Device Configuration Guide

BCM50 2.0

Business Communications Manager

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Chapter 1
Getting started with BCM

Refer to the following topics for general BCM information:

- "About BCM"
- "Symbols and conventions used in this guide" on page 18
- "Related publications" on page 19
- "How to get Help" on page 21

About this guide

The *Device Configuration Guide* describes how to configure and assign features to telephony devices through Telset and through Element Manager.

Purpose

The concepts, operations, and tasks described in this guide relate to the BCM software. This guide provides task-based information about how to assign features and provide basic programming for the Business Communications Manager.

Use Element Manager, Startup Profile, and Telset Administration to configure various BCM parameters.

In brief, the information in this guide explains:

- global telephony settings
- steps to configure DNs
- product features and how to assign them

Audience

The *Device Configuration Guide* is directed to installers who install, configure, and maintain BCM systems.

To use this guide, you must:

- be an authorized BCM installer or administrator within your organization
- know basic Nortel BCM terminology
- be knowledgeable about telephony and IP networking technology

Acronyms

The following is a list of acronyms used in this guide.

Table 1 Acronyms

Acronym	Description
ASM	Analog station module
ATA	analog terminal adapter
BRI	Basic Rate Interface
BCM	Business Communications Manager
CAP	Central Answering Position
CC	Contact Center
CLID	Calling Line Identification
CoS	Class of Service
DPNSS	Digital Private Network Signaling System
ISDN	Integrated Services Digital Network
KIM	Key Indicator Module
MCDN	Meridian Customer Defined Networking
MCID	malicious call identification
MWI	message wait indicator
OLI	outgoing line identification
ONN	outgoing name and number
PVQM	proactive voice quality monitoring
SM	silent monitor
SWCA	system-wide call appearance

Organization

This guide is organized for easy access to information that explains the concepts, operations, and procedures associated with the BCM system.

About BCM

The BCM system provides private network and telephony management capability to small and medium-sized businesses.

The BCM system:

- integrates voice and data capabilities, VoIP gateway functions, and QoS data-routing features into a single telephony system
- enables you to create and provide telephony applications for use in a business environment

BCM features

BCM50 R2 supports the complete range of IP telephony features offered by existing BCM products:

Note: You enable the following features by entering the appropriate keycodes (no additional hardware is required).

- VoIP Gateway (H.323 and SIP): Up to 12 VoIP trunks
- VoIP Telephony Clients: Up to 32 VoIP Telephony clients, supporting the range of Nortel IP Phones.

BCM applications

BCM50 R2 supports many applications provided on the existing BCM platforms.

Note: You enable the following features by entering the appropriate keycodes (no additional hardware is required).

- Voice Messaging for standard voice mail and auto-attendant features
- Unified Messaging providing integrated voice mail management between voice mail and common e-mail applications
- Fax Suite providing support for attached analog fax devices
- Voice Networking features
- LAN (computer telephony engine) CTE
- IP Music
- Intelligent Contact Center

Symbols and conventions used in this guide

These symbols are used to highlight critical information for the BCM system:

Caution: Alerts you to conditions where you can damage the equipment.

Danger: Alerts you to conditions where you can get an electrical shock.

Warning: Alerts you to conditions where you can cause the system to fail or work improperly.

Note: Alerts you to important information.

Tip: Alerts you to additional information that can help you perform a task.

Security Note: Indicates a point of system security where a default should be changed, or where the administrator needs to make a decision about the level of security required for the system.

Warning: Alerts you to ground yourself with an antistatic grounding strap before performing the maintenance procedure.

Warning: Alerts you to remove the BCM main unit and expansion unit power cords from the ac outlet before performing any maintenance procedure.

The following conventions and symbols are used to represent the Business Series Terminal display and dialpad.

Convention	Example	Used for
Word in a special font (shown in the top line of the display)	Pswd:	Command line prompts on display telephones.
Underlined word in capital letters (shown in the bottom line of a two-line display telephone)	PLAY	Display option. Available on two line display telephones. Press the button directly below the option on the display to proceed.
Dialpad buttons	#	Buttons you press on the dialpad to select a particular option.

The following text conventions are used in this guide to indicate the information described:

Convention	Description
bold Courier text	Indicates command names and options and text that you must enter. Example: Use the **info** command. Example: Enter **show ip** {**alerts**|**routes**}.
italic text	Indicates book titles.
plain Courier text	Indicates command syntax and system output (for example, prompts and system messages). Example: `Set Trap Monitor Filters`
FEATURE HOLD RELEASE	Indicates that you press the button with the coordinating icon on whichever set you are using.

Related publications

This section provides a list of additional documents referred to in this guide. There are two types of publications: Technical Documents on page 19 and User Guides on page 20.

Technical Documents

System Installation

Installation and Maintenance Guide (N0060612)

Keycode Installation Guide (N0060625)

System Programming

Administration Guide (N0060598)

Networking Configuration Guide (N0060606)

Telset Administration Guide (N0060610)

Telephones and Peripherals

Telephony Device Installation Guide (N0060609)

BST Doorphone Installation and Configuration Guide (P1013654)

T24 KIM Installation Card (P0603481)

Digital Mobility

DECT Deployment and Demonstration Tool

Digital Mobility System Installation and Configuration Guide (N0000623)

T7406 Cordless Handset Installation Guide (P0606142)

IP Telephony

BCM IP Softphone 2050 Installation Guide (N0022555)

WLAN IP Telephony Installation and Configuration Guide (N0060634)

User Guides

Telephones and Peripherals

BCM Telephone Features User Guide (N0060608)

BST Doorphone User Guide (P0605668*)*

Central Answering Position (CAP) User Guide (P0603480)

Hospitality Features Card (N0027326)

System-wide Call Appearance (SWCA) Features Card (N0027186)

T7000 Telephone User Card (P0912061)

T7100 Telephone User Card (P0609621)

T7208 Telephone User Card (P0609622)

T7316 Telephone User Card (P0935248)

T7316E Telephone User Card (P0609623)

IP Phone 1120E User Guide (NN-10300-062)

IP Phone 1140E User Guide (NN-10300-064)

IP Audio Conference Phone 2033 User Guide (N0060623)

IP Key Expansion Module (KEM) User Guide

Digital Mobility

DECT 413X/414X Handset User Guide (N0028550)

DECT 4145Ex/4146Ex Handset User Guide (XXXXX)

Digital Mobility Phone 7420 User Guide (N0000635)

Digital Mobility Phone 7430/7440 User Guide (N0028550)

T7406 Cordless Telephone User Card (P0942259)

IP Telephony

IP Audio Conference Phone 2033 User Guide (N0060623)

IP Phone 2001 User Guide (N0027313)

IP Phone 2002 User Guide (N0027300)

IP Phone 2004 User Guide (N0027284)

IP Phone 2007 User Guide (N0064498)

BCM WLAN 2210/2211/2212 Handset User Guide (N0009103)

How to get Help

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

Getting Help from the Nortel Web site

The best source of support for Nortel products is the Nortel Support Web site:

http://www.nortel.com/support

This site enables customers to:

- download software and related tools
- download technical documents, release notes, and product bulletins
- sign up for automatic notification of new software and documentation
- search the Support Web site and Nortel Knowledge Base
- open and manage technical support cases

Getting Help over the telephone from a Nortel Solutions Center

If you have a Nortel support contract and cannot find the information you require on the Nortel Support Web site, you can 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 Web site below and look up the telephone number that applies in your region:

http://www.nortel.com/callus

When you speak to the telephone agent, you can reference an Express Routing Code (ERC) to more quickly route your call to the appropriate support specialist. To locate the ERC for your product or service, go to:

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, you can contact the technical support staff for that distributor or reseller.

Chapter 2
Welcome panel

The Welcome panel displays information for the current account logged on the system. The administrator is prompted to change the password before any programming menus are accessible. This panel will be displayed:

- on the first login to the BCM by nnadmin,
- when the administrator has selected the forced password change option on an account, or
- if the password has expired.

Figure 1 Initial welcome panel

Table 2 Initial Welcome panel fields

Attribute	Value	Description
User ID	<read-only>	User ID you used to log on to the system.
Password	<alphanumeric>	To change password, select the field and enter new password. The password must satisfy the password policy requirements for the system. See the *Administration Guide* (NN40020-600) for more information on password requirements.

Once the password has been changed the entire navigation tree is accessible. See Figure 2.

Figure 2 Welcome panel

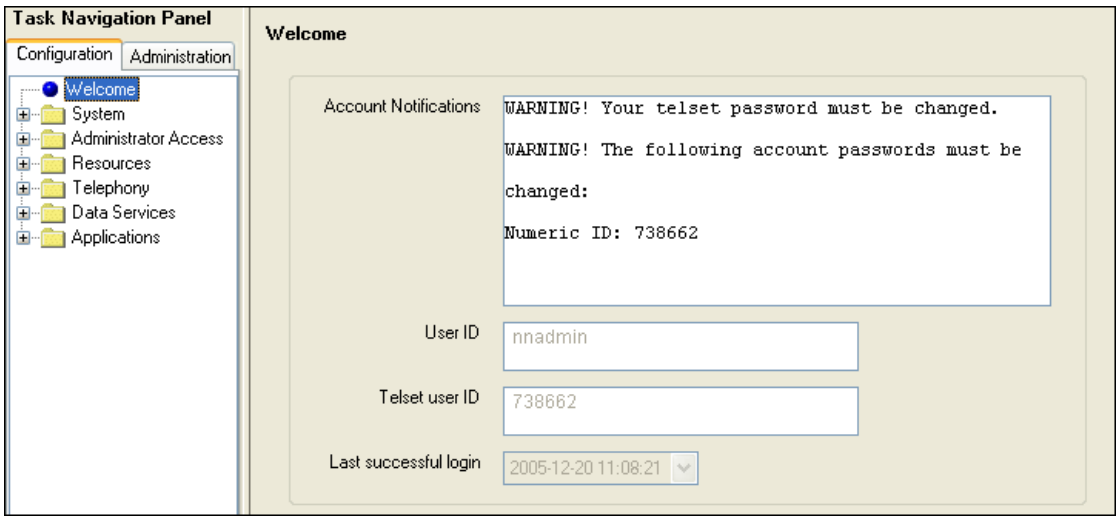


Table 3 Welcome panel fields

Attribute	Value	Description
Current Account		
Account Notifications	<read-only>	Displays BCM administrative messages or notifications regarding the current user.
User ID	<read-only>	User ID you used to log on to the system.
Telset User ID	<read-only>	User ID used to logon to the telset configuration interfaces for telephony and CallPilot applications.
Last successful login	<read-only>	Date and time that this user account was last logged in the system.

Chapter 3
System Software

The system software identity.

The following path indicates where to access the system identification settings in Element Manager:

- Element Manager: **Configuration > System > Identification**

Figure 3 System Identification panel

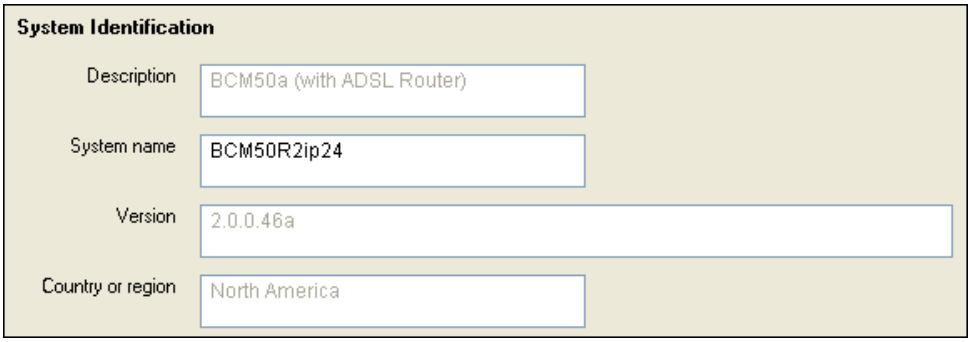


Table 1 describes each field on this panel.

Table 1 System Identification fields

Attribute	Value	Description
Description	<read-only>	This is the system hardware release currently running on this device.
System name	<alphanumeric>	It is easier to manage a group of systems if each system is provided with a unique name or identification number.
Version	<read-only>	The version of software running on the BCM Main Unit.
Country or region	<read-only>	This setting defines internal system settings for default values, available languages, and hardware and functional availability for a specific country or region.

Setting Date and Time

How you set the Date and Time feature for your system depends on whether your system receives this information from a network server.

The following path indicates where to access the date and time settings in Element Manager:

- Element Manager: **Configuration > System > Date and Time**

Click the following link to connect with the type of information you want to view:

Panel	Task
	"Setting clock control to local system" on page 28

Click the navigation tree heading to access general information about Date and Time management.

Figure 4 Date and time panel

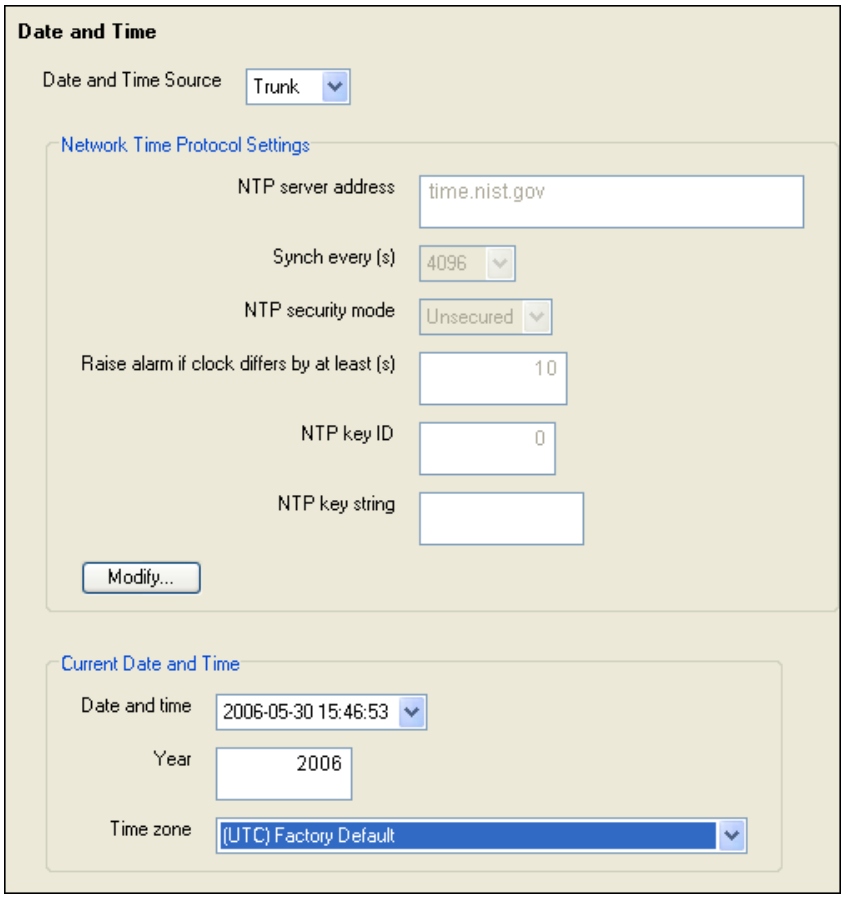


Table 2 describes each field on the Date and Time panel.

Table 2 Date and Time panel fields (Sheet 1 of 2)

Attribute	Value	Description
Date and Time Source	NTP Trunk Manual	Set to NTP (Network Time Protocol) if the system uses a network server to determine the correct time and date. Set to Trunk to use time and date settings from a CO through an analog or IDSN line. Set to Manual if you want to be able to manually configure the time and date for your system. Default: Manual

Table 2 Date and Time panel fields (Sheet 2 of 2)

Attribute	Value	Description
Network Time Protocol Settings (Settings are active only if Clock Control Type is set to Network Time Protocol.)		
NTP server address	<IP address>	The IP address of the server that controls the network time and date.
Synch every (s)	NA (not applicable) 1-XXXX	The number of seconds specified to elapse between contacts with the NTP server. 1-XXXX: Number of seconds between contacts with the NTP server.
NTP security mode	Secured Unsecured	Select whether the NTP security mode is secured or unsecured.
Raise alarm if clock differs by at least (s)	<seconds>	The number of discrepancy seconds specified that must occur before the system notifies you of a time difference from the NTP server, if the system automatically checks with the NTP server.
NTP key ID	<1-65,534>	ID for accessing the NTP.
NTP key string	<8 characters>	Control key corresponding to ID for accessing the NTP.
Current Date and Time		
Date and time	<country/ region-specific date and time format>	The current date and time.
Year	<numeric>	The current year in yyyy format.
Time zone	<drop-down list>	The appropriate time zone for the location of this system. The Time zone must be set for software updates to be applied.
Daylight Savings Time	<read-only>	The appropriate mode for the Time zone. Selected: The system automatically updates the time twice a year. Cleared: The system never updates the time for Daylight Savings Time.

Note: North American Daylight Savings Time rules change in 2007. Four time zones have been added to support regions that do not want to switch to the new time zone rules. The time zones are identified "pre-2007 DST".

If the system is to synchronize with an NTP Server or trunk, check the following:

1. Set **Date and Time Source** to **NTP** or **Trunk**.
2. In the **NTP server address** field enter the IP address of the NTP server.
3. Set the number of seconds between synchronizations in normal operations (Synch Every).

4 In the bottom frame, ensure that the Time zone is correct for the location of the local system.

5 If Trunk was selected in the **Date and Time Source** drop-down list, enter the year in the **Year** field.

Note: Only time and date info are updated when NTP and Trunk settings are selected. Year information is not updated. You also have full control over time and date settings using telset admin even if NTP or Trunk are selected. Any setting applied through telset admin are over-written by the external source if NTP or Trunk are selected. Time zones need to be set for software updates to be applied.

Setting clock control to local system

If you want the clock to be controlled locally:

1 Ensure that **Date and Time Source** is set to **Manual**.

2 In the bottom frame:

- In the **Time zone** field, select the Time zone the system uses.
- In the **Date and time** field, enter the month, day and year, hours and minutes and time of day.
- The **Daylight Savings Time** check box is selected or cleared automatically, depending on the time zone selected.

Chapter 4
System schedule settings and services scheduling

Use scheduled services to control how calls are answered in off-hours (Ringing Groups), how calls are routed at various times of the day, and how restrictions are applied on lines and telephones at specific times of the day.

The following paths indicate where to access scheduled services in Element Manager and through Telset Administration:

- Element Manager: **Configuration > Telephony > Scheduled Services**
- Telset interface: ****CONFIG > Services**

The Scheduled Services - Settings and Schedules panel has three distinct areas for configuration.

- The table in the top frame allows you to determine which schedules are active for the system for routing, restriction, and ringing schedules.
- The table in the top frame to the right sets the time periods within each schedule for each day of the week.
- The table in the bottom frame allows you to rename schedules.

Click one of the following links to connect with the type of information you want to view:

Panels	Related panels or tasks	Feature
"Configuring scheduled service" on page 31	Alternate routes for routing schedules in the *Networking Configuration Guide* (NN40020-603)	"Control telephone" on page 229
"Configuring schedule names and timers" on page 30	"Ring Groups - Line Settings" on page 99	
	Restriction filters in the *Networking Configuration Guide* (NN40020-603)	
	"Restrictions (Line and Remote) in the *Networking Configuration Guide* (NN40020-603)	
	"Restrictions main tab" on page 65	
	Class of Service table in the *Networking Configuration Guide* (NN40020-603)	

Click the navigation tree heading to access general information about Ring Group management.

Schedules are activated and deactivated through control telephones. Refer to "Control telephone" on page 229.

Restriction and Routing services require a service control password before users are allowed to change scheduling on a control telephone. The Service Control Password field on this panel allows you to delete a current entry, and add a new password. Make a note of the password; the panel displays only asterisks.

Configuring schedule names and timers

The tables on this panel allow you to change the names of the schedules, and to determine when the schedules, which are set to automatically execute, are deployed. Any changes to these settings affect all services that use schedules.

Figure 5 Schedule names and timers

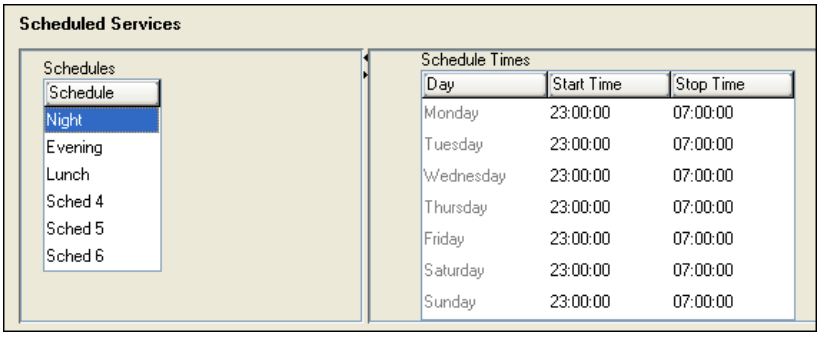


Table 3 describes the fields on the subpanel tables.

Table 3 Schedule common settings

Attribute	Value	Description
Schedules		
Schedule	<alphanumeric>	Double-click the field, and enter a descriptive name for the schedule.
Schedule Times		
For each schedule, there are timers for the seven days of the week.		
Day	<seven days>	
Start Time	00:00 to 12:00 a.m.-p.m./24:00	This is the time when the schedule starts, and any previously-running schedules stop. Use a 12-hour or 24-hour format. If the entry is less than 12:00, the system prompts for a day period setting. 00:00 = schedule is off start and stop are the same = schedule runs for 24 hours start: 22:00/stop: 06:00 = schedule starts at midnight, runs until 6 a.m., then starts again at 10 p.m. (22:00).
Stop Time	00:00 to 12:00 a.m.-p.m./24:00	This is the time when the schedule stops.

Default time settings

Table 4 provides a list of the default times for each schedule.

Table 4 Default schedule times

Schedule	Start Time	Stop Time
Schedule 1: Night	23:00	07:00
Schedule 2: Evening	17:00	23:00
Schedule 3: Lunch	12:00	13:00

Schedule	Start Time	Stop Time
Schedule 4:	00:00	00:00
Schedule 5:	00:00	00:00
Schedule 6:	00:00	00:00

Configuring scheduled service

The table in the top frame lists all schedules available on the system. Configure the settings for the schedules that you are using for your system.

Figure 6 Services table

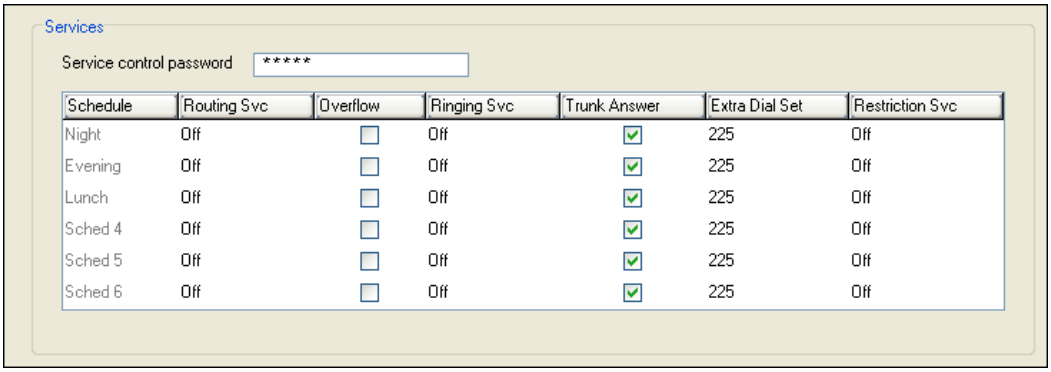


Table 5 describes the fields under Scheduled Services.

Table 5 Service settings (Sheet 1 of 2)

Attribute	Value	Description
Service control password	<alphanumeric>	Restriction and Routing schedules require the user to enter a password on the control telephone before scheduling can be changed. If you forget the password, enter a new password.

Table 5 Service settings (Sheet 2 of 2)

Attribute	Value	Description
Schedule	<read-only>	These are the schedules that are available on the system.
Routing Svc	Off Manual Auto	**Off** prevents the service from being activated. **Manual** allows you to turn the service on and off at any time from a control telephone. This setting overrides any automatically-running schedules. **Auto** allows you to program a stop and start time for a service under the Common Settings heading. These times are then automatically executed when the service is active. Default: Off
Overflow	<check box>	If all the lines used by a route are busy when a call is made, you can program Routing service to overflow to the route used for normal mode. If the call is routed to use the normal mode, the telephone sounds a warning tone and displays the message **`Expensive route`**. The caller then can release the call to avoid the toll charges or can continue. **Tips:** A schedule must be active for overflow routing to be in effect. Overflow routing is not available in normal mode. You must create an overflow route to be used with each routing code. In this way, every route used with a scheduled mode that has overflow service must have an alternate route in normal service. Default: Cleared
Ringing Svc	Off Manual Auto	**Off** prevents the service from being activated. **Manual** allows you to turn the service on and off at any time from a control telephone. This setting overrides any automatically-running schedules. **Auto** allows you to program a stop and start time for a service under the Common Settings heading. These times are then executed automatically when the service is active. Default: Off For details about setting up ring groups, refer to “Creating ring groups” on page 97.
Trunk Answer	<check box>	Trunk answer allows you to answer, from any telephone, an external call that is ringing at another telephone in your office, if the Ringing Service is active on that line at the time of the call. If the service is not active, you cannot answer the call. Trunk answer is useful if the other telephones are not assigned the same lines as the telephone you are using to answer the call. **Note:** You can change the Trunk Answer setting only if Ringing service is set to **Manual** or **Auto**. Default: Selected
Extra Dial Set	None DN <XX> DN <control set>	The Extra dial set attribute allows you to assign an additional telephone to receive calls for each schedule. **Note:** The extra dial set is activated during a schedule by entering the Ringing service feature code from the assigned direct dial telephone. This does not activate the Ringing service, unless the direct dial telephone is also a control set.
Restriction Svc	Off Manual Auto	**Off** prevents the service from being activated. **Manual** allows you to turn the service on and off at any time from a control telephone. This setting overrides any automatically-running schedules. **Auto** allows you to program a stop and start time for a service under the Common Settings heading. These times are then executed automatically when the service is active. Default: Off

Chapter 5
System features and feature codes

- "BCM feature codes" on page 33 provides a complete list of the feature codes that can be accessed from digital and IP telephones.
- "Button programming features" on page 36 provides a list of the features that are programmable under the DN record **Button Programming** heading.

BCM feature codes

The following provides a quick reference for BCM features available by pressing the **FEATURE** button on M-series telephones, Business Series Terminals (BST series), and IP telephones. Table 6 provides feature names sorted alphabetically, and numerically by feature code.

Refer to the user documentation for the specific product to find out how to use the codes on each type of telephone.

Table 6 Features sorted by feature name and by activation code (Sheet 1 of 4)

Sorted by feature name	
Feature name	**FEATURE** <code>
Alarm time (room set)	875
Alarm time - Cancel	#875
Alarm time (HS admin set)	877
Autodial - External	*1
Autodial - Internal	*2
Auto Hold	73
Auto Hold - Cancel	#73
Background Music	86
Background Music - Cancel	#86
Button inquiry	*0
Contact Center agent login/log out	904
Contact Center agent make busy/ready	908
Contact Center queue status	909
Call Charge Indication	818
Call Duration Timer	77
Call Forward	4
Call Forward - Cancel	#4
Call Forward to Voice Mail	984
Call Information	811

Sorted by activation code	
FEATURE <code>	**Feature name**
0	Speed Dial - Activate
*0	Button inquiry
1	Messages - Send
#1	Messages - Cancel Send
*1	Autodial - External
2	Ring Again
#2	Ring Again - Cancel
*2	Autodial - Internal
3	Conference Call
*3	Memory buttons - Program
4	Call Forward
#4	Call Forward - Cancel
*4	Speed Dial - Add, change
5	Last Number Redial
*501	Language - Primary
*502	Language - Alternate
*503	Language - Alternate 2
*504	Language - Alternate 3
*510	Time zone readjust (IP telephones)

Table 6 Features sorted by feature name and by activation code (Sheet 2 of 4)

Sorted by feature name	
Feature name	**FEATURE** <code>
Call Log - Delete items (autobumping)	815
Call Log - Manual	813
Call Log - View information	812
Call Log options	*84
Call Log password	*85
Call Park	74
Call Queuing	801
Camp-on	82
Class of Service	68
Conference Call	3
Contrast adjustment	*7
Contact Center agent login/log out	904
Contact Center Supervise	905
Contact Center Supervisor Help	906
Dialing Mode	*82
Directed Pickup	76
Display Voice Mail DN, skillset or IVR DN	985
Do not Disturb	85
Do not Disturb - Cancel	#85
Exclusive Hold	79
Voice Mail Leave Message	980
Group Listening	802
Group Listening - Cancel	#802
Group Pickup	75
IP Services list	*900
IP Hot desking	*999
Language - Primary	*501
Language - Alternate	*502
Language - Alternate 2	*503
Language - Alternate 3	*504
Last Number Redial	5
Line buttons - Move	*81
Line Pool	64
Line Redirection	84
Line Redirection - Cancel	#84
Link	71
Long tones	808

Sorted by activation code	
FEATURE <code>	**Feature name**
*521 to *536	System Wide Call Appearance (SWCA)
*537	Find oldest SWCA
*538	Find newest SWCA
*550	Silent Monitor
*6	Ring Type
60	Page
61	Page - Internal (telephone speakers)
62	Page - External (external speakers)
63	Page - Combined (internal and external)
64	Line Pool
65	Messages - View
66	Voice Call
67	Saved Number Redial
68	Class of Service
69	Priority Call
*7	Contrast adjustment
70	Transfer
#70	Transfer - Cancel
71	Link
73	Auto Hold
#73	Auto Hold - Cancel
74	Call Park
75	Group Pickup
76	Directed Pickup
77	Call Duration Timer
78	Pause
79	Exclusive Hold
*80	Ring Volume
*81	Line buttons - Move
82	Camp-on
*82	Dialing Mode
83	Privacy (on/off)
84	Line Redirection
#84	Line Redirection - Cancel
*84	Call Log options
85	Do not Disturb

Table 6 Features sorted by feature name and by activation code (Sheet 3 of 4)

Sorted by feature name	
Feature name	**FEATURE** <code>
Malicious call identification (MCID)	897
Memory buttons - Program	*3
Messages - Send	1
Messages - Cancel Send	#1
Messages - View	65
Name and number blocking	819
Name and number blocking - Cancel	#819
Page	60
Page - Combined (internal and external)	63
Page - External (external speakers)	62
Page - Internal (telephone speakers)	61
Pause	78
Priority Call	69
Privacy (on/off)	83
Record call	989
Ring Again	2
Ring Again - Cancel	#2
Ring Type	*6
Ring Volume	*80
Ringing (Signal) Call	807
Room condition (Room set)	876
Room condition (HS admin set)	878
Room occupancy	879
Run/Stop	*9
Saved Number Redial	67
Silent Monitor	*550
Speed Dial - Add, change	*4
Speed Dial - Activate	0
Static Time	806
Static Time - Cancel	#806
System Wide Call Appearance (SWCA)	*521 to *536
Find available SWCA	*520
Find oldest SWCA	*537
Find newest SWCA	*538
Test telephone display	805
Time	803

Sorted by activation code	
FEATURE <code>	**Feature name**
#85	Do not Disturb - Cancel
*85	Call Log password
86	Background Music
#86	Background Music - Cancel
88	Voice Call Deny
#88	Cancel Voice Call Deny
800	Trunk Answer
801	Call Queuing
802	Group Listening
#802	Group Listening - Cancel
803	Time
804	Wait for dial tone
805	Test telephone display
806	Static Time
#806	Static Time - Cancel
807	Ringing (Signal) Call
808	Long tones
811	Call Information
812	Call Log - View information
813	Call Log - Manual
815	Call Log - Delete items (autobumping)
818	Call Charge Indication
819	Name and number blocking
#819	Name and number blocking - Cancel
870	View active services
871	Turn Ringing service on
#871	Turn Ringing service off
872	Turn Restriction service on
#872	Turn Restriction service off
873	Turn Routing service on[1]
#873	Turn Routing service off
875	Alarm time
#875	Alarm time - Cancel
876	Room condition (Room set)
877	Alarm time (HS admin)
878	Room condition (HS admin)
879	Room occupancy

Table 6 Features sorted by feature name and by activation code (Sheet 4 of 4)

Sorted by feature name	
Feature name	**FEATURE** <code>
Time zone adjust (IP telephones)	*510
Transfer	70
Transfer - Cancel	#70
Transfer to mailbox	986
Trunk Answer	800
Turn Restriction service off	#872
Turn Restriction service on	872
Turn Ringing service off	#871
Turn Ringing service on	871
Turn Routing service off	#873
Turn Routing service on[1]	873
View active services	870
Voice Call	66
Voice Call Deny	88
Voice Call Deny - Cancel	#88
Voice Mail direct	988
Voice Mail Interrupt	987
Voice Mail login	981
Voice Mail Operator settings	982
Wait for dial tone	804

Sorted by activation code	
FEATURE <code>	**Feature name**
897	Malicious call identification (MCID)
*9	Run/Stop
*900	IP Services list
904	Contact Center agent login/log out
905	Contact Center Supervise
906	Contact Center Supervisor Help
907	Contact Center Activity Code
908	Contact Center agent make busy/ ready
909	Contact Center queue status
980	Voice Mail Leave Message
981	Voice Mail login
982	Voice Mail Operator settings
984	Call Forward to Voice Mail
985	Display Voice Mail DN, skillset, or IVR DN
986	Transfer to mailbox
987	Voice Mail Interrupt
988	Voice Mail direct
989	Record call
*999	IP Hot desking

Note

[1]Contact your System Administrator for the service control password.

Button programming features

The following describes the features available for Button Programming (**Configuration > Telephony > Sets > All DNs > Capabilities and Preferences > Button Programming**).

Note that some of these features require other system settings in order to work.

- Some of the buttons are controlled by features under **Configuration > Telephony > Sets > All DNs > Capabilities and Preferences > Capabilities** tab (bottom panel). Paging is an example of a feature that requires other settings.

