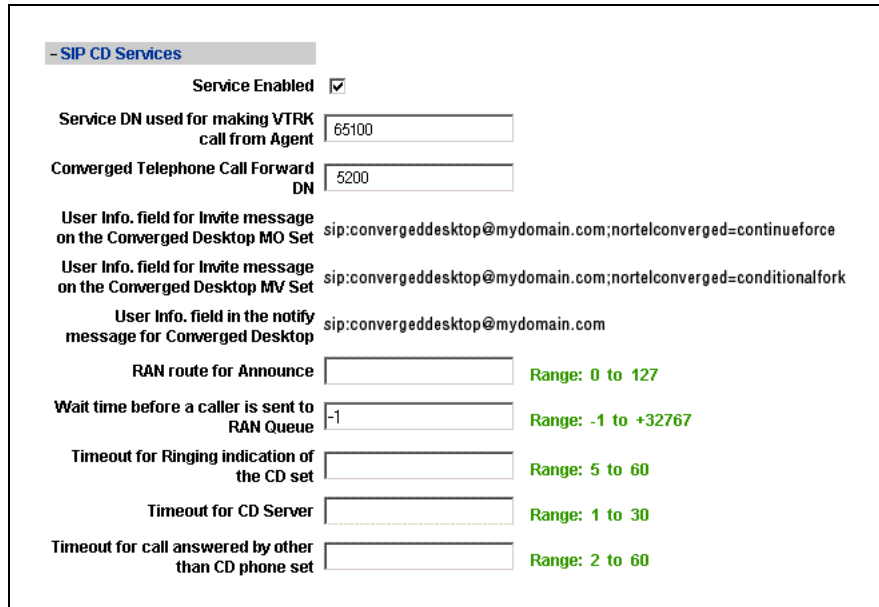
The **Edit** web page opens, as shown in [Figure 14 "Edit web page"](#) (page 56).

**Figure 14**  
**Edit web page**



- 4 Select **SIP CD Services** to expand the section, as shown in [Figure 15 "SIP CD Services"](#) (page 57).

**Figure 15**  
**SIP CD Services**



**- SIP CD Services**

Service Enabled ☒

Service DN used for making VTRK call from Agent

Converged Telephone Call Forward DN

User Info. field for Invite message on the Converged Desktop MO Set

User Info. field for Invite message on the Converged Desktop MV Set

User Info. field in the notify message for Converged Desktop

RAN route for Announce  Range: 0 to 127

Wait time before a caller is sent to RAN Queue  Range: -1 to +32767

Timeout for Ringing indication of the CD set  Range: 5 to 60

Timeout for CD Server  Range: 1 to 30

Timeout for call answered by other than CD phone set  Range: 2 to 60

- 5 Enter the necessary information in the following fields:
- Service Enabled:** Select whether the Converged Desktop Service application is enabled or disabled for this node. CDS is enabled by default (the check box is selected).  
  
**Note:** If CDS is not enabled, no calls are sent to the MCS 5100, including both originating and terminating calls either to or from the Converged Desktop telephone.
  - Service DN used for making VTRK call from Agent:** Enter the Service DN. The Service DN is a number for CS 1000 to call the Signaling Server CDS application over a SIP Virtual Trunk. This number can be composed of:
    - LOC + extension
    - Extension
    - SPN

As described in ["How Converged Desktop Services works"](#) (page 12), upon receipt of an incoming call notification over the AML/VAS links, the CDS application must reserve a Virtual Trunk until the destination of the call is determined. The CDS application instructs the Call Server to make a call to this Service DN. The Call Server's numbering plan directs the call to the

Virtual Trunk route based on translations. The CDS answers and reserves the Virtual Trunk in case it is needed to terminate the incoming call.

The example shown uses an SPN and is defined as follows:

Service DN = AC1 (from LD 86) + SPN (from LD 90)

For example, the value entered for the Service DN is 65100, where 6 is Access Code 1 (AC1) (configured in LD 86 on "[LD 86 Configure Access Code \(AC1 or AC2\)](#)." (page 52)) and 5100 is the Special Number (SPN) (configured in LD 90 on "[LD 90 Configure Service DN for Converged Desktop](#)." (page 53)).

- c. **Converged Telephone Call Forward DN:** This field is required if the SIP Trunk Gateway application is enabled and the Converged Desktop Service will be used. The Converged Telephone Call Forward DN is the CDN defined in LD 23 for the CDS application. This entry designates the CDN that CDS will acquire to obtain messaging for call activity. CS 1000 telephones with CDMO or CDMV Class of Service redirect all calls to the CDN. The acquisition of the CDN identified in this field allows messaging for call activity to be processed to the CDS Application on the Signaling Server.

For example, the value entered is 5100, which is the Control DN (CDN) configured in LD 23 on "[LD 23 Configure Control Directory Number \(CDN\)](#)." (page 50).

- d. **User Info. field for Invite message on the Converged Desktop MO Set:** Verify the field against the following string:

```
sip:convergeddesktop@SIPdomainname;nortelconverged=continueforce
```

Ensure that the *SIPdomainname* is part of the string. The SIP Domain name should have been configured during the SIP Trunk Gateway configuration.

If the string is missing the SIP Domain name (that is, the string is sip:convergeddesktop@;nortelconverged=continueforce), then the SIP Domain name was not configured during the SIP Trunk Gateway configuration. The **SIP Domain name** is found under **Signaling Server > Signaling Server xxx.xxx.xxx.xxx Properties** on the **Edit** web page ([Figure 14 "Edit web page"](#) (page 56)).

This field is used in the INVITE message of Converged Desktop terminating call handling if the telephone is a multimedia-only telephone.

- e. **User Info. field for Invite message on the Converged Desktop MV Set:** Verify the field against the following string:
-

`sip:convergeddesktop@SIPdomainname;nortelconverged=conditionalfork`

Ensure that the *SIPdomainname* is part of the string. The SIP Domain name should have been configured during the SIP Trunk Gateway configuration.

If the string is missing the SIP Domain name (that is, the string is `sip:convergeddesktop@;nortelconverged=conditionalfork`), then the SIP Domain name was not configured during the SIP Trunk Gateway configuration. The **SIP Domain name** is found under **Signaling Server > Signaling Server xxx.xxx.xxx.xxx Properties** on the **Edit** web page ([Figure 14 "Edit web page" \(page 56\)](#)).

This field is used in the INVITE message for Converged Desktop terminating call handling if the telephone is both a multimedia and a voice telephone.

- f. **User Info. field in the notify message for Converged Desktop:** Verify the field against the following string:

`sip:convergeddesktop@SIPdomainname`

Ensure that the *SIPdomainname* is part of the string. The SIP Domain name should have been configured during the SIP Trunk Gateway configuration.

If the string is missing the SIP Domain name (that is, the string is `sip:convergeddesktop@`), then the SIP Domain name was not configured during the SIP Trunk Gateway configuration. The **SIP Domain name** is found under **Signaling Server > Signaling Server xxx.xxx.xxx.xxx Properties** on the **Edit** web page ([Figure 14 "Edit web page" \(page 56\)](#)).

This field is used in the NOTIFY message for Converged Desktop.

- g. **RAN route for Announce:** Enter the Recorded Announcement (RAN) route number for call announce. The route was configured in LD 16. The range is 0 to 127 for Small Systems and CS 1000S systems. The range is 0 to 511 for Large Systems.

The RAN definition in this field can be used in two distinct ways:

- **Call progress** – A customer may want to announce to a caller that their call is proceeding and to please wait. RAN can be used when delays may be longer than expected, as PCA makes calls to other devices. If RAN is not used, callers will hear only ringback tone.
- **PCA busy** – If PCA agents are busy processing a call and the caller must wait for a PCA so CDS can process the call, the

user can be directed to RAN. The RAN typically will say, for example, "Your call is proceeding, please wait..."

- h. **Wait time before a caller is sent to RAN Queue:** Enter the time (in seconds) that the caller waits before the called is directed to the RAN queue. The range is -1 to +32767 seconds, where:

| Value        | Meaning                                            |
|--------------|----------------------------------------------------|
| -1           | Never send to RAN queue. This is the default.      |
| 0            | Immediately send to RAN queue.                     |
| +1 to +32767 | Wait <i>n</i> seconds before sending to RAN queue. |

- i. **Timeout for Ringing indication of the CD set:** Enter the time to wait for ringing indication on the Converged Desktop telephone. If a timeout occurs, the system considers the telephone as busy or call-forwarded to other devices. As a result, the Converged Desktop call is canceled. The timeout range is 5 to 60 seconds (default is 10 seconds).
- j. **Timeout for CD Server:** Enter a timeout value. This value is used when the MCS 5100 is not available or there are network problems. An incoming Converged Desktop call is terminated directly to Converged Desktop telephone without waiting for the MCS 5100. The timeout range is 1 to 30 seconds (default is 5 seconds).

**Note:** Nortel recommends that the timeout value not be configured as a small value. If the time is too short, then a delayed packet can eventually reach the MCS 5100. This can cause a "race condition" between the MCS 5100 routing the call and the CS 1000 routing the call. If the administrator knows of a persistent network problem, or if the MCS 5100 is out-of-service for a period of time, then Nortel recommends that the Converged Desktop Service be disabled instead of having a small timeout value.

- k. **Timeout for call answered by other than CD phone set:** Enter a timeout value. If a call is answered on any telephone (within the CS 1000 network) other than Converged Desktop telephone itself, then the SIP session is torn down automatically after this timeout. The purpose is to remove "lone" screen pop-ups on the Converged Desktop PC Client (PCC). The timeout range is 2 to 60 seconds (default is 2 seconds).

**6** Select **SIP URI Map** to expand the section, as shown in [Figure 16](#) "CS 1000 SIP URI Map" (page 61).

**Note:** The fields require a character string that is less than 128 characters in length. The valid characters include: alphanumeric (a-z, 0-9), period (.), dash (-), underscore (\_), and plus sign (+). These fields must be completed if the SIP Trunk Gateway application is enabled.

**Figure 16**  
**CS 1000 SIP URI Map**

| - SIP URI Map                                       |                 |
|-----------------------------------------------------|-----------------|
| Public E.164/National domain name                   | +1              |
| Public E.164/Subscriber domain name                 | +1613           |
| Public E.164/Unknown domain name                    | publicUnknown   |
| Public E.164/Special Number domain name             | publicSpecial   |
| Private/UDP domain name                             | udp             |
| Private/CDP domain name                             | cdp.udp         |
| Private/Special Number domain name                  | special.udp     |
| Private/Unknown (vacant number routing) domain name | privateUnknown  |
| Unknown/Unknown domain name                         | unknown.unknown |

- 7 Fill in the fields as follows:
- Type **+1** in the **Public E.164/National domain name** text box.
  - Type **+1613** in the **Public E.164/Subscriber domain name** text box.
  - Type **publicUnknown** in the **Public E.164/Unknown domain name** text box.
  - Type **publicSpecial** in the **Public E.164/Special Number domain name** text box.
  - Type **udp** in the **Private/UDP domain name** text box.
  - Type **cdp.udp** in the **Private/CDP domain name** text box.
  - Type **special.udp** in the **Private/Special Number domain name** text box.
  - Type **privateUnknown** in the **Private/Unknown (vacant number routing) domain name** text box.
  - Type **unknown.unknown** in the **Unknown/Unknown domain name** text box.

**Note:** The values entered in these fields must agree with values entered in MCS 5100. See ["Configure number qualifiers"](#) (page 70).

8 Click **Save and Transfer**.

---

—End—

---

### Verifying configuration

After configuring the Virtual IP D-channel, SIP Route, Converged Desktop AML, and the other elements, log in to the Leader Signaling Server of the node. At the Command Line Interface (CLI), use the commands `cdsShow` and `cdsAgentShow` to verify the configuration. Output of the commands will be similar to that shown in [Figure 17 "Verifying configuration: cdsShow" \(page 63\)](#) and [Figure 18 "Verifying configuration: cdsAgentShow" \(page 63\)](#).

The two diagrams show that the AML link is Up and your PCA agents have been acquired by the ACD queue you configured for CD2.

**Note:** In [Figure 17 "Verifying configuration: cdsShow" \(page 63\)](#) and [Figure 18 "Verifying configuration: cdsAgentShow" \(page 63\)](#), CDN is the Converged Telephone Call Forward DN.

**Figure 17**  
**Verifying configuration: cdsShow**

```
oam> cdsShow
CDS Application Current State: AppReady

hAppBlk      TaskName      Tid      LinkState      NumRetry      LinkNum      Trace
0x2bcf3d0    CDS          0xf800    Up             0             32           0

AML Link Timer Next Timeout: 0 sec
Call Audit Timer Next Timeout: 7151 sec

CDS Service Enabled : Yes
Service DN          : 5100
CDN                 : 5200
MO Service URI      :
sip:convergeddesktop@mydomain.com;nortelconverged=continueforce
MV Service URI      :
sip:convergeddesktop@mydomain.com;nortelconverged=conditionalfork
Notify URI          : sip:convergeddesktop@mydomain.com
PNI + HLOC          : 00002 334
AnnounceRAN         :
AnnounceRANSeconds  : -1
CD Server Timeout   : 5
CD Ringing Timeout  : 10
Non-PAD Ans Timeout : 2

CDS Call Trace: Off
Calling Number: (null)
Called Number : (null)
```

**Figure 18**  
**Verifying configuration: cdsAgentShow**

```
oam> cdsAgentShow

The active CDN: 5200
The default ACD DN: 5300
Round Robin index: 1
-----
No  TN      PosID      ACD_DN      DN      dnStatus      loginStatus      acdStatus
1  0x703c  510300      5300        3604      Idle          Ready           Idle
2  0x703d  510300      5300        3604      Idle          Ready           Idle
3  0x703e  510300      5300        3604      Idle          Ready           Idle
4  0x703f  510300      5300        3604      Idle          Ready           Idle
5  0x707c  510300      5300        3604      Idle          Ready           Idle
-----
Number of CDS Agents: 5, 5
```

**Note:** If your Agents do not show Up, you may not have Nortel Symposium Call Center (NGCC) package 311 equipped. You need CS 1000 PEP MPLR19786 if the package is not equipped and you are using CS 1000 Release 4.0 software. This PEP is not required on CS 1000 Release 4.5 or later software.

## Configuring the Converged Desktop User

The Converged Desktop user is configured in LD 10 for analog (500/2500-type) telephones or LD 11 for digital telephones.

### LD 10/11 Configure Converged Desktop User.

| Prompt | Response   | Description                                                                                                                                                                                                                                     |
|--------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| REQ:   | NEW        | Add new data.                                                                                                                                                                                                                                   |
|        | CHG        | Change existing data.                                                                                                                                                                                                                           |
| TYPE:  | a..a       | Type of data block                                                                                                                                                                                                                              |
| TN     |            | Terminal Number                                                                                                                                                                                                                                 |
|        | l s c u    | Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit                                                                                                                                                      |
|        | c u        | Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit                                                                                                                             |
| CUST   | xx         | Customer number as defined in LD 15.                                                                                                                                                                                                            |
| CLS    |            | Converged Desktop Service Class of Service (CLS)                                                                                                                                                                                                |
|        | (CDMR)     | Converged Desktop Multimedia Restricted (default)                                                                                                                                                                                               |
|        | CDMV       | Converged Desktop Multimedia and Voice                                                                                                                                                                                                          |
|        | CDMO       | Converged Desktop Multimedia Only                                                                                                                                                                                                               |
|        |            | <b>Note:</b> Nortel recommends CDMV to give users all features.                                                                                                                                                                                 |
| CSDN   | 5200       | Converged Service Directory Number                                                                                                                                                                                                              |
|        |            | Converged Desktop Service Control Directory Number (CDN) configured in LD 23.                                                                                                                                                                   |
|        |            | CSDN is only prompted if CLS is defined as CDMV or CDMO.                                                                                                                                                                                        |
| KEY    |            | Telephone function key assignments                                                                                                                                                                                                              |
|        | 0 SCR yyyy | Single Call Ringing key                                                                                                                                                                                                                         |
|        |            | Where yyyy = DN                                                                                                                                                                                                                                 |
|        |            | The DN can be up to 4 digits; up to 7 digits with Directory Number Expansion (DNXP) package 150. Use a single appearance DN to terminate Voice Call (VCC) or Signaling (SIG) calls. Once the SCR key has been defined, the MARP prompt appears. |



---

# Configuring MCS 5100

---

## Contents

This section contains information about the following topics:

- "Before you begin" (page 65)
- "Implementation summary" (page 66)
- "Implementation details" (page 66)
  - "Add IP address of IP Telephony node as an Authenticated Server" (page 66)
  - "Configure the SIP Gateway, trunk, and trunk group" (page 67)
  - "Configure number qualifiers" (page 70)
  - "Configure a route list" (page 73)
  - "Configure routes for each dialing plan entry" (page 75)
- "Configuring a Converged Desktop user" (page 79)
  - "Configure a Service Package" (page 79)
  - "Configuring the Converged User on the MCS 5100" (page 80)

## Before you begin

### ATTENTION

Some values in these instructions are taken from the example numbering plans described in "Description of the network configured in this document" (page 46) and "Examples of dialing and numbering plan configuration for mixed networks" (page 35). Note that actual values may differ between applications.

Before you begin configuring CDS on the MCS 5100, you must have a Service Domain configured in MCS with the same name as in CS 1000. For this example, the domain name is mydomain.com.

## Implementation summary

The following is a summary of the tasks in this section:

- "Add IP address of IP Telephony node as an Authenticated Server" (page 66).
- "Configure the SIP Gateway, trunk, and trunk group" (page 67).
- "Configure number qualifiers" (page 70).
- "Configure a route list" (page 73).
- "Configure routes for each dialing plan entry" (page 75).