- Some features also require that the service be available on the line from your telephone service provider. The types of lines provided are also determined by the region chosen for your system. MCID (malicious call identification) is an example of this type of feature.

Table 7 Button Programming Feature settings (Sheet 1 of 4)

Set command (**FEATURE** <code>)	Feature	Description
	None	Indicates a button that is configured for button programming, but nothing has been entered.
0	Speed dial	Activates the speed dial feature. The telephone prompts the user for a speed dial code.
1	Send message	Allows the user to send a message to another DN on the system.
#1	Cancel send message	Allows the user to cancel a message that was sent to another set within the network.
2	Ring again	Turns on the Ring again feature.
3	Conference/Transfer	Initiates a conference between user and two parties.
4	Call forward	Allows the user to enter a number to forward all calls. **Note: Allow redirect** must be selected to forward calls outside of the system.
5	Last number redial	Causes set to redial the last number that was dialed.
*5	Language choice	Allows the user to select the language in which prompts are displayed.
60	Page - general	Initiates a page.
61	Page - Internal	Allows the user to page internal to a specific zone, which is identified within the Button programming. (For example F611 internal zone 1, F610 page internal all zones.)
62	Page - External	Allows the user to page through the speaker on a specific telephone.
63	Page - speaker and zone	Allows the user to page through both the internal sets, and externally connected paging equipment to a specific zone, which is identified within Button programming.
64	Line pool	Allows the user to access a line pool. The pool this button accesses is specified during Button Programming for this feature.
65	Reply message	Allows the user to access messages, and send a reply to the message sender.
#65	Cancel message waiting	Allows the user to cancel the message waiting indicator.
66	Voice call	Allows the user to make an announcement, or begin a call through the speaker of another telephone.
67	Saved number redial	Allows the user to redial a number that was saved while on a call.
68	Restriction override	Allows the user to override any restrictions on the set or line with a CoS password.
69	Priority call	Allows the user to priority call an internal DN that is currently busy.
*7	Contrast	Allows the user to adjust the contrast of the display screen.
70	Transfer	Allows the user to transfer an existing call to another telephone or external number.

Table 7 Button Programming Feature settings (Sheet 2 of 4)

Set command (**FEATURE** <code>)	Feature	Description
71	Link	Activates the Link command, which allows the user to access special features on a remote PBX system.
74	Call park	Allows the user to park a call.
*520	Find available SWCA key	System searches for a free SWCA key among the SWCA keys that are assigned to the current telephone.
*521 to *536	System Wide Call Appearance (1 to 16)	Non-intercom calls are associated with an available SWCA key when the call is answered, originated, or placed on Hold. Features that interact with this feature: Hold, telephone keys, outgoing and incoming calls.
*537	Find oldest SWCA call	System searches among the SWCA keys assigned to the telephone, and unparks the call that has been parked the longest.
*538	Find newest SWCA call	System searches among the SWCA keys assigned to the telephone, and unparks the most recently parked call.
*550	Silent monitor	Allows the user to monitor hunt group calls. (Telephone must be assigned with SM supervisor.)
75	Group pickup	Allows the user to answer a call ringing telephone within the Pickup group.
76	Directed pickup	Allows the user to answer any ringing telephone within the same system.
77	Call timer	Allows the user to see the call duration timer.
78	Pause	Allows the user to insert a pause during a dialing sequence.
79	Exclusive hold	Allows the user to place a call on hold at the current telephone. All appearances of the call on other telephones indicate the line is busy.
800	Trunk answer	Allows the user to answer a ringing line while in a ringing service. (If enabled).
801	Call queuing	Allows the user to answer calls in order when several calls arrive in rapid succession. Calls are presented in this order: incoming calls, timed-out forwarded calls, then camped calls.
802	Group listening	Activates the speaker on the set to allow a group of people to hear a call. But the user must talk to the caller through the handset.
803	Time	Briefly displays the current time.
804	Wait for dialtone	Places a pause in a dialing string that holds the following digits until a dialtone is perceived on the line.
806	Static date and time	First line displays the date and time.
807	Ringing (Signal) call	Directly rings another telephone inside the system when an extension is entered after the feature is selected. This is the same process as pressing an intercom button and dialing an extension.
808	Long tones	Allows the user to send long DTMF tones.
811	Call information	Allows the user to view information about a current call.
812	Call log - view information	Allows the user to view call log information.
813	Call LogIt	Allows the user to add the current call to the call log manually.

Table 7 Button Programming Feature settings (Sheet 3 of 4)

Set command (**FEATURE** <code>)	Feature	Description
815	Call logs autobumping	Allows the user to select if the system will remove the oldest log item manually when the log space fills.
818	Call charge indication	Allows the user to view the charges for a call (available on DASS2 and ETSI Euro trunks only).
819	ONN blocking	Allows the user to block the call information from the telephone for an outgoing call.
82	Camp-on	Allows the user to transfer and camp an external call on another telephone in the system.
83	Privacy control	Allows the user to change the line privacy setting on the current call.
84	Line redirection	Allows the user to redirect a line on their telephone to an external number.
85	Do not disturb	Allows the user to block incoming calls from ringing on the telephone.
86	Background music	Allows the user to play music provided by a background music source through the speaker on the telephone.
870	Service mode status	Allows the user to view the current service mode being used.
871	Ringing service	Allows the user to change the ringing service mode.
872	Restriction service	Allows the user to change the restriction service mode.
873	Routing Service	Allows the user to change the routing service mode.
88	Voice call deny	Allows the user to deny other users from Voice Calling their set.
897	MCID	(Malicious Call Identification) Allows the user to query the system for information about a call within 25 seconds after the user hangs up, but before the caller hangs up.
*501	Language choice	Provides a menu that allows you to choose the language for the display prompts on the telephone.
*7	Contrast	Digital telephones only. Sets the level of contrast for the telephone display.
904	CC agent login/log out	Allows the user to log in or out of ACD.
905	CC supervise	Allows the CC supervisor to monitor CC agent calls.
906	CC supervisor help	Allows the CC agent to request help from a CC supervisor.
907	CC activity code	Allows the CC agent or supervisor to enter activity codes for reporting.
908	CC agent make Not ready/ready	Allows the user to indicate ready or Not ready status on ACD.
909	CC skillset status	Allows the user to view the status of queued calls on ACD.
980	Voice mail Leave Message	Allows the user to log into voice mail box to leave a message.
981	Voice mail login	Opens your mailbox to play your messages and to access mailbox options.
982	Voice mail operator settings	Allows the user to set the parameters for the voice mail operator.
984	Call forward to voice mail	Forwards all calls to your voice mail.

Table 7 Button Programming Feature settings (Sheet 4 of 4)

Set command (**FEATURE** <code>)	**Feature**	**Description**
985	Display voice mail DN	Displays the voice mail, skillset, or IVR DN.
986	Transfer to mailbox	Transfers an external call directly to a mailbox on the CallPilot system.
987	Voice mail interrupt	Intercepts a caller who is listening to your mailbox greeting or leaving a message.
988	Voice mail direct	Dial an internal user via the name in the voice mail directory.
989	Record call	Record the call to your voice mail box. Must be enabled by the system administrator.
*900	IP services list	IP telephones only. Allows the user to access a feature menu. This is the same menu that is accessed by pressing the Services key.
*999	IP Hot desking	IP telephones only. Allows the user to access the Hot desking feature. This feature allows calls to be diverted from one IP telephone to another.

Chapter 6
DN records parameters

The DN record defines the specific function of each telephone within the system.

The following paths indicate where to access DN record parameters in Element Manager and through Telset Administration:

- Element Manager: **Configuration > Telephony > Sets > All DNs**
- Telset interface: ****CONFIG>Terminals and Sets**

Other areas of programming that affect how each telephone functions include:

- system settings ("Global telephony settings" on page 73)
- telephone model

The DN records panel is a multilayered panel with multiple tabs. Although all panels show up for all models, not all models require configuration for all panels. Refer to the task and feature programming links to determine specific configuration.

The panel tabs links provide a general description of each panel and definitions of each panel field.

Click one of the following links to connect with the type of information you want to view:

Panel tabs	Tasks	Features
"Main panel tabs: common fields" on page 42	"Common procedures: copying and renumbering DNs" on page 69	"Feature configuration: Answering calls" on page 197
"Line Access tab" on page 43	"Configuring telephones: Digital telephones" on page 123	"Feature configuration: Making calls" on page 217
"Line Assignment tab" on page 46		"Hotline telephone" on page 229
"Line Pool Access tab" on page 48		"Control telephone" on page 229
"Answer DNs tab" on page 49		"Supervisor telephone for silent monitoring" on page 230
"Capabilities and Preferences main tab" on page 50		
"Capabilities tab" on page 52		
"SWCA Call Group tab" on page 54		
"Preferences tab" on page 55		"Features to set up telephone set features" on page 191 "Auxiliary ringer" on page 194
"ATA Settings tab" on page 57		

Panel tabs	Tasks	Features
"IP Terminal Details tab" on page 59	"Configuring telephones: IP telephones" on page 139	"Global VoIP features" on page 143
"Button Programming table" on page 60		
"Button Programming tab" on page 60 (includes CAP/KIM button programming)		"Default memory button programming for telephones" on page 153 "Creating an enhanced CAP station" on page 233
"User Speed Dial tab" on page 63		"System features and feature codes" on page 33
"Restrictions main tab" on page 65		
"Set Restrictions tab" on page 66		
"Line/Set Restrictions tab" on page 67		"Restrictions (Line and Remote)" in the *Networking Configuration Guide* (NN40020-603)

Click the navigation tree heading to access general information about DN records.

Main panel tabs: common fields

All main panel tabs display the same first three columns listed in Table 8.

Table 8 Common columns for the main tabs (Sheet 1 of 2)

Attribute	Value	Description
DN	<numeric>	This number is unique to each telephone record. The number identifies the telephone to the system. DN start digits and DN length are configured during system setup. Digital and analog telephone DNs map one-to-one with ports on module connections. IP telephone DNs do not map to specific ports; however, a keycode is required to activate the feature.

Table 8 Common columns for the main tabs (Sheet 2 of 2)

Attribute	Value	Description
Model	Analog 7000 7100 7208 7310/7316 7316E 7324 2004 2002 2001 2007 2033 2050 DMC prtb 2210/2211/2212 1120E, 1140E Doophone	This heading appears for telephones in the digital DN range, from the Start DN (default: 221) up to DN 433. Choose the setting that is appropriate for the telephone you want to configure. This field is read-only if the telephone is already attached or registered to the system. • 7310/7316: also 7406 cordless digital phone • 7316E: also for 7316E digital phone with KIMs (Model 7000 phones are supported in Europe only)
Name	<up to seven alphanumeric characters>	Use this field to provide a more specific description of the telephone, such as the last name of the user, the location, or the actual extension number if it is different than the DN number. Also refer to “Programming name display (outgoing)” in the *Networking Configuration Guide* (NN40020-603).

Line Access tab

The Line Access tab displays the System DNs table. Line access programming is performed using the three tabs in the bottom panel. Refer to Figure 7.

Figure 7 System DNs table

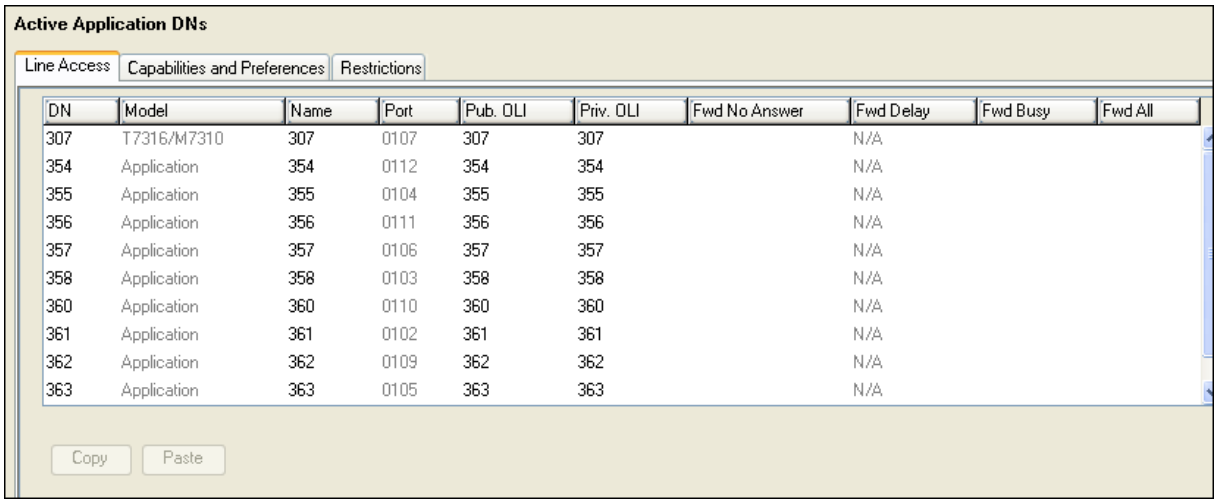


Table 9 describes these fields.

Table 9 Line Access - System DNs table fields (Sheet 1 of 2)

Attribute	Value	Description
DN	<read-only>	Refer to “Main panel tabs: common fields” on page 42.
Model	<alphanumeric>	Refer to “Main panel tabs: common fields” on page 42.
Name	<alphanumeric>	Refer to “Main panel tabs: common fields” on page 42.
Port	<port number>	This number indicates the port number to which this DN corresponds. A group of port numbers relates to a specific station module installed in your BCM. If you change the DN for a telephone, the port number remains the same. If you physically move a telephone with the relocation feature turned on, the DN transfers to the new port, and the DN for that port transfers to the vacated location.
Pub. OLI	<up to 12 digits>	This setting defaults to the DN of the device. The Public Network Code concatenates to the beginning of this number to create the entire public network number. The length of this number is dependent on the country requirements. This line identification number (OLI) appears on the telephone called from this telephone over the public network. Also refer to “Public network settings” in the *Networking Configuration Guide* (NN40020-603). North America: If the OLI contains the public network code, the information in the Public Network code field is ignored. Therefore, it is recommended that OLIs be programmed to the public received number length, only. This allows a global change if the Public Network Code is changed. Also refer to “Configuring CLID on your system” in the *Networking Configuration Guide* (NN40020-603).

Table 9 Line Access - System DNs table fields (Sheet 2 of 2)

Attribute	Value	Description
Priv. OLI	<numeric>	Define the originating line identification number (OLI) that appears on the telephone being called from this telephone over a private network. **Note:** On systems running DID, this field is populated automatically with the DN. On PBX systems, this field is populated automatically only if the DN length and the Received # length are the same. If the DN length or the Received # length are changed to be different from each other, this field is cleared. Also refer to “Configuring CLID on your system” in the *Networking Configuration Guide* (NN40020-603).
*If your system allows outgoing name and number blocking, the telephone must have a valid OLI.		
Fwd No Answer	up to 24 digits	Enter the number to which you want to redirect unanswered incoming calls.
Fwd Delay	2, 3, 4, 6, 10	Define the number of rings before the system forwards an unanswered call. This heading only appears after you enter a Call Forward No Answer number and press **Enter**. Default: 4
Fwd Busy	up to 24 digits	Redirect incoming calls when this telephone is busy with another call.
Fwd All	up to 24 digits	This setting is the same as using **FEATURE 4** at a telephone. When this feature is active, all calls to this telephone are forwarded to the destination entered in this field. If you are forwarding calls to a remote location, ensure that you include the required destination/access codes. A user can press **FEATURE #4** to cancel this feature.

Line Assignment tab

The line assignment setting allows you to assign physical trunks and target lines to each telephone. Target lines are used as incoming only. Other lines can be used to both place and answer calls, if they are configured to do so.

Figure 8 Line Assignment tabbed panel - Assigned Lines table

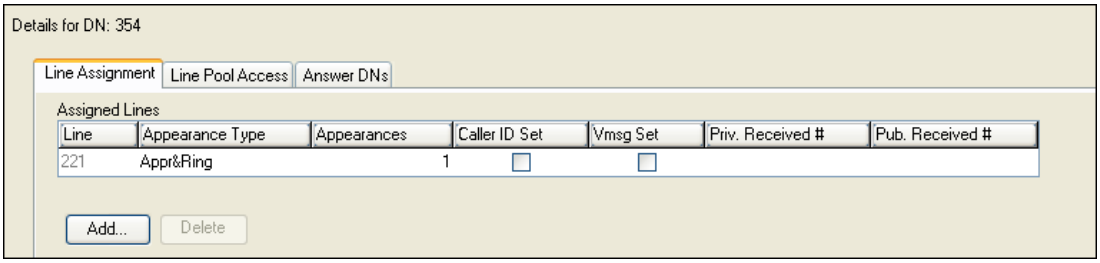


Table 10 describes the fields on this panel.

Table 10 Telephone line assignment fields (Sheet 1 of 3)

Attribute	Values	Description
Line	<read-only>	These are the lines on which this telephone can receive calls. If the line is a two-way line (DID), the user can also use the line to make calls. Also refer to “Configuring Lines” in the *Networking Configuration Guide* (NN40020-603).
Appearance Type	Ring only, Appr&Ring, Appr only	Select how a call on this line appears on the telephone. If you choose Appr&Ring or Appr only, you can have as many simultaneous DID calls as there are target line button appearances. If you choose Ring only, you can have as many simultaneous DID calls as you have intercom buttons. **Note:** The BCM does not support a mixture of Appr only and Ring only appearances for the same line. 7000 or 7100 digital phones default to Ring only. (Model 7000 phones are supported in Europe only)
Appearances (for target lines, only)	<1-10>	Select the number of appearances of a target line. **Note:** The number of appearances that can be assigned to a telephone depends on how many buttons with indicators are available. Target line appearances cannot overwrite other line appearances, Answer DNs, Intercom buttons, or assigned Handsfree button.

Table 10 Telephone line assignment fields (Sheet 2 of 3)

Attribute	Values	Description
Caller ID set	<check box>	This prompt only appears for target lines, and for any analog lines that provide CLID through a GATM (not all markets). When enabled, the telephone displays call information when it is available for a call before answer. When disabled, no call information is displayed for this line. Choose this setting if the telephone does not have a display, or if you do not want call information displayed to the user. Disabling this function can reduce system resource requirements. **Limitation:** Only 30 telephones can have this field enabled for any given line.
Vmsg Set	<check box>	Select whether an indicator shows on the telephone for a voice message waiting on an external voice message system. The line must appear on the receiving telephone. **Note:** The Message Waiting Indicator (MWI) is currently supported exclusively by Meridian Mail and CallPilot and SL-100, and DMS-100. **MCDN note:** If your system is part of an MCDN network connected to a Meridian 1 system, and you are using the voice mail system off the Meridian 1, you must enable this field. Analog lines connected to legacy analog ASM station modules, and analog telephones attached to an ATA device, do not provide visible message waiting indication. Analog telephones connected to a GASM8 support message indicators, if the telephone is set up to receive them.
	Note: Contact your voice message service provider to find out if your voice message service works with BCM, or if you have any problems with your service.	
Priv. Received # (Target lines only) Pub. Received # (Target lines only)	These fields reflect the settings defined under target lines. These are the digit strings that the system uses to identify a call for this telephone. Refer to “Trunk/Line Data, main panel” in the *Networking Configuration Guide* (NN40020-603).	
Actions		
Add	To add a line to a telephone: 1. On the System DNs table (Line Access tab), choose the DN record where you want to add lines. 2. Under the Assigned Lines table in the bottom panel, click **Add**. 3. Enter a line number in the dialog box. 4. Click **OK** to save the line to the list.	

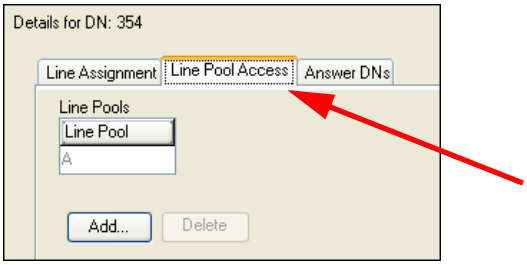
Table 10 Telephone line assignment fields (Sheet 3 of 3)

Attribute	Values	Description
Delete	To delete a line from a telephone: 1. On the System DNs table (Line access tab), choose the DN record where you want to delete lines. 2. On the Assigned Lines table in the bottom panel, select a line you want to delete. 3. Click **Delete**. 4. Click **OK** to confirm the selection.	

Line Pool Access tab

Use the Line Pool Access tab to add line pools to a telephone record.

Figure 9 Line Pool Access tab



These shared pools of lines allow many users to use fewer lines for connections, where dedicated lines are not practical or not desirable. If all lines in the pool are taken, the user receives a busy signal.

Some trunks, such as PRI and VoIP, must be put into line pools. For outgoing calls, the line pools are assigned to the telephones that call out over these trunks.

All lines are configured in line pools A to O, with the following exceptions:

- PRI, BRI ETSI-QSIG, and VoIP lines can only be configured into line pools BLOC-A to BLOC-F.

Table 11 describes the access fields on this panel.

Table 11 Line Pool Access fields (Sheet 1 of 2)

Attribute	Values	Description
Line Pool	<read-only>	This is a list of available line pools. Choose the ones that provide the outgoing call access you want for the telephone.
Actions		
Add	1. On the Line access tab, choose the DN record where you want to add line pools. 2. On the Line Pools table in the bottom panel, click **Add**. 3. Enter a line pool in the dialog box. 4. Click **OK** on the dialog box to save the line pool to the list.	

Table 11 Line Pool Access fields (Sheet 2 of 2)

Attribute	Values	Description
Delete	1. On the System DNs table (Line access tab), choose the DN record where you want to delete line pools. 2. On the Line Pools table in the bottom panel, select a line pool you want to delete. 3. Click **Delete**. 4. Click **OK** on the dialog box.	

Answer DNs tab

Program a telephone to provide automatic call alerting and call answering for other telephones in the system. The DNs of the other telephones are referred to as Answer DNs.

Figure 10 Answer DNs tab

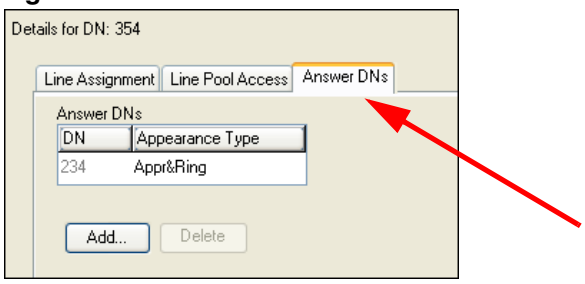


Table 12 describes the access fields on this panel.

Table 12 Answer DNs (Sheet 1 of 2)

Attribute	Values	Description
DN	<DN number>	From the main panel DN list.
Appearance Type	Appr&Ring, Appr only, Ring only	Define how calls to the Answer DN will present on this telephone: Appr&Ring: Call prompt appears beside the Answer DN button, and the telephone rings. Appr only: Call prompt appears beside the Answer DN button. Ring only: Telephone rings.
Notes: Every answer DN you assign to a telephone automatically designates an appearance on the answer telephone beside a button with an indicator, if one is available. Answer DNs overwrite feature assignments to buttons with indicators. They do not overwrite line, Hunt group, intercom, or handsfree assignments. If no buttons are available on the telephone, ensure that you program the Answer DN as Ring only. In that case, when a call comes in to the other telephone, the user receives a ring tone.		
Actions		

Table 12 Answer DNs (Sheet 2 of 2)

Attribute	Values	Description
Add	You can add a maximum of eight Answer DNs per telephone. 1. On the System DNs table (Line access tab), choose the DN record where you want to add Answer DNs. 2. Under the Answer DNs table, click **Add**. 3. Enter the appropriate DN in the dialog box. 4. Click **OK** to save the entry. 5. On the Answer DNs table, select the Appearance type field beside the Answer DN you just entered, and choose the appropriate appearance type. **Programming Note:** If the telephone has memory buttons with display designators, the system automatically assigns Answer DNs to buttons starting at the bottom right row of buttons. If the telephone has Handsfree assigned to a memory button, the Answer DNs start above that button. If the telephone has no memory buttons with display, ensure that you choose Ring only as the Appearance type.	
Delete	1. On the System DNs table (Line access tab), choose the DN record where you want to delete Answer DNs. 2. On the An.swer DNs table, select the Answer DN line you want to delete. 3. Click **Delete**. 4. Click **OK** to save the selection.	

Capabilities and Preferences main tab

Capabilities settings control how the system interacts with individual telephones, and how the telephones receive calls.

Preferences control how the telephone itself works. These settings also can be set by users at the telephones using feature codes.

Figure 11 Capabilities and Preferences table panel

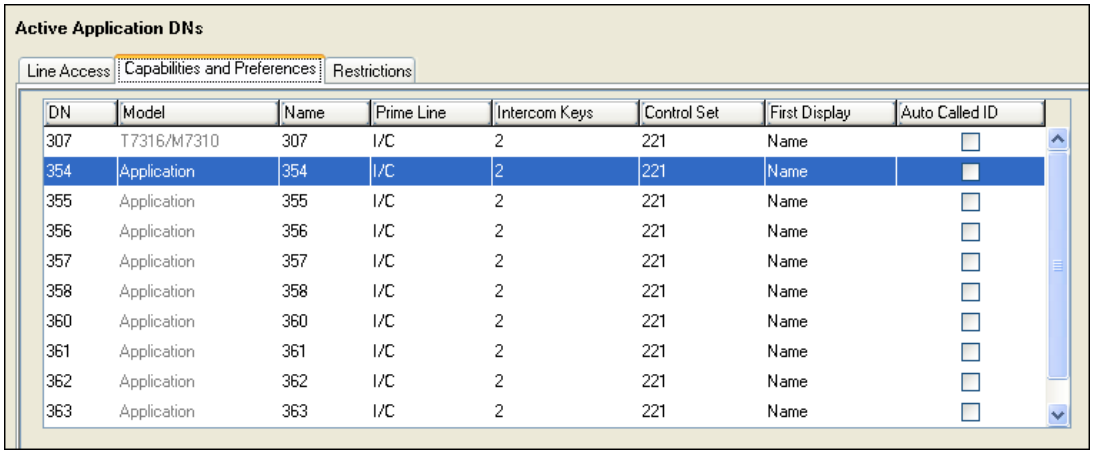


Table 13 describes the fields shown on the main Capabilities and Preferences tabbed panel.

Table 13 Capabilities and Preferences tabbed panel (Sheet 1 of 2)

Attribute	Values	Description
DN	<read only>	Refer to "Main panel tabs: common fields" on page 42.
Model	<alphanumeric>	Refer to "Main panel tabs: common fields" on page 42.
Name	<numeric>	Refer to "Main panel tabs: common fields" on page 42.
Prime Line	None, Pool (A to O), I/C (intercom), Line: <line number>	Choose the first line that the telephone selects when a call is made. PRI Bloc pools are not valid selections for a Prime line. When you assign a line pool as a prime line, the system searches automatically for an idle line in the pool.
Intercom Keys	0 to 8	Assign the number of intercom buttons to a telephone. Intercom buttons provide a telephone with access to internal and external lines, and to line pools.
Control Set	DN: <any telephone DN> None DN:221<start DN>*	The Control telephone attribute allows you to define a DN that acts as a control telephone. A control telephone is used to enable/disable Scheduled Services, such as Restriction Services, for the telephones to which it is assigned. For more information about services, see "System schedule settings and services scheduling" on page 29. You can assign several control sets for your system, but you can only assign one control telephone per DN. * If you change the Start DN, this number reflects that change.

Table 13 Capabilities and Preferences tabbed panel (Sheet 2 of 2)

Attribute	Values	Description
First display	Name Number Line	Determine what call display information appears first. This feature depends on the services to which you subscribe. Call Display information can contain the name of the caller, the number of the caller, the name of the line in your BCM where the call enters, or all. For each telephone, you can determine what information displays first. See also “Programming incoming CLID” in the *Networking Configuration Guide* (NN40020-603).
	Tips: The Call Information feature displays and toggles between the name and line number for Call Display information. **Alpha tagging:** If you are using the alpha tagging feature, choose **Name**. Refer to “Using alpha tagging for name display (incoming)” in the *Networking Configuration Guide* (NN40020-603).	
Auto Called ID	<check box>	Select whether you want to see on your display the extension number and name of the telephone you call. The Auto Called ID set for target lines is the same telephone that has an appearance on that target line.

Capabilities tab

Capabilities settings control how the system interacts with individual telephones, and how the telephones receive calls.

Note: Not all the fields shown below necessarily appear for any one type of telephone. Some fields relate to specific models of telephones.

Table 14 describes the fields on this panel.

Table 14 Capabilities panel fields (Sheet 1 of 3)

Attribute	Values	Description
Handsfree	None Standard Auto	None: The handsfree feature is not available on all telephone models (7000 and 7100 digital phones, 2001 IP phones). Standard: The handsfree feature is activated by pressing a button on the telephone. Auto: The handsfree feature is activated when the telephone receives a call. **Note:** Handsfree must be enabled on any telephone that allows headsets. For 7316E digital phones, set **Handsfree** to **Auto**. 7406 digital cordless phone: Handsfree must be enabled for this handset to work. Speaker volume: Note that the speaker volume returns to the telephone default setting for each new handsfree call.

Table 14 Capabilities panel fields (Sheet 2 of 3)

Attribute	Values	Description
Pickup group	None 1 to 9	Assigns this telephone to a pickup group (a group where all telephones ring until one is answered).
Page zone	Page zone (1 to 6) None	Assigns this telephone to a page zone. A zone is any group of telephones that you want to group together for paging, regardless of their location. You can assign one of six zones to each telephone. The maximum number of digital telephones in a page zone is 50. The maximum number of digital and IP telephones in a page zone is 60.
Direct dial	Set 1 to Set 5 None	Defines whether you can call the direct dial telephone from this telephone using the direct dial digit.
Intrusion Protection Level	None Low Med High	If the break-in feature is allowed on any private network MCDN lines (PRI SL-1) assigned to the telephone, you must define the level of intrusion for each telephone. This determines if the user can use the feature, and to what degree. None: feature is turned off, user cannot break in on any calls Low: user can only break into calls on other telephones with low level protection Med: user can break into calls on other telephones with low and medium-level protection High: user can break into calls on all other telephones with this feature
HF answerback	<check box>	Defines whether you can answer automatically a voice call without lifting the receiver, or pressing the Handsfree button. **Note:** The feature is not available on model, i2001,7000 and 7100 telephones. Speaker volume: Note that the speaker volume on the telephone returns to the default volume setting determined by the telephone for each new handsfree call.
DND on Busy	<check box>	Defines whether an incoming call rings if you are already on another call.
Paging	<check box>	Defines whether you can make paging announcements from this telephone.
Auto hold for incoming page	<check box>	Not selected - If the telephone is active when a page comes in, the page does not come through the telephone set. Selected - If the telephone is active when a page comes in, the call is placed automatically on hold and the page continues. **Note - 7XXX digital phones:** • **Condition -** When this setting is enabled, an active call is on mute when the page comes in. • **Results after page -** The call is taken off hold, but is no longer muted.
Priority call	<check box>	Defines whether this telephone can interrupt calls or override Do Not Disturb at another telephone.

Table 14 Capabilities panel fields (Sheet 3 of 3)

Attribute	Values	Description
Auto hold	<check box>	This setting determines if the system automatically places an active call on hold if you answer or initiate another call. If you do not select this box, the system drops the active call, unless you press the **HOLD** button first, when you answer a call or initiate another call. Default: Selected The user can change the Auto hold setting at their telephones by pressing **FEATURE 73.** **SWCA note:** Ensure this setting is selected for any telephones with configured System Wide Call Appearance (SWCA) keys. Refer to "Sharing calls by parking on SWCA buttons" on page 211.
Allow redirect	<check box>	Define whether this telephone allows assigned lines to be redirected. This must be selected to allow call forwarding outside the network (external call forward), including calls to a centralized voice mail system over a private network.
Redirect ring	<check box>	Define whether the telephone rings briefly when a call on one of its lines is redirected by the Line Redirection feature (**FEATURE 84**). Also refer to "Trunk/Line Data, main panel" in the *Networking Configuration Guide* (NN40020-603).
Receive short tones	<check box>	Analog equipment, which is connected to the system with an internal or external analog terminal adapter (ATA2), responds only to tone dialing signals. Select this setting only if you have analog equipment connected to a station port.
Silent monitor supervisor	<check box>	On two-line display telephones only, you can choose whether the telephone can be used to allow the Silent Monitor feature. Select the check box to allow this feature on this telephone. Refer to "Silent Monitor" on page 84 for information about setting up the system settings for the Silent Monitor feature, including determining how many telephones can be allowed to use this feature. Refer to "Monitoring external hunt group calls" on page 109 for instructions about using **FEATURE *550**.

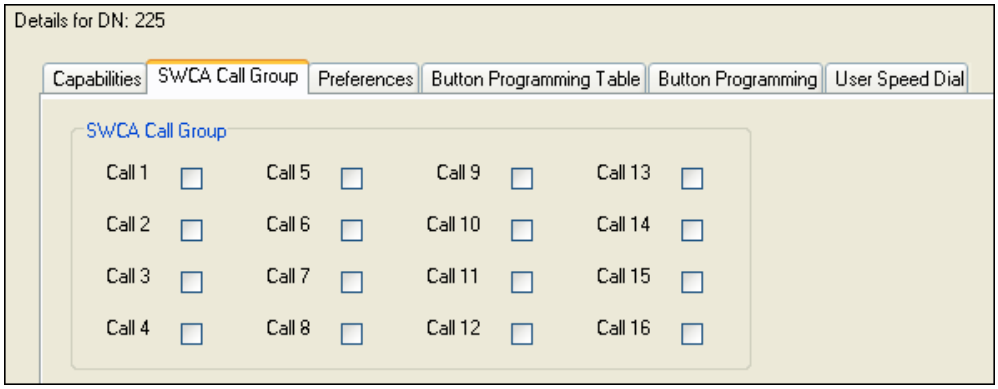
SWCA Call Group tab

Although System-wide Call Appearance (SWCA) assignments are meant to be assigned to buttons with indicators, you can assign SWCA assignments to a telephone without assigning them to buttons using the fields on this panel. This is useful if you want to use the full range of SWCA assignments.