## Implementation details

### Add IP address of IP Telephony node as an Authenticated Server

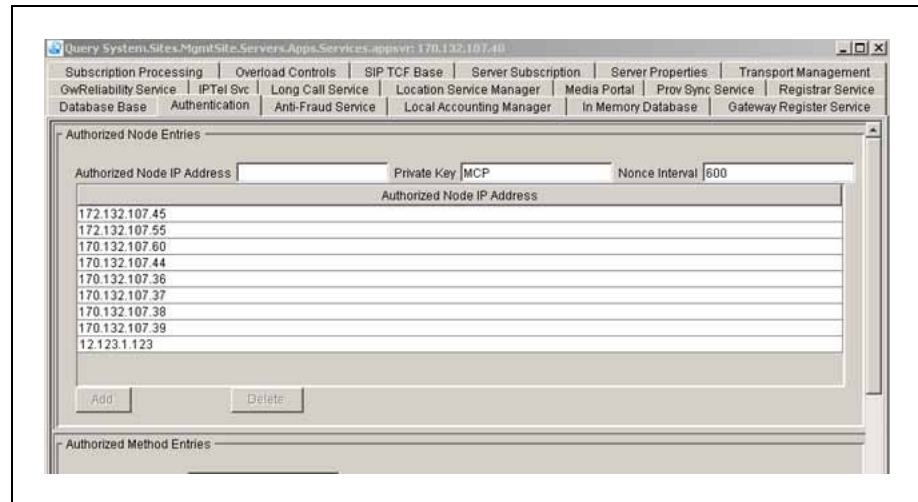
Use [Procedure 2 "Adding the IP Address of the IP Telephony node as an Authenticated Server" \(page 66\)](#) to add the IP address of the IP Telephony node to the Application Server as an Authenticated Server.

#### Procedure 2

#### Adding the IP Address of the IP Telephony node as an Authenticated Server

| Step | Action                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Access the <b>MCS 5100 Management Console</b> on the MCS Client: <ol style="list-style-type: none"> <li>Choose <b>MCP</b> from the <b>Start</b> menu.</li> <li>Click <b>Start console</b>.</li> <li>Log in using your username and password.</li> <li>Select <b>Sites</b>.</li> <li>Select <b>Servers</b>.</li> <li>Select <b>Application Server</b>.</li> <li>Select <b>Components</b>.</li> <li>Select the application server.</li> </ol> |
| 2    | Right-click on <b>Authentication</b> (or <b>Authent...</b> ).                                                                                                                                                                                                                                                                                                                                                                               |
| 3    | Select <b>Modify</b> .                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 4    | Enter <b>12.123.1.123</b> , the IP address of the IP Telephony node, in the <b>Authorized Node IP Address</b> field.                                                                                                                                                                                                                                                                                                                        |
| 5    | Click <b>Add</b> .                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6    | Click <b>Apply</b> .                                                                                                                                                                                                                                                                                                                                                                                                                        |

- 7 Verify the address appears in the list under the **Authentication** tab, as shown in [Figure 19 "IP address of IP Telephony node added as an Authenticated Server"](#) (page 67):
  - a. Right-click on the application server.
  - b. Select **Query**.

**Figure 19****IP address of IP Telephony node added as an Authenticated Server**

—End—

## Configure the SIP Gateway, trunk, and trunk group

Use [Procedure 3 "Configuring the SIP Gateway, trunk, and trunk group"](#) (page 67) to configure the CS 1000 Node IP address as a SIP Gateway, and configure the corresponding trunk and trunk group.

### Procedure 3

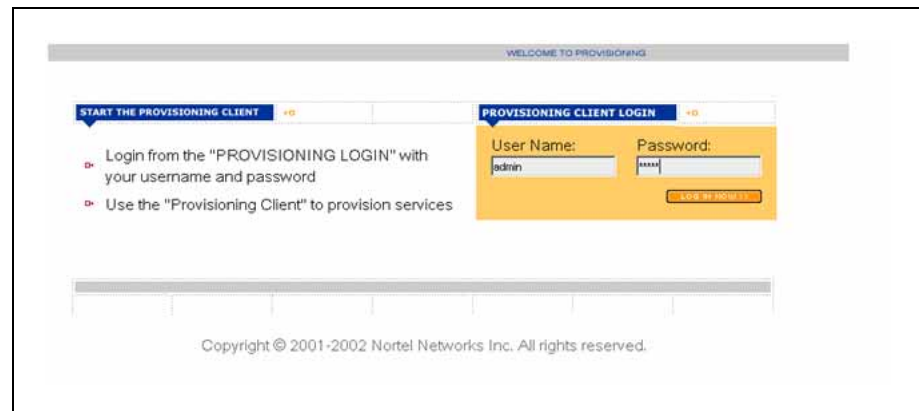
#### Configuring the SIP Gateway, trunk, and trunk group

| Step | Action                                                                |
|------|-----------------------------------------------------------------------|
| 1    | Enter the IP address of the MCS Provisioning Client in a web browser. |

- 1 Enter the IP address of the MCS Provisioning Client in a web browser.

The **Provisioning Client Login** web page opens, as shown in [Figure 20 "Provisioning Client Login"](#) (page 68).

**Figure 20**  
**Provisioning Client Login**



- 2 Enter your **Username** and **Password**.

The **Provisioning Client** web page opens, as shown in [Figure 21 "Provisioning Client"](#) (page 68). The Provisioning Client navigator is in the section on the left of the web page.

**Figure 21**  
**Provisioning Client**



- 3 Add a new gateway, as follows:

- a. Select **Provisioning > Gateways > Add Gateway** in the Provisioning Client navigator.

The **Add a new gateway** web page opens, as shown in [Figure 22 "Provisioning Client: Add a new gateway"](#) (page 69).

**Figure 22**  
**Provisioning Client: Add a new gateway**

**Add a new gateway**

Gateway host:

Gateway type:

Location:

Trusted Node: ☒ TRUE ☐ FALSE

Is Gateway: ☒ TRUE ☐ FALSE

- b. Enter **mydomain.com:maddr=12.123.1.123** in the **Gateway host** text box.
- c. Select **CS 1000** in the **Gateway type** drop-down list.
- d. Select **Other** from the **Location** drop-down list.
- e. Select **TRUE** for **Trusted Node**.
- f. Select **TRUE** for **Is Gateway**.
- g. Click **Submit**.

**4** Add a new route, as follows:

- a. Select **Provisioning > Gateways > Add Route** in the Provisioning Client navigator.

The **Create new gateway route** web page opens, as shown in [Figure 23 "Provisioning Client: Create new gateway route" \(page 69\)](#).

**Figure 23**  
**Provisioning Client: Create new gateway route**

**Create new gateway route**

Route Name:  \*

Domain:

- b. Enter **myGWRoute** in the **Route Name** text box.
- c. Select **mydomain.com** in the **Domain** drop-down list.
- d. Click **Save**.

- 5 Add a trunk group directed to the gateway and route just created, as follows:

- a. Select **Provisioning > Gateways > Add TrunkGroup** in the Provisioning Client navigator.

The **Trunkgroup Provisioning** web page opens, as shown in [Figure 24 "Provisioning Client: Trunkgroup Provisioning"](#) (page 70).

**Figure 24**  
**Provisioning Client: Trunkgroup Provisioning**

**Trunkgroup Provisioning**

Gateway:

Route:

Trunk Group:  ⓘ

- b. Select **mydomain.com:maddr=12.123.1.123** from the **Gateway** drop-down list.
- c. Select **myGWRoute** from the **Route** drop-down list.
- d. Enter **myTrkGroup** in the **Trunk Group** edit box.
- e. Click **Save**.

---

—End—

---

### Configure number qualifiers

Use [Procedure 4 "Configuring number qualifiers"](#) (page 72) to configure number qualifiers in MCS 5100 so they match the values configured in the CS 1000 NRS SIP URI phone-context Level 1 and Level 0 Domains, and the CS 1000 SIP URI Map.

The following three sets of provisioned information must match:

- CS 1000 SIP URI Map (see [Figure 25 "CS 1000 SIP URI Map"](#) (page 71)), as configured in [Procedure 1 "Configuring SIP CDS on the Signaling Server"](#) (page 55).
- CS 1000 NRS SIP URI phone-context in the Endpoint Routes (see [Figure 26 "CS 1000 NRS Endpoint Routing Entries"](#) (page 71))
- MCS 5100 Telephony Routes Number Qualifiers (see [Figure 27 "MCS 5100 Number Qualifiers"](#) (page 72))

where:

- cdp.udp is the CDP/Level 0 Domain, with NPI = private and TON = Level0
- udp is the UDP Level 1 Domain, with NPI = private and TON = Level1

**Figure 25**  
**CS 1000 SIP URI Map**

| - SIP URI Map                                       |                 |
|-----------------------------------------------------|-----------------|
| Public E.164/National domain name                   | +1              |
| Public E.164/Subscriber domain name                 | +1613           |
| Public E.164/Unknown domain name                    | publicUnknown   |
| Public E.164/Special Number domain name             | publicSpecial   |
| Private/UDP domain name                             | udp             |
| Private/CDP domain name                             | cdp.udp         |
| Private/Special Number domain name                  | special.udp     |
| Private/Unknown (vacant number routing) domain name | privateUnknown  |
| Unknown/Unknown domain name                         | unknown.unknown |

**Figure 26**  
**CS 1000 NRS Endpoint Routing Entries**

| # | DN Prefix | DN Type             | Route Cost | SIP URI Phone Context |
|---|-----------|---------------------|------------|-----------------------|
| 1 | 011       | E.164 international | 1          | +                     |
| 2 | 1         | E.164 national      | 1          | +1                    |
| 3 | 334       | Level1 regional     | 1          | udp                   |
| 4 | 4-7       | Level0 regional     | 1          | cdp.udp               |
| 5 | 411       | Special             | 1          | special.udp           |
| 6 | 962       | E.164 local         | 1          | +1613                 |
| 7 | 966       | E.164 local         | 1          | +1613                 |
| 8 | 967       | E.164 local         | 1          | +1613                 |

**Figure 27**  
**MCS 5100 Number Qualifiers**

| Current Number Qualifiers |                                   |        |
|---------------------------|-----------------------------------|--------|
| Name                      | Description                       | Delete |
| udp                       | My UDP phone context              | Delete |
| cdp.udp                   | My CDP phone context              | Delete |
| special.udp               | My Special Numbers phone context  | Delete |
| +1                        | My National Numbers phone context | Delete |
| +1613                     | My Local Numbers phone context    | Delete |
| local                     | NPI=public, TON=Subscriber        | Delete |
| national                  | NPI=public, TON=National          | Delete |
| international             | NPI=public, TON=International     | Delete |
| publicUnknown             | NPI=public, TON=Unknown           | Delete |
| cdpDomain                 | NPI=private, TON=Level 0          | Delete |
| subscriber                | NPI=private, TON=Subscriber       | Delete |
| privateUnknown            | NPI=private, TON=Unknown          | Delete |
| unknown                   | NPI=Unknown, TON=Unknown          | Delete |

**Procedure 4**  
**Configuring number qualifiers**

| Step | Action |
|------|--------|
|------|--------|

- 1 Enter the IP address of the MCS Provisioning Client in a web browser.  
 The **Provisioning Client Login** web page opens, as shown in [Figure 20 "Provisioning Client Login" \(page 68\)](#).
- 2 Enter your **Username** and **Password**.  
 The **Provisioning Client** web page opens, as shown in [Figure 21 "Provisioning Client" \(page 68\)](#).
- 3 Add a new gateway, as follows:
  - a. Select **Provisioning > Domains > mydomain.com > Telephony Routes > Number Qualifiers** in the Provisioning Client navigator.  
 The **Number Qualifiers** web page opens, as shown in [Figure 28 "Provisioning Client: Number Qualifiers" \(page 73\)](#). The Current Number Qualifiers section shows the number qualifiers configured so far. Those listed in [Figure 28 "Provisioning Client: Number Qualifiers" \(page 73\)](#) are configured by default. You can use or **Delete** any of all of them as you prefer.



- 4 Add a number qualifier for each entry in the SIP URI map (shown in [Figure 25 "CS 1000 SIP URI Map" \(page 71\)](#)), as follows:
  - a. Enter the name in the **Name** text box, for example **cdp.udp**.
  - b. Enter a description in the **Description** text box, for example **My CDP phone context**.
  - c. Click **Add**.

**Figure 28**  
**Provisioning Client: Number Qualifiers**

### Number Qualifiers

**Add a new Number Qualifier**

Name  \* ?

Description  \* ?

**Current Number Qualifiers**

| Name           | Description                   | Delete                 |
|----------------|-------------------------------|------------------------|
| local          | NPI=public, TON=Subscriber    | <a href="#">Delete</a> |
| national       | NPI=public, TON=National      | <a href="#">Delete</a> |
| international  | NPI=public, TON=International | <a href="#">Delete</a> |
| publicUnknown  | NPI=public, TON=Unknown       | <a href="#">Delete</a> |
| cdpDomain      | NPI=private, TON=Level 0      | <a href="#">Delete</a> |
| udp            | NPI=private, TON=Level 1      | <a href="#">Delete</a> |
| subscriber     | NPI=private, TON=Subscriber   | <a href="#">Delete</a> |
| privateUnknown | NPI=private, TON=Unknown      | <a href="#">Delete</a> |
| unknown        | NPI=Unknown, TON=Unknown      | <a href="#">Delete</a> |

—End—

## Configure a route list

Use [Procedure 5 "Configuring a route list" \(page 73\)](#) to add a route list.

### Procedure 5

#### Configuring a route list

| Step | Action |
|------|--------|
|------|--------|

- |   |                                                                       |
|---|-----------------------------------------------------------------------|
| 1 | Enter the IP address of the MCS Provisioning Client in a web browser. |
|---|-----------------------------------------------------------------------|

The **Provisioning Client Login** web page opens, as shown in [Figure 20 "Provisioning Client Login" \(page 68\)](#).

- 2 Enter your **Username** and **Password**.

The **Provisioning Client** web page opens, as shown in [Figure 21 "Provisioning Client"](#) (page 68).

- 3 Configure the Class of Service, as follows:

- a. Select **Provisioning > Domains > mydomain.com > Telephony Routes > Routing COS** in the Provisioning Client navigator.

The **Class of Service Information** web page opens, as shown in [Figure 29 "Provisioning Client: Class of Service Information"](#) (page 74).

**Figure 29**  
**Provisioning Client: Class of Service Information**

- b. Enter a name for the Class of Service, such as **cdCOS**, in the **Name** text box.
  - c. Enter a description for the Class of Service, such as **CD COS**, in the **Description** text box.
  - d. Click **Save**.
- 4 Add a new route list, as follows:
    - a. Select **Provisioning > Domains > mydomain.com > Telephony Routes > Add RouteList** in the Provisioning Client navigator.

The **Create a New Route List** web page opens, as shown in Figure 30 "Provisioning Client: Create a New Route List" (page 75).

**Figure 30**  
**Provisioning Client: Create a New Route List**

- b. Enter a list name, such as **myRouteList**, in the **Name** text box.
- c. Enter a list description, such as **myRouteList**, in the **Description** text box.
- d. Select **ALLOW** from the **Incoming Other Domain Tree Call Routing** drop-down list.
- e. Select **ALLOW** from the **Incoming Same Domain Tree Call Routing** drop-down list.
- f. Select **cdCOS** from the **Class of Service** drop-down list.

- 5 Click **Save**.

---

—End—

---

### Configure routes for each dialing plan entry

For each dialing plan entry, you must configure the following routes:

- private CDP route
- private UDP route
- Gateway CDP route
- Gateway UDP route
- private PSTN route

- route for local Dial-9 National (NPA) dialing using the Gateway CS 1000 PSTN
- route for national Dial-9 National (NPA) dialing using the Gateway CS 1000 PSTN

Use [Procedure 6 "Configuring routes for each dialing plan entry"](#) (page 76) to configure these routes.

#### **Procedure 6**

##### **Configuring routes for each dialing plan entry**

---

| <b>Step</b> | <b>Action</b> |
|-------------|---------------|
|-------------|---------------|

---

- |          |                                                                                                                                                                                                                                                                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b> | Enter the IP address of the MCS Provisioning Client in a web browser.<br><br>The <b>Provisioning Client Login</b> web page opens, as shown in <a href="#">Figure 20 "Provisioning Client Login"</a> (page 68).                                                                                                                                           |
| <b>2</b> | Enter your <b>Username</b> and <b>Password</b> .<br><br>The <b>Provisioning Client</b> web page opens, as shown in <a href="#">Figure 21 "Provisioning Client"</a> (page 68).                                                                                                                                                                            |
| <b>3</b> | Add the new routes, as follows:<br><br>a. Select <b>Provisioning &gt; Domains &gt; mydomain.com &gt; Telephony Routes &gt; Add Telephony Route</b> in the Provisioning Client navigator.<br><br>The <b>Create New Telephony Route</b> web page opens, as shown in <a href="#">Figure 31 "Provisioning Client: Create New Telephony Route"</a> (page 77). |

**Figure 31**  
**Provisioning Client: Create New Telephony Route**

**Create New Telephony Route**

Name:  ?

Description:  ?

From Digits:  ?

To Digits:  ?

Min Number of Digits:  ?

Max Number of Digits:  ?

Route Type: Private ?

Remove: Private ?

Prefix: SIP ?

Recursive: No ?

Route List: myRouteList

b. Configure each new route, as follows:

1. Enter the values for the appropriate fields, as listed in [Table 2 "Values for configuring Routes"](#) (page 77).

Do not use blank spaces in text fields.

**Note:** In the Name field, only the following characters are valid: A-Z, a-z, 0-9, comma (,), period (.), hyphen (-), and underscore (\_). Any other character in the route Name causes an error message.