Use the SWCA Call Group tabbed panel to enable or disable Call 1 to Call 16 assignments for each sets. The administrator can configure the 16 SWCA feature codes on all the sets through administration.

Users can park or retrieve calls on any SWCA assignment, even if the call is not directly assigned to their telephone. However, the SWCA support codes (**FEATURE *520**, **FEATURE *537** and **FEATURE *538**) only search for SWCA assignments that are assigned to the telephone where the feature is invoked. These codes are required for users who do not have buttons with indicators.

Figure 12 SWCA Call Group tab



Preferences tab

The Preferences headings allow you to program the same settings that users can perform at their telephones, and the settings for configuring a telephone as a hotline. The telset admin options are available only to digital phones and IP telephones.

Figure 13 Preferences tab panel

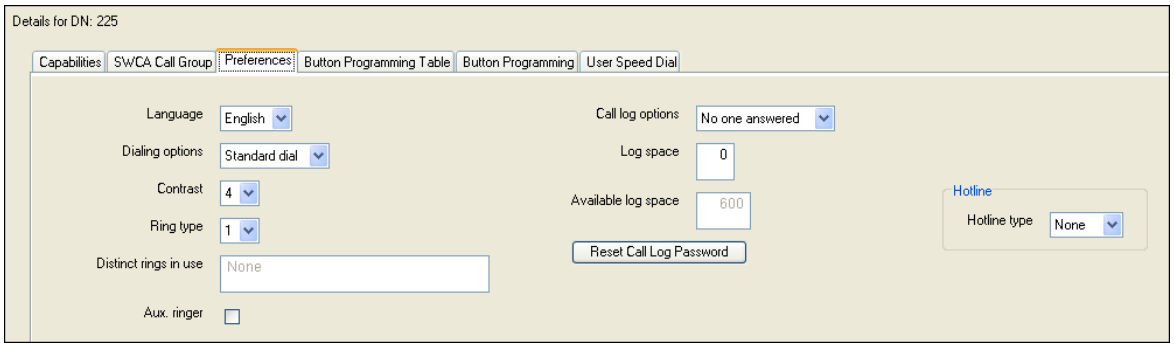


Table 15 describes the headings on the Preferences panel.

Table 15 Preferences panel fields (Sheet 1 of 3)

Setting	Values	Description
Language	Languages displayed are based on telephone capabilities and system software.	Choose the language for the telephone display prompts.

Table 15 Preferences panel fields (Sheet 2 of 3)

Setting	Values	Description
Dialing options	Standard dial Automatic dial Pre-dial	Determine how the telephone handles dialed information. Standard: Lift the receiver and dial. Automatic dial: Use for devices, such as fax machines where you want the number to dial out without external cues. Pre-dial: Dial the numbers, then lift the handset to allow the telephone to dial the number. **Note:** Not all devices show all three options.
Contrast	1 through 9	Adjust the contrast of the display.
Ring type	1, 2, 3, or 4	Select a distinctive ring pattern type for the telephone. Default is 1.
Distinct rings in use	<read-only>	Indicates the distinct ring patterns, if any, are currently in effect on any lines, telephones, or Hunt groups on the system. Refer to the Warning below.
	**Warning:** If you assign a distinctive ring pattern to a telephone, and that distinctive ring pattern has already been assigned to a line, all lines with that ring pattern will be reset to None. If you assign a distinctive ring pattern to a line, and that distinctive ring pattern has already been assigned to a telephone, all telephones with that ring pattern are reset to pattern 1. You also can assign a distinctive ring pattern to a Hunt group.	
Aux. ringer	<check box>	Determine whether an auxiliary ringer (if installed) rings for incoming calls at this telephone.
Call log options	No autologging No one answered Unanswered by me Log all calls	Select how you want the telephone to handle logging calls. No autologging: No calls are logged automatically. No one answered: Unanswered calls are logged. Unanswered by me: Unanswered calls are logged. Log all calls: All calls are noted in the call log. Also refer to “Call log” on page 214.
Log space	<numeric>	Allocate a number of Call log spaces from a system-wide pool of spaces to the telephone. Also refer to “Setting call log space for the system” on page 214.
Available log space	<read-only>	Indicate the total amount of space available for call logging on the system.
Reset Call Log Password	<button>	Reset the password for the call log if users forget their password.
Hotline type	None Internal External	This feature allows you to define a telephone number that automatically dials when you lift the handset or press the Handsfree button, on a telephone.

Table 15 Preferences panel fields (Sheet 3 of 3)

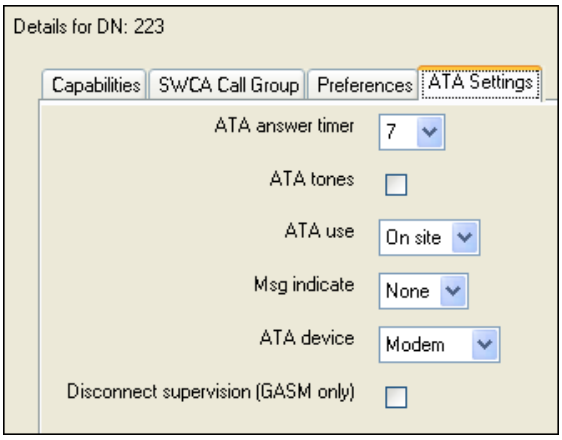
Setting	Values	Description
• Internal	DN:* Direct dial set	Define the internal telephone you want to access. DN:* The DN of the telephone that is automatically dialed when the user lifts the handset. Direct dial set: Automatically dials a telephone on the system defined as a direct dial telephone (direct dial access code). **Note:** If the direct dial telephone is on a remote node of the network, ensure that the correct line pools are assigned to the telephone to properly route the call.
• External	External number	Enter the complete call number for the external telephone you want to access.
	Pool:A Use prime line Use routing table	Enter the line you want the call to use. (This cannot be a target line.) Pool:A Refer to the line pool assignment for this telephone. Use prime line: Refer to the General record for this telephone. Use routing table: Refer to the routing tables. The routing code for that table must be part of the External number.

ATA Settings tab

Analog telephones have some settings that are specific to the analog connection. An analog telephone can be connected to the system directly through an analog station port, either on the Main Unit (in countries that support Main Unit Analog Stations) or through Analog Station Media Bay Modules. These settings apply only when the DN record Model field is set to Other.

Analog telephones can also be connected by using an Analog Terminal Adapter (ATA2). The digital station port can be on the main unit, or on a Digital Station Media Bay Module.

Figure 14 ATA Settings panel fields



Use the information in Table 16 to configure ATA settings.

Table 16 ATA settings (Sheet 1 of 2)

Attribute	Values	Description
ATA answer timer	3, 5, 7, 10	Select the length of delay between the time you dial the last digit and when the analog device is ready to receive DTMF tone.
ATA tones	<check box>	Not selected: No tones occur when a message is received (use for data equipment). Selected: Tones occur when a message is received (use for analog telephones).
ATA use	On site Off site	Select the location of the ATA2. **Note:** Set the field to On site for all installations, except devices on a long loop. Set the field to Off site to increase the audio level to devices that are remote to the ATA2. This field has no effect for ASM and ASM8+ devices. **Note:** OPX connections are not supported.
Msg indicate	None Tone Lamp	Select Tone to send a Message Tone through the telephone receiver when you receive a message. Select Lamp to turn on the Message Lamp when you receive a message.
ATA device	Modem Telephone	Default: Modem Devices connected to the system through an ATA can have connectivity issues over BRI/PRI lines. To alleviate this, you can specify the type of device attached to the analog line. **Modem** supports 3.1 kHz audio, which requires a higher quality of service on the ISDN trunks that modems and FAX machines require for reliable information transfer. If the trunks cannot provide the higher level of service, the call fails. **Telephone** supports speech paths, which require less quality on the trunk; if used for FAX and/or modem, information transfer is unreliable.

Table 16 ATA settings (Sheet 2 of 2)

Attribute	Values	Description
Disconnect supervision	<check box>	Default: not selected If you have a modem or fax machine that does not disconnect automatically when the caller disconnects, you can select this feature; the system then disconnects the line from the device when it receives the disconnect signal from the far end. This feature is supported only by ASM8+ modules. **Note:** The line must be configured as supervised/guarded. Refer to "Properties" in the *Networking Configuration Guide* (NN40020-603).

IP Terminal Details tab

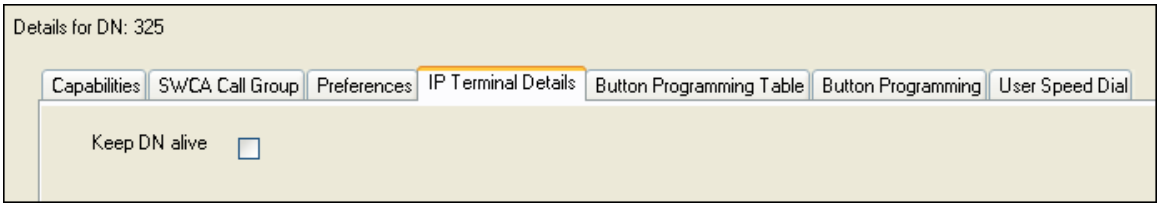
This is a single-terminal display of the terminal information that is also shown in the Telephony Resources IP Terminal panel. At start-up, the BCM acquires and retains a list of all IP terminals that have a registered DN. This allows DN-specific features, such as Call Forward, Hotdesking, and voicemail to continue to function even if the telephone is disconnected.

If the number of IP Set DNs registered with the BCM exceeds the number of IP Client key codes applied, selecting this check box prioritizes a set.

For example, if the BCM is rebooted, and the number of IP phones exceeds the number of IP client key codes, the BCM retains the DN record of the sets with this field selected, before retaining the DN record of a set that does not have this field selected.

If Keep DN alive is not selected, and the IP telephone is disconnected, the DN record may become inactive if there are not enough keycodes. In this case, a Not in Service prompt is produced when special features, such as Call Forward, are invoked.

Figure 15 IP Terminal Details panel

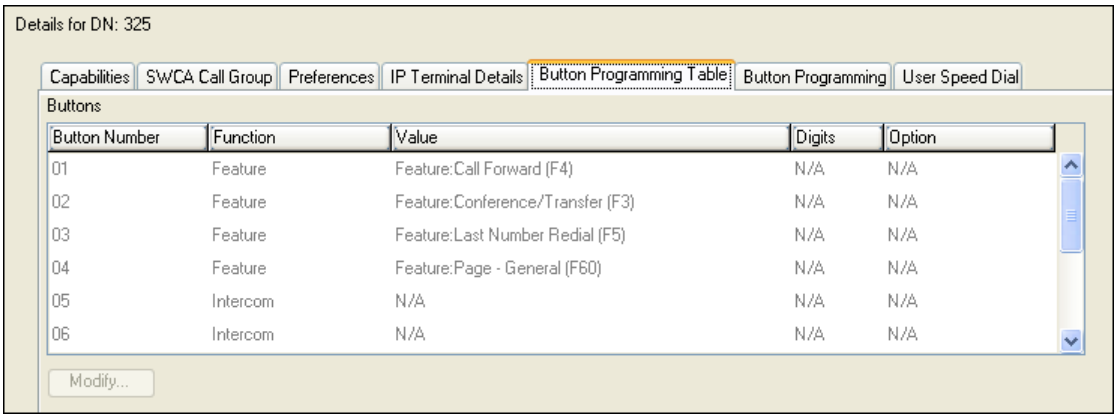


Also refer to:

"Moving IP telephones" in the *Telephony Device Installation Guide* (NN40020-309)

Button Programming table

Figure 16 Button Programming table

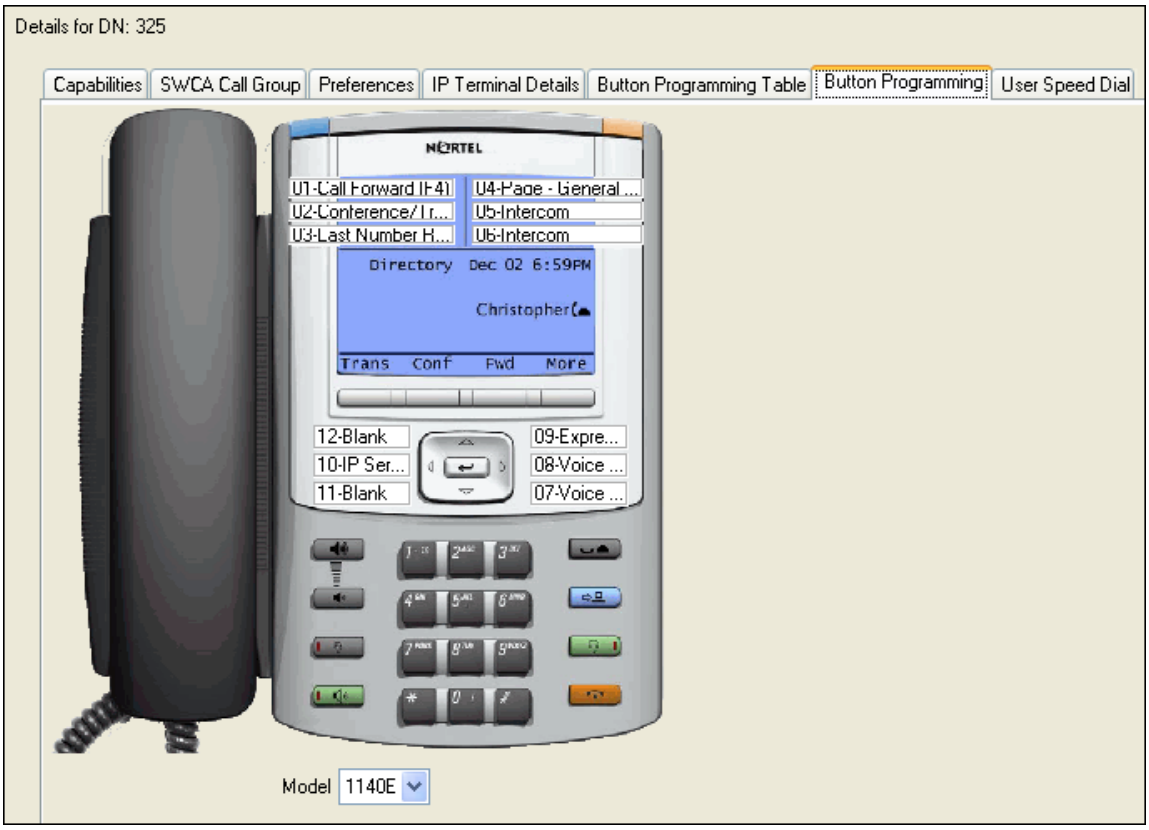


Button Programming tab

The Button Programming and CAP/KIM Button Programming tab panels allow you to program the buttons on a telephone with internal and external autodialers, and with programmed feature keys.

You also can use these panels to remove programming from a button, making it blank.

Figure 17 Button Programming and CAP/KIM Button Programming tabbed panels



Assigned lines, Hunt group designators, Answer DNs buttons, Intercom button*s*, and Handsfree buttons cannot be changed through these panels. They appear in read-only format.

Table 17 describes the possible settings for telephone buttons.

Table 17 Button programming fields (Sheet 1 of 2)

Setting	Values	Description
Model	7100 7208 7310/7316 7316E 7324 2004/2050 2002 2001	If you have not yet connected a telephone, choose the model of the telephone. This creates a number of defaults based on the telephone capabilities. This setting reflects whatever you set on the main table. This field is read-only if the telephone is already attached or registered to the system. • 7310 also refers to the cordless 7406 cordless digital phones. • 7316E indicates both a stand-alone7316E digital phone and a 7316E digital phone connected to one or more KIMs (Key Indicator Modules).
	ISDN	These telephones have their own set of DN records. • ISDN refers to any ISDN equipment
	Other	This heading is used for the following types of devices: • analog telephones • Intl set (European only) is used for other types of compatible telephones used in specific non-North American markets, such as the 7000 digital phone.
Button Number (1-24)	<1-XX>	Use the telephone buttons to choose the features you want to program. Blank means that nothing is programmed on the button. Example: New KIM modules have all blank buttons when they are first installed.
Function	Blank Feature Internal autodial External autodial	Choose the type of feature that you want to program on the telephone buttons. Blank means that nothing is programmed on the button. Example: New KIM modules have all blank buttons when they are first installed.
Value		
Feature	<feature code>	Use the arrow to choose the feature you want to program on the button.
Internal autodial	<Internal DN>	Enter the DN number for the internal telephone you want the telephone to dial by pressing this button.
Digits		
Feature	<feature digits>	Includes digits for such features as system speed dial codes.
External autodial	<dialing codes plus dialout string>	Enter the complete dial sequence for the external call. This sequence depends on what you chose for the route in the Value field.
Option		
Feature	<feature options>	Includes settings such as page zone.

Table 17 Button programming fields (Sheet 2 of 2)

Setting	Values	Description
External autodial facility	Use prime line Pool Use routing table Use line	Choose the route through which the telephone dials. **Prime line**: the prime line assigned to the telephone. **Pool X**: one of the pools assigned to the telephone. **Routing table**: enter the routing code with the external phone number. **Use line X**: one of the lines assigned to the telephone.

User Speed Dial tab

Speed dial numbers allow users to dial a number with fewer button presses than dialing the entire dial string.

Note: User speed dials are only available from that users DN number.

Figure 18 User Speed Dial tab

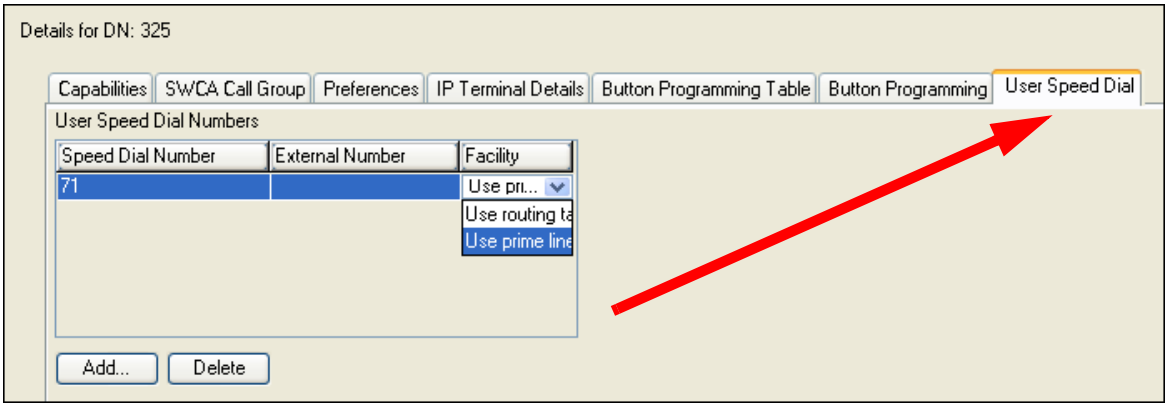


Table 18 describes the fields on this panel.

Table 18 User Speed Dial panel fields (Sheet 1 of 2)

Setting	Values	Description
Speed Dial Number	<71-94>	The number the user dials to dials out the number entered in the External # field.
External Number	<external phone number>	Enter the number the telephone automatically dials when the user speed dial code is entered. Remember to include the access codes for the route you choose.

Table 18 User Speed Dial panel fields (Sheet 2 of 2)

Setting	Values	Description
Facility	Use prime line Use routing table	Select the route you want the dialed number to take out of your system. **Note:** Any line numbers or line pool codes that you specify must be assigned to the telephone where the code is entered. If you choose prime line, a prime line must be assigned to the telephone where the code is entered. Refer to "Line Assignment tab" on page 46.
Actions		
Add	1. On the Capabilities and Preferences tab, choose the DN record where you want to add User Speed dials. 2. Under the User Speed Dial Numbers table, click **Add**. 3. Enter the appropriate speed dial number. 4. Click **OK**. 5. On the User Speed Dial, click the External Number field beside the number you entered. 6. Enter an external number to dial. 7. Click the Facility field beside the number you entered. 8. Enter how the number must be routed out of the system.	
Delete	1. On the Capabilities and Preferences tab, choose the DN record where you want to delete User Speed dial entries. 2. On the User Speed Dial Numbers table, click the user speed dial code or codes that you want to delete. 3. Click **Delete**. 4. Click **OK** to save changes.	

Restrictions main tab

The Restrictions settings allow you to control callouts of certain number combinations. These restriction filters then are assigned to lines and DN records, as required to prevent callers from making certain kinds of calls from a specific telephone, or from lines available at the telephone.

Figure 19 Restrictions table panel

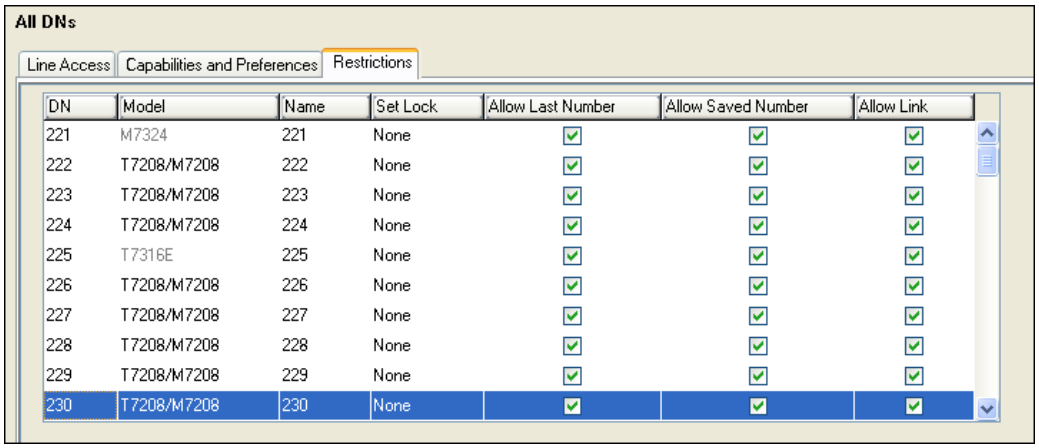


Table 19 describes the fields on this panel.

Table 19 Restrictions table fields (Sheet 1 of 2)

Setting	Values	Description	
DN	<read-only>	Refer to "Main panel tabs: common fields" on page 42.	
Model		Refer to "Main panel tabs: common fields" on page 42.	
Name	<read-only>	Refer to "Main panel tabs: common fields" on page 42.	
Set Lock	None Partial Full	Choose the option that sets the amount of programming and customizing the user can do with this telephone.	
		None allows access to all features.	
		Partial prevents: • programming autodial buttons • programming user speed dial numbers • programming feature buttons • moving line buttons • changing the display language • changing dialing modes (Automatic, Pre-, and Standard Dial) • using Voice Call Deny • saving a number with Saved Number Redial	**Full** restricts all the Partial settings, plus: • changing background music • changing Privacy • changing Do Not Disturb • using Ring Again • using Call Forward all calls • using Send Message • using Trunk Answer • activating Services
Allow Last Number	<check box>	Allow or disallow access to the Last Number Redial feature.	
Allow Saved Number	<check box>	Allow or disallow access to the Saved Number Redial feature.	

Table 19 Restrictions table fields (Sheet 2 of 2)

Setting	Values	Description
Allow Link	<check box>	Allow or disallow access to the Link feature, which is a host signaling option.

Set Restrictions tab

You can assign restrictions that apply to a specific telephone record. You also can assign a different restriction filter for Normal service, and for one or more of six other schedules that allows the user to have different access at different times of the day. See "System schedule settings and services scheduling" on page 29 for more information about schedules.

Figure 20 Set Restrictions tab panel

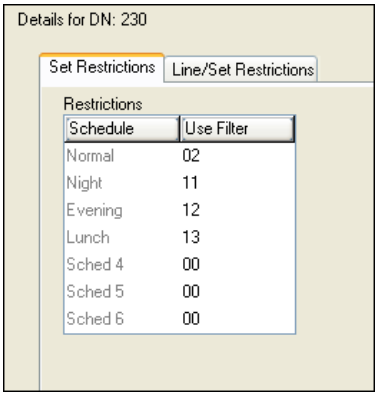


Table 20 describes the fields on this panel.

Table 20 Set Restrictions tab fields

Setting	Values	Description
Schedule	Normal Night Evening Lunch Sched 4 Sched 5 Sched 6	The Normal schedule runs when no other schedules are active. If schedules are being used, select the relevant schedule, and enter the required filter.
Use Filter	<XX>	Enter the restriction filter you want to be active for each schedule that you use.

Table 21 provides a list of default restriction filters.

Table 21 Schedule filter defaults

Schedule	Restriction filter (defaults)	Schedule	Restriction filter (defaults)
Normal	02	Schedule 4	00
Schedule 1 (Night)	11	Schedule 5	00
Schedule 2 (Evening)	12	Schedule 6	00
Schedule 3 (Lunch)	13		

Line/Set Restrictions tab

The Line/Set Restrictions settings allow you to assign a restriction filter to a specific line for outgoing calls at a specific telephone. This type of filter replaces any line or set restriction filters that can otherwise apply. Line/Set restrictions restrict the numbers the user can dial on a line, but only from that telephone. The same line on another telephone can have different restrictions.

You can apply a different line restriction for normal service, and for each of the six schedules.

Figure 21 Line/Set Restrictions panel

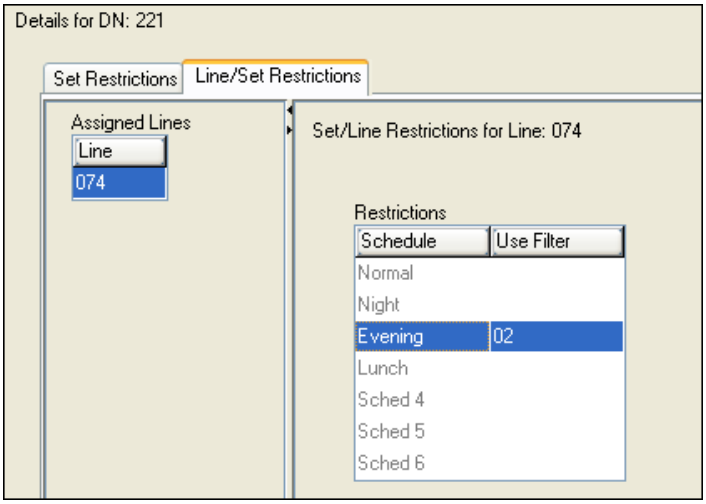


Table 22 describes the fields on this panel.

Table 22 Line/Set Restrictions fields (Sheet 1 of 2)

Setting	Values	Description
Line	<XXX>	A list of lines assigned to this telephone. Define a restriction filter for each line under the schedules that you intend to use. Restriction filters are defined under Call Security.

Table 22 Line/Set Restrictions fields (Sheet 2 of 2)

Setting	Values	Description
Schedule	Normal Night Evening Lunch Sched 4 Sched 5 Sched 6	Always configure a Normal filter, as this schedule runs if there are no other schedules running. If your system is using schedules (for example, if you require different restrictions on lines at different times of the day), choose an alternate schedule that coordinates with the other programmed schedules on your system.
Use Filter	<XX>	Enter the restriction filter you want activated for this set on this line for each schedule that you use.

Chapter 7
Common procedures: copying and renumbering DNs

Task: Understanding common tasks

- "Copying settings to other DNs" on page 69
- "Renumbering DNs" on page 70

Copying settings to other DNs

The Copy command allows you to duplicate programming for a telephone, and apply it to another telephone, a range of telephones, or to all the telephones on the system. If information is copied to a record with an assigned telephone, the copy information replaces the existing settings.

Note: Unique configurations, such as the Name, do not copy over.

To copy telephone configurations

1 Select **Configuration > Telephony > Sets > All DNs.**

2 Click the DN number for the record that has the settings you want to copy.

3 Click **Copy**.

4 Select the DN to which you want to apply the selected settings.

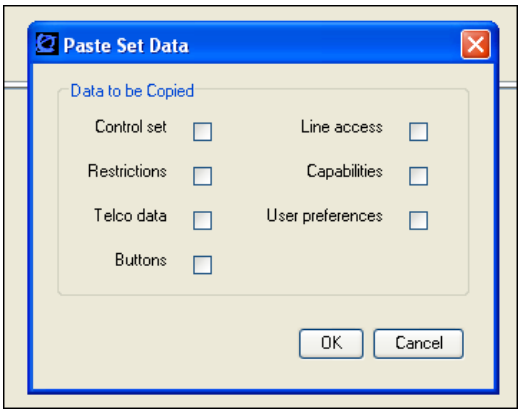
Note: Select multiple DNs by holding down the control or shift key, and clicking multiple records.

5 Click **Paste**.
The panel in Figure 22 appears.

6 Select the check boxes for the properties that you want to copy to the new DN.

7 Click **OK.**

Figure 22 Paste Set Data dialog box



Renumbering DNs

Your system auto-assigns DNs based on the hardware for digital telephones. In the case of IP telephones, you can choose to auto-assign DNs when the telephones register to the system.

When you change a DN, the DN record retains the same port number, because the telephone is not being moved physically. The original DN then assigns to the port vacated by the DN that you assign as the new DN. If you fill the DN/Port record in the Programming Records, remember to change the entries.

Change telephone DNs using the Element Manager

Two panels in Element Manager from which you can change the DN setting:

- Element Manager: **Configuration > Telephony > Sets > Active Sets**
- Element Manager: **Configuration > Telephony > Dialing Plan > DNs**

The procedure is the same in both panels.

To change telephone DNs

1. Double-click the DN you want to change.
2. Type the number of the DN you want to assign to the set.

Chapter 8
Telephony system and device programming

The following list provides links to the telephone and telephony system programming areas of the system.

Within the context of the network, system telephones act as call end points or call initiation devices.

- To make or receive calls, telephones must be set up with the correct line assignments.
- To make calls, users must know the correct destination codes and dial strings to reach other internal or external devices.

Refer to the *Networking Configuration Guide* (NN40020-603) for connections to the sections that describe line setup and numbering plans.

How telephones handle incoming and outgoing call traffic is determined by telephone features. Some telephone features are set up for the entire system, while other parameters are configured on a per-device basis.

System-wide telephony feature configuration

The system telephony settings must be set correctly to ensure that telephones can be programmed correctly.

- “Global telephony settings” on page 73

Telephone record configuration

When the system features are determined, the telephone DN records allow you to refine how each telephone interacts with the system. DN record configuration can depend on what features you want to allow users to access, or what features the type of telephone can support.

- “DN records parameters” on page 41
- “Common procedures: copying and renumbering DNs” on page 69
- “Configuring telephones: Digital telephones” on page 123
- “Configuring analog telephones and devices” on page 117
- “DN records: ISDN devices” in the *Networking Configuration Guide* (NN40020-603)
- “Configuring telephones: IP telephones” on page 139
- “Download firmware to a Nortel IP telephone” on page 151

Optional system features:

There are also several optional telephony system features that you can use to enhance the telephone system.

— “Configuring system speed dial numbers” on page 87

— “Creating ring groups” on page 97

— "System schedule settings and services scheduling" on page 29
— "Configuring Hunt Groups" on page 101
— "Configuring Hospitality services" on page 111
— Voice mail, if applicable

Also refer to:

- "Telephony features" on page 191

Chapter 9
Global telephony settings

There are a number of settings that define telephony operation for the entire system. These have been gathered on one panel, separated into sections.

The following paths indicate where to access global telephony settings in Element Manager and through Telset Administration:

- Element Manager: **Configuration > Telephony > Global Settings > Feature Settings**
- Telset interface: ****CONFIG > System Prgrming > Featr settings**

Click one of the following links to connect with the type of information you want to view:

Panels and Details Panels	Configure Features
"Feature Settings" on page 74	
	"Programming Business name display (outgoing)" in the *Networking Configuration Guide* (NN40020-603)
"Feature Settings panel" on page 75	"Selecting the music source" on page 294 "Call Park" on page 210 "Directed Pickup" on page 198 "Holding calls" on page 204 "Transfer (unanswered) calls" on page 206 "Paging" on page 219 "Receiver volume" on page 193 "Answer DNs" on page 200
"Timers" on page 78	"Camp-on" on page 209 "External call codes" on page 227 "Call Park" on page 210 "Callback" on page 211 "Configuring an analog telephone" on page 120
"Advanced Feature Settings" on page 81	
	"Sharing calls by parking on SWCA buttons" on page 211
"ONN Blocking (North American systems)" on page 83	"Blocking outgoing name display at the telephone" in the *Networking Configuration Guide* (NN40020-603)
"Silent Monitor" on page 84	"Capabilities tab" on page 52 (Supervisor sets) "Monitoring external hunt group calls" on page 109
"Reset logs" on page 85	"Capabilities and Preferences main tab" on page 50 (Set log space) "Call log" on page 214

Click the navigation tree heading to access general information about user management.

The global telephony settings affect a number of different telephony features.

- Business Name: This is part of the CLID feature. It displays the business name on outgoing calls for all system telephones, on which CLID is allowed and activated.
- Feature settings: These affect different aspects of how various features act, or if they are allowed on the system.
- Timers provides timeout parameters for different types of telephony features.
- System wide call appearance (SWCA) fields determine how the telephones will relate calls to SWCA assignments.

Feature Settings

Refer to the following for a description of the fields in each segment of this panel.

- "Feature Settings panel" on page 75
- "Timers" on page 78

Feature Settings panel

These settings affect all telephones. They determine whether the listed features are allowed, or how they function.

Figure 23 System feature settings

Table 23 describes each field.

Table 23 Feature settings (Sheet 1 of 3)

Attribute	Value	Description
Business Name	<maximum of 8 alphanumeric characters>	Enter the name to display on outgoing calls. Refer to "Programming Business name display (outgoing)" in the *Networking Configuration Guide* (NN40020-603).
Feature Settings		
Background music	<check box>	Select the check box to enable the caller to listen to music through your telephone speaker after pressing **FEATURE 86** on your telephone. A music source must be connected to system. Refer to the *BCM50 2.0 Installation and Maintenance Guide* (NN40020-302) for information about installing an external music source. Also refer to "Selecting the music source" on page 294. Default: Cleared
Page tone	<check box>	Select the check box to sound a tone on the sets, before a page begins. Also refer to "Paging" on page 219. **Note**: This tone is not heard over external page ports. Default: Selected
*Conference Tone	<check box>	Select the check box to enable a conference tone that is heard by participants at the beginning of the conference. *Only available in certain profiles, UK, Germany, and Italy.

Table 23 Feature settings (Sheet 2 of 3)

Attribute	Value	Description
Message reply enhancement	<check box>	Select the check box to enable users to automatically deactivate the message waiting indicator on analog telephones connected to an analog station media bay module (ASM), if the reply call from the analog telephone to the direct dial telephone is answered. Any telephone can answer the call. This feature also functions if the user invokes the Call pickup feature to answer the reply call from the analog telephone. However, it does not work with the Retrieve parked call feature. Default: Cleared **Note:** ASM (analog station modules) are not supported in all countries.
		Tips: Only direct dial telephones can send messages (using F1) to analog telephones connected to an ASM/GASM. The direct dial set must be the designated direct dial telephone for the analog telephone receiving a message.
Force auto/spd dial over ic/conf	<check box>	Determine if autodial and speed dial codes can be transmitted during an active call. This feature works during either a one-to-one call, or during a conference call. **Note:** This feature cannot be used for an ad hoc multiparty conference. If selected: When the user presses a programmed autodial or speed dial key, the system dials out the number while maintaining the current call. If cleared: When the user presses a memory key for a speed dial, the current call is automatically placed on Hold, and the second call is dialed. Default: Cleared
On hold	Silence Tones Music	Select what a caller hears on an external line when the line is put on hold. **Silence** provides no audio feedback. **Tones** provides a periodic tone. **Music** provides any signal from a source such as a radio connected to BCM or streaming audio. See "Selecting the music source" on page 294. Default:Tones
Held line reminder	Immediate After 30 seconds After 60 seconds After 90 seconds After 120 seconds After 150 seconds After 180 seconds Off	Reminds you that an external call at your telephone is still on Hold. You periodically hear two tones from your telephone until you take the call off Hold. Default: Off **Note:** These tones can be heard by the caller.
Delayed ring transfer	Off After 1 ring After 2 rings After 3 rings After 4 rings After 6 rings After 10 rings	Defines whether unanswered external calls are forwarded automatically to a prime telephone after this timer expires. You must assign a prime telephone for this feature to operate. Refer to the *Networking Configuration Guide* (NN40020-603) for information on how to assign a prime telephone. Default: After 4 rings

Table 23 Feature settings (Sheet 3 of 3)

Attribute	Value	Description
Park mode	Lowest Cycle	Determine how the system assigns a retrieval code to parked calls. **Lowest**, the system chooses the lowest code that is available when the call is parked. **Cycle**, the system chooses the codes in a sequence, from lowest to highest, until all the codes have been used, then starts at the lowest code again. Also refer to "Common dialing plan settings" in the *Networking Configuration Guide* (NN40020-603) (Call Park access code) and "Timers" on page 78 (Park timeout). Default: Lowest
Maximum CLI per line	<read-only>	This setting indicates the maximum number of telephones that display CLID simultaneously for an incoming call. Default: 30
Answer keys	Basic Enhanced Extended	The **Answer keys** setting allows you to determine what types of calls alert at a telephone that has answer DNs assigned. Answer key changes do not apply to portables. **Warning:** Do not change the default setting (Basic) if you have **Contact Center** active on your system. Refer to "Answer DN answer key levels" on page 78 for attributes of each setting. Also refer to "Answer DNs tab" on page 49. Default: Basic
Receiver volume	Use sys volume Use set volume	Specify if the volume level of a receiver or headset returns to the system default level when a call ends or is put on hold, or if it remains at the volume level set at the individual telephone. Default: Use sys volume
Directed pickup	<check box>	If selected: allows anyone to answer any calls by specifying the internal number (DN) where the call is ringing. Directed pickup is useful when not all the telephones have the same lines, but you want to allow co-workers to answer a call on any external line. **Note:** Do not confuse Directed pickup with the Group pickup feature. Group pickup allows you to answer a call at any telephone within a specific group, without specifying the internal number (DN) of the ringing telephone. Default: Selected
Set relocation	<check box>	**If selected**: Set relocation, after you perform the telephone installation and programming, for more flexibility in testing equipment. You can move any digital telephone to a new location without losing the directory number, autodial settings, personal speed dial codes, and any programming for that telephone. **If not selected**: Set relocation while moving a telephone, the internal number and programming data remain with the physical port on BCM. When you connect the telephone somewhere else, it does not receive the original programming. A telephone that is plugged into the original jack downloads the programming. If the new telephone is a different model, it downloads the part of the programming that is the same for both models. Default: Cleared
Alarm set	DN: <number>	Assign a device on which alarm messages appear when a problem is detected in the system.

Answer DN answer key levels

You can determine what type of calls alert at an assigned Answer DN key. This is a system setting, so all Answer DNs behave the same.

There are three answer key levels: **Basic**, **Enhanced**, and **Extended**. If your system supports overflow routing of calls (for example, Hunt groups), the setting is Enhanced or Extended. Alternatively, if Contact Center telephones are assigned Answer DNs, this setting must be Basic. Do not change this setting unless you understand the impact on the other telephone groups in your system.

In Table 24, the X indicates the type of calls that are handled at Answer DNs for each answer key level.

Table 24 DN answer key levels

Answer DN call response for:	Basic	Enhanced	Extended
Prime set call capture			X
Overflow call routing calls		X	X
Call forwarded calls			X
Ringing service calls			X
Callbacks			X
Blind transferred calls	X		X
Other answer key calls			
Priority calls			
Voice calls			
All other calls	X	X	X

Also refer to:

- “Answer DNs tab” on page 49
- “Telephony features” on page 191

Timers

Various system features require timeout parameters to close the feature.

Figure 24 System Timers

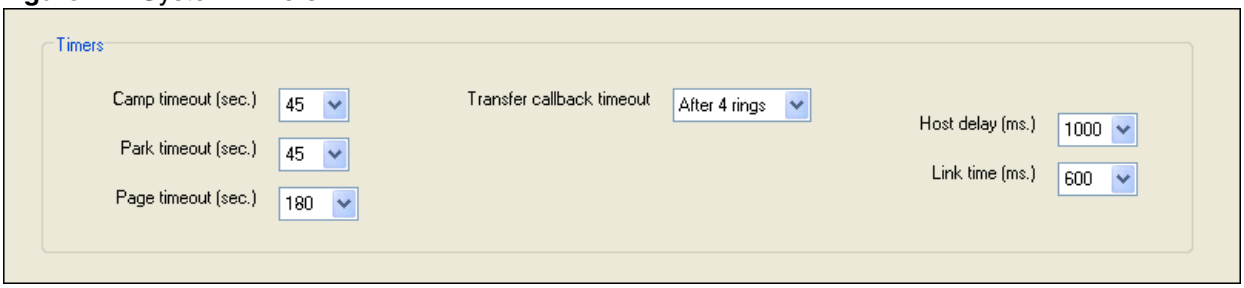


Table 25 describes the timers.

Table 25 Timer values

Attribute	Values	Description
Camp timeout (sec.)	30, 45, 60, 90, 120, 150, or 180	Assign the number of seconds before an unanswered camped call returns to the telephone that camped the call. Also refer to "Camp-on" on page 209. Default: 45 seconds
Park timeout (sec.)	30, 45, 60, 90, 120, 150, 180, 300, or 600	Assign the number of seconds before a parked call on an external line returns to the telephone which parked the call. This interval is used for SWCA lines as well. Also refer to"Call Park codes" in the *Networking Configuration Guide* (NN40020-603). Default: 45 seconds
Page timeout (sec.)	15, 30, 60, 120, 180, 300, 600, or 2700	Define the period of time after which the paging feature automatically disconnects. Also refer to "Paging" on page 219. Default: 180 seconds
Transfer callback timeout	After 3 rings After 4 rings After 5 rings After 6 rings After 12 rings Off	Specify the number of rings before a callback occurs on a transferred call. You can estimate the delay in seconds, if you multiply the number of rings by six. **Note:** This setting can affect transferred calls from voice mail and must be configured accordingly. Also refer to "Line Access tab" on page 43 (Call forward). Default: After 4 rings
*Network Callback	15 30 45 60 90 120	Determine the timeout value when a transfer attempt stops and then attempt a retry of the transfer. *Not available in all region profiles.

Table 25 Timer values (Continued)

Host delay (ms.)	200, 400, 600, 800, 1000, 1200, 1400, 1600, 1800 or 2000	Assign the delay between the moment an outgoing line is selected to make an external call (for example, by lifting the receiver) and the moment that BCM50 2.0 sends dialed digits or codes on the line.This ensures that a dial tone is present before the dialing sequence is sent. Minimizing this delay provides faster access to the requested features. Default: 1000 milliseconds
Link time (ms.)	100, 200, 300, 400, 500, 600, 700, 800, 900, or 1000 milliseconds	Specify the duration of a signal required to access a feature through a remote system. Link time depends on the requirements of the host switching system. For example, to program external dialing through a Centrex system, a Link time of 400 ms is required. **Note:** Link is another name for recall or flash. Default: 600 milliseconds

Advanced Feature Settings

The following path indicates where to access advance feature settings in Element Manager and through Telset Administration:

- Element Manager: **Configuration > Telephony > Global Settings > Advanced Feature Settings**

The Advanced Feature Settings panel enables administrators to modify the following features:

- "System Wide Call Appearances Control"
- "ONN Blocking (North American systems)" on page 83
- "Silent Monitor" on page 84
- "Reset logs" on page 85

System Wide Call Appearances Control

There are a number of ways that calls can be parked on System Wide Call Appearance (SWCA) assignments. Use this panel to set the system feature function.

Figure 25 System Wide Call Appearances controls

Table 26 describes the fields on this panel.

Table 26 SWCA controls (Sheet 1 of 2)

Attribute/Value	Description
Auto-associate SWCA key to call Manually - while parked Manually - life of call Automatically - life of call	Select how a call is parked on a SWCA key. Default: Manually - while parked.
	Manually - while parked: The user either presses a free SWCA key on the telephone, or dials the feature code for a free key. Once the call is retrieved, it is unassigned from the SWCA key. Manually - life of call: The user either presses a free SWCA key on the telephone, or dials the feature code for a free key. When the call is retrieved, it remains assigned to the SWCA key. The key is freed only after the call is terminated. Automatically - life of call: When a call is answered, it is automatically assigned to a free SWCA key, starting with the lowest available number. When the call is retrieved, it remains assigned to the SWCA key. The key is freed when the call is terminated.
Include I/C calls when auto-associating <check box>	Select if you want intercom calls to automatically park on SWCA keys.

Table 26 SWCA controls (Sheet 2 of 2)

Attribute/Value	Description
If you select the check box... **Auto-associate SWCA key to call** must be set to **Automatically - Life of call** for this feature to work. When the user makes a call using the intercom button, the call automatically associates with a free SWCA key, and remains assigned for the duration of the call. If you do not select the check box... The user must assign manually an intercom call to a SWCA key. The call will behave according to the rules of the choice made for **Auto-associate SWCA key to call**.	
Invoke SWCA parking by Hold <check box>	Select whether calls that are placed on hold are assigned automatically to a SWCA key.
If you select the check box... When the user presses Hold, the system attempts to repark the call on the current SWCA key assigned to the call, or on a free SWCA key programmed on the telephone. If no SWCA key is currently associated with the call (Automatically - life of call is not selected), and there is no free SWCA key to assign to the call, the call remains on Hold on the line on which it enters. **Note:** In this case, the call is not available to other telephones in the group until it can be assigned to a SWCA key, or unless they have the same line appearance as the held call. If you do not select the check box... There is no interaction with SWCA keys. The call remains on Hold on the line on which it enters, and is not available to other telephones in the SWCA group, unless the user manually assigns the call to a SWCA key, or unless those telephones have the same line appearance as the held call.	
Include I/C calls when invoked by Hold <check box>	Select whether intercom calls, put on Hold, are assigned automatically to a SWCA key.
If you select the check box... Invoke SWCA parking by Hold must be checked to activate this feature. When the user makes an intercom call, and puts it on Hold, the call works in the same manner as described in **Invoke SWCA parking by Hold**, selected. If you do not select the check box... Intercom calls are held on the local line, regardless of whether you select the Invoke SWCA parking by Hold. If the intercom call is assigned to a SWCA key automatically, you can press the SWCA key to repark the call, and make it available to other telephones in the group. If you manually assign the intercom call to a SWCA key, the call is parked automatically, and it becomes available to the rest of the group.	

Also refer to:

- "Common dialing plan settings" in the *Networking Configuration Guide* (NN40020-603)(Call Park codes)
- "Timers" on page 78 (Park timeout)

- “Sharing calls by parking on SWCA buttons” on page 211
- System Wide Call Appearance (SWCA) Features Card

ONN Blocking (North American systems)

The outgoing name and number blocking codes for Analog and BRI lines can vary between service providers. This panel allows you to enter the code provided, so this feature works correctly over the network.

Figure 26 ONN Blocking codes for Tone, Pulse and BRI trunks

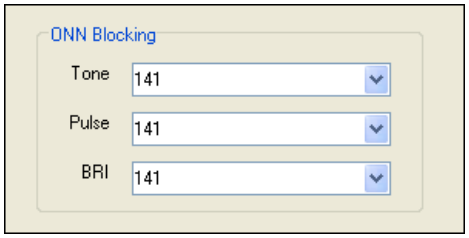


Table 27 describes these trunks.

Table 27 ONN Blocking values

Attribute	Values	Description
Tone	<feature digits>	Specify a code that allows users to block outgoing name and number display over an analog tone line.
Pulse	<feature digits>	Specify a code that allows users to block outgoing name and number display over an analog pulse line.
BRI	<feature digits>	Specify a code that allows users to block outgoing name and number display over a BRI trunk.

Also refer to:

- “Protecting outgoing call privacy” on page 217.

Silent Monitor

The features in this dialog box provide the parameters that determine how you can use supervisor terminals on your system to monitor Hunt group members ("Monitoring external hunt group calls" on page 109).

Figure 27 Silent Monitor settings

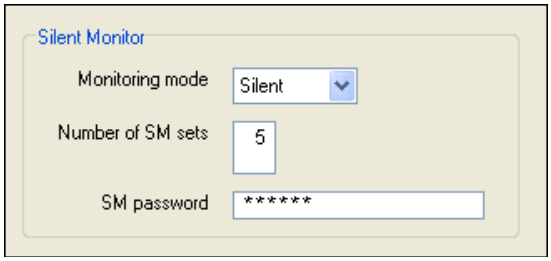


Table 28 describes the fields in this dialog box.

Table 28 Silent Monitor system settings

Field	Values	Description
Monitoring mode	Non silent Silent	Select **Non silent** if you want the hunt group member and the caller to hear a conference tone when a supervisor breaks into a hunt group conversation. Select **Silent** if you want supervisors to be able to break into a hunt group conversation without giving an indicator of their presence. **Note:** Initial monitoring is muted at the supervisor set. If the supervisor wants to speak within the conversation, a display key on the two-line display becomes available, once the connection is established. The default changes based on country profile.
Number of SM sets	<1 to 30>	Indicate the number of two-line telephones in your system that you will allow to be used as supervisory telephones. Default: 5
SM password	XXXXXX	Enter a six-digit password that must be entered after the supervisor presses **FEATURE *550**. To maintain system security, change this password frequently. Default: 745368 (SILENT)

Reset logs

You can reset the log cache on the system by using the button defined in the following information.

Figure 28 System log reset

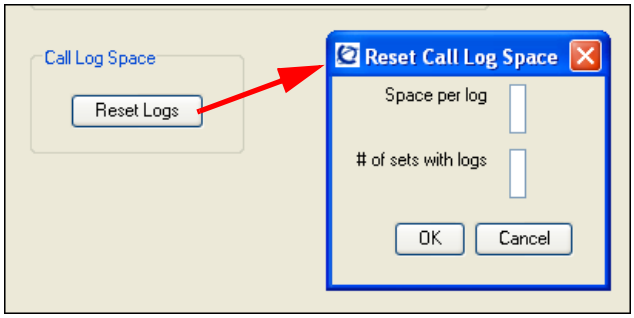


Table 29 describes the fields in this box.

Table 29 Silent Monitor system settings

Field	Values	Description
Reset Logs	<button>	Opens Reset Call Log Space dialog box.
Reset Call Log Space dialog box		
Space per log	<Space=number of calls>	Enter amount of space each telephone that supports logs has.
# of sets with logs	<digits>	Indicate the number of telephones that will create call logging.

Also refer to:

- "Monitoring Hunt Groups" on page 109

Chapter 10
Configuring system speed dial numbers

System speed dial codes are assigned to external numbers. You can use then the two- or three-digit code to dial the number, or assign the code to a memory button, instead of dialing the entire string. These assignments are the same for all users in the system.

The following paths indicate where to access system speed dial programming in Element Manager and through Telset Administration:

- Element Manager: **Configuration > Telephony > Global Settings > System Speed Dial**
- Telset interface: ****CONFIG > Sys speed dial**

Panels/Subpanels	Configuring features and tasks
"System Speed Dial panel" on page 87	"Using alpha tagging for name display (incoming)" in the *Networking Configuration Guide* (NN40020-603) "Button Programming tab" on page 60 "Programming memory buttons" on page 226 "Speed dialing" on page 225
Click the navigation tree heading to access general information about Hospitality services.	

System Speed Dial panel

This panel allows you to determine the number of speed dial codes on the system, and what each code dials.

Figure 29 System Speed Dial table

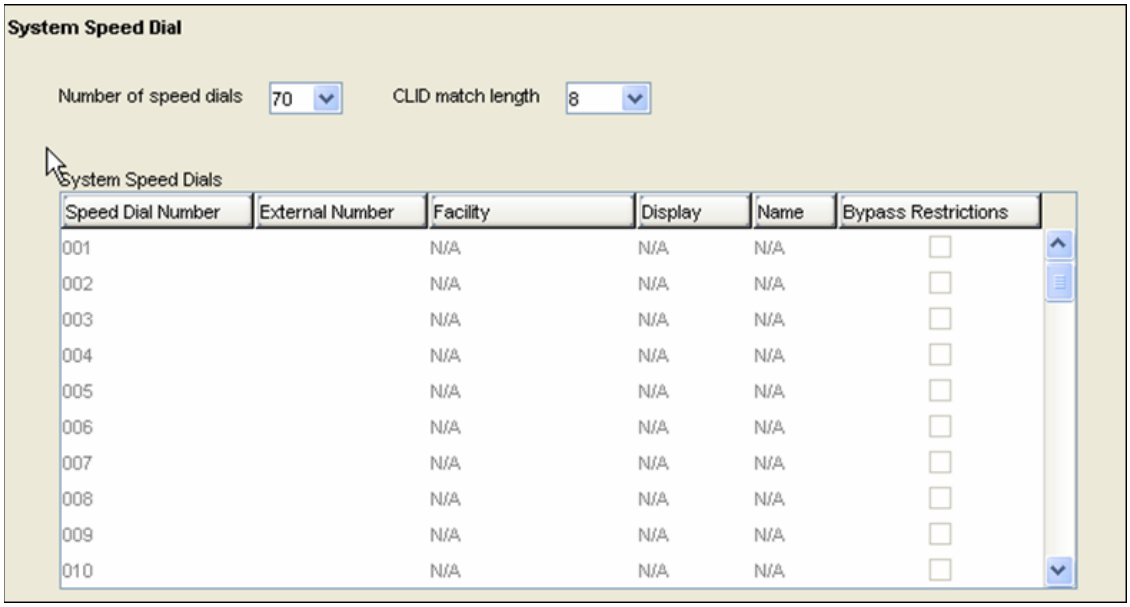


Table 30 describes each field on this panel.

Table 30 System Speed Dial (Sheet 1 of 2)

Attribute	Values	Description
Number of speed dials	70 255	Choose the number of speed dial codes you want available to your system users. If you are using alpha tagging, you can choose the larger list to accommodate your incoming call requirements. Also refer to “Using alpha tagging for name display (incoming)” *Networking Configuration Guide* (NN40020-603).
CLID match length	<3-8> None	Indicate the number of digits, starting from the right of the dial string, that the system needs to match between an incoming call and a system speed dial listing to prompt the alpha tagging display. When a match is made, the system provides a name or number display for any calls coming in over analog lines that allow number CLID. Also refer to “Using alpha tagging for name display (incoming)” *Networking Configuration Guide* (NN40020-603). Default: 8
System Speed Dials (Note: These values are read-only. For information on how to configure speed dials see “User Speed Dial tab” on page 63.)		
Speed Dial Number	<001-070 or 001-255>	Displays dial codes for the System Speed Dial list.
External Number	<dial string (max. 24 digits)>	Displays the number the system dials when the code is entered. Remember to include required destination codes.

Table 30 System Speed Dial (Sheet 2 of 2)

Facility	Use prime line Use line Pool code Use routing table	Select the route you want the dialed number to remove from your system. **Note:** Any lines or pool codes that you specify must be assigned to the telephone where the code is entered. If you choose prime line, a prime line must be assigned to the telephone where the code is entered. Refer to "Line Access tab" on page 43.
Display	Digits, Name	Digits = the speed dial number displays Name = the first 16 characters of the name defined for the speed dial displays
Name	<alphanumeric>	Enter a descriptive name for the owner or business code dials. **Note:** For alpha tagging, this is the name that the system displays if there is a number match with an incoming call.
Bypass restrictions	<check box>	Disabled = the dialed number uses the line and set restrictions Enabled = the dialed number bypasses any line and set restrictions

Notes about the System Speed Dial list

The following provides general notes about using the System Speed Dial panel.

Choose the size of the speed dial list

- The default list consists of 70 speed dial codes from 01 to 70.
- If you set **Number of speed dials** to 255, the codes are 001 to 255.

  If you want to use alpha tagging (see "Using alpha tagging for name display (incoming)" in the *Networking Configuration Guide* (NN40020-603)), you can increase the number of codes to allow for more matching possibilities for incoming calls.

Note: If the number of speed dial numbers is increased from 70 to 255, the system speed dial codes are three digits. For example speed dial numbers 01-40 become, 001-040. The user speed dial numbers remain two digits.

Programming System speed dials

System speed dials are programmed under **Configuration > Telephony > Global Settings > System Speed Dial**, where you specify the internal or external dialed number, a name, and whether you want the system to ignore dialing restrictions.

System Speed Dials:

- Provide a list of codes and numbers to your users.

Working with speed dial list entries

To add, change, or delete System Speed Dial records, click the field you want to alter, and type in the change required.

Caution: Resource issue

Entering a large number of system speed dials at one time can impact system performance. Therefore, it is best to perform this activity during low-user periods, whenever possible.

Next steps

Speed dial codes can be programmed onto memory keys by the installer during button programming. Refer to "Button Programming tab" on page 60. Also, each user can assign speed dial codes directly to memory buttons on the telephone. Refer to the "Programming memory buttons" on page 226 for instructions on using memory keys.

For information on using speed dials, and for programming speed dial codes at the telephone, refer to "Speed dialing" on page 225.

Ensure that you publish a list of system speed dial codes for the users. The Programming Records (**session save selected data) allow you to keep a record of these codes.

Also refer to:

- "User speed dials" on page 137

Chapter 11
DMC Feature List

The Digital Mobility Controller (DMC) Feature List enables you to arrange the order of the features that appear as soft keys on a Digital Mobility 7420/7430/7440 handset. This is a system-wide feature that enables users to access frequently used features.

The following paths indicate where to access the DMC Feature List in Element Manager and in telset administration:

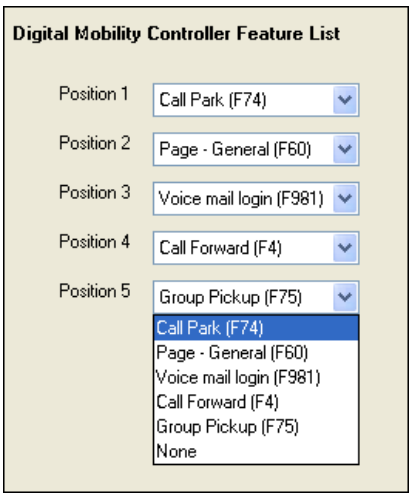
- Element Manager: **Telephony > Global Settings > DMC Feature List**
- Telset Admin: ****CONFIG > System Prgrming > Featr settings > DMC feat List**

The following features are available in the following default positions:

- Position 1: PARK (Call Park, F74)
- Position 2: PAGE (Page - General, F60)
- Position 3: VM (Voice mail login, F981)
- Position 4: CFAC (Call Forward, F4)
- Position 5: PKUP (Group Pickup, F75)

Arranging the DMC Feature list using Element Manager

Figure 30 DMC Feature List panel



To arrange the DMC Feature list using Element Manager

1 Click **Configuration > Telephony > Global Settings > DMC Feature List.** The Digital Mobility Controller Feature List panel appears.

2 In the **Position 1** field, select the feature from the list.

Note: The feature currently in that position swaps positions with the selected feature.

3 Select the order of the features in Positions 2 through 5.

Note: If you do not want to program all five features, **None** is also an option.

Chapter 12
Setting up central answering positions

A CAP (Central Answering Position) station acts as a central answering and monitoring point for a group or a business.

The following paths indicate where to set up a CAP in Element Manager and through Telset Administration:

- Element Manager: **Configuration > Telephony > Global Settings > CAP Assignment**
- Telset interface: ****CONFIG > System prgrming > CAP/KIM assgn**

Click one of the following links to connect with the type of information you want to view:

Panels	Tasks
"Configuring CAP assignments (eCAPs)" on page 94	"Programming CAP/KIM buttons" on page 95 "Managing lines on a KIM" on page 96 "DN records parameters" on page 41 "Moving line buttons" on page 193 "Hunt Group members and lines" on page 105
See also:	
Click the navigation tree heading to access general information about user management.	

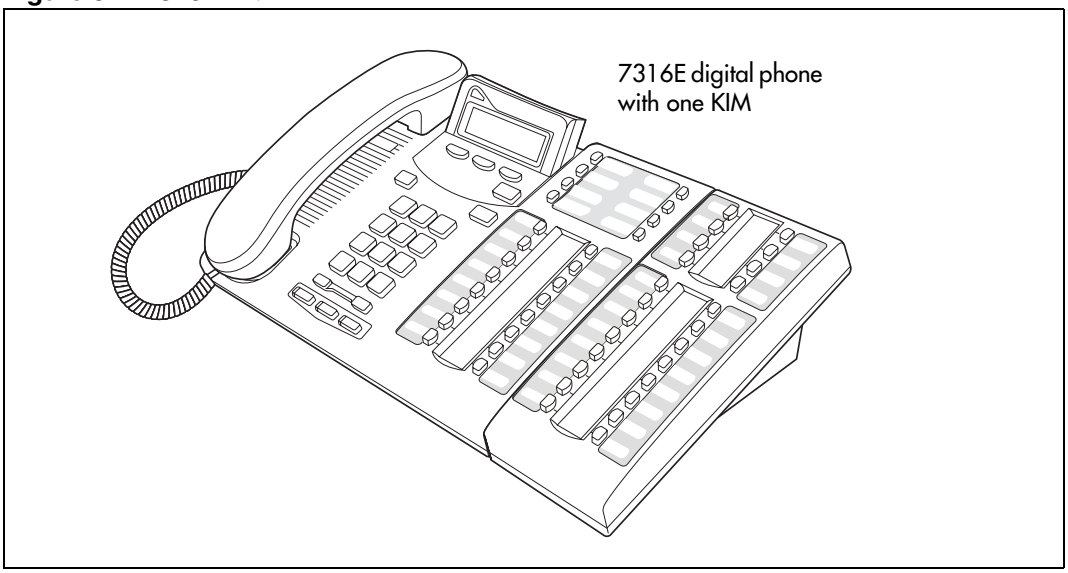
CAPs become enhanced CAPs (eCAPs) when you identify the telephone DN under the **CAP/KIM assignment**. You can configure a maximum of 12 CAPs as eCAPs on the system.

All CAPs can be programmed with quick dial numbers that allow the person at this station to monitor and answer call traffic into the group. If you program the CAP to be an eCAP, lines, hunt group appearances, and line appearances can also be moved to the module.

Also refer to the following topics:

- "Configuring CAP assignments (eCAPs)" on page 94
- "Managing lines on a KIM" on page 96
- "Programming CAP/KIM buttons" on page 95

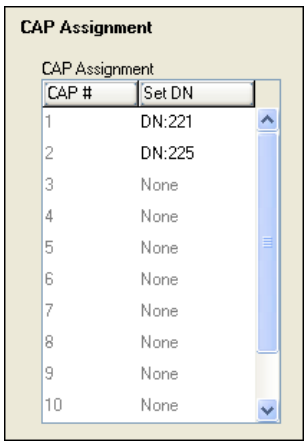
Figure 31 7316E with KIM



Configuring CAP assignments (eCAPs)

Use the CAP Assignment panel to designate 7316E+KIM units as eCAPs. The following procedures describe how to use the fields on the CAP Assignment panel.

Figure 32 CAP Assignment panel



To create CAP stations

1 Ensure that the telephone you want to use is configured and working on the system.

Note: CAPs are available only on T7316E and M7324 digital sets and IP Phone 2002, IP Phone 2004, and IP Phone 2007 sets.

2 Ensure that the KIM is installed on the appropriate telephone.
Refer to the installation user card that came with the module, if necessary.

3 On the CAP Assignment table, click the line for the CAP you want to configure as an eCAP.

4 Select the Set DN field and type the DN for the telephone.

CAP notes

- If CAPs are not designated as eCAPs, the system can support as many CAPs as the system resources can support. The modules on these caps are referred to as ordinary KIMs (OKIMs), and the buttons on the module support only memory button programming.
- A Station Auxiliary Power Supply (SAPS) is not required for 7316E digital phones attached to four or fewer KIMs. If the KIMs are designated as eKIMs, you can only attach a maximum of four modules to a 7316E. If the KIMs are designated as OKIMs, you can attach up to nine modules to the 7316E. You must add a SAPS if more than four KIMs are added to the 7316E. Note also that the line loop to the CAP cannot be greater than 304.8 m (1000 feet).
- If a KIM module is relocated with the telephone, the settings are retained on the module.
- Replacing CAPs: If you replace a legacy eCAP (7324+CAP) with a 7316E+eKIM, the line assignments are copied to the new telephone, but not to the eKIM. The telephone programming reverts to the default settings for other buttons. Also, if you move an eKIM from one 7316E to another, programming does not follow.
  If you move an OKIM from one 7316E to another, the KIM retains memory button programming.
- Legacy equipment notes: A SAPS is required for 7324 digital phones that have one or more CAP modules attached.

Programming CAP/KIM buttons

Designating features or autodial numbers to the eKIM buttons can be performed using the **CAP/KIM Button Programming** panel.

To program module buttons

1 Click **Configuration > Telephony > Sets > Active Sets**:

2 Click the **Capabilities and Preferences** tab.

3 Select the DN for the CAP you want to configure.

4 In the lower panel, click the **CAP/KIM Button Programming** tab.

5 Select the line for the button number that you want to program.

6 Configure the feature or autodial on the button.

For a detailed description of each field, refer to "Button Programming tab" on page 60.

Note: You cannot assign lines, target lines, or Hunt group indicators using button programming. These must be performed through assigning lines to the telephone ("Line Assignment tab" on page 46), and, for hunt groups, configuring the telephone as a Hunt group member ("Hunt Group members and lines" on page 105). These lines are either moved to the modules, or overflow to the module, if the telephone buttons cannot accommodate the new settings.

You cannot assign Hunt group DNs as an autodial button on the KIM modules.

Managing lines on a KIM

If the 7316E+KIM is configured as an eCAP, you can move lines onto the module using **FEATURE *81** on the telephone. You can also reassign Hunt group designators to the KIM module by using the same feature.

You can also force lines onto the KIM by assigning more lines than the telephone buttons can support. Extra lines automatically flow over to the module; however they flow sequentially, starting on the top left at button 01. Also, they overwrite any existing programming on the KIM, except existing line or hunt group (KIM) assignments.

Any of the buttons, without assigned lines, can be programmed to dial internal or external numbers automatically, or to access a feature. Refer to "Programming CAP/KIM buttons" on page 95.

Chapter 13
Creating ring groups

Assigning telephones to ringing groups provides a way to ensure that all calls can be answered, regardless of the time of day, or day of the week. The most common use of this feature is when a security desk telephone rings for incoming lines after 5:00 p.m., a practice often called *night service*.

The following paths indicate where to configure ring groups in Element Manager and through Telset Administration:

- Element Manager: **Configuration > Telephony > Ring Groups**
- Telset interface: ****CONFIG > Services > Ringing service > Ringing Groups**

Click one of the following links to connect with the type of information you want to view:

Panels	Configure Tasks or Features
"Ring Groups - Members" on page 98	"Configuring scheduled service" on page 31
"Ring Groups - Line Settings" on page 99	
Click the navigation tree heading to access general information about Ring Group management.	

Each non-auto-answer line and target line can be assigned a ringing group for each schedule. If no schedule is set for ringing services, lines ring at any telephones with the lines assigned.

Note: VoIP trunking lines and PRI lines are set automatically to auto-answer and, therefore, require target lines. BRI lines set to auto-answer also ring at target lines. Therefore, by specifying target lines in a ring group, all auto-answer lines can be forwarded to the telephones indicated.

Ring Groups - Members

The Ring Groups table on the Group Membership tab in the top frame of this panel is a read-only list of the 100 ring groups available to the system.

When you click a ring group in the table, the Members table appears in the bottom panel.

The Group Membership panel allows you to define which telephones belong to each ring group. A DN can be associated with multiple ring groups.