2. Click **Save**.

**Table 2**  
**Values for configuring Routes**

| Entry Field | Route Type                |                           |                            |                      |                      |                            |                                    |
|-------------|---------------------------|---------------------------|----------------------------|----------------------|----------------------|----------------------------|------------------------------------|
|             | Private CDP               | Private UDP               | Private PSTN               | Gateway CDP          | Gateway UDP          | Public Local               | Public National                    |
| Name        | myCDP<br>Route<br>Private | myUDP<br>Route<br>Private | myPSTN<br>Route<br>Private | myCDP<br>RouteG<br>W | myUDP<br>RouteG<br>W | myLocal<br>Route<br>Public | my Nat<br>ional<br>Route<br>Public |

| Entry Field          | Route Type          |                     |                      |                |               |                      |                          |
|----------------------|---------------------|---------------------|----------------------|----------------|---------------|----------------------|--------------------------|
|                      | Private CDP         | Private UDP         | Private PSTN         | Gateway CDP    | Gateway UDP   | Public Local         | Public National          |
| Description          | myCDP Route Private | myUDP Route Private | myPSTN Route Private | myCDP Route GW | myUDP RouteGW | myLocal Route Public | my National Route Public |
| From Digits          | 7100                | 6334                | 9                    | 7100           | 6334          | 9                    | 9961                     |
| To Digits            | 7199                | 6334                | 9                    | 7199           | 6334          | 9                    | 9969                     |
| Min Number of Digits | 4                   | 8                   | 8                    | 4              | 8             | 11                   | 8                        |
| Max Number of Digits | 4                   | 8                   | 22                   | 4              | 8             | 22                   | 8                        |
| Route Type           | Private             | Private             | Private              | Gateway        | Gateway       | Gateway              | Gateway                  |
| Remove               | 0                   | 1                   | 1                    | 0              | 1             | 1                    | 1                        |
| Prefix               | 00002334            | 00002               | Not applicable       |                |               |                      |                          |
| Recursive            | No                  | No                  | Not applicable       |                |               |                      |                          |
| Gateway Route        | Not applicable      |                     |                      | myGWRoute      |               |                      |                          |
| Gateway Route Type   | Not applicable      |                     |                      | Private        | Private       | Public               | Public                   |
| Number Qualifier     | Not applicable      |                     |                      | cdp.udp        | udp           | +1                   | +1613                    |
| Route List           | myRouteList         |                     |                      |                |               |                      |                          |

#### 4 Configure the Pretranslation table:

- a. Select **Provisioning > Domains > mydomain.com > Telephony Routes > Pretranslation Table** in the Provisioning Client navigator.

The **Pre translations** web page opens, as shown in [Figure 32 "Provisioning Client: Pre translations" \(page 79\)](#). The **Current Pretranslations** section shows any pretranslations currently configured.

**Figure 32**  
**Provisioning Client: Pre translations**

### Pre translations

**Add New Pretranslations**

| Number Qualifier | Length | Prefix | Add |
|------------------|--------|--------|-----|
| udp              |        |        | Add |

**Current Pretranslations**

| Number Qualifier | Length | Prefix | Save | Delete |
|------------------|--------|--------|------|--------|
| +1613            | 7      | 9      | Save | Delete |
| udp              | 7      | 6      | Save | Delete |
| cdp.udp          | 4      | 6334   | Save | Delete |
| +1               | 10     | 91     | Save | Delete |

- b. Configure pretranslations for each of the number qualifiers in the **Add New Pretranslations** section, as follows:
1. Select the appropriate number qualifier from the **Number Qualifier** drop-down list.
  2. Enter a number in the **Length** text box.
  3. Enter a prefix in the **Prefix** text box.
  4. Click **Add**.

—End—

## Configuring a Converged Desktop user

### Configure a Service Package

Before you configure any Converged Desktop user in MCS, you must configure a Service Package for the Domain which includes the SIP CDS feature. Use [Procedure 7 "Configuring a Service Package" \(page 79\)](#) to configure a Service Package.

#### Procedure 7

#### Configuring a Service Package

| Step | Action |
|------|--------|
|------|--------|

- |   |                                                                                                                                          |
|---|------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Select <b>Provisioning &gt; Domains &gt; mydomain.com &gt; Service Package &gt; Create Package</b> in the Provisioning Client navigator. |
|---|------------------------------------------------------------------------------------------------------------------------------------------|

The **Create new package** web page opens, as shown in [Figure 33](#) "Provisioning Client: Create new package" (page 80).

- 2 Enter a package name in the **Name of the Packages** text box.
- 3 Select services and their appropriate parameters as appropriate, including the following:
  - a. Select **Converged Desktop**.
  - b. Select **Converged Desktop** from the **Setup** drop-down list.
  - c. Select **Yes** from the **Converged Desktop Enabled** drop-down list.
- 4 Click **Save**.

**Figure 33**  
**Provisioning Client: Create new package**

**Create new package for domain mydomain.com**

Name of the Packages  \*

Set package as default for domain

Select Service(s)

☐ Choose All Services

☐ Ad Hoc Conferencing  
Maximum Number of Ports

☐ Advanced Addressbook  
Maximum Number of Addressbook Entries Allowed

☐ Advanced Screening  
Maximum Number of Ringlists   
Maximum Number of Telephone Numbers per Ringlist   
Presence Based Routing ☐

☐ Call Waiting Disable

☐ Converged Desktop  
Setup   
Converged Desktop Enabled

☐ IM Chatroom

☐ Meet Me Conferencing  
Maximum Number of Participants   
Premium Conferencing Enabled ☐

—End—

## Configuring the Converged User on the MCS 5100

Use [Procedure 8 "Configuring a Converged Desktop User in MCS 5100"](#) (page 81) to configure each Converged Desktop user in MCS 5100.



**Procedure 8****Configuring a Converged Desktop User in MCS 5100****Step Action**

- 1 Select **Provisioning > Domains > mydomain.com > Users > Add Users** in the Provisioning Client navigator.

The **Add a new user** web page opens, the upper portion of which is shown in [Figure 34 "Provisioning Client: Add a new user"](#) (page 81).

**Figure 34**  
**Provisioning Client: Add a new user**

**Add new user to mydomain.com**

User Name:  \* ?

First Name:  ?

Last Name:  ?

Password:  \* ?

Confirm Password:  \* ?

Service package:

Aliases:

Status Reason:

email:

Business Phone:  ?

Home Phone:  ?

Cell Phone:  ?

Pager:  ?

Fax:  ?

Private Charge ID:

Public Charge ID:

- 2 Enter appropriate values in the fields, including the following:
  - a. Enter **3345573** in the **Private Charge ID** text box.  
This is the HLOC + DN of the converged telephone. This number is used for Click-to-Call in Converged Mode, and must be a UDP number.
  - b. Enter **6139625573** in the **Public Charge ID** text box.  
This is the NPA + NXX + DN of the converged telephone. It is the caller identification information sent on a public call. This value is required, and may be need even in Unconverged Mode.
  - c. Select **cdCOS** from the **Class of Service** drop-down list.

This is the same Class of Service configured in [Procedure 5 "Configuring a route list" \(page 73\)](#).

**Note:** You do not have to configure an alias, but if you do, ensure that it does not conflict with the alias properties configured in [Step 3](#).

d. Click **Save**.

3 Set up the converged properties, as follows:

a. Click **Converged Desktop properties**.

The **Converged Desktop Data** web page opens, as shown in [Figure 35 "Provisioning Client: Converged Desktop Data" \(page 82\)](#).

**Figure 35**  
**Provisioning Client: Converged Desktop Data**

- b. Enter **000023345573** in the **Converged Desktop Alias** text box.  
This is the PNI + HLOC + DN of the converged telephone.
- c. Enter one of the following values in the **Converged Desktop Preferred Audio Device** text box:
- If you are configuring UDP, enter the Access Code (AC1 or AC2) + HLOC + DN of the converged telephone.
  - If you are configuring CDP, enter the CDP number.
- d. Select **Enterprise Converged User** from the **Converged Desktop User Type** drop-down list.

—End—

---

# CS 1000 NRS operation

---

## Contents

This section contains information about the following topics:

- "Introduction" (page 83)
- "Operation" (page 84)
  - "Domains" (page 84)
  - "Gateway Endpoints" (page 85)
  - "Routing entries" (page 86)
  - "Configuring MCS 5100 in the NRS for CDS" (page 86)
  - "Configuring Meet Me Audio Conferencing in the NRS for CDS" (page 90)
- "Operational logic" (page 90)

## Introduction

In a mixed CS 1000/MCS 5100 network, the following is expected to occur:

- The CS 1000 SIP Redirect Server routes calls to SIP endpoints (gateways and SIP lines) under CS 1000 control.
- The MCS 5100 routes calls to SIP endpoints (gateways and SIP clients) under MCS 5100 control.

**Note:** In the context of SIP, the usage of the phrase "endpoint under XXX control" indicates that entity XXX is the only entity that knows the contact information for the endpoint.

Provisioning is impacted in the following manner:

- The CS 1000 SIP Redirect Server represents all CS 1000 endpoints in the MCS 5100 provisioning.
- The MCS 5100 Session Manager represents all MCS 5100 endpoints in the CS 1000 provisioning.

This network configuration requires the CS 1000 SIP Redirect Server and MCS 5100 to interwork seamlessly. Therefore, this section describes the basics of the redirect server logic.

## Operation

**Note:** Some values in these instructions are taken from the example numbering plans described "Examples of dialing and numbering plan configuration for mixed networks" (page 35). Note that actual values may differ between applications.

### Domains

The following domains are created in the CS 1000 NRS.

- Service Domain = mydomain.com (see [Figure 36 "Service Domain" \(page 84\)](#))
- L1 Domain (UDP) = udp (see [Figure 37 "Level1 Domain" \(page 84\)](#))
- L0 Domain (CDP) = cdp (see [Figure 38 "Level0 Domain" \(page 85\)](#))

These domains must match in both CS 1000 and in MCS 5100.