Figure 33 Adding members to ring groups

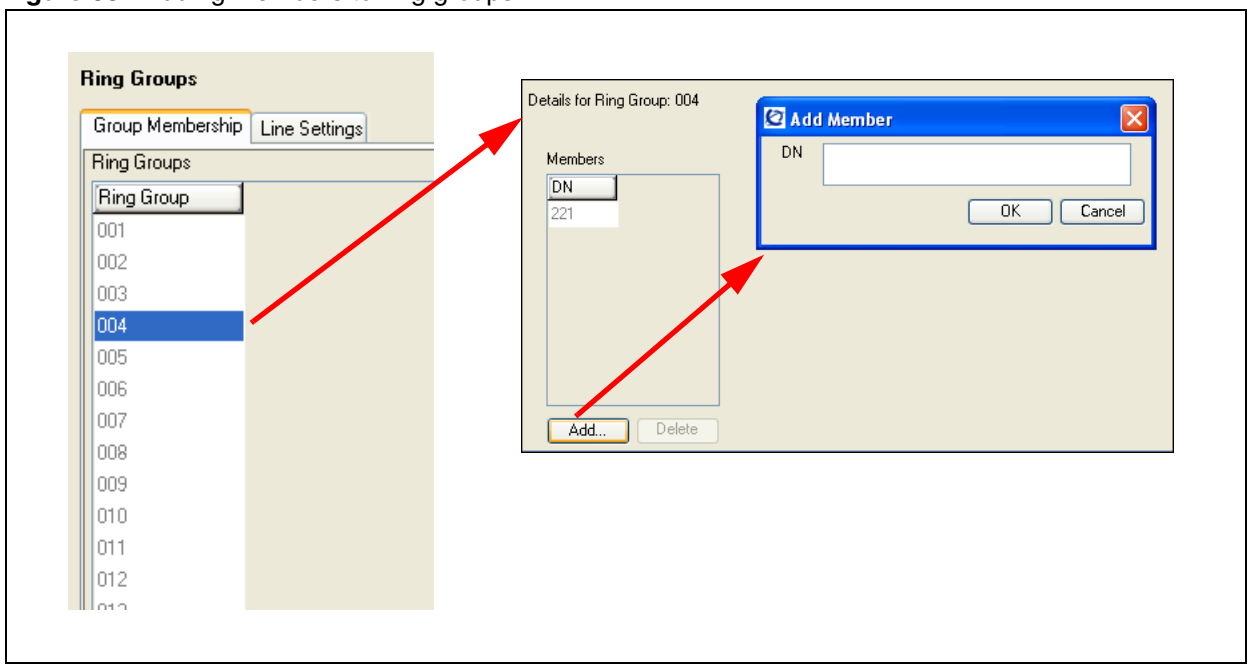


Table 31 describes the fields on this panel.

Table 31 Ring groups panel (Sheet 1 of 2)

Attribute	Value	Description
Ring Groups		
Ring Group	<read-only>	This is a list of the available ring groups for the system.
Members		
DN	<DN digits>	These are the DNs for the telephones that are part of the ringing group selected in the table in the top frame.

Table 31 Ring groups panel (Sheet 2 of 2)

Attribute	Value	Description
Actions		
Add	1. In the top panel, click the ring group where you want to add telephones. 2. In the bottom panel, click **Add**. The **Add Member** dialog box appears. 3. Enter a DN that you want to associate with the ring group. 4. Click **OK** to save the new members setting.	
Delete	1. In the top panel, click the ring group where you want to delete telephones. 2. On the Members table, click one or more DNs that you want to delete from the group. 3. Click **Delete**. 4. Click **Yes**.	

Ring Groups - Line Settings

The Line Settings tab allows you to schedule where calls coming in on a specific line, or target line, ring during a scheduled period.

The following paths indicate where to configure line settings for ring groups in Element Manager and through Telset Administration:

- Element Manager: **Configuration > Telephony > Ring Groups**
- Telset interface: ****CONFIG > Lines**

There are two frames on this panel:

- The top panel displays all lines that are available for programming as part of the ring group. This does not include VoIP trunks and PRI lines. For both these types of lines, you would use target lines.
- When you select a line on the top panel, the Lines Settings details panel appears in the bottom. Use this table to specify schedule settings for each line.

Figure 34 Ring Group lines

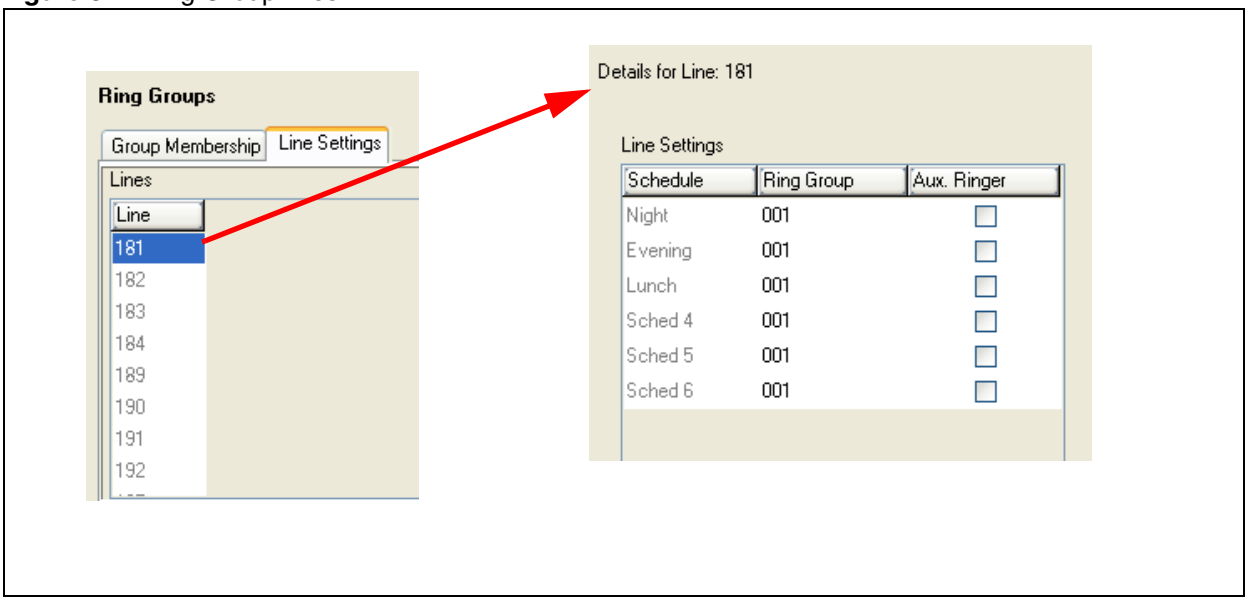


Table 32 describes the headings on both these panels.

Table 32 Ringing group schedule line values

Attribute	Value	Description
Lines Settings tab		
Line	XXX	This list includes all analog and digital lines plus the target lines (PRI and VoIP lines). Program only those that are active on the system.
Line Settings panel		
Schedule	<read-only>	You only need to configure the schedules that you use for your system.
Ring Group	Ring Group <XXX>	Type in a ring group number (001-100). Only one ring group can be assigned to a line for each schedule. To combine groups of ringing sets, you must create a new Ring Group that contains all the sets you want to ring, and assign it to the line.
Aux. Ringer	<check box>	This variable indicates whether the auxiliary ringer (if installed) also rings when Ringing service is on. **Tips:** • The default ringing telephone is 221 (Start DN). This means that all lines ring at telephone 221 when Ringing service is on. • If you have an auxiliary ringer programmed to ring for calls on an external line, and you transfer a call on that line without announcing the transfer, the auxiliary ringer rings for the call transfer.

Also refer to:

- "Configuring scheduled service" on page 31

Chapter 14
Configuring Hunt Groups

The Hunt Groups panel allows you to set up call groups that are assigned a common hunt group DN for incoming calls. The calls then are distributed to the member telephones.

The following paths indicate where to configure hunt groups in Element Manager and through Telset Administration:

- Element Manager: **Configuration > Telephony > Hunt Groups**
- Telset interface: ****CONFIG > System prgrming > Hunt Groups**

Click one of the following links to connect with the type of information you want to view:

Panel tabs	Tasks
"Hunt Groups system setup" on page 102	"Configuring the Hunt Group general settings" on page 105
"Hunt Group members and lines" on page 105	"Monitoring Hunt Groups" on page 109
Also refer to:	"Programming name display (outgoing)" in the *Networking Configuration Guide* (NN40020-603) "Silent Monitor" on page 84

Click the navigation tree heading to access general information about user management.

Hunt Groups system setup

The main panel shown in Figure 35 lists the Hunt Groups and the parameters that define Hunt Group features.

Figure 35 Hunt Groups

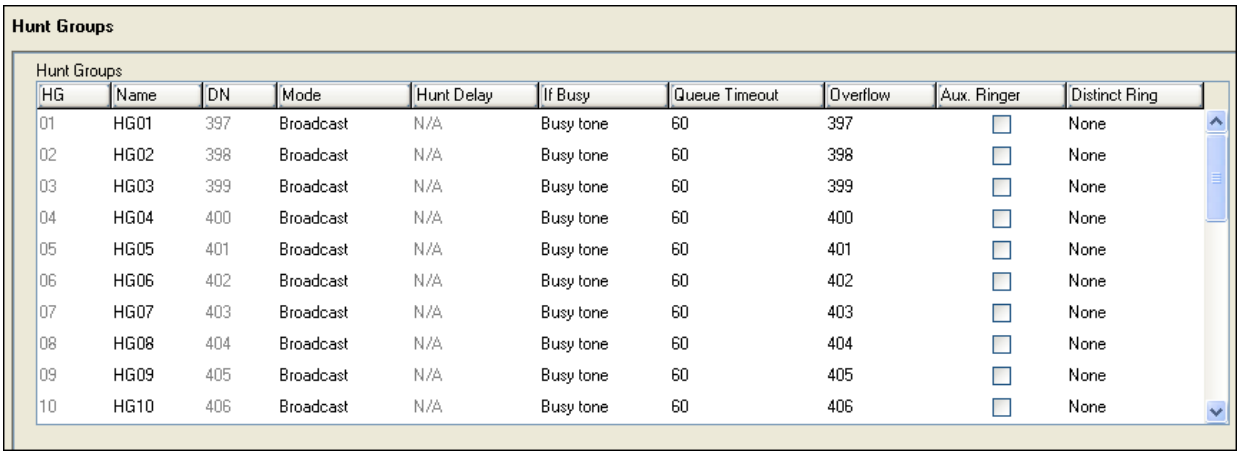


Table 33 describes the fields found on the Hunt Groups main panel. Refer to "Configuring the Hunt Group general settings" on page 105 for notes about working with this table.

Table 33 Hunt Group settings (Sheet 1 of 3)

Field	Values	Description
HG	<01-30>	This number identifies the hunt group to the system. This is also the number assigned to the telephone, when you add the telephone as a Hunt Group member.
Name	<alphanumeric>	Enter a logical name that describes the group function. This name also acts as calling line display for incoming calls.
DN	<read-only> 461-490	Hunt Group DNs begin at 461 by default. The DN value can be changed under **Configuration > Telephony > Dialing Plan > DNs**. The DN number can be assigned to memory buttons on telephones that are not part of the hunt group.

Table 33 Hunt Group settings (Sheet 2 of 3)

Field	Values	Description
Mode	Broadcast Sequential Rotary	Select how you want the line to present to the group. **Broadcast** — simultaneously rings at each non-busy telephone in the hunt group. All telephones receiving the call also display the calling line identification from the line, if the telephone or line is configured to offer that service. Any of the alerted telephones can access the call. Only one call is presented to a hunt group at a time. Other calls are queued until the first call is answered. Then the next call rings on the remaining non-busy telephones. This feature allows the call load to be continuously spread across the entire member group. Default: Broadcast
		Sequential — rings the first telephone in the hunt group list. If that telephone is busy, the system continues down the hunt group priority list until a non-busy telephone accepts the call. In this case, all incoming calls are processed simultaneously, and are delivered based on the priority list. With this feature, you can program your top salesperson to be the first member of the Hunt group to receive incoming calls.
		Rotary — the call starts at the member telephone that appears on the list after the telephone that answered the last call. If that telephone is busy, the system proceeds down the priority list until a non-busy telephone is reached. As many incoming calls can be processed as there are available telephones to accept the call, each call being presented in the described round-robin fashion.
Hunt Delay	<1-10>	If Mode is either Sequential or Rotary, Hunt Delay specifies how much time to delay offering a Queued call to a member telephone when that telephone becomes available. This is to provide a break period for the users between calls. Default: 4 seconds
If Busy	Busy tone Queue	Select how you want the system to respond if all lines appear as busy. **Busy tone**: If all lines are busy, the user receives a busy tone. **Queue**: If all lines are busy, the user hears ring back until an agent is available. Default: Busy tone
Queue timeout	15, 30, 45, 60, 120, or 180 (seconds)	Select the time for a call to remain in the Hunt Group. This value defines the maximum time a call remains queued, and the maximum time to offer a call before sending it to overflow if it is not answered. If the queue times out before the call connects to a member telephone, the call is terminated. If the call has been offered to a member telephone, but is not answered when the queue times out, the call is rerouted to the overflow DN. Default: 60

Table 33 Hunt Group settings (Sheet 3 of 3)

Field	Values	Description
Overflow	<any system DN> (including a Hunt Group DN)	This setting determines where unanswered calls are routed after the Queue timeout occurs. If a call overflows back to the same Hunt Group, the call goes to the bottom of the queue, and is treated as a new call. **Answer DNs:** A linear hunt group that has defined an overflow telephone does not support having the overflow telephone assigned as an Answer DN to any hunt group member. If this occurs, the Answer DN does ring at the hunt group telephone when an overflow condition occurs. Answer DNs are set up under the **Line Access** heading for each DN. Refer to "Answer DNs" on page 200. Answer key must be set to **Extended** for overflow to work correctly. Refer to "Answer DN answer key levels" on page 78. Default: Hunt Group DN
Aux. Ringer	<check box>	If selected, defines whether an auxiliary ringer (if installed) rings for incoming calls to a hunt group. If cleared, the control of the auxiliary ringer falls back to the control defined on a per telephone or per line basis. Default: cleared
Distinct Ring	None Pattern 2, 3 or 4	Select a ring pattern for the hunt group. Default: None
	**Warning:** If you assign a distinctive ring pattern for a Hunt Group, all calls offered to telephones in the group will use the assigned ring pattern. If no pattern is assigned, or if the ring pattern is lower in status than the ring pattern of the line or the telephone setting, the call uses the ring pattern with the highest status setting. Refer to the sections that describe configuring Lines ("Trunk/Line Data, main panel" in the *Networking Configuration Guide* (NN40020-603)) and DNs ("Line Access tab" on page 43) for information about assigning distinctive ring patterns to lines and telephones.	

Configuring the Hunt Group general settings

When you first set up a Hunt Group, you must identify how calls are handled among the group.

The following paths indicate where to modify hunt group general settings in Element Manager and through Telset Administration:

- Element Manager: **Configuration > Telephony > Hunt groups**
- Telset interface: ****CONFIG > System prgrming > Hunt groups**

To configure hunt groups

1. On the Hunt Groups table, select the hunt group you want to configure.
2. Fill out the columns across the table as required. Refer to the table in the previous section for details about each field.

   Programming note: A linear hunt group DN assigned as the overflow telephone does not support having the hunt group DN assigned as an Answer DN to any hunt group member. If this occurs, the Answer DN does not ring at the hunt group telephone when an overflow condition occurs. If the hunt group DN overflow telephone whether assigned as an Answer DN to a non-group member, ensure that the Answer key for your system is set to Extended.

   - Aux. Ringer: If an external ringer is installed, indicate if the hunt group calls use it (select check box).
   - Distinct Ring: Define if incoming hunt calls have a different ring than other calls received by the member.

     Programming note: If you assign a distinctive ring pattern for a Hunt Group, all calls offered to telephones in the group use the assigned ring pattern. If no pattern is assigned, or if the ring pattern is lower in status than the ring pattern of the line or the telephone setting, the call uses the ring pattern with the highest status setting.

     Refer to the sections that describe configuring Lines and DNs for information about assigning distinctive ring patterns to lines and telephones.

Hunt Group members and lines

The lower frame of the Hunt Group panel shows a list of DNs that are assigned as members of the group, and the lines assigned to the hunt group.

Figure 36 Hunt Group Members and Line Assignment tables

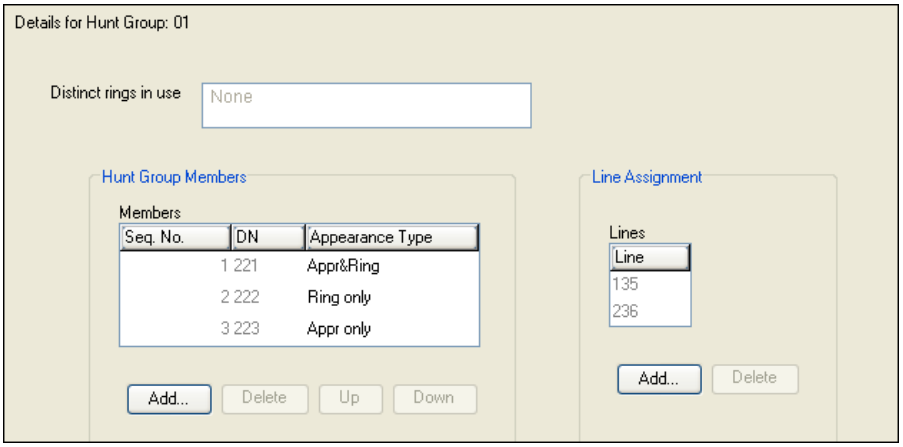


Table 34 describes the fields found on the Details for Hunt Groups tables.

Table 34 Hunt Group tables (Sheet 1 of 2)

Attribute	Value	Description
Hunt Group Members subpanel		
Seq. No.	<read-only>	This is the position of the telephone on the list. This is particularly important for sequential calls, which start at the top of the list, and move sequentially through the list.
DN	<DN>	This is the DN of the telephone assigned to this hunt group.
Appearance Type	Ring only Appr&Ring Appr only	Select the setting that suits the telephone and the environment. **Ring only:** Telephone rings when a call comes in. (7000 and 7100 digital phones and telephones that have no available programmable memory buttons with indicators) (model 7000 phones are supported in Europe only.) **Appr&Ring:** Appears on a button with indicator, which flashes when a call comes in, and it also rings. **Appr only:** Appears on a button with indicator, which flashes when a call comes in.
Action		
Add		1. On the Hunt Groups panel, select the group where you want to add members. 2. In the Members subpanel in the lower frame, click **Add**. 3. Enter the DN for the telephone you want to add as a member. 4. Select an Appearance Type from the drop-down list.
Delete		1. On the Hunt Groups panel, select the hunt group where you want to delete members. 2. In the Members subpanel in the lower frame, click the DN row to be removed. 3. Click **Delete** located under the Hunt Group Members subpanel. 4. Click **Yes**.
Up Down		Member order within a Hunt group is important. The member order determines how a call routes through a Hunt group when the group is set to either linear or rotary mode. 1. Click a member from the member list. 2. Click either the **Up** or the **Down** button. The system automatically reorders the list.

Table 34 Hunt Group tables (Sheet 2 of 2)

Attribute	Value	Description
Line Assignment		
Lines	<line #>	These are the lines/target lines that are assigned to the hunt group. Ensure that they also are not assigned to any of the member telephones.
Action		
Add	Multiple lines can be assigned to Hunt groups. However, a line can only exist in one Hunt group. **Programming note:** Lines assigned to line buttons on individual telephones take precedence over the lines assigned to Hunt group buttons. Therefore, Nortel recommends that you do not assign lines to individual telephone DN records for telephones that are part of a Hunt group. 1. On the Hunt Groups Members subpanel, select the hunt group where you want to add lines. 2. In the Line Assignment subpanel in the lower frame, click **Add**. 3. Enter line numbers. 4. Click **OK**.	
Delete	1. On the Hunt Groups Members subpanel, select the hunt group where you want to delete lines. 2. In the Line Assignment subpanel in the lower frame, click **Delete**. 3. Click **Yes**.	

Chapter 15
Monitoring Hunt Groups

Task:
• Monitor external Hunt group calls ("Monitoring external hunt group calls" on page 109).

Monitoring external hunt group calls

Use the Silent Monitor feature to monitor external hunt group calls within a hunt group. Any two-line display telephone can be assigned as a supervisor telephone to allow this feature.

There are two places in the Element Manager where the feature configured:

- Silent Monitor settings are configured on the Global Settings panel. Refer to "Silent Monitor" on page 84.
- Supervisor terminals are configured on the System DNs record. Refer to "Capabilities tab" on page 52.

On the Telset, there are three places to set up this feature:

- Terminals&Sets > select the DN > Capabilities > SM supervisor
- Passwords > SM passwd
- System prgrming > Featr settings > Silent monitor

To use a silent monitor

Perform the following using a two-line display telephone designated as a supervisor telephone.

1. Enter **FEATURE *550**.
2. Enter the Silent Monitor password. (Default: SILENT (745368))
3. Enter the DN for the Hunt group member you want to monitor.

   If there is an active external Hunt group call at that telephone, you are connected to the call. Once the session is established, a number of display key prompts allows the supervisor to silently monitor the call, or to break into the call to provide support or instruction. Refer to "Common display prompts" on page 235.
4. The display commands under the prompts allow you to use the display keys to break into the call or exit and move to another DN.

Note: Some countries require that all monitoring is preceded by a tone before monitoring begins.

Note: If an agent is on conference call, you cannot monitor the hunt group call.

Monitoring with IP telephones: On calls over a VoIP trunk, where both the Hunt group call and the monitoring call are from IP telephones (full IP domain calls), the agent hears a click when the supervisor starts and ends a monitor session.

Note: For information on reporting Hunt Group metrics, refer to the *BCM Call Detail Recording Guide* (N0027926).

Also refer to:

- "Configuring Hunt Groups" on page 101
- "Monitoring external hunt group calls" on page 109
- "Hunt Group Metrics" in the *Administration Guide* (NN40020-600)

Chapter 16
Configuring Hospitality services

The following information describes how to set up the Hospitality services feature.

The following paths indicate where to configure hospitality services in Element Manager and through Telset Administration:

- Element Manager: **Configuration > Telephony > Hospitality**
- Telset interface: ****CONFIG > System prgrming > Hospitality**

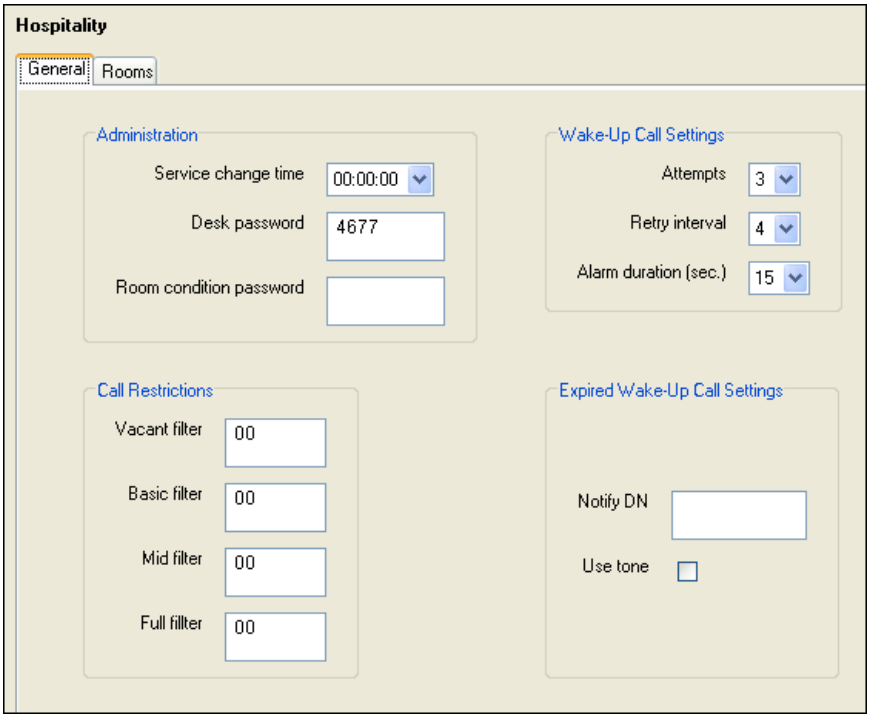
These records allow facilities such as hotels, motels, and hospitals to control telephone access to external lines, to provide alarm clock services on internal telephones, and to monitor room serviced status:

Panels	Tasks
“Hospitality - General” on page 111	
“Hospitality - Rooms” on page 113	
“Setting up your hospitality system” on page 114	
Click the navigation tree heading to access general information about Hospitality services.	

Hospitality - General

The Hospitality - General panel contains the administration programming for the Hospitality Services feature. The panel is shown in Figure 37.

Figure 37 Hospitality panel, General tab



The Administration heading provides fields that allow you to:

- enter the time when occupied rooms change state from Service done to Service required
- enter the password that needs to be entered before hospitality features can be changed
- (optional) enter a password that the room service people need to enter to allow them to indicate when the room is ready.

Security Note: Change the desk and room condition passwords regularly.

Table 35 explains the possible settings for the hospitality record.

Table 35 Hospitality main settings (Sheet 1 of 2)

Attribute	Value	Description
Administration		
Service change time	<24-hour digital time>	Identify when the occupied rooms change from service done to service required. Format: HHMM, i.e. 1400 = 2 p.m. where HH = 0 to 23; MM = 0 to 59
Desk password	<up to six digits>	Enter the password required to access all the Hospitality administrative features. Default password: 4677 (HOSP)

Table 35 Hospitality main settings (Sheet 2 of 2)

Attribute	Value	Description
Room condition password	<up to six digits>	Set the password that allows access to the Room condition feature (**FEATURE 876**). Default password: None
	Nortel strongly recommends that you change the default password, and frequently change the desk password to prevent unauthorized entry.	
Call Restrictions		
Vacant filter	<two-digit filter #>	Enter a code that indicates which calls are allowed when a room is empty (for example, 911).
Basic filter	<two-digit filter #>	Enter a code that indicates which calls are allowed for a basic room telephone. (for example 911, and internal calls only)
Mid filter	<two-digit code>	Enter a code that indicates which calls are allowed for a telephone with mid service. (for example 911, internal calls, and 1-800 numbers only)
Full filter	<two-digit code>	Enter a code that indicates which calls are allowed for a telephone with full service. (i.e. no restrictions)
Wake-Up Call Settings		
Attempts	1, 2, 3, 4, 5	Select the number of times the Alarm time feature attempts to alert the occupant before cancelling. Default: 3
Retry interval	2, 4, 6, 8	Select the interval between each attempt to send the alarm. Default: 4 minutes
Alarm duration (sec.)	10, 15, 20, 25, 30, 35, 40, 45, 50	Select the period that a telephone rings for each alarm attempt. Default: 15 seconds
Expired Wake-Up Call Settings		
Notify DN	None/DN: <telephone DN>	Enter a telephone DN if you want to notify a specific telephone when an alarm expires.
Use tone	<check box>	Select the check box if you want the user to hear a tone when the alarm expires.

Hospitality - Rooms

The Hospitality - Rooms panel allows you to assign telephones to a room. You can assign a maximum of five telephone DNs to a room.

Figure 38 Hospitality - Rooms tab panel

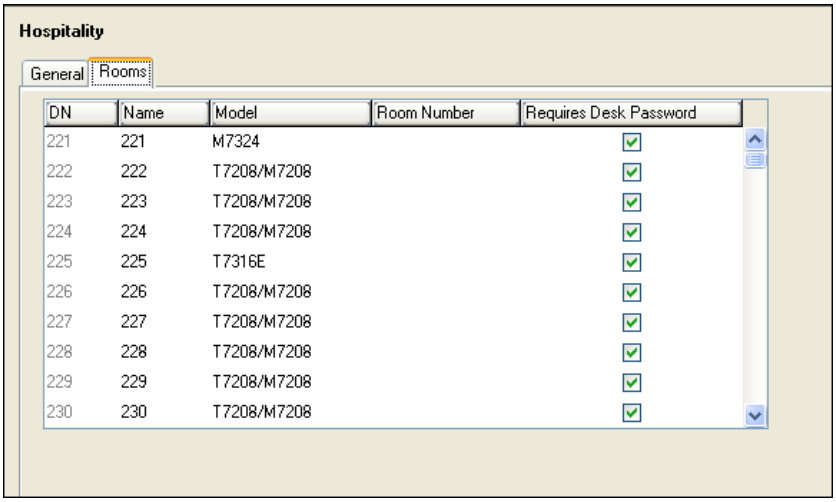


Table 36 describes the fields in the list on this panel.

Table 36 Room settings

Field	Values	Description
DN	<read-only>	DN of a telephone assigned to a room.
Name	<alphanumeric>	Name assigned to a DN.
Model	<drop-down list>	Model name from the DN record.
Room Number	<any digit from 1 to 32767>	Enter the room that contains the telephone with this DN.
Requires Desk Password	<check box>	If selected, the telephone requires a password to access administrative-level hospitality features (**FEATURE 877, FEATURE 878, or FEATURE 879**). If cleared, the telephone does not require any passwords to access the features. Desk passwords are created using the main Hospitality command.

Setting up your hospitality system

Use the Hospitality panels to set up room telephones, and determine how they function. Once the system is set up, you can change settings through the telephone using the Desk password. Service personnel change the service state of the room using the Room condition password (optional).

To set up hospitality service

1 Determine a time each day when the telephones switch to indicate that the rooms require servicing.

2 In the Services change time field, enter a 24:00 time designator for the service time.

3 In the Requires Desk Password field, change the default password to a one- to six-digit number. Keep this password in a secure place. Change the password frequently.

4 If you want service personnel to enter a password when they dial in to indicate a room has been serviced, enter a one- to six-digit password into the Room condition password field. This field can be left blank also.

To set up call restrictions

1 Determine what type of calls you want to allow from telephones using the fields in the call restrictions box.

2 Click **Configuration > Telephony > Call Security > Restriction Filters**, create four new restriction filters that reflect the levels of service you want to allow. For instance, if a room is vacant, you can allow only emergency calls, whereas, in a suite, you can allow a full range of call services.

3 Make a note of the restrictions that you create.

4 On the Hospitality - General panel, in the Call Restrictions subpanel, enter the appropriate filter numbers beside each field.

To set up wake-up services

You can set up the room telephones to ring at preset times to act as an automatic wake-up call.

In the **Wake-Up Call Settings** and Expired **Wake-Up Call Settings** boxes, determine the following:

1 In the **Attempts** field, select the number of times the alerter sounds, without the telephone handset being lifted, before the alarm service automatically cancels.

2 In the **Retry interval** field, select a time period (in minutes) that the system waits between repeating the wake-up alerter.

3 In the **Alarm duration (sec.)** field, select the length of time the alert sounds each time it repeats.

4 In the **Notify DN** field, enter the DN of an administration telephone, such as the front desk telephone. When a wake-up call expires at any of the room telephones, an indication appears on the display of the telephone.

5 If you also want a tone to sound when a wake-up call expires, select the **Use tone** check box.

To assign a room to a telephone

The Rooms context panel displays all telephones currently connected or registered to the system.

1 Select the telephone DN you want to assign to a room.

2 Click in the Room Number column, and enter the room number.

3 Select or clear the **Requires Desk Password** check box, as required.

Note: If you select the **Requires Desk Password** check box, ensure that a valid desk password exists.

To delete a room assignment from a telephone

To delete a room assignment, simply click the Room Number column, and delete the number.

Next step: Using the features

Refer to the *BCM50 2.0 Hospitality Features Card*.

Chapter 17
Configuring analog telephones and devices

Refer to the following information for attributes that are specific to analog telephones and devices. Refer to “Configuring an analog telephone” on page 120.

Task: Setting up each analog device attached to your system

Determine the programming for individual telephones and devices attached to analog station modules or to digital station modules through an analog terminal adapter (ATA) module.

- “Configuring an analog telephone” on page 120

Analog telephones and devices have a limited feature set. They do not have programmable buttons, access to remote voice mail systems, or user preferences. These telephones also do not support Answer DNs.

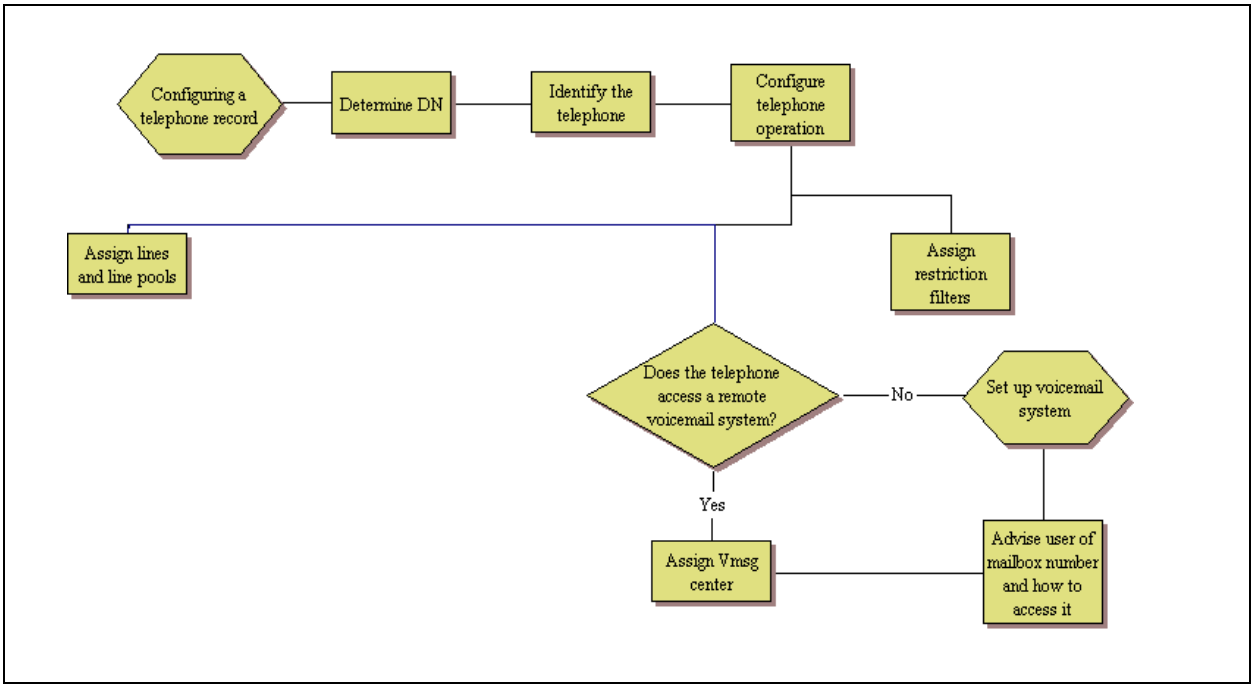
As well, specific ATA settings are required. These settings depend on how the telephone is connected to the system (ASM, ASM8+, or ATA).