**Figure 36**  
**Service Domain**

| Service Domains |              |             |                 |                 |                        |
|-----------------|--------------|-------------|-----------------|-----------------|------------------------|
| Add...          |              |             |                 |                 |                        |
| #               | ID           | Description | # of L1 domains | # of L0 domains | # of gateway endpoints |
| 1               | mydomain.com | My domain   | 1               | 1               | 5                      |

**Figure 37**  
**Level1 Domain**

| L1 Domains (UDP)                      |     |               |                 |                        |                      |
|---------------------------------------|-----|---------------|-----------------|------------------------|----------------------|
| Show L1 Domains for (Service Domain): |     |               |                 |                        |                      |
| mydomain.com                          |     |               |                 |                        |                      |
| Add...                                |     |               |                 |                        |                      |
| #                                     | ID  | Description   | # of L0 domains | # of gateway endpoints | # of routing entries |
| 1                                     | udp | My UDP domain | 1               | 5                      | 21                   |

**Figure 38**  
**Level0 Domain**

**L0 Domains (CDP)**

Show L0 Domains for (Service Domain / L1 Domain):

mydomain.com / udp

Add...

| # | ID  | Ancestor Path    | Description   | # of gateway endpoints | # of routing entries |
|---|-----|------------------|---------------|------------------------|----------------------|
| 1 | cdp | mydomain.com/udp | My CDP domain | 5                      | 21                   |

## Gateway Endpoints

The Gateway endpoint is configured with the following properties:

- ID — Node134Loc334  
This matches the SIP Endpoint name configured in CS 1000.
- Call Signaling IP address — 12.123.1.123  
This is the IP address of the CS 1000 IP Telephony node.
- SIP Support — Dynamic SIP endpoint
- SIP Transport Protocol — UDP
- SIP port — 5060

This effectively configures the CS 1000 as an NRS endpoint. See [Figure 39 "Gateway Endpoints" \(page 85\)](#).

**Figure 39**  
**Gateway Endpoints**

**Gateway Endpoints**

Show Gateway Endpoints for (Service Domain / L1 Domain / L0 Domain):

mydomain.com / udp / cdp

Showing 1 - 5 of 5 < Previous Next >

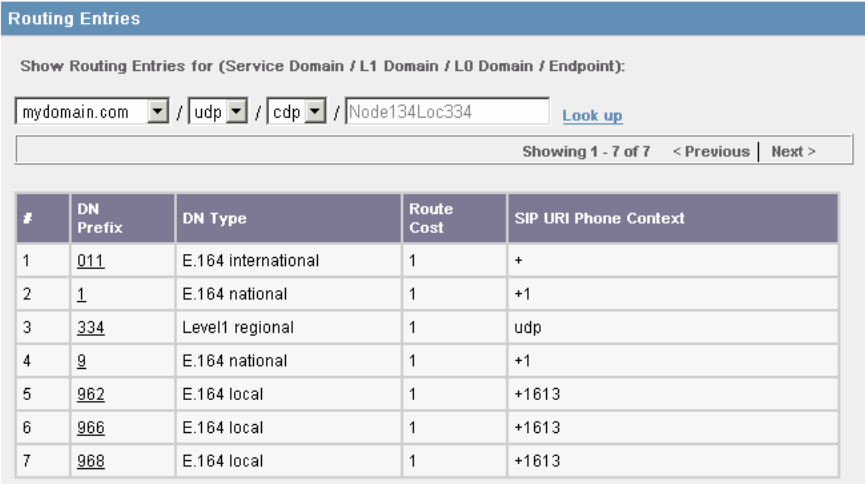
| # | ID                            | Support Protocol(s)     | Call Signaling IP             | Description        | # of routing entries |
|---|-------------------------------|-------------------------|-------------------------------|--------------------|----------------------|
| 1 | <a href="#">Node102Fox3</a>   | RAS H.323               | 47.11.250.102                 | Fox3 RIs3.0 Nod... | 4                    |
| 2 | <a href="#">Node109Loc309</a> | RAS H.323 / Dynamic SIP | 47.11.250.109 / 47.11.250.109 | Fox6 w/Call Pil... | 8                    |
| 3 | <a href="#">Node122</a>       | RAS H.323               | 47.11.250.122                 | RIs3 IP-TRUNK 6... | 1                    |
| 4 | <a href="#">Node134Loc334</a> | RAS H.323 / Dynamic SIP | 12.123.1.123 / 12.123.1.123   | Option 81F#3       | 7                    |

## Routing entries

The routing entries configured in CS 1000 NRS for Gateway Endpoint Node134Loc334 are shown in [Figure 40 "Routing Entries" \(page 86\)](#).

**Note:** SIP URI phone-contexts are configured in CS 1000 NRS as part of the Level1 Domain (udp).

**Figure 40**  
**Routing Entries**



| # | DN Prefix | DN Type             | Route Cost | SIP URI Phone Context |
|---|-----------|---------------------|------------|-----------------------|
| 1 | 011       | E.164 international | 1          | +                     |
| 2 | 1         | E.164 national      | 1          | +1                    |
| 3 | 334       | Level1 regional     | 1          | udp                   |
| 4 | 9         | E.164 national      | 1          | +1                    |
| 5 | 962       | E.164 local         | 1          | +1613                 |
| 6 | 966       | E.164 local         | 1          | +1613                 |
| 7 | 968       | E.164 local         | 1          | +1613                 |

## Configuring MCS 5100 in the NRS for CDS

To implement CDS in the NRS, configure the MCS 5100 system in one of two ways:

- Configure the MCS 5100 as a Gateway Endpoint.

This is the preferred option and is the only option when multiple Collaborative Servers are required in the system. When configuring the MCS 5100 as a Gateway Endpoint in the NRS, note the following requirements:

- endpoint name = convergeddesktop
- call signaling IP address = 12.234.3.234  
This is the application server logical IP address on the MCS 5100.
- SIP support = static SIP endpoint
- SIP transport = UDP  
SIP transport protocol must always be UDP.
- SIP port = 5060

Configure at least two routing entries against this Gateway Endpoint, so the Gateway Endpoint can be added to the lookup table.

- Configure the MCS 5100 as a Collaborative Server. See [Figure 41 "MCS 5100 configured as a Collaborative Server" \(page 88\)](#).

**Note:** This option is not recommended and can only be used when no other Collaborative Servers exist in the system.

When you configure the MCS 5100 system in the NRS, note the following requirements:

- domain = 12.234.3.234
- alias name = MyMCSAppSrv
- domain type = L1
- SIP support = yes  
Indicate yes for SIP support with a check mark.
- SIP transport = UDP  
SIP transport protocol must always be UDP.
- SIP port = 5060

**Figure 41**  
**MCS 5100 configured as a Collaborative Server**

The screenshot shows the 'View Collaborative Server Property' window with the following configuration details:

- Domain type for collaborative Server: L1 domain
- L1 domain name (with service domain path): mydomain.com / udp
- Alias name: MyMCSAppSvr
- Collaborative Server description: Converged Desktop
- Server address type: IP version 4
- Server address: 12.234.3.234
- H.323 support: ☐
- RAS port: 1719
- SIP support: ☒
- SIP transport: UDP
- SIP port: 5060
- Network Connection Server support: ☐
- Network Connection Server transport: UDP
- Network Connection Server port: 16500

At the bottom of the window are 'Save' and 'Delete' buttons.

To route calls from MCS 5100 to CS 1000 when MCS is configured as a Collaborative Server, choose one of two configuration options:

1. Configure MCS 5100 as a Gateway Endpoint for the NRS without routing entries for calls from CS 1000 to MCS 5100. See [Figure 42 "MCS 5100 configured as a Gateway Endpoint without routing entries" \(page 89\)](#).

When configuring MCS 5100 in NRS without routing entries, use the following entries:

- endpoint name = Converged Desktop
- call signaling IP address = 12.234.3.234  
 This is the application server logical IP address on the MCS 5100.
- SIP support = static SIP endpoint
- SIP transport = UDP  
 SIP transport protocol must be UDP.
- SIP port = 5060



**Figure 42**  
**MCS 5100 configured as a Gateway Endpoint without routing entries**

**View Gateway Endpoint Property (mydomain.com / udp / cdp)**

Endpoint name: convergeddesktop

Endpoint description: Converged Desktop

Tandem gateway endpoint name: [Look up](#)

Endpoint authentication enabled: Not configured

Authentication password:

E.164 country code:

E.164 area code:

E.164 international dialing access code:

E.164 national dialing access code:

E.164 local (subscriber) dialing access code:

Private L1 domain (UDP location) dialing access code:

Private special number 1:

Private special number 2:

Static endpoint address type: IP version 4

Static endpoint address: 12.234.3.234

H.323 Support: H.323 not supported

SIP support: Static SIP endpoint

SIP transport: UDP

SIP port: 5060

Network Connection Server enabled: ☐

2. Configure telephony routes on MCS 5100 to contact the CS 1000 SIP Gateway directly (not through NRS). See [Figure 43 "Configure Telephony Routes on MCS 5100"](#) (page 90). For more information about configuring MCS 5100, see ["Configuring MCS 5100"](#) (page 65).

**Figure 43**  
**Configure telephony routes on MCS 5100**

Gateway Endpoints

Show Gateway Endpoints for (Service Domain / L1 Domain / L0 Domain):

mydomain.com / udp / cdp Show

Add...