Prerequisite programming:

The following programming must be completed prior to performing this configuration:

- Numbering plan
- Lines programming
- Analog or digital module installation, configuration and wiring to the devices (ATA module, if required).

Analog device DN record overview



Configuring an analog telephone

On each panel on the DNs list, add or modify settings to customize the telephone operations. The following headings correspond to each panel.

Refer to the Programming notes in each section for configurations that are unique or specific for ISDN telephones.

Table 37 Analog telephone customization (Sheet 1 of 2)

Affected field	Setting	Panel name and link to common procedures
Model	Other	"System DNs - Line Access tab" on page 125
Name	Unique to each device or device loop	
Appearance Type	Ring only	"Line Assignment and Line Pools" on page 128
Caller ID Set	Select check box (connected to ASM8+ modules or target lines)	
Intercom keys	Two: not configurable	"Configuring Capabilities and Preferences" on page 130.
The following settings are the only capability settings that are valid for analog devices.		
ATA answer timer	Keep short for modems and fax machines	"Configuring telephone capabilities" on page 131.
ATA tones	check box	
ATA use	On site Off site works for devices connected to ATA modules only	
Msg indicate		
ATA device	modem/telephone	
Disconnect supervision	Select for auto-answer modems and fax machines Do not select for telephones	
The following settings are common settings that are specific to analog telephones.		
Handsfree/HF Answerback	Do not select	"Configuring telephone capabilities" on page 131
Page settings	Select check box Can send pages but cannot receive pages	
Receive short tones	Select check box (analog telephones only)	
Hotline	"Assigning a pause for external dialing for data devices" on page 122	

Table 37 Analog telephone customization (Sheet 2 of 2)

Affected field	Setting	Panel name and link to common procedures
The following settings are not valid (N/V) or are limited on analog devices.		
Keep DN Alive	N/V	"Configuring telephone capabilities" on page 131
Silent monitor supervision	Do not select	
DND on Busy	Do not select	
Priority call	Do not select	
Auto hold	Do not select	
Allow Link	Select check box (telephones only)	"Outgoing call restrictions" on page 137
All other settings are variable, based on your system requirements.		

Assigning a pause for external dialing for data devices

The external Hotline feature provides automatic access to a line when an analog device goes off-hook.

To assign a pause for external dialing

1. Click **Configuration > Telephony > Sets > Active Sets**.
2. Select the **Capabilities and Preferences** tab.
3. In the bottom panel, select the **Preferences** tab.
4. In the Hotline type drop-down list, select **External**.
5. Set the Facility field to **Use prime line.**
6. Click "P" from the drop-down keypad in the **External number** field. This feature code inserts a 1.5-second pause before the device dials out.
7. Click **OK**.

Next step:

- Test telephones.

Chapter 18
Configuring telephones: Digital telephones

Digital telephones support the most comprehensive use of the DN records panels. For detailed panel descriptions, refer to "DN records parameters" on page 41.

The following paths indicate where to configure digital telephones in Element Manager and through Telset Administration:

- Element Manager: **Configuration > Telephony > Sets > All DNs**
- Telset interface: ****CONFIG > Terminals and Sets**

The list of procedures below are the common DN record configuration procedures.

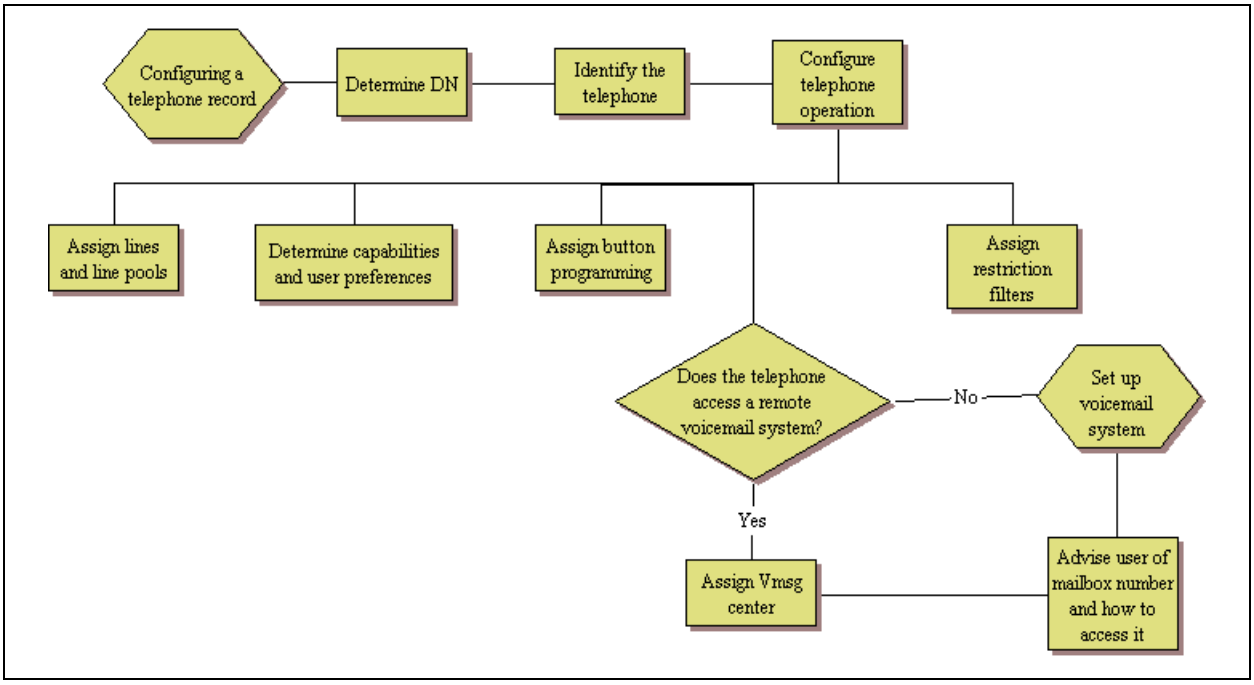
Task: Setting up digital telephones wired to system station ports

Determine the programming for individual telephones and devices attached directly to digital media bay modules, or the fixed digital ports on the main chassis.

"Digital telephone DN record overview" on page 124
"System DNs - Line Access tab" on page 125
"Line Assignment and Line Pools" on page 128
"Configuring Capabilities and Preferences" on page 130
"Configuring telephone capabilities" on page 131
"Configuring Preferences" on page 134
"Telephone memory button programming" on page 136
"User speed dials" on page 137
"Outgoing call restrictions" on page 137

There are a number of different models of digital telephones. The Norstar legacy telephones are supported by the BCM. The current models of digital telephones include the 7000, 7100, 7208, 7316, 7316E, and 7316E+KIMs digital phones, and the 74XX cordless digital phones.

Digital telephone DN record overview



Prerequisites

Ensure the following has occurred before you start this procedure:

Modules are installed, and you understand which ports and DNs can be assigned to your telephones.	
Lines and routes programming are created for dialing the local PSTN. Target lines are created where required by the type of trunks you are using. **Note:** The line must be configured as supervised/guarded. Refer to “Properties” in the *Networking Configuration Guide* (NN40020-603).	
Appropriate restriction filters are created to allow or disallow out-dialed calls. (“Call security: Restriction filters” in the *Networking Configuration Guide* (NN40020-603))	
Telephony system features have been programmed, and you understand which features are not available to all users. (“Global telephony settings” on page 73)	

Using the DN panels

On each panel on the DNs list, add or modify settings to customize the telephone operations.

For a detailed description of the fields on each panel, refer to “DN records parameters” on page 41.

System DNs - Line Access tab

References: "Job aid: Notes about assigning lines to telephones" on page 125.

To assign a line to a telephone

1. Click **Configuration > Telephony > Sets > Active Sets > Line Access**.
2. Select the line listing the appropriate DN for the telephone.
3. Select the field that you want to modify.
4. Name: Enter a name that identifies the user or the location (maximum of seven digits).
5. Port: Enter the port number for the device.
6. Pub. OLI**:** Enter or confirm the number that displays at the far end for calls going out over the public network (only on digital and VoIP trunks).
7. Priv. OLI: Enter or confirm the number that displays at the far end for calls going over the private network. This number is usually the same as the DN (only on digital and VoIP trunks).
8. Fwd No Answer: Enter the number of the device that receives calls when this telephone does not answer. The device can be another telephone or a voice mail service.
9. Fwd Delay: Confirm or change the number of rings you want to occur at the telephone before a call is forwarded. (Default: 4).
10. Fwd Busy: Enter the number of the device you want to receive calls when this telephone is busy. This can be another telephone or a voice mail service.
11. Fwd All: Enter the number of the device where all calls to this telephone are forwarded.
12. Next step: "Line Assignment and Line Pools" on page 128.

Job aid: Notes about assigning lines to telephones

Read these notes for more information about assigning lines to telephones.

- Nortel recommends a maximum of four line buttons per telephone. You can program more than four line buttons on a telephone by programming less than four on other sets. For example, you might program 20 line buttons on a receptionist telephone equipped as a CAP station, and only two lines on all other telephones.
- You can program a maximum of 93 telephones with a line appearance for a specific line, including VoIP and target lines. Above this maximum, you can configure more than one appearance per telephone of a target line.
- Do not assign auto-answer loop start trunks, auto-answer T1 E&M trunks, and T1 DID trunks to telephones. These trunks are used to monitor incoming call usage, or to place outgoing calls (auto-answer loop start and T1 E&M trunks).
- A line that is configured as private cannot be assigned to another telephone.

- Each line assigned to a telephone must appear to a button with an indicator. The maximum number of available buttons is 8 for the 7208 digital telephones, 10 for the model 7310, 10 for 7316 digital telephones, 16 for the 7316E digital telephone, and 24 for the model 7324 digital telephones.
- In addition to lines, buttons have other uses, for example, intercom or handsfree operation. Line programming does not overwrite assigned Intercom, Answer DN, Handsfree, or Hunt group buttons. Refer to Figure 39. However, intercom buttons overwrite anything. (Figure 40).

Note: You need at least two intercom buttons to use the conference feature.

- Answer DNs also overwrite line programming, but not Intercom buttons. Answer DN buttons appear above Intercom buttons; if an Intercom button is added after Answer DN buttons are assigned, the Intercom button pushes the Answer DNs up. The top Answer DN overwrites whatever is above it. (Figure 41)

Figure 39 7316E digital telephone display button assignment protocol

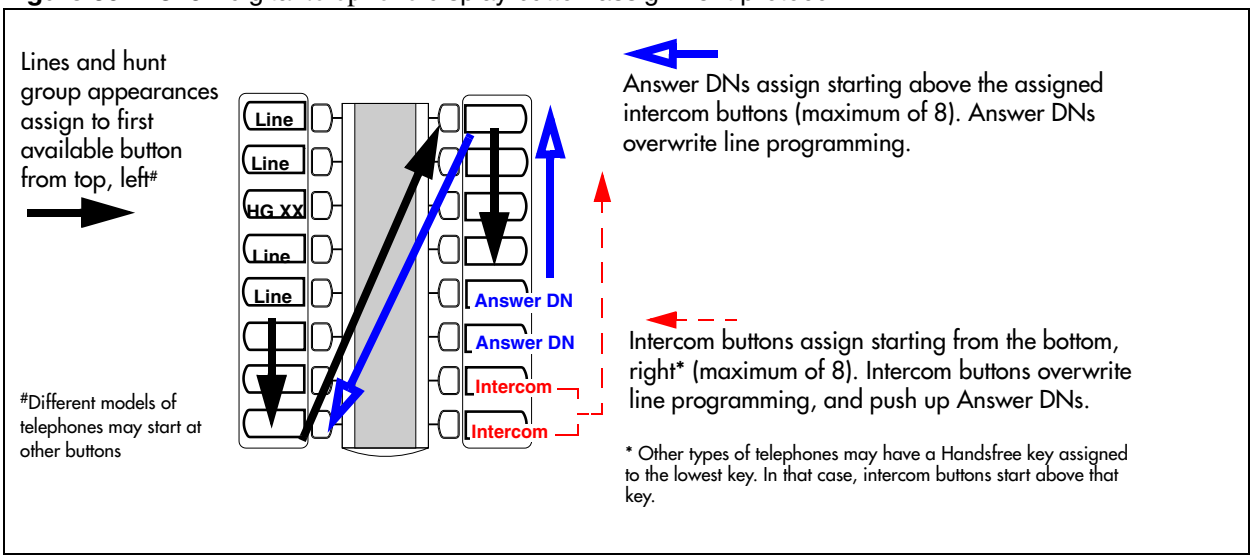


Figure 40 Adding an intercom button

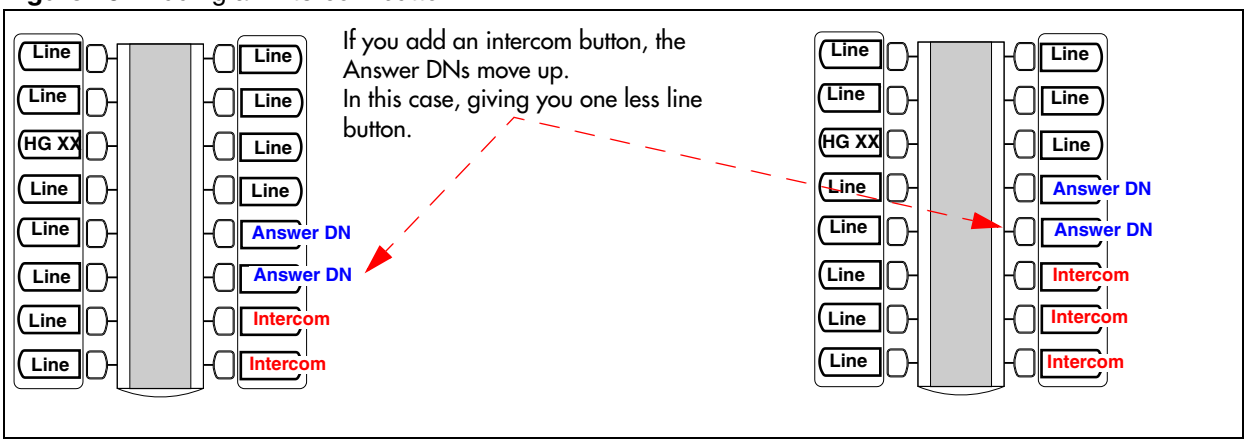
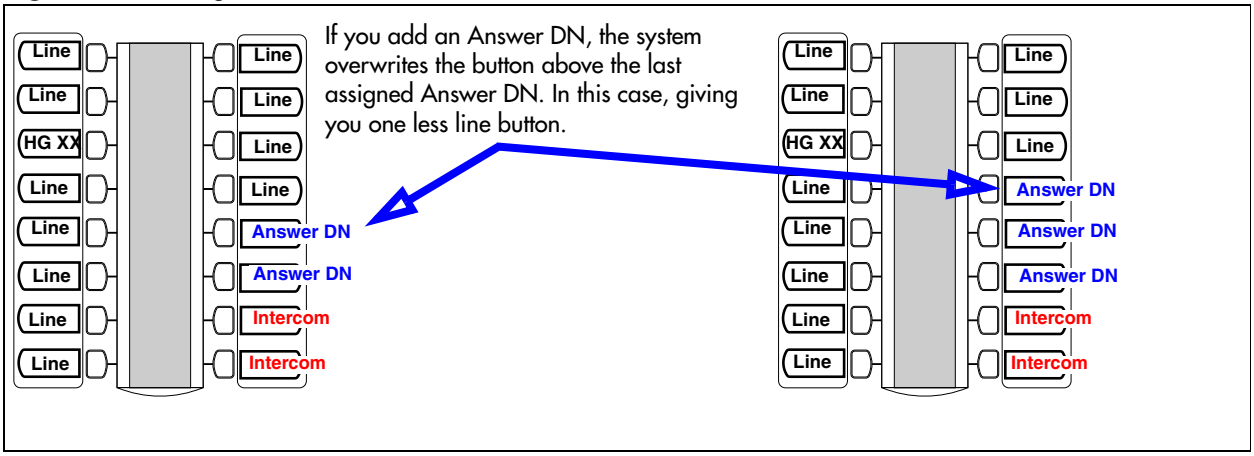


Figure 41 Adding an Answer DN



- If you set a line to Ring only, incoming calls appear on an intercom button. The 7000, 7100 digital telephones, are exceptions, they have no line buttons; therefore, you can assign any number of lines, but only two lines can be answered at any one time. Assign the

lines on these telephones to ring; otherwise, you cannot detect incoming calls on the lines.

- An enhanced central answering position (eCAP), with one or more modules, provides extra line button support, if the number of lines to assign exceeds the number of available buttons with indicators. The remaining lines assign to buttons on the module. The eKIM also supports hunt group designators, and multiple appearances of the same target line, which flow to the module if there are no available buttons with indicators on the 7316E digital phone.

Warning: eCAP programming issue on cold start reboot.

If you do a Backup/Cold Start/Restore sequence on your BCM, button programming on an enhanced CAP (eCAP) module is lost, and the lines assigned to those buttons are assigned to the buttons on the telephone. These assignments displace any programming on the telephone buttons, except Answer DN buttons, intercom buttons, handsfree buttons, or Hunt group appearances. In the case where there are more reassigned lines than buttons, the system still assigns the lines to the telephone, and the telephone rings when a call comes in on that line (given that Appr&Ring is configured on the line).

To resolve this situation, access the DN records for the telephone and the CAP/KIM button programming. Enter the required programming.

- By using **FEATURE *81** at the telephone, lines can be moved to other buttons on the telephone, except intercom, Answer DN, or handsfree positions, or the lines can be moved to buttons on the modules on an eCAP. On telephones, the feature or line, assigned to the button where the line is moved, moves to the original line button position. On eCAP modules, moved lines overwrite feature programming.

Line Assignment and Line Pools

Programming references: "Job aid: Answer DN notes" on page 129

To add line assignments

1. Click **Configuration > Telephony > Sets > Active Sets**.
2. Select the **Line Access** tab.
3. Select the **Line Assignment** tab in the bottom panel.
4. Click **Add** to add line assignments for the telephone.
5. Determine how the line behaves at the telephone.

Note: Not all of these fields apply to all types of lines.

- Appearance Type/Appearances (target lines)
- Caller ID Set (target lines)
- Vmsg Set

- Priv. Received #
- Pub. Received #

6 Click the **Line Pool Access** tab.

7 Use the **Add** button to add line pools for the telephone.

8 Click the **Answer DNs** tab.

9 Use the **Add** button to add a maximum of eight Answer DNs to the telephone.

Programming note:

- If the telephone does not have any buttons with indicators available to provide an Answer DN appearance, ensure that **Appearance Type** is set to Ring only.
- Answer DNs, which are assigned to buttons, can also be used to autodial that telephone.

Job aid: Answer DN notes

You can assign a maximum of eight Answer DNs to a telephone. You can also determine the types of calls alert at the telephone where the answer DNs are assigned. Refer to "Answer DN answer key levels" on page 78.

Note: You cannot assign Answer DNs to 7000 or 7100 telephones, because they do not have memory buttons. (Model 7000 phones are supported in Europe only.)

Warning: Contact Center restrictions: If you assign Answer DNs, ensure that the **Answer keys** field (**Configuration > Telephony > Global Settings > Feature Settings**) is set to **Basic**.

Mobility sets: On 7406 cordless digital telephones, you can twin desk sets with the portable sets by assigning one or more handset DNs to a desk set Answer DN.

Hunt group note: A sequential Hunt group, which has an overflow telephone defined, does not support the overflow telephone being assigned as an Answer DN for any hunt group member. If an overflow situation occurs, the Answer DN does not ring a hunt group telephone.

Autodial function: Answer DNs can also act as an internal autodial link to the assigned telephone.

The Answer DN must be idle for this feature to work; that is, there must be no active indicator showing beside the button.

The system still interprets the key as an Answer DN, and any key press still interacts with other features. Therefore, even though you are making an internal call, other autodial actions do not occur. As well, none of the autodial visual prompts occur. The button only prompts if a call is alerting at the other telephone, based on the answer key level assigned to the system. Refer to "Answer DN answer key levels" on page 78.

You can program both an Answer DN and an autodial key for the same DN on the same telephone.

Configuring Capabilities and Preferences

The following paths indicate where to configure capabilities and preferences in Element Manager and through Telset Administration:

- Element Manager: **Configuration >Telephony > Sets > All DNs**
- Telset interface: ****CONFIG > Terminals and Sets**

Programming reference:

- "Capabilities and Preferences main tab" on page 50
- "Job aid: Assigning intercom (I/C) buttons (keys)" on page 130

To configure capabilities and preferences

1. Click **Configuration > Telephony > Sets > Active Sets > Capabilities and Preferences** tab.
2. Select the DN that you want to modify.
3. Prime Line: Enter the facility that you want the telephone to use if no line, line access code, or routing code is dialed before an outgoing dial string.
4. Intercom Keys: Confirm or change how many intercom keys you want the telephone to have. The default is 2.

   Programming note: At least one intercom key must be defined to allow internal calls. Two intercom keys are recommended for conference calling. Model 7000 and 7100 telephones are automatically assigned two intercom keys, so users can alternate between two active calls.
5. Control Set: If the telephone uses any schedules other than the Normal schedule, ensure that a DN for a control set is entered.
6. First Display: Choose **Name** if you want the caller's name to be the first information displayed. Set this field to **Number** to display the caller's telephone number first, or to **Line**, to display the calling line number first.
7. Auto Called ID: Select the check box if you want the user to see the name and number display of the telephone they call.
8. Next Step: "Capabilities tab" on page 52

Job aid: Assigning intercom (I/C) buttons (keys)

The Intercom keys attribute assigns the number of intercom buttons on a telephone. Intercom buttons provide access to a maximum of eight internal or external lines and line pools. The user presses the intercom key to answer internal calls, or to select a line or line pool to place a call. Lines configured for Ring only also appear on intercom buttons.

- If you assign a prime line to an intercom key, you are immediately connected to a line when you press the button or lift the handset. A line indicator appears beside the intercom button.

- When you assign an intercom button during programming, the assignment automatically appears on the telephone. Assignment starts at the lower-right button, or one button above if the handsfree feature is available. Any feature or line programming that existed previously on that button is overwritten, except for Answer DNs that are pushed up one button.
- A telephone requires two intercom buttons to establish a conference call with two other BCM telephones.
- You require only one intercom button if the button is used to place and receive internal calls, and to access line pools.
- You require two intercom buttons for a telephone with several lines assigned to Ring only.
- Model 7000 and 7100 telephones and analog telephones are automatically assigned two intercom buttons. This allows users to toggle between two active calls using the **Hold** button.

Caution: PRI and VoIP Lines

Users cannot access PRI and VoIP lines directly through line appearances. PRI and VoIP lines must be part of a line pool.

If you change a digital trunk module (DTM) to PRI, the system automatically removes all existing line appearances for that module.

Configuring telephone capabilities

Programming reference:

- "Capabilities tab" on page 52
- "Job aid: Line redirection notes" on page 133

To configure telephone capabilities

1 Click **Configuration > Telephony > Sets > Active Sets > Capabilities and Preferences** tab.

1 In the bottom frame, on the **Capabilities** tab, confirm or change how the telephone functions with system features.

2 Handsfree settings:

- Handsfree
  Select the setting that is appropriate for the type of telephone.
- HF answerback
  Select the check box only if the telephone allows handsfree, and is in an environment where speakers do not cause disruption.

3 Page settings:

- Page zone
  If you have various areas that receive different page announcements, place the telephone in the appropriate zone.
- Paging
  Select the check box if the telephone can send or receive page messages.

Programming note: Telephones without speakers, such as models 7000 and 7100, allow page messages to be sent, but not to be received.

4 Interrupting calls:

- DND on Busy
  Select the check box if you want the caller to receive a Do Not Disturb message when the telephone is busy. Ensure this feature is selected, when the Fwd Busy field has a value.
- Priority call
  Select the check box if you want the user to be able to forward calls that alert at the telephone where the call was forwarded, even when that telephone is busy.
- Intrusion protection level
  Select an intrusion level if you want the user to be able to break into calls on other telephones. The intrusion level must be the same or higher than the telephone being interrupted.

5 Auto hold
Select the check box if you want calls coming into the telephone to be placed on hold automatically when the user answers another call, or dials out while an incoming call is active.

6 Redirect settings:

- Allow redirect
  Select the check box if you want the user to be able to redirect active lines to other telephones.
- Redirect ring
  Select the check box if you want calls coming into a redirected line to give a short alert.

7 Receive short tones
Do not select this for digital telephones.

8 Administrative capabilities:

- Pickup group
  If you want to allow this telephone to be answered by other telephones in a defined group, choose the appropriate group. Otherwise, leave the field blank.
- Direct dial
  Select the direct dial telephone assignment that you want this telephone to be able to dial with one digit (direct dial access code).
- Silent monitor supervisor
  Select this check box to enable the telephone to monitor hunt group calls.

9 Next step: “Configuring Preferences” on page 134.

Job aid: Line redirection notes

This feature enables you to send your external calls to a telephone outside the office. You can decide to redirect all, or just some, of your external lines.

Warning: Be careful about redirection loops. For example, if you redirect your lines to your branch office, and your branch office redirects its lines to you, you can create a redirection loop. If these calls are long distance, significant toll charges can result.

Warning: While programming Line Redirection, there is no indication of calls to that telephone, except a call that rings the telephone.

You can redirect only lines that appear as line buttons on your telephone. Since 7000 and 7100 telephones do not have line buttons, they do not support line redirection. Also, line redirection is not supported on telephones connected to an ATA2 or ASM/GASM (analog station modules).

You can answer the telephone if it rings while you are programming line redirection. However, call handling features are not available until the programming wait period times out. If you need to use a feature to process the call, quit line redirection programming by pressing **FEATURE**. If you press **RELEASE**, the call is disconnected.

In some conditions, callers can experience lower volume levels when you redirect calls to an external location.

DPNSS notes

(UK only)

DPNSS lines connected to an Embark switch, perform call redirection using the Call Forward feature. The feature creates a tandem link back to the switch.

Before you program Call Forwarding on lines on an Embark switch line, ensure that:

- The DTM is configured to DPNSS, and the Host Node switch connection is set to Embark.
- Both real channels and virtual channels are provisioned.
- Routing code or line pool code are programmed for the DPNSS to Embark link.
- **Allow redirect** check box must be selected. This field is also located under the **Capabilities** tab.

During telephone programming for **Fwd No Answer** and **Fwd Busy**, when you enter the **Forward to** digits, the system performs a validation check with the designated switch. If the validation does not succeed, the system displays one of the messages shown in Table 38.

Table 38 Embark validation error messages

Message	Description
The number is invalid or the destination has been rejected.	The destination telephone has DND programmed, or it is in a programming session.
There are no free virtual channels available for validation.	Either there are not enough channels set up, or no more channels are available.
Destination may be out of service; no response received.	The system cannot connect to the remote system.

Configuring Preferences

The following paths indicate where to configure preferences in Element Manager, and through Telset Administration:

- Element Manager: **Telephony > Sets > Active Sets > Capabilities and Preferences -Top panel > Preferences - Bottom panel**
- Telset interface: ****CONFIG > Terminals and Sets**

Programming reference:

- “Preferences tab” on page 55
- “Job aid: Call log notes” on page 135

Use this panel to specify operational attributes. These attributes can also be set at the telephone. Settings at the telephone override Element Manager settings.

To configure preferences for a telephone

1. Click **Configuration > Telephony > Sets > Active Sets > Capabilities and Preferences** tab.
2. Click the **Preferences** tab in the bottom panel.
3. **Call log options**: Determine when calls are logged.
4. **Dialing options**: Determine how the user dials numbers.

   Programming note: Some telephones do not allow all dialing options.
5. **Contrast**: Adjust the contrast level of the display.
6. **Ring type**: If you want incoming calls to produce a specific type of ring (for example, to differentiate between two telephones that are in close proximity), select one of the four ring types. If you select None, the default ring is used.
7. Next step: “Button Programming tab” on page 60

Job aid: Call log notes

If your system has the appropriate equipment, and you subscribe to the call information feature supplied by your service provider, you can record information about calls received from an external line. ISDN service packages that come with calling line identification (CLID) can supply the same feature.

Call Log creates a record of incoming external calls to a telephone, even if the telephone does not have that line assigned. For each call, the log can contain:

- sequence number in the Call Log
- name and number of the caller
- indication if the call is long distance
- indication if the call was answered and by whom
- time and date of the call
- number of repeated calls from the same source
- name of the line carrying the call

Call Log can help to:

- keep track of discarded calls, or calls not answered
- track patterns for your callers (for example, volume of calls and geographic area of calls)
- record caller information quickly and accurately
- build a personal telephone directory from log items

Information, such as long distance indicator and the caller name and number, may not show in the log. The appearance depends on the Call Display services provided by your local telephone company, and the local telephone company at the caller end.

Call logging limitations:

- A total of 600 log spaces are shared by all telephones assigned with call log space. To ensure that this list does not fill up and start rejecting logs, ensure that autobumping is enabled (**FEATURE 815**).
- If you answer the call and then forward it, the call logs only at the forwarding telephone.
- If call forward is set, calls log at both the forwarding telephone and the target telephone, providing the target telephone answered the call.
- If the call is released by the telephone to which the call is forwarded, only the forwarding telephone logs the call.
- Hunt group calls are logged only when a call is answered.
- If a call is redirected to and answered at the prime telephone, then the call is logged at both the redirecting telephone and the prime telephone. If the call is answered by the intended telephone, then the call is logged only at that telephone.
- If the telephone experiences a warm-reset, all log entries are flushed.
- If a line has been redirected, calls are not logged.

Telephone memory button programming

Use this panel to assign features to available buttons on the telephone.

Programming reference:

- "Button Programming tab" on page 60
- "Job aid: Notes about button programming" on page 136

To program telephone buttons

1. Click **Configuration > Telephony > Sets > Active Sets > Capabilities and Preferences** tab.
2. Select the DN of the telephone to program.
3. Click the **Button Programming** tab in the bottom panel.
4. The model shown in the model field determines the number of available buttons.

   Programming note: Assigned lines, answer DNs, hunt group designators, and intercom keys cannot be overridden using this template.
5. Select the field beside the button you want to configure or change.
6. Select the feature, internal or external autodial you want to assign.
7. Select from a list of available values to choose from.

Next step: "User speed dials" on page 137.

Job aid: Notes about button programming

- The number of available button positions depends on the model of telephone that you are programming.
- New button programming overwrites memory button programming performed at the telephone. Conversely, changes to memory button programming, performed at the telephone, overwrites memory keys programmed under Button programming or CAP/KIM button programming. The panels reflect changes made at the telephone.
- The 7316 telephone has disjointed button numbering; it is because patterned after the legacy 7310, but has fewer buttons than the 7310. However, Button programming shows the 7310 button array. Refer to the default button programming section to ensure that you program the correct button numbers.

Button labeling

T-series telephones have a paper strip of labels that can be customized and printed using the Desktop Assistant, Desktop Assistant Pro, or the Desktop Assistant Administrator Pro (AE) application, see "Labelling telephone sets: Desktop Assistant portfolio" on page 183. The AE version is located under the administrator applications heading on the Element Manager web page.

The Desktop Assistant, and Desktop Assistant Pro are located under the User Applications heading on the Element Manager web page. Desktop Assistant Pro requires a LAN CTE keycode before it can be used. See the *Keycode Installation Guide* (NN40010-301) for more information on keycodes.

IP telephones also have soft display labels. Refer to "IP features list" on page 143.

User speed dials

Use this tab to assign telephone numbers to speed dial codes. These codes are available to all telephones in the system. The number of available codes is determined under system feature programming.

Programming references:

- "User Speed Dial tab" on page 63

To program user speed dials

1. Click **Configuration > Telephony > Sets > Active Sets > Capabilities and Preferences** tab**.**
2. Select the DN of the telephone to program.
3. Click the **User Speed Dial** tab in the bottom panel.
4. Use the **Add** button to enter the external number to dial and the facility to use when the selected speed code is entered.
5. Enter a unique name for each speed dial. This name displays for incoming calls that match the external number.
6. Program the speed dial code onto telephone buttons, and label the buttons.

Next step: "Outgoing call restrictions" on page 137

Outgoing call restrictions

Restriction filters determine what dialing strings are allowed or blocked from the user. You can specify restriction filters specific to the telephone, as well as filters that are specific to a line assigned to the telephone.

Programming reference:

- "Restrictions main tab" on page 65
- restriction filters
- line restrictions
- CoS passwords

To program outgoing call restrictions

1. Click **Configuration > Telephony > Sets > Active Sets > Restrictions** tab.
2. Select the DN that you want to modify.
3. **Set Lock**: Determine how much programming the user is able to perform at their telephone. (None, Partial, Full)

   Refer to "Restrictions main tab" on page 65 for a description of what is allowed for each level.
4. **Allow Last Number**: Select the check box if you want to allow Last-number redial for numbers dialed from the telephone.
5. **Allow Saved Number**: Select the check box if you want to allow redialing a saved number.
6. **Allow Link**: Select this check box only for analog telephones.

Set restrictions

Assign restriction filters for the schedules that will affect this telephone.

Programming reference:

- "Set Restrictions tab" on page 66
- Restriction filters

To set restrictions

1. Select the field you want to change.
2. Enter the restriction filter appropriate for the schedule. You will always need a filter specified for the Normal schedule.
3. Repeat for each schedule.

Line/Set restrictions

Assign restriction filters for the schedules that will affect the lines assigned to this telephone.

Programming reference:

- "Line/Set Restrictions tab" on page 67
- Restriction filters

To set line/set restrictions

1. Select the line you want to modify.
2. Select the field you want to modify on that line.
3. Enter the restriction filter appropriate for the schedule. You always need a filter specified for the Normal schedule.
4. Repeat for each line.

Chapter 19
Configuring telephones: IP telephones

IP telephones have a very similar DN configuration to digital telephones. Refer to "Configuring telephones: Digital telephones" on page 123 for detailed procedures.

There are several models of i-series telephones, and each telephone has a different number of programmable buttons. Refer to the Nortel i-series telephone user cards for details.

Task: Setting up IP telephones

Determine the programming for individual IP telephones. Refer to "Configuring an IP telephone" on page 141.

Register each IP telephone to the system. Refer to "Registering Nortel 20XX and 11XX IP telephones" in the *Telephony Device Installation Guide* (NN40020-309).

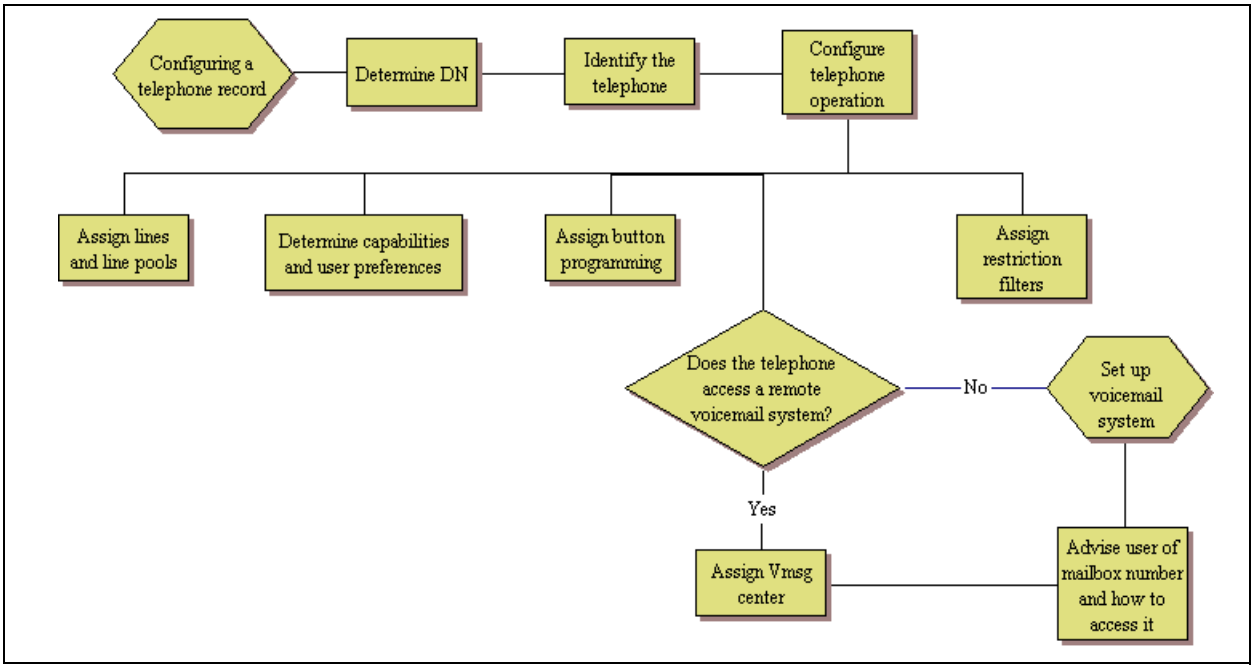
Prerequisite programming

The following programming must be completed prior to performing this configuration:

- Numbering plan
- Lines programming
- Telephony system feature programming
- IP telephony network setup and prerequisites checklist

Note: IP sets that do not have integrated switches must be connected to the LAN through an Ethernet switch.

IP telephone DN record overview



Configuring an IP telephone

On each panel on the DNs list, add or modify settings to customize the telephone operations. Table 39 lists the fields and settings for IP telephones.

Table 39 Line Configuration

Affected field	Setting	Panel name and link to common procedures
Model	2004, 2002, 2001, 2007, 2033, 1120E, 1140E, 2050, 2210, 2211, 2212	"Line Access tab" on page 43
Name	Unique to each handset	
Line appearances	Ring only (if not assigned to a button)	"Line Assignment and Line Pools" on page 128
Caller ID set	Selected (connected to target lines)	
Answer DNs	Ring only (if not assigned to a button)	
Intercom keys	At least one	"Configuring Capabilities and Preferences" on page 130
Handsfree	Auto	"Configuring telephone capabilities" on page 131
Dialing Options	Auto	"Configuring Preferences" on page 134
All other settings are variable, based on your system requirements.		

PVQM - Proactive Voice Quality Monitoring

The following path indicates where to set PVQM thresholds in Element Manager:

- Element Manager: **Administration > Telephony Metrics > PVQM > Threshold Settings Panel**

PVQM monitors and reports on call quality in process, not just after the end of the call. This enables more timely and accurate resolution of potential call quality problems, especially on more lengthy calls. A call quality threshold is set so that an exception is reported if the quality drops below a configurable value.

PVQM is fully supported on Phase 2 IP sets. Phase 1 IP sets support only the following PVQM metrics: packet loss, inter arrival jitter, and round trip delay. To determine the phase of your IP Phone, refer to "IP Phone 2002 models" on page 161 and "IP Phone 2004 models" on page 160,

The following is a description of the metrics:

- **Packet Loss:** Packet loss can be viewed as an extreme case of delay. There are a number of reasons that a packet could be lost in transit. If a network failure occurs, packets may be lost during the time that traffic is rerouted through alternate facilities.
- **Inter Arrival Jitter:** Packet jitter refers to a variable delay on a packet –to –packet basic as it traverses a network. For data applications it has a minor impact but voice is quite different. It is a synchronous service and an exact relationship must be maintained between source and recipient of the information.

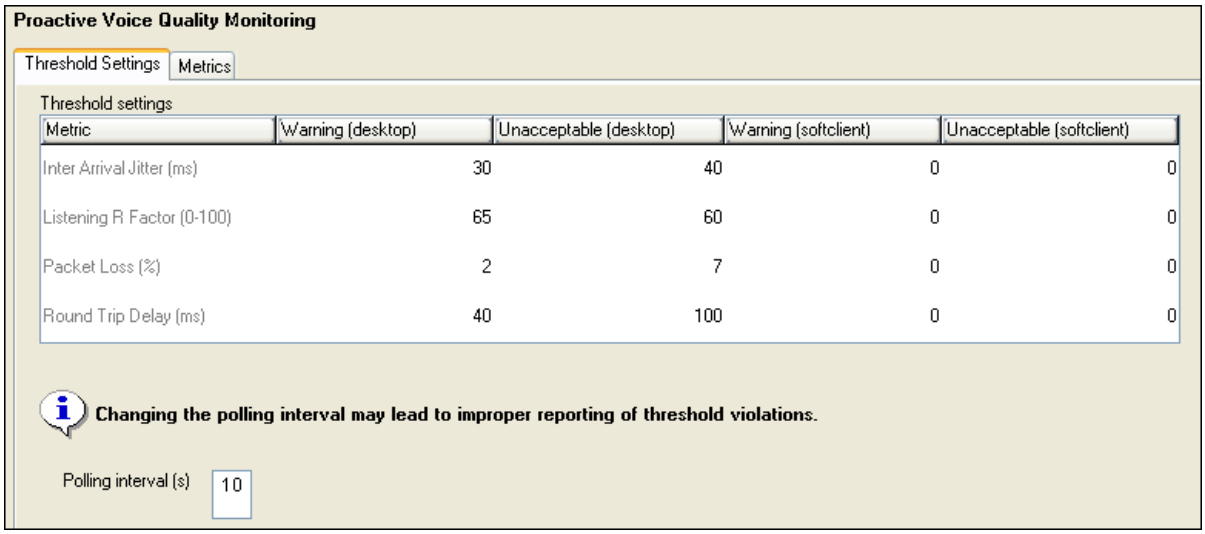
- **RTCP Round Trip Delay:** Round trip delay is an important measurement of network performance.
- **Listening R Factor:** A direct measure of the call quality or transmission quality, and incorporates the effects of CODEC type, packet loss, discard, burstiness, delay etc. This metric describes the segment of the call that is carried over this RTP session.

There are two thresholds for PVQM metrics: Warning, and Unacceptable. A violation of the Warning threshold indicates that the voice quality is reduced but is still within an acceptable range. A violation of the Unacceptable threshold indicates a severe degradation in voice quality.

If an alarm is generated to report a threshold violation, additional information will be included in the alarm to tag the source of the alarm and provide other information that may be helpful in monitoring voice quality on the system and across the network.

For an explanation of the Metrics tab and the default PVQM threshold settings refer to the *Administration Guide* (NN40020-600).

Figure 42 PVQM threshold settings



Chapter 20
Global VoIP features

The two global IP feature panels provide a quick access feature menu and customized display labels for IP telephone memory buttons.

Click one of the following links to connect with the type of information you want to view:

Panels	Tasks/Features
"IP features list" on page 143	"Assigning the list to a button" on page 145 "To use the Services button to access features" on page 145
"IP telephone feature display labels" on page 145	"To define a key label" on page 146
Other IP global features:	"Hot desking IP telephone configurations" on page 147 "Configuring a new time zone on a remote IP telephone" on page 150 "Download firmware to a Nortel IP telephone" on page 151

Click the navigation tree heading to access general information about Ring Group management.

IP features list

You can add and modify the features that display on the IP telephone feature list, which is accessed through the Services button or by using **FEATURE *900**. To view and modify these features in Element Manager, navigate to **Configuration > Telephony > Global Settings > IP Terminal Settings > Feature List** tab.

Table 40 describes the fields on the two records on this panel.

Figure 43 Feature List tab fields

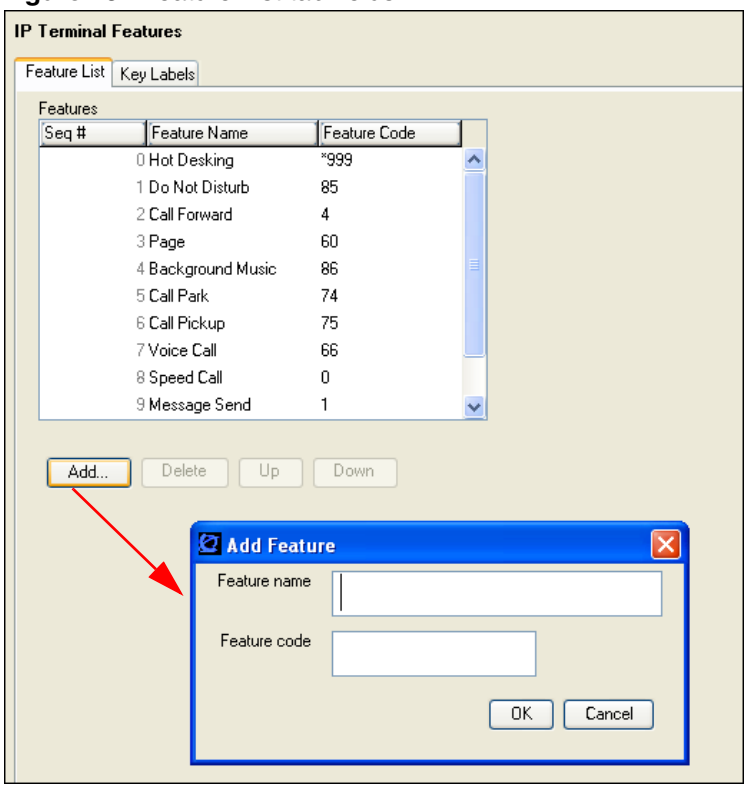


Table 40 Feature List tab fields description

Attribute	Value	Description
Seq #	<read-only>	List number only.
Feature name	<alphanumeric>	Label for the feature code.
Feature code	<alphanumeric>	Code for the feature.
Actions		
Add	1. Click **Add**. 2. In the **Add Feature** dialog box enter a feature name. 3. Enter the feature code. 4. Click **OK** to save the new setting.	
Delete	1. Select one or more feature lines. 2. Click **Delete**. 3. Click **Yes** on the confirmation dialog box. **Note:** This only deletes the feature from the list.	
Up	1. Select a feature line. 2. Click the **Up** button until the line moves up to the desired location.	
Down	1. Select a feature line. 2. Click the **Down** button until the line moves down to the desired location.	

Assigning the list to a button

The services list defaults to the Services button . However, you can assign the display list to one of the other feature buttons.

The user can also assign the display list as a memory button at a telephone, using **FEATURE *3**.

If you move the feature to another memory button, the Services button no longer accesses the menu.

To use the Services button to access features

1. Press the Services button (or the button to which the list is assigned).
2. Use the up and down directional buttons on the telephone, or the Page + and Page - display keys, to move through the list to find the feature you want.
3. Press the Select display key to activate the feature.
4. Use the feature as you would on any other telephone.

   For example, if you selected Call Forward, enter the number you to which you want to forward the call. Or, if you select speed dial (**FEATURE 0**), enter the speed dial code for the number you want the telephone to dial.

IP telephone feature display labels

When your IP telephone acquires a DN record, the default settings are applied to the telephone, including assigning features to the memory keys on the telephone. These features all have predefined labels, and the telephone automatically displays the appropriate labels beside the programmed buttons. This screen enables you to change the soft display label for features assigned to the memory keys beside the displays for IP telephones.

Use this screen to define custom labels for 24 features. The system comes with sixteen default labels, which are feature- and language-specific, depending on the system-assigned country or region profile. Typically, the default labels are messaging and call attendant features.

You can change any other feature label by adding to this list, or by deleting any of the default settings and inserting new codes and labels.

The labels can be changed in Element Manager at the following location: **Configuration > Telephony > Global Settings > IP Terminal Settings > Key Labels**.

Figure 44 IP telephone Key Labels

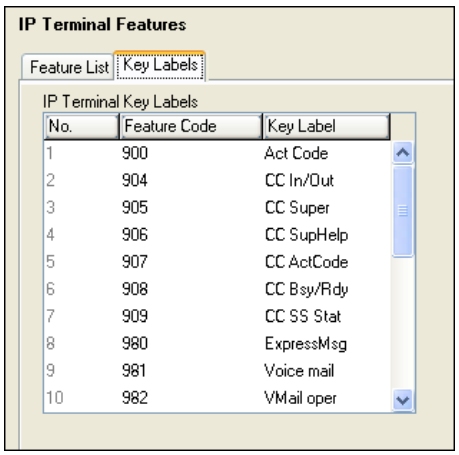


Table 41 describes the headings on the table.

Table 41 IP Terminal Features - Key Labels

Attribute	Value	Description
No.	<read-only>	System number; identifies a label
Feature Code	<feature code>	Assignable feature code
Key Label	<text label>	Each code has a default label. To change a label, click the field, then enter a maximum of eight characters, including spaces.

To define a key label

1. Select the number of the feature you want to label.
2. Enter the feature code to program for that key.
3. Enter the text to appear on the label.

Some features, such as Page and System Wide Call Appearances (SWCA), have several variations of feature invocation that you can customize for users.

Paging can be F60, F61x, F62, and F63x. SWCA has 16 codes (*521 to *536). Table 42 shows examples of labels to which page codes and SWCA codes can be changed.

Table 42 Relabeling examples

Feature code	New label
60	Gen Page
610	Pg Every
61	Zone <digit from 1-9>
62	Speak Pg
630	Speak, All

Feature code	New label
*521	SW Call 1
*522	SW Call 2
*523	SW Call 3
*524	SW Call 4
*525	SW Call 5

Note: Line names are defined when you configure the line, and can be changed through the Lines menus.

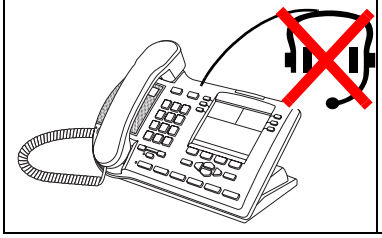
Hot desking IP telephone configurations

You can transfer your IP telephony configuration temporarily from one IP telephone to another using the Hot desking feature. This feature is described in detail in the *Telephone Features User Guide* (NN40020-100). You use **FEATURE *999** to enter the feature. To perform Hot desking, you are prompted for a password, which is specified at the telephone, before you can complete the task.

Notes about Hot desking

- The Hot Desking feature allows a user to divert calls and signals from one IP telephone to another. For example, if a user is temporarily working in another office, they can retain their telephone number by Hot desking their usual telephone to the IP telephone in their temporary office.
- The Hot desking code defaults to the first item on the services list.
- Once Hot desking occurs between two IP telephones, no activity is allowed on the originating telephone, except to cancel Hot desking. The display on the originating telephone indicates where it has been diverted.
- Call forwarding to voice mail continues as normal. Voice mail can be accessed from the diverted IP telephone in the same way as from the originating telephone.
- Using headsets with Hot desking: If you use the headset feature on your IP telephone, and you want to hot desk your telephone to another IP telephone, ensure that the target telephone also has a headset installed, before you enter the Hot desking feature.
- If the target telephone does not have a headset, the headset feature from the first telephone does not transfer during Hot desking. Adding a headset to the target telephone, after Hot desking is enabled, does not correct the situation. To enable headset function in this situation, you must cancel Hot desking, plug a headset into the target telephone, and then re-establish Hot desking.

- If the target telephone has a headset, but the originating telephone does not, when Hot desking is activated, the headset on the target telephone no longer works. To correct this situation, you must cancel Hot desking, plug a headset into the originating telephone, then re-establish Hot desking at the target telephone.

Originating telephone	Target telephone	Head set feature active on target set after Hot desking?
		Yes
		No
		No

Using the Hot desking feature

Hot desking requires that you set up a password and permission on the originating telephone, and activate Hot desking from a target telephone.

Setting up a password and allowing Hot desking

Set up the password on the originating telephone. This process also allows you to determine if you want the telephone to be able to be diverted.

To set up a password and allow Hot desking

1. Enter **FEATURE *999**.
2. Press **ADMIN**.
3. Enter a new password, or change an existing password, and press **OK**.

4 Confirm the password, and press **OK**.

5 Press **CHANGE** to toggle between allowing or disallowing Hot desking.

6 Press **QUIT** to exit.

Resetting the Hot desking password

Reset the Hot desking password through system programming. This enables users who forget their passwords to re-enter Hot desking and to reset their password.

Note: This process also cancels Hot desking for the telephone, if the application is currently active.

Also refer to "Notes about Hot desking" on page 147.

To reset the Hot desking password field for a specific IP telephone

1 You can access the reset button from two locations:

- **Configuration > Resources > Telephony Resources > IP & Application Sets >IP Terminal Details tab**
- **Configuration > Telephony > Sets > Active Sets > Capabilities and Preferences > IP Terminal Details tab**

2 Select an IP telephone from the list.

3 Click **Reset Hot Desking Password**.

4 Click **OK** on the dialog box to reset the password.

The password resets to **Null**. The user can enter Hot desking again to enter a new password.

Using the Hot desking feature to divert an IP telephone configuration

You perform this procedure on the target telephone at which the diverted calls are to be answered.

To use the Hot desking feature to divert an IP telephone configuration

1 Ensure both telephones are on-hook before attempting to activate this feature.

2 Enter **FEATURE *999**.

3 Press **DIVERT.**

4 Enter the DN of the telephone you want to divert to this telephone.

Note: If the originating telephone does not allow Hot desking, a Not allowed prompt displays. This prompt also occurs if the originating telephone is on a call when the diversion command is issued.

5 Enter the password of the diverted telephone.

The buttons on your telephone mimic the buttons configured on the diverted set. The diverted telephone indicates that it is diverted, and it cannot be used until Hot desking is cancelled.

Cancelling Hot desking

You can cancel Hot desking from the originating or target telephone.

To cancel Hot desking

1 Ensure that both telephones are on-hook before cancelling Hot desking.

Note: There can be up to a ten-second delay after the call ends before the system allows you to cancel Hot desking. This period can vary, depending on the call type.

2 Cancel the feature:

Diverted telephone: Press the display key under the **CANCEL** prompt.

Live telephone:

a Access **FEATURE *999**.

b Enter the password.

c Press **CANCEL**.

Configuring a new time zone on a remote IP telephone

If the IP telephone connects to the system from a different time zone than the system, you can reset the telephone to display the correct local time.

To configure a new time zone on a remote IP telephone

1 At the telephone, enter **FEATURE *510**.

2 Press **CHANGE**.

3 Press * to toggle between + (plus) and - (minus). Use + if local time is ahead of system time; typically, you use + when the system is west of the local site.

4 Enter the number of hours difference.

5 Press **OK**.

Offset time zones: For areas, such as Newfoundland, Canada, where the time zone is offset from a full hour, press the # key to add 0.5 to the number of hours, then press **OK**.

Note: The telephone is still configured to change when Daylight Savings Time occurs, if the host system is programmed to change. Therefore, if the telephone is in an area that stays on Standard Time year round (for example, Saskatchewan, Canada), you must readjust the time on your IP telephone at each time change. You must also readjust the time if the IP telephone is in a time zone that changes, and the system is not (for example, if the telephone is in Alberta, Canada, and the system is located in Saskatchewan).

Download firmware to a Nortel IP telephone

Firmware is the software stored in the telephone. When the system is upgraded with a new IP telephone firmware load, this firmware load automatically downloads into the IP telephones when the telephones next connect to the system.

The IP Terminal Details subpanel has a **Force firmware download** button that enables you to initiate an immediate download to a telephone. You force a download in situations where troubleshooting suggests that a particular telephone has corrupted firmware. Refer to "IP telephone set details" in the *Networking Configuration Guide* (NN40020-603) for details.

To force a firmware download to a Nortel IP telephone

1 You can access the reset button from two locations:

- **Configuration > Resources > Telephony Resources > Terminal Details tab**
- **Configuration > Telephony > Sets > Active Sets > Capabilities and Preferences > IP Terminal Details**

2 Select an IP telephone from the list.

3 Click Force firmware download.

The system drops any active call on that telephone, and downloads a new firmware load into the selected telephones. The telephone is unusable until the download is complete, and the telephone has reset.

Note: In order not to saturate the IP network with download packets, the system only downloads to a maximum of five IP telephones at any given time. Telephones requiring download show an Element Manager status of Download Pending. The UNISTIM Terminal Proxy Server (UTPS) initiates download as resources become available.

Chapter 21
Default memory button programming for telephones

Button programming allows you to program the buttons on a telephone with internal and external autodialers, and with programmed feature keys. Assigned line, Hunt group designator, answer DNs buttons, intercom buttons, and handsfree buttons cannot be changed through button programming. These latter features appear in read-only format on the Button Programming table.

During startup, the installer chooses one of the available telephony template (PBX or DID). Each profile has a default features set that assigns automatically to the programmable buttons on telephones plugged into the system, unless you configure different settings in the DN record. The default features are listed by telephone model in the following sections:

- "Rules of default button assignment" on page 153
- "7316E digital phone button defaults" on page 154
- "7316 digital phone button defaults" on page 156
- "7406 digital phone button defaults" on page 159
- "7208 digital phone button defaults" on page 157
- "7100 digital phone button defaults" on page 158
- "7000 digital phone button defaults" on page 158
- "IP telephone 2004 and 2050 Software Phone button defaults" on page 159
- "IP telephone 2002 button defaults" on page 161
- "IP telephone 2001 button defaults" on page 162
- "IP telephone 2007 button defaults" on page 163
- "IP audio conference phone 2033 button defaults" on page 167
- "IP Phone 1120E and IP Phone 1140E" on page 171
- "WLAN handset 2210/2211/2212 button defaults" on page 176
- "DMC Portables (413X/414X) (Europe only)" on page 179

Rules of default button assignment

- Line and intercom buttons assigned by default templates can be changed in programming. Handsfree and Answer DN buttons are not assigned by default. When these features are programmed, however, they are automatically assigned to specific buttons.

- Telephones can have a maximum of eight intercom buttons. When Answer DNs are assigned, they appear above the handsfree button, if there is one, at the bottom right-hand corner on the telephone. The model 7000 and 7100 digital phones and analog telephones are automatically assigned two intercom lines.
- Default line button assignment starts on or near the top of the left column, and descends. Default button programming does not necessarily provide default line assignments.
- Line assignments can be moved by the user to more convenient buttons.

7316E digital phone button defaults

The default button assignments for the 7316E depend on the template applied. Refer to your Programming Records to identify the current button programming for each telephone or group of telephones.

- This telephone has individual handsfree, mute and headset buttons, located under the dialpad. Handsfree must be set to Auto for these buttons to work.
- The current incoming call on this telephone defaults to the voice path last used. For example, if you answered the previous call using your headset, the next call comes in over your headset.
- Line numbering starts on button 09.

Note: The 7316E digital phone buttons are mapped differently than the 7316 digital phone buttons. Therefore, if you replace a 7316 digital phone with a 7316E digital phone, the button programming reverts to the default settings for the 7316E, losing any keys programmed by the user at the telephone. Also, settings copied from one telephone to the other can be in a different location on the 7316E. This is consistent with how the system behaves if you switch any telephone model for a different model on the same connector.

Table 43 7316E digital phone upper button defaults

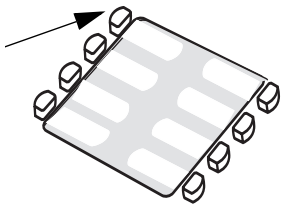
7316E digital phone upper button defaults				
	Btn #		**Btn #**	
Contrast	01		05	Blank
Show time	02		06	(DID only) Sys Park
Blank	03		07	Send Message
Blank	04		08	Speed dial

Figure 45 7316E digital phone lower button mapping

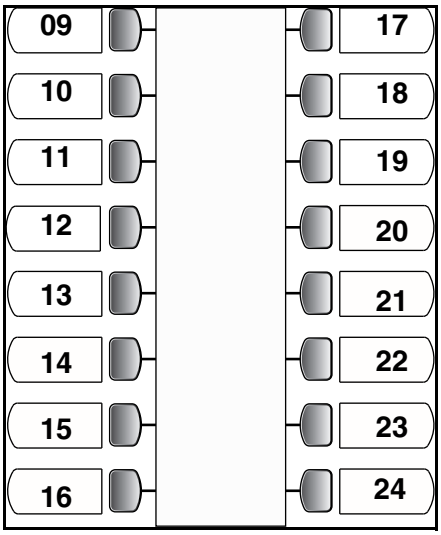


Table 44 7316E digital phone lower button defaults

7316E lower button defaults				
Btn #	**PBX**	**DID**	**Btn #**	**PBX/DID**
09	Sys Park	Target line	17	Call Timer
10	Saved No.		18	Ring Again
11	Call Fwd		19	DND
12	Pick-up		20	Transfer
13	Page		21	Last No.
14	Transfer		22	Voice call
15	Time/Date		23	Intercom
16	Receive Msg.		24	Intercom

7316 digital phone button defaults

Button mapping for the 7316 digital phone is unique. Although the button programming follows the 7310 digital phone button mapping, the 7316 does not have a second level on its upper button group. Because of this, the numbering for the 7316 is not consecutive. As well, the top three buttons on each column of the bottom button group refer to the 7310 upper button programming. This means that line assignment starts on the fourth button down on the left column, rather than on the top button, as with all other 7XXX digital phones. Refer to the diagrams below.

Internal autodial numbers are assigned to buttons 11, 13, 15, 17, 19, and 21 on the main button group. Programmed external line buttons descend down the lower left buttons, starting with button 01. When more than five external lines are programmed, assignment continues on the lower right buttons, starting at button 06.

Note: The 7316E telephone buttons are mapped differently than the 7316 telephone. Therefore, if you replace a 7316 telephone with a 7316E telephone, the button programming reverts to the default settings for the 7316E.

Figure 46 shows the default button number assignments on the 7316 telephone.

Figure 46 7316 digital phone upper button defaults

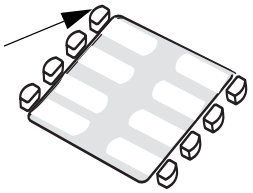
7316 upper buttons (PBX and DID) default button settings				
	Btn #		Btn #	
Autodial to 227	23		31	Autodial to 231
Autodial to 228	25		33	Autodial to 232
Autodial to 229	27		24	Autodial to 239
Autodial to 230	29		26	Autodial to 240

Figure 47 7316 digital phone button assignment

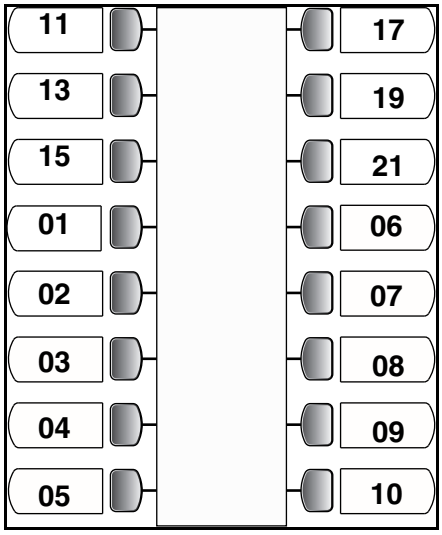


Table 45 7316 digital phone lower button defaults

7316 lower button defaults					
Btn #	**PBX**	**DID**	**Btn #**	**PBX**	**DID**
11	Autodial 221		17	Autodial to 224	
13	Autodial 222		19	Autodial to 225	
15	Autodial 223		21	Autodial to 226	
01	DND	Target line	06	Conference	
02	Transfer		07	Last No.Redial	
03	Call Forward		08	Intercom	
04	Pick-Up		09	Intercom	
05	Page-General		10	Handsfree	

7208 digital phone button defaults

The default button assignments for the 7208 digital phones differ for the PBX and DID telephony templates. Refer to Figure 48.

Figure 48 7208 digital phone button mapping

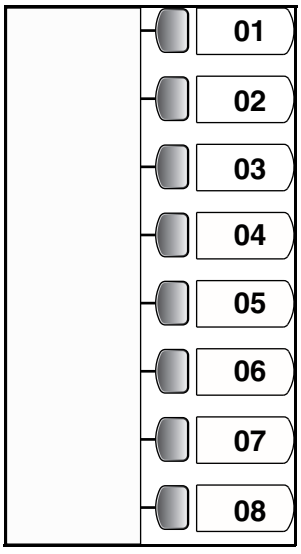


Table 46 7208 digital phone button defaults

7208 default button mapping		
PBX	**Btn #**	**DID**
Pick-Up	01	Target line
Transfer	02	Transfer
Last No. Redial	03	Last No. Redial
Page-General	04	Page-General
Conference	05	Conference
Intercom	06	Intercom
Intercom	07	Intercom
Handsfree	08	Handsfree

7100 digital phone button defaults

The 7100 digital phone is a basic-function digital telephone with a single-line display. For all templates assigned to 7100 digital phones, the one programmable button defaults to **Last Number Redial**.

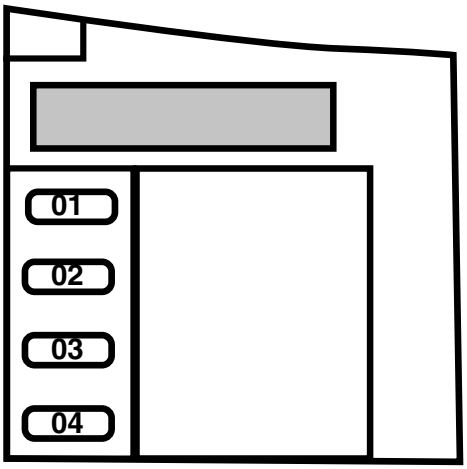
This telephone cannot use features that require a speaker, such as Page.

Note: The default Page feature activates the External Page option (**FEATURE 62**).

7000 digital phone button defaults

Note: The 7000 phone is available only in limited markets.

Figure 49 7000 digital phone button mapping



This digital basic-function telephone has four programmable memory keys that default to the features shown in Table 47. This telephone has no display, and does not support features that require a speaker or a display.

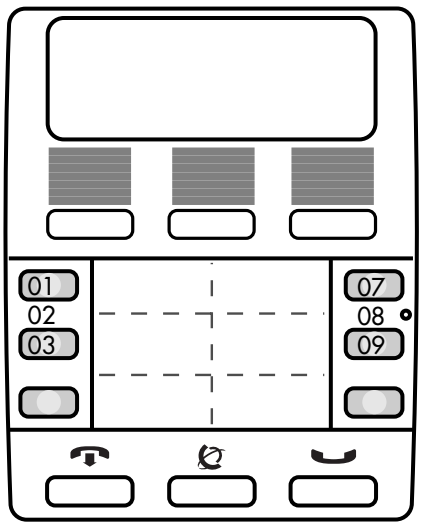
Table 47 7000 digital phone button defaults

7000 button defaults		
PBX	**DID**	**Btn #**
Last Number Redial		1
Call Forward		2
Transfer		3
Conference/Transfer		4

7406 digital phone button defaults

Note: The 7406 phone is available only in limited markets.

Figure 50 7406 digital phone button defaults



The 7406 cordless handset is based on the 7316 digital phone button numbering. However, the 7406 handset has only six memory buttons. These buttons map to specific 7316 button numbers: 01, 02, 03, 07, 08, 09.

Ensure that when you fill out the DN record, which shows 24 buttons for the 7316 digital phone, that you program only these buttons. The handset can access any system features, except for features that require a speaker, such as handsfree.

Table 48 7406 digital phone button defaults

7406 lower button defaults				
Btn #	**PBX**	**DID**	**Btn #**	**PBX/DID**
01	DND	Target line	07	Last No. Redial
02	Transfer		08	Intercom
03	Call Forward		09	Intercom

IP telephone button defaults

The IP telephone 20XX models have fewer programmable buttons than the 7316 or 7316E; however, they have access to a feature menu through the Services key (**FEATURE *900**) that expands quick access to call features. Additionally, IP telephones support the Hot Desking feature, which allows the user to transfer telephone settings from one IP telephone to another, allowing mobility without relocating the physical telephone.

IP telephone 2004 and 2050 Software Phone button defaults

The 2004 and the 2050 telephones have six memory buttons beside a display that provides soft labels for the buttons. These telephones also have six other buttons that can be programmed as memory buttons without display.

Figure 51 2004/2050 default button programming

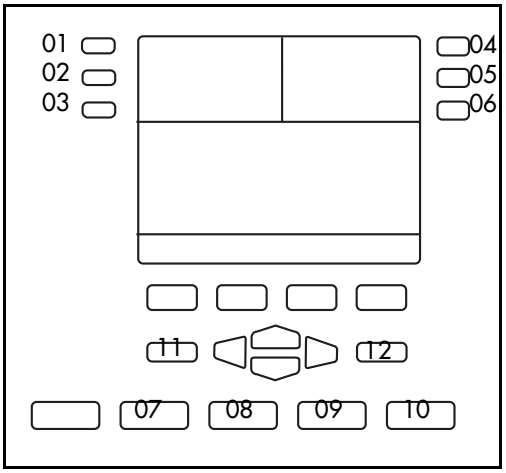


Table 49 2004 button defaults

2004 default button assignment		
Btn #	**PBX**	**DID**
01	Call Forward	Line XXX
02	Conference/Transfer	
03	Last # Redial	
04	Page - General	
05	Intercom	
06	Intercom	
07	Blank	
08	Voice mail login	
09	Express Messaging	
10	Service menu	
11	Blank	
12	Blank	

IP Phone 2004 models

There are three models of the IP Phone 2004, referred to as Phase 0, Phase 1, and Phase 2. The higher level models have some features that are not available on the lower level models. To determine the model of your IP Phone, turn the IP Phone over and locate the label containing the product code (NT code). The product code identifies the model of your IP Phone.

Table 50 IP Phone 2004 model codes

Product code	**Model**
NTEX00xx or NT7B10AACH	Phase 0
NTDU82xx	Phase 1
NTDU92xxxx	Phase 2
Where “xx” or “xxxx” represents any valid character	

IP telephone 2002 button defaults

The 2002 has four memory buttons beside a display that provides soft labels for the buttons. This telephone also has five other programmable buttons with no display.

Figure 52 2002 default button assignment

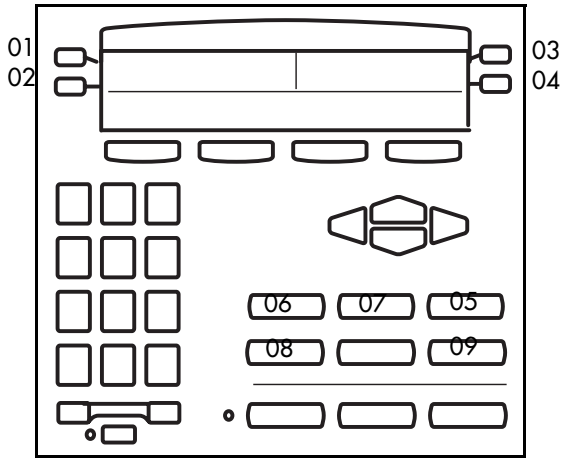


Table 51 2002 button defaults

2002 default button mapping		
Btn #	**PBX**	**DID**
01	Call Forward	Line XXX
02	Conference/Transfer	
03	Intercom	
04	Intercom	
05	Blank	
06	Voice mail login	
07	Express Messaging	
08	Service menu	
09	Blank	

IP Phone 2002 models

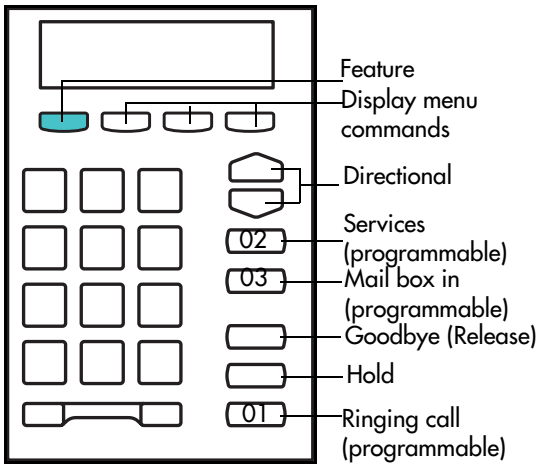
There are two models of the IP Phone 2002, referred to as Phase 1 and Phase 2. The Phase 2 models have some features that are not available on the Phase 1 models. To determine the model of your IP Phone, turn the IP Phone over and locate the label containing the product code (NT code). The product code identifies the model of your IP Phone.

Table 52 IP Phone 2002 product codes

Product code	**Model**
NTDU76xxxx	Phase 1
NTDU91xxxx	Phase 2
Where “xxxx” represents any valid character.	

IP telephone 2001 button defaults

Figure 53 2001 default button formatting



The 2001 is a simple version of the IP telephone. None of the programmable buttons have indicator displays, so all incoming calls must be set to Ring only. Figure 53 shows the positions of the three programmable buttons, and which button number corresponds to each of the three buttons.

Although two intercom lines are assigned to the telephone, there is no visible indicator of the lines. However, a light at the top of the telephone blinks. The user presses the Hold key to toggle between two active calls, or to put one call on hold to make a second call.

Handsfree and mute are not available, since this telephone does not have an external speaker. It also does not support a headset. The only indicator on the telephone is the message waiting indicator (MWI) lamp.

Model 2001 feature buttons:

- Four display buttons appear under the telephone display screen. The first button defaults to act as the **Feature** button (green button). The other buttons provide access to menu commands that appear on the display, as with the other types of telephones on the system.
- The IP telephone Features list is accessible through the button that defaults to Services (**FEATURE *900**). This button can be programmed to another feature.
- One of the buttons defaults to the voice mail login (**FEATURE 981**). This program can be programmed to another feature, such as the dial string for a remote voice mail system.
- The Hold and Goodbye (release) features are automatically programmed above the Ringing call button, which is also programmable. The Ringing call button (**FEATURE 807**) provides call send and receive access, allows users to toggle between two calls using the Hold key, and is required if the Conference feature is allowed on the telephone.
- The telephone has an additional five hidden button assignments that can be programmed with Answer DNs or SWCA assignments. All assignments on the virtual buttons are Ring only. SWCA calls are accessed by using the feature code for each assigned button.

2001 default button mapping		
Btn #	**PBX**	**DID**
01	Ringing Call (F807)	
02	IP Services List (F*900)	
03	Voice message access (F981)	

Hidden button assignments:		
Btn #	**PBX**	**DID**
04*		Blank
05*		Blank
06*		Blank
07*		Blank
08*		Blank

* These buttons only support Answer DNs or SWCA controls.

- There are only two directional buttons (Up and Down) on this telephone. Use these buttons to scroll through the Features list, which is accessed through the Services button, or by entering **FEATURE *900**.

IP telephone 2007 button defaults

The Nortel IP Phone 2007 brings voice and data to the desktop by connecting directly to a Local Area Network (LAN) through an Ethernet connection.

The IP Phone 2007 provides all the functionality of the IP Phone 2004, using a graphical user interface (GUI). In addition, advanced text and graphic-based web-centric applications are supported.

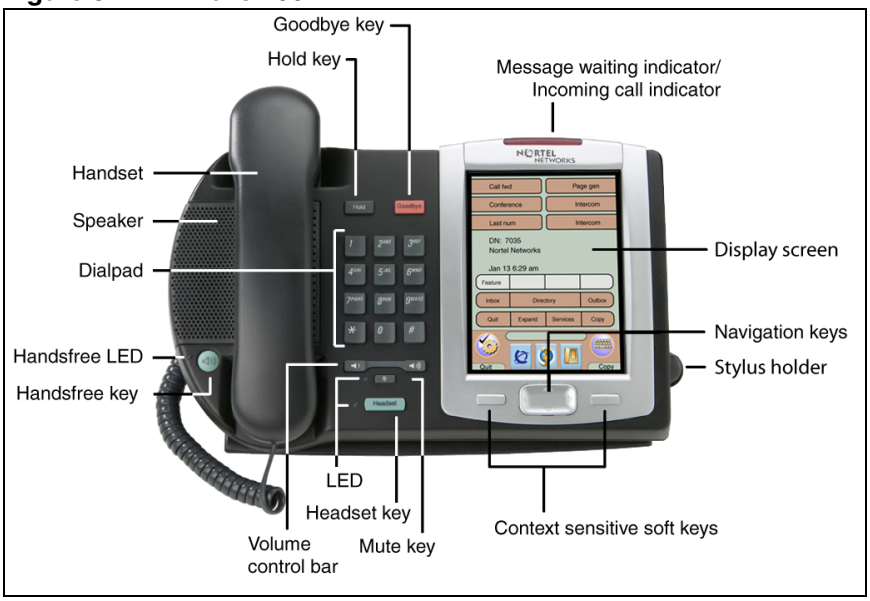
Not all features are available on all telephones. Consult your system administrator to verify which features are available for your use.

The IP Phone 2007 supports the following features:

12 programmable feature soft keys	Shared LAN access with a PC
Four soft keys (self-labeled) providing access to a maximum of ten features	Headset jack with On/Off key
Your IP Phone 2007 might not be configured to support soft key functionality. Consult your system administrator.	Automatic network configuration
Speaker for on-hook dialing or on-hook listening	Hearing-aid compatibility
Volume control bar for adjusting ringer, speaker, handset, and headset volume	Large, color touch panel display screen
Four call processing fixed keys: • Hold • Goodbye • Handsfree • Mute	Web-based applications support
Remote firmware download	USB mouse and keyboard support

The IP Phone 2007 provides a color touch panel display (see Figure 55) that supports color XML and HTML content through an external application server.

Figure 54 IP Phone 2007



Use the **Volume control** bar to adjust the volume of the ringer, handset, headset, speaker, and the Handsfree feature. Press the right side of the rocker bar to increase volume; press the left side to decrease volume.

Use the **Goodbye** key to terminate an active call.

Press the **Hold** key to put an active call on hold. Tap the flashing line (DN) soft key to return to the caller on hold.

Use the **Navigation** keys to scroll through menus and lists appearing on the LCD display screen. The key rocks for up, down, left, and right movements.

Press the **Headset** key to answer a call using the headset or to switch a call from the handset or handsfree to the headset.

Press the **Speaker** key to activate handsfree. The speaker LED indicator lights to indicate when handsfree is active.

Press the **Mute** key to listen to the receiving party without transmitting. Press the **Mute** key again to return to two-way conversation. The **Mute** key applies to handsfree, handset, and headset microphones. The Mute LED indicator flashes when the Mute option is in use.

When a message is left for the user, the **Message waiting indicator** flashes. Also, this indicator flashes when the set ringer is ON.

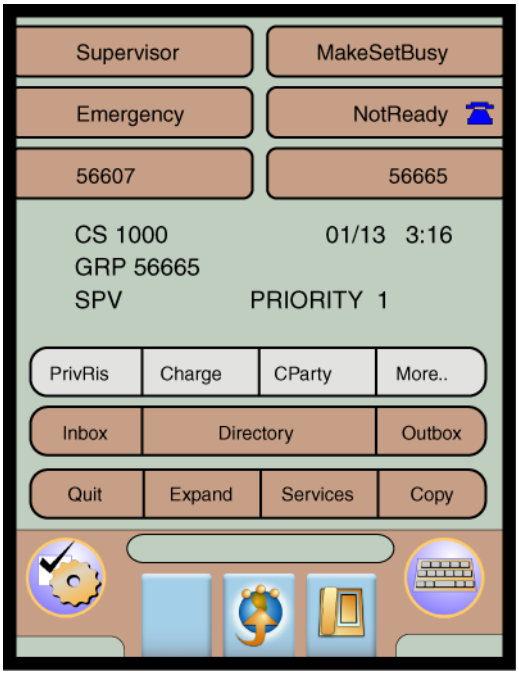
The two keys on either side of the navigation key are context-sensitive soft keys, with labels on the LCD.

IP Phone 2007 display screen

The IP Phone 2007 features two programmable areas:

- Application area
- Tools/Navigation area

Figure 55 2007 display screen button formatting



The Application area provides:

- line and feature soft key status
- information items such as caller number, caller name, feature prompt strings, user-entered digits, date and time information, and set information
- feature soft keys
- soft keys

The Tools/Navigation area provides:

- controls for navigating between features and selecting tools.
- area is visible and functional at all times.

In the Feature area within the Applications interface, the soft keys can show either text or icons. The text labels are displayed by default and are changed using the Tools menu.

Table 53 Feature Key text and icon displays

Text display	Icon display
Inbox	
Directory	
Outbox	
Quit	
Expand	
Services	
Copy	

The Tools/Navigation area has five main elements presented as touchable soft keys.

Table 54 Tools/Navigation area buttons

	Tap this icon to determine which external applications are registered (for example, My Call Pilot), and launch them by tapping on the appropriate icon.
	Tap this icon to access the Telephone screen.
	Tap this icon to go to the primary external application. The icon of the application is displayed.
	Tap this icon to access the tools used on the IP Phone 2007.
	Tap this icon to display a virtual keyboard (pop-up keyboard) for text entry.

IP audio conference phone 2033 button defaults

The IP Audio Conference Phone 2033 brings voice and data to the tabletop audio conference environment by connecting directly to a Local Area Network (LAN) through an Ethernet connection.

The IP Audio Conference Phone 2033 has the following features:

- three soft keys (self-labeled) that, when required, map to four soft keys (the >> soft key is used to navigate between the first two and last two soft keys)
- multifield LCD display screen
- up to two extension microphones to provide microphone coverage in large rooms
- volume control buttons for adjusting ringer and speaker volume
- two specialized fixed keys:
  - Services
  - Messages
- three call processing fixed keys:
  - Line
  - Hold
  - Release
- automatic network configuration

Figure 56 IP audio conference phone 2033 default button formatting

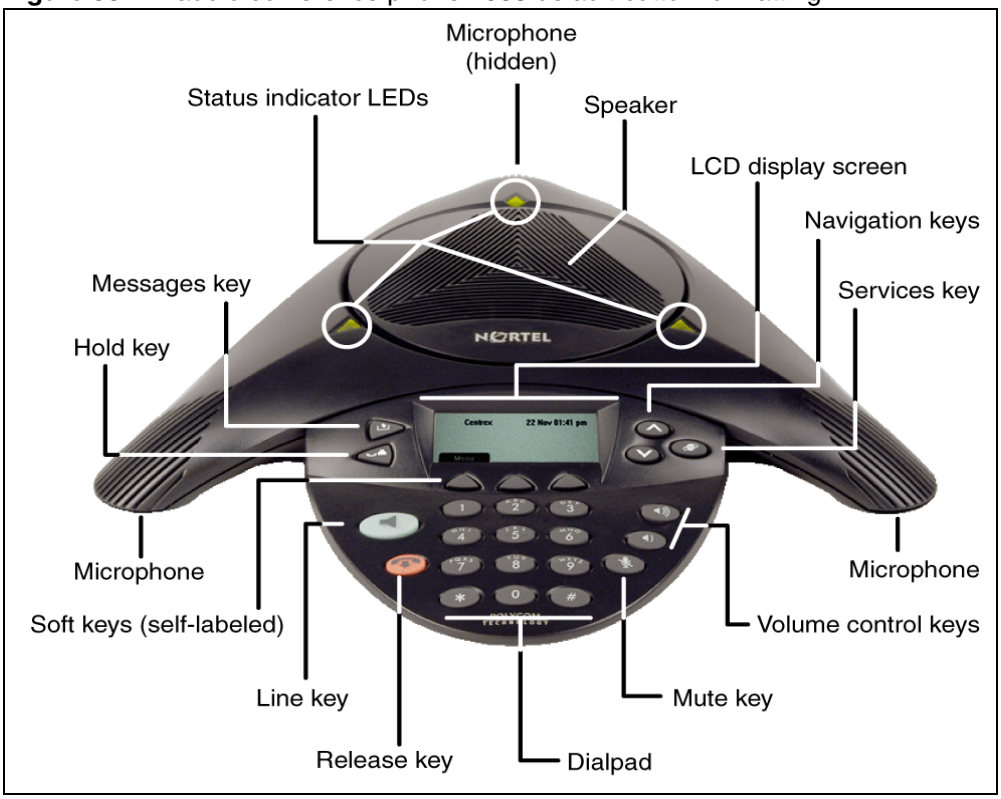


Table 55 IP audio conference phone 2033 default button formatting

	Use the Volume control buttons to adjust the volume of the ringer and speaker.
	Press the **Mute** button on the main unit or any extension speaker to mute the ringer and speaker. Press the **Mute** key on the extension microphone to toggles the mute state of the entire telephone, not just that microphone.
	Press the **Line** (DN) key to access the single line and activate on-hook dialing. No status icon or LED is provided.
	Press the **Release** key to terminate an active call.
	Press the **Hold** key to put an active call on hold. Press the **Line** (DN) key to return to the caller on hold.

Table 55 IP audio conference phone 2033 default button formatting

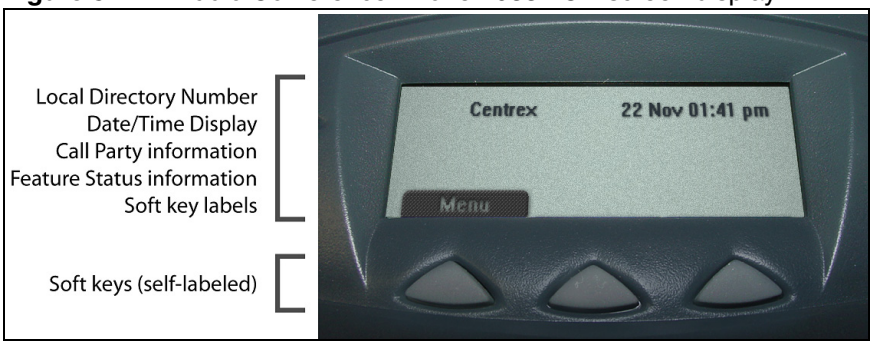
	Press the **Messages** key to access the callers list.
	Use the **Navigation** keys to scroll through menus and lists appearing on the LCD display screen. A small arrow appears on the right side of the display when there is additional text or prompts to be displayed.
	Press the **Services** key to access the main **Menu**. You can also use this key to access the following features, if they are available on your telephone: • Call Transfer • Call Park • Call Forward • 3-way and 6-way Conference Call
	Soft keys (self-labeled) are located below the LCD screen display. The LCD screen display above the key changes, based on the active feature. Press the **>>** soft key to toggle between the first and second row of soft keys.

LCD screen display

The IP Audio Conference Phone 2033 has two display areas:

- The upper display area contains single-line information for items such as the caller number, caller name, feature prompt strings, digits entered by the user, date and time information, and set information.
- The lower display area provides soft key label information.

Figure 57 IP Audio Conference Phone 2033 LCD screen display



Status Indicators

The IP Audio Conference Phone 2033 uses three bi-color LED lights, located around the speaker, to indicate the telephone status.

Table 56 Status indicators

LEDs	Status
Solid green	Active call
Solid red	Message waiting
Flashing red	Incoming call
Blinking red	Mute

The idle telephone display indicates if there is a message waiting or missed call.

Each extension microphone has an LED indicator, indicating the mute status of the telephone.

IP Phone 1120E and IP Phone 1140E

IP Phone 1120E and IP Phone 1140E bring voice and data to the desktop by connecting directly to a Local Area Network (LAN) through an Ethernet connection. Refer to the *IP Phone 1120E User Guide* (NN-10300-062) and the *IP Phone 1140E User Guide* (NN-10300-064) for additional information.

Your IP Phone 1120E and IP Phone 1140E support the following:

- four user-defined feature keys with labels and indicators on the IP Phone 1120E, six user-defined feature keys with labels and indicators on the IP Phone 1140E
- four soft keys

Note: Some IP Phone 1120E and IP Phone 1140E phones are not configured to support soft key functionality. Consult your system administrator.

- graphical, high-resolution LCD display, backlit, with adjustable contrast
- high-quality speaker phone
- volume control keys for adjusting ringer, speaker, handset, and headset volume

- six specialized feature keys:
  - Quit
  - Directory
  - Message/Inbox
  - Shift/Outbox
  - Services
  - Copy
- six call-processing fixed keys:
  - Mute
  - Handsfree
  - Goodbye
  - Expand to PC
  - Headset
  - Hold
- gigabit Ethernet ports
- built-in gigabit Ethernet switch for shared PC access
- headset jack with an On/Off key
- USB port to support a keyboard or mouse
- automatic network configuration
- hearing-aid compatibility

Figure 58 IP Phone 1120E

*Note: If supported by your server, the Feature Status Lamp provides a user-defined alert. Contact your system administrator to find out if this feature is available for you.

Note: The IP Phone 1140E has wireless headset support using a Bluetooth® 1.2 compliant Audio Gateway (Headset Profile, Bluetooth Power Class 2). For information on configuring Bluetooth® refer to the *IP Phone 1140E User Guide* (NN-10300-064).

Bluetooth®

To enable Bluetooth® on an IP Phone 1140E

1. Double-press the **Services** key.
2. Use the navigation keys to scroll to **Network Configuration**.
3. Press the **Send/Enter** key to select the Network Configuration menu.
4. Scroll to the **Enable Bluetooth** field using the navigation keys.
5. Press the **Send/Enter** key to modify the Enable Bluetooth field.
6. Scroll through the options to **Auto**.
7. Press **Send/Enter** to confirm selection.

Figure 59 IP Phone 1140E

*Note: If supported by your server, the Feature Status Lamp provides a user-defined alert. Contact your system administrator to find out if this feature is available for you.

Table 57 IP Phone 1120E and IP Phone 1140E buttons (Sheet 1 of 3)

Button	Description
	**Soft keys** are located below the display area. The LCD label above each key changes based on the active feature.
	The keys on either side of the display area are **user-defined feature keys**, with labels on the LCD display.
	A steady LCD light beside a line (DN) key indicates that the line is active. A flashing LCD light indicates the line is on hold or the feature is being programmed.
	A steady LCD light beside a feature key indicates that the feature is active. A flashing LCD light indicates that the feature is being programmed.
 (Volume +) (Volume -)	Use the **Volume control** buttons to adjust the volume of the ringer, handset, headset, speaker, and the Handsfree feature. Press the top button to increase the volume, and press the bottom button to decrease volume.

Table 57 IP Phone 1120E and IP Phone 1140E buttons (Sheet 2 of 3)

Button	Description
 (Mute)	Press the **Mute** key to listen to the receiving party without transmitting. Press the **Mute** key again to return to two-way conversation. The **Mute** key applies to handsfree, handset, and headset microphones. The Mute LED indicator, located on the **Mute** key, flashes to indicate that the microphone is muted.
 (Handsfree)	Press the **Handsfree** key to activate handsfree. The Handsfree LED indicator, located on the **Handsfree** key, lights to indicate when handsfree is active.
	Use the **Navigation** keys to scroll through menus and lists appearing on the LCD display screen. The outer part of this key cluster rocks for up, down, left, and right movements.
	Use the **Send/Enter** key, at the center of the Navigation key cluster, to select a field to edit and to confirm menu selections. In most menus, you can use the **Send/Enter** key instead of the **Select** soft key.
 (Hold)	Press the **Hold** key to put an active call on hold. Tap the flashing line (DN) soft key to return to the caller on hold.
 (Expand)	Use the **Expand to PC** key to access external server applications.
 (Headset)	Press the **Headset** key to answer a call using the headset or to switch a call from the handset or handsfree to the headset. The Headset LED indicator, located on the **Handsfree** key, lights to indicate that the headset is in use.
 (Goodbye)	Use the **Goodbye** key to terminate an active call.
	When a message is waiting, the red **Visual Alerter/Message Waiting** indicator flashes. Also, when the ringer sounds, this indicator flashes.
	When your IP Phone 1140E firmware is being updated, the blue **Feature Status Lamp** indicator flashes. To find out if additional features are supported, contact your administrator.

Table 57 IP Phone 1120E and IP Phone 1140E buttons (Sheet 3 of 3)

Button	Description
 (Copy)	Press the **Copy** Key to copy entries to your Personal Directory from other lists, such as the Caller List, Redial List, and Corporate Directory.
 (Services)	Press the **Services** key to access the scrollable Feature Display menu (FEATURE *900), including the hot desking feature (programmable memory button).
 (Services)  (Services)	Press the **Services** key twice to access the Local Tools menu, and use the navigation keys to access the following items: 1. Preferences 2. Local Diagnostics 3. Network Configuration 4. Lock Menu **Note**: This menu offers access to the same options that are accessible through the start-up menu. Your system administrator can establish a password for the Tools menu. If you attempt to access the Tools menu and a dialog box appears prompting you for a password, contact your system administrator.
 (Quit)	Press the **Quit/Stop** key to close an active menu or dialog box. Pressing the **Quit/Stop** key does not affect the status of active calls.
 (Shift/Outbox)	Press the **Express messaging** key (FEATURE 980; programmable memory button) to send voice mail messages. For more information about voice mail messaging, refer to your CallPilot Quick Reference Card.
 (Msg/Inbox)	Press the **Mailbox** in key (programmable memory button) to open your CallPilot mailbox. For more information about mailbox options, refer to your *CallPilot Quick Reference Card*.
 (Directory)	Programmable memory button (Default: Blank)

WLAN handset 2210/2211/2212 button defaults

The Nortel WLAN Handsets 2210/2211/2212 are fully functional wireless handsets specifically designed for the busy office environment.

WLAN handset buttons and keys

Figure 60 shows the WLAN Handsets 2210/2211/2212 buttons and keys.

Figure 60 WLAN Handsets 2210/2211/2212 buttons and keys

WLAN Handset 2210 WLAN Handset 2211 WLAN Handset 2212

The following table describes the WLAN handset buttons and keys.

Table 58 WLAN handset buttons, keys, and descriptions (Sheet 1 of 2)

	Button	Description
A		**Power On/Start Call key** Turns on the handset. This key also affects some of the states of the handset.
B		**Power Off/End Call key** Ends an active call and turns off the handset. The user must end every call to release system resources and allow the handset to function properly.
C		**Feature and Display soft keys** The first of the four soft keys is the Feature soft key, which starts or ends a feature. The next three soft keys are Display keys, which show feature options.
D		**Menu key** Displays the full description of the Display soft keys abbreviations and accesses the handset features.

Table 58 WLAN handset buttons, keys, and descriptions (Sheet 2 of 2)

	Button	Description
E	FCN	**Function key** Accesses handset functions when in active (idle) state. The **Function** key also provides access to the User Option menu in the standby state.
F	LINE	**Line key** Accesses the Feature menu.
G		**Up, Down, and Select buttons** Enables you to navigate and activate the various menu options. Adjusts the speaker and ringer volume.
H		**Push-to-Talk button** Push-to-Talk is available on the WLAN Handset 2211 only. Activates the Push-to-Talk feature on the WLAN Handset 2211.

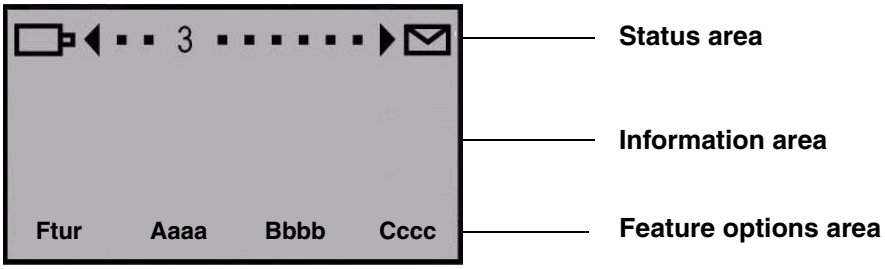
WLAN handset display

There are three areas to the WLAN handset display:

- "Status area" on page 178
- "Information area" on page 179
- "Feature options area" on page 179

Figure 61 shows an example of the WLAN handset display.

Figure 61 WLAN handset display



Status area

The status area displays the handset status. It can include:

- status indicators (see Table 59)
- left and right arrows
- a series of dots representing the line keys, which change to a number when active

Table 59 describes the status indicators on your WLAN Handset.

Table 59 Status indicators

No Service	You are outside the coverage area and cannot receive or place calls. An audible alarm also sounds. Return to the coverage area to reestablish the connection.
	Your battery pack charge is low. An audible beep also sounds. Replace your battery pack within two minutes.
	You have a new voicemail message.
Melody	A melody is played when the WLAN handset is turned on for the first time following a completed charge.

The **No Service** status indicator appears in the information area of the handset display.

Information area

The Information area shows:

- the extension number of the handset
- a line for general information
- features and call information when the handset is in use

Feature options area

When a feature is activated, or when you are on an active call, the Feature options area shows you the action you must take to proceed.
For example: `Pswd`. This means you must enter your mailbox password.

The Feature options area shows the label for the `Ftre` soft key and for the three display soft keys. These button labels appear directly above the Feature and display soft keys and to the right of the `Ftre` label on the display. These button labels vary depending on the feature in use.

The WLAN Handset does not support scrolling. Therefore, any features that require the ability to scroll are not supported.

DMC Portables (413X/414X) (Europe only)

The DECT Handset 413X/414X is a DECT based handset, designed to be used in connection with Nortel wireless communication solutions in potentially explosive environments. The DECT transmitter frequencies of the apparatus are harmonized for these services in the European Community.

X represents the frequency variant of the models:

2 = (1900 - 1920 MHz frequency band)

3 = (1880 - 1885 MHz frequency band)

5 = (1880 - 1900 MHz frequency band)

Refer to the *DECT 413X/414X Handset User Guide* (N0028550) and the *DECT 4145Ex/4146Ex Handset User Guide* (NN40110-103), for more information.

Figure 62 413X/414X handset

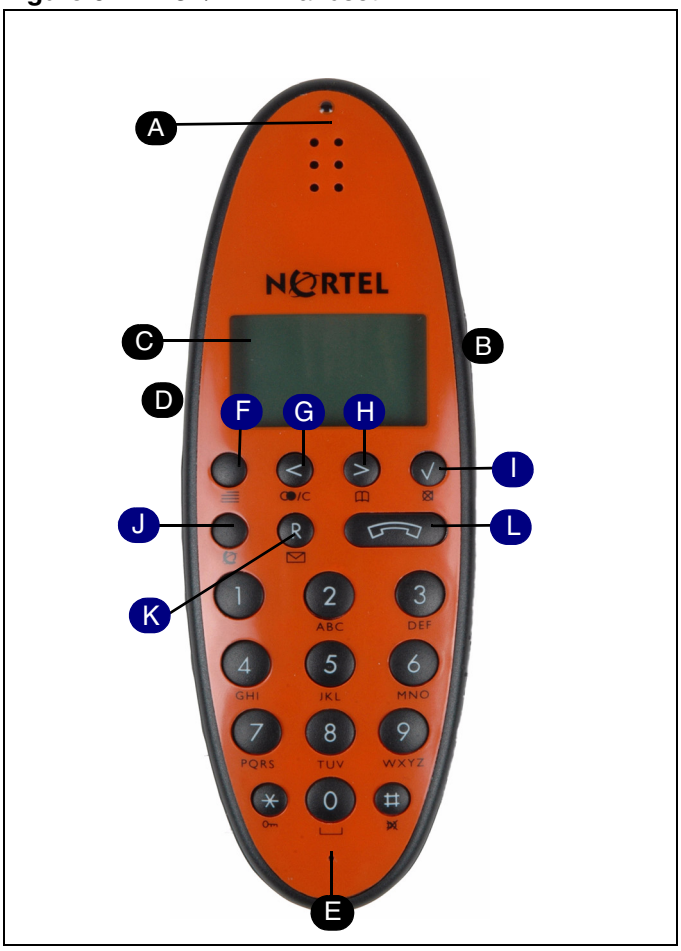


Table 4 413X/414X handset (Sheet 1 of 3)

A	**Message indicator light** Flashes when you have a message waiting.
B	**Volume control** Adjusts the handset and ringer volume.
C	**Display** Shows call information, handset status icons, and guides you through features and option menus.
D	**Headset connector**

Table 4 413X/414X handset (Sheet 2 of 3)

E	Keys F to L activate different functions when your handset is on hook or off hook. **On hook**: Handset is idle (not in use). **Off hook**: Handset is active, call or feature in progress.
F	**Menu key**
On hook (idle)	Enters the Handset Options menu.
Off hook (active)	Activates a feature option.
G	**< (●/c) key**
On hook (idle)	Enters the Redial List menu.
Off hook (active)	Activates a feature option.
H	**> (🕮) key**
On hook (idle)	Enters the Telephone Book menu.
Off hook (active)	Activates a feature option.
I	**✓ (⊠) key**
On hook (idle)	Turns the handset off with a long (four second) key press.
Off hook (active)	Turns the microphone off or on when you are on a call.
J	**Feature key**
On hook (idle)	Turns the display on for three seconds with two rapid key presses. **OR** Starts a feature session.
Off hook (active)	Starts or ends a feature session. **OR** Turns the loud speaker on with a long key press.
K	**R (✉) key**
On hook (idle)	Opens your message list with a short key press. **OR** Enters the text message (MSF-MAIL) menu with a long (three second) key press.
Off hook (active)	Places calls on hold.
L	**On/Off hook key**

Table 4 413X/414X handset (Sheet 3 of 3)

On hook (idle)	Turns the handset on.
Off hook (active)	Ends an active call.

Chapter 22
Labelling telephone sets: Desktop Assistant portfolio

Element Manager supports the programming of button functions for the digital and IP telephone sets. Use the Desktop Assistant family of products to customize button programming and to generate labels for telephone sets. Download the Desktop Assistant family of applications (including the LAN CTE Client) from the BCM web page. The application interface includes documentation for these applications.

The Desktop Assistant family of products consists of:

- Desktop Assistant
- Desktop Assistant Pro
- Desktop Assistant Pro AE (Administrator Edition)

Note: To run Desktop Assistant Pro AE, the LAN CTE Client must be running.

Table 60 lists a comparison of the main features of each application.

The Desktop Assistant Pro AE is the administrator tool. It requires the user to log onto the BCM using the BCM security system for authentication. It provides features that the Element Manager does not currently have — designing