Showing 1 - 1 of 1 < Previous Next >

| # | ID               | Support Protocol(s) | Call Signaling IP | Description       | # of routing entries |
|---|------------------|---------------------|-------------------|-------------------|----------------------|
| 1 | convergeddesktop | Static SIP          | 12.234.3.234      | Converged Desk... | 0                    |

### Configuring Meet Me Audio Conferencing in the NRS for CDS

To configure Meet Me Audio Conferencing for CDS, you must configure a Gateway Endpoint. Refer to *IP Peer Networking Installation and Commissioning (NN43001-313)*.

The new Gateway Endpoint must meet the following requirements:

- The Endpoint name field must be set as the user name of the Route in the Meet Me Audio Conferencing pooled entity, such as *meetme*.
- At least one Routing Entry must be configured against this Gateway Endpoint. The DN Prefix field must be configured as the alias for the Meet Me Audio Conferencing pooled entity.

### Operational logic

The following items describe the operational logic of the CS 1000 SIP Redirect Server:

- When an INVITE is received, the Public Address is extracted from the request URI.

For example:

INVITE <sip:dn;phone-context=pc@domain;user=phone> SIP/2.0

- When the SIP Redirect Server searches the location database, it tries to find all the endpoints that meet the following requirements:
  - The endpoint belongs to the specified domain.
  - The endpoint has associated routing entries (with both of the following):
    - exact phone-context as the one received
    - longest DN-prefix that prefixes the received DN

Table 3 "Search results of location database" (page 91) shows the possible outcomes of the location database search.

**Table 3**  
**Search results of location database**

| If...                                                                                                                                                                                                                                            | Then...                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The resolution fails (that is, no endpoints are found), the SIP Redirect Server redirects to a collaborating server.</p> <p><b>Note:</b> For the purpose of this discussion, the collaborating server can be an MCS 5100 Session Manager.</p> | <ul style="list-style-type: none"> <li>• Send the 302 response (Moved Temporarily)</li> <li>• Build the Contact Address of the 302 response to include the collaborating server's IP address</li> </ul> <p>For example:</p> <pre>&lt;sip:dn;phone-context=pc@domain:5060; maddr=47.11.160.010;transport=TCP;user=phone&gt;</pre>                                                                                         |
| <p>A single endpoint is found.</p>                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>• Send the 302 response (Moved Temporarily)</li> <li>• Build the Contact Address of the 302 response to include the IP address of the endpoint. (This can be IP address of the MCS 5100 Session Manager, for the purposes of this discussion)</li> </ul> <p>For example:</p> <pre>&lt;sip:dn;phone-context=pc@domain:5060; maddr=47.11.182.170;transport=TCP;user=phone&gt;</pre> |
| <p>Multiple endpoints are found.</p>                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>• Send the 300 response (Multiple Choices)</li> <li>• Include multiple Contact-headers in the 300 response</li> <li>• Individual Contact-header URIs are built</li> <li>• Contact-headers are ordered according to route costs</li> </ul>                                                                                                                                         |



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# Maintenance

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## Contents

This section contains information about the following topics:

["Introduction" \(page 93\)](#)

["CS 1000 CLI commands" \(page 93\)](#)

["MCS 5100 tools" \(page 95\)](#)

["Translation Verification tool" \(page 95\)](#)

## Introduction

This section contains CS 1000 Command Line Interface (CLI) commands that can be used with CDS. The CS 1000 CLI commands are used from the Signaling Server CLI.

This section also contains a diagnostic tool available on MCS 5100 for verifying translations.

## CS 1000 CLI commands

The CS 1000 Signaling Server provides a Command Line Interface (CLI) through a serial port or a Telnet session. This section contains the CLI commands available at that interface that are applicable to CDS.

Signaling Server CLI commands are available at three levels:

- Level One — Operations, Administration, and Maintenance (OAM) shell for basic technician support and general status system checking (**oam>prompt**)
- Level Two — Problem Determination Tool (PDT) shell for expert support; also includes all Level One (OAM) commands (**pdt>prompt**)
- Level Three — Nortel proprietary vxWorks<sup>a</sup> shell for advanced debugging and design support (**prompt**)

**Note:** This section describes the Level One (OAM) and Level Two (PDT) CLI commands. Level Three commands are considered expert support and design level commands, and are not documented here.

You must log in to the Signaling Server to use the CLI commands. Refer to *Signaling Server Installation and Commissioning (NN43001-312)* for this procedure.

Table 4 "CDS OAM commands" (page 94) shows the Converged Desktop CLI commands available on the Signaling Server from the OAM shell.

**Table 4**  
**CDS OAM commands**

| Command      | Description                                                                                                                        |
|--------------|------------------------------------------------------------------------------------------------------------------------------------|
| cdsShow      | Displays the current Converged Desktop configuration. The command is used to check the basic Converged Desktop application status. |
| cdsAgentShow | Displays the Personal Call Assistance (PCS) agent's information and status.                                                        |

Table 5 "CDS PDT commands" (page 94) shows the Converged Desktop CLI commands available on the Signaling Server from the PDT shell.

**Table 5**  
**CDS PDT commands**

| Command             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cdsAmITrace <level> | <p>Sets the Application Module Link (AML) trace level for the CDS application. Turns tracing on/off for troubleshooting message flows between the Call Server and the Signaling Server.</p> <p>Where &lt;level&gt; is:</p> <ul style="list-style-type: none"> <li>0 – turns off trace</li> <li>1 – prints all input/output AML data buffer</li> <li>2 – prints all input/output AML data buffer except POLLING message</li> <li>3 – prints all input/output AML data buffer except POLLING message, with Information Element (IE)-type decoding</li> <li>4 – prints all input/output AML data buffer except POLLING message, with IE type and data decoding</li> </ul> <p><b>Note:</b> This command prints the AML messages to/from the Call Server at the transport layer. Because sending and receiving AML messages is based on each AML link instead of each DN or TN, no good solution exists for filtering on this AML trace tool. Nortel recommends</p> |

| Command                                     | Description                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                             | that tracing not be turned on in a busy system. Instead, Nortel recommends the use of the cdsCallTrace tool or vtrkCallTrace tool.                                                                                                                                                                                                                   |
| cdsCallTraceSetAll                          | Enables CDS call trace for all calls.<br><br>All messages to or from the Call Server and to or from the Signaling Server that relate to a Converged Desktop call are traced.                                                                                                                                                                         |
| cdsCallTraceOff                             | Turns off CDS call trace for all calls.                                                                                                                                                                                                                                                                                                              |
| cdsCallTraceSetDN "callingNum", "calledNum" | Sets CDS call trace for a particular calling party or called party DN.<br><br>Where: <ul style="list-style-type: none"> <li>"callingNum" is the calling party DN. If set to 0, it traces all calls to a non-zero "calledNum".</li> <li>"calledNum" is the called party DN. If set to 0, it traces all calls from a non-zero "callingNum".</li> </ul> |

## MCS 5100 tools

### Translation Verification tool

Use the MCS 5100 Translation Verification tool to check the configuration of CSD telephony route. Use [Procedure 9 "Using the MCS 5100 Translation Verification tool" \(page 95\)](#) to access the Translation Verification tool.

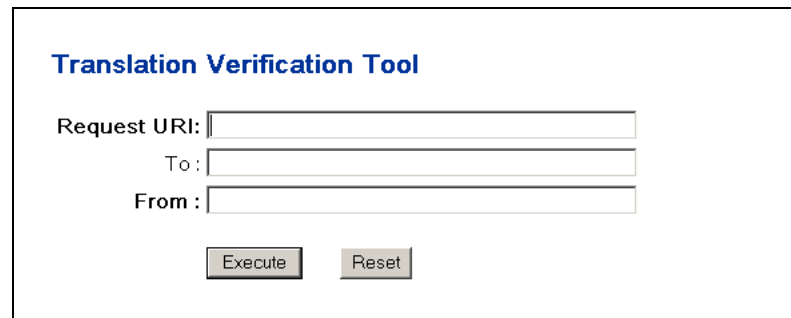
#### Procedure 9

#### Using the MCS 5100 Translation Verification tool

| Step | Action                                                                                                                                                                                                          |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Enter the IP address of the MCS Provisioning Client in a web browser.<br><br>The <b>Provisioning Client Login</b> web page opens, as shown in <a href="#">Figure 20 "Provisioning Client Login" (page 68)</a> . |
| 2    | Enter your <b>Username</b> and <b>Password</b> .<br><br>The <b>Provisioning Client</b> web page opens, as shown in <a href="#">Figure 21 "Provisioning Client" (page 68)</a> .                                  |
| 3    | Select <b>Provisioning &gt; Domains &gt; mydomain.com &gt; Telephony Routes &gt; Translation Tool</b> in the MCS Provisioning Client navigator.                                                                 |

The **Translation Verification Tool** web page opens, as shown in Figure 44 "Provisioning Client: Translation Verification Tool" (page 96).

**Figure 44**  
**Provisioning Client: Translation Verification Tool**



**Translation Verification Tool**

Request URI:

To:

From:

- 4 Enter the SIP URI to be traced in the **Request URI** text box.
- 5 Enter the destination DN in the **To** text box.
- 6 Enter the originating DN in the **From** text box.
- 7 Click **Execute**.

---

—End—

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# Appendix A

## Parameter configuration for a SIP URI

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### Contents

This section contains information about the following topics:

["Introduction" \(page 97\)](#)

["Example" \(page 97\)](#)

["Phone-context strings" \(page 98\)](#)

["Phone-context strings for public numbers" \(page 98\)](#)

["Phone-context strings for unknown numbers" \(page 99\)](#)

["Phone-context strings for private numbers" \(page 99\)](#)

### Introduction

The SIP phone-context parameter qualifies a DN beyond the usual Numbering Plan Identifier (NPI) and Type of Number (TON). In addition to the NPI/TON, the phone-context parameter includes unique identification of the scope for which the number is valid.

### Example

If a CDP number is dialed within the Site1 CDP domain of the COMPANYABC network and the call must be routed at the network level (by a network router such as a CS 1000 Redirect Server or MCS 5100 Proxy Server), then the number must be qualified with a phone-context parameter that incorporates the following:

- NPI = Private
- TON = CDP
- Enterprise ID = companyabc.com
- CDP Domain ID = Site1

These elements must be combined such that the resulting string is globally unique.

Global uniqueness of phone-context strings is a prerequisite for being able to serve a domain (for example, CDP-domain or an area code) by several systems (such as CS 1000 and MCS 5100).

If the Site1 CDP domain is divided between a CS 1000 and an MCS 5100 system, then a globally unique phone-context for Site1 CDP domain must be defined and recognized by both systems.

**Note:** The CS 1000 Redirect Server only routes calls to the CS 1000 users and the MCS 5100 only routes calls to MCS 5100 users.

## Phone-context strings

### Phone-context strings for public numbers

Table 6 "Phone-context strings for public numbers (example)" (page 98) provides an example for creating phone-context strings for public numbers.

**Table 6**  
**Phone-context strings for public numbers (example)**

| NPI/TON                       | Scope                                                   | Hierarchical domain-based schema        | Global prefixed-based schema            | CS 1000 SIP Redirect Server implementation |
|-------------------------------|---------------------------------------------------------|-----------------------------------------|-----------------------------------------|--------------------------------------------|
| NPI=Public, TON=International | Global                                                  | international.e164.myrootdomain         | Not applicable<br><br>DN starts with +. | Not applicable<br><br>DN starts with +.    |
| NPI=Public, TON=National      | National<br><br>For example, mynation                   | mynation.national.e164.myrootdomain     | +1<br>(+"country code")                 | +1<br>(+"country code")                    |
| NPI=Public, TON=Local         | Area within nation<br><br>For example, myarea, mynation | myarea.mynation.local.e164.myrootdomain | +1-613<br>(+"countrycode"- "area code") | +1-613<br>(+"country code"- "area code")   |

| NPI/TON                 | Scope                                                   | Hierarchical domain-based schema                  | Global prefixed-based schema | CS 1000 SIP Redirect Server implementation |
|-------------------------|---------------------------------------------------------|---------------------------------------------------|------------------------------|--------------------------------------------|
| NPI=Public, TON=Special | Area within nation<br><br>For example, myarea, mynation | myarea.mynation.<br>special.e164.myrootdomain     | Not supported                | Not supported                              |
| NPI=Public, TON=Unknown | Area within nation<br><br>For example, myarea, mynation | myarea.mynation.<br>unknown.e164.<br>myrootdomain | Not supported                | Not supported                              |

### Phone-context strings for unknown numbers

Table 7 "Phone-context strings for unknown numbers (example)" (page 99) provides an example for creating phone-context strings for unknown numbers.

**Table 7**  
**Phone-context strings for unknown numbers (example)**

| NPI/TON                  | Scope                                   | Hierarchical domain-based schema            | Global prefixed-based schema | CS 1000 SIP Redirect Server implementation |
|--------------------------|-----------------------------------------|---------------------------------------------|------------------------------|--------------------------------------------|
| NPI=Unknown, TON=Unknown | Location<br><br>For example, mylocation | mylocation.unknown.<br>unknown.myrootdomain | Not supported                | Not supported                              |

### Phone-context strings for private numbers

Table 8 "Phone-context strings for private numbers (example)" (page 99) provides an example for creating phone-context strings for private numbers.

**Table 8**  
**Phone-context strings for private numbers (example)**

| NPI/TON | Scope | Hierarchical domain-based | Global prefixed-based | CS 1000 SIP Redirect Server |
|---------|-------|---------------------------|-----------------------|-----------------------------|
|---------|-------|---------------------------|-----------------------|-----------------------------|

|                                                                                           |                                                                                           | schema                                      | schema                                                                                        | implementation                               |
|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------|
| NPI=Private,<br>TON=Level 1<br>Regional (UDP)                                             | Enterprise<br><br>For example<br>, myenterpris<br>e                                       | level1.private.<br>myenterprise             | +1-800-466-783<br>5<br><br>(The 1 800<br>number of the<br>enterprise.)                        | myl1domain                                   |
| NPI=Private,<br>TON=Level<br>0 Regional<br>(CDP)                                          | Location<br>within Ente<br>rprise<br><br>For example<br>, mylocation,<br>myenterpris<br>e | mylocation.level0.<br>private.myenterprise  | +1-613-966-010<br>0<br><br>(The listed<br>number of the<br>location.)                         | myl0domain.<br>myl1domain                    |
| NPI=Private,<br>TON=Special                                                               | Location<br>within Ente<br>rprise<br><br>For example<br>, mylocation,<br>myenterpris<br>e | mylocation.special.<br>private.myenterprise | +1-613-966-010<br>0-1<br><br>(The listed<br>number of<br>the location<br>extended with<br>1.) | myspeciallabel.<br>myl1domain                |
| NPI=Private,<br>TON=Unknown<br><br>(see Note)                                             | Location<br>within Ente<br>rprise<br><br>For example<br>, mylocation,<br>myenterpris<br>e | mylocation.unknown.<br>private.myenterprise | +1-613-966-010<br>0-2<br><br>(The listed<br>number of<br>the location<br>extended with<br>2.) | myunknownlab<br>el.myl0domain.<br>myl1domain |
| <b>Note:</b> CS 1000 SIP Redirect Server does not support NPI=Public/TON=Unknown numbers. |                                                                                           |                                             |                                                                                               |                                              |

## Appendix B

### PC Client windows

Table 9 "PC Client: user expectations" (page 101) describes pop-up and other windows that may open and close on the PC Client when two users make a call on an Enterprise switch.

**Table 9**  
**PC Client: user expectations**

|                                          | Network<br>Call<br>Log | Pop-up<br>Window   | Video | PCC Call Log/<br>Auto Presence                     | Terminating<br>PCC's call<br>window<br>closes when<br>originating<br>PCC closes<br>call window | Originating<br>PCC's call<br>window<br>closes when<br>terminating<br>PCC closes<br>call window |
|------------------------------------------|------------------------|--------------------|-------|----------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| CD1<br>to<br>CD2                         | CD1 no<br>CD2 yes      | CD1 no<br>CD2 yes  | No    | CD1 no<br>CD2 yes                                  | N/A                                                                                            | N/A                                                                                            |
| CD2<br>to<br>CD1                         | CD1 yes<br>CD2 yes     | CD1 yes<br>CD2 yes | No    | CD1 call log yes<br>auto presence<br>no<br>CD2 yes | No                                                                                             | No                                                                                             |
| CD2<br>to SIP                            | CD2 yes<br>SIP yes     | CD2 yes<br>SIP yes | Yes   | CD2 yes<br>SIP yes                                 | No                                                                                             | Yes                                                                                            |
| SIP to<br>CD2                            | SIP yes<br>CD2 yes     | SIP yes<br>CD2 yes | Yes   | SIP yes<br>CD2 yes                                 | Yes                                                                                            | No                                                                                             |
| CD2<br>to<br>CD2                         | CD2 yes<br>CD2 yes     | CD2 yes<br>CD2 yes | Yes   | CD2 yes<br>CD2 yes                                 | Yes                                                                                            | Yes                                                                                            |
| CD2<br>to<br>CD2<br>with<br>ring<br>list | CD2 yes<br>CD2 yes     | CD2 yes<br>CD2 yes | Yes   | CD2 yes<br>CD2 yes                                 | No                                                                                             | No                                                                                             |

|                    | <b>Network<br/>Call<br/>Log</b> | <b>Pop-up<br/>Window</b> | <b>Video</b> | <b>PCC Call Log/<br/>Auto Presence</b> | <b>Terminating<br/>PCC's call<br/>window<br/>closes when<br/>originating<br/>PCC closes<br/>call window</b> | <b>Originating<br/>PCC's call<br/>window<br/>closes when<br/>terminating<br/>PCC closes<br/>call window</b> |
|--------------------|---------------------------------|--------------------------|--------------|----------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| CD2<br>to<br>PSTN  | CD2 yes<br>PSTN<br>n/a          | CD2 no<br>PSTN<br>n/a    | No           | CD2 yes<br>PSTN n/a                    | N/A                                                                                                         | N/A                                                                                                         |
| PST<br>N to<br>CD2 | PSTN<br>n/a<br>CD2 yes          | PSTN<br>n/a<br>CD2 yes   | No           | PSTN n/a<br>CD2 yes                    | N/A                                                                                                         | N/A                                                                                                         |



Nortel Communication Server 1000

# CS 1000 to MCS 5100 Converged Desktop Type 2 Configuration Guide

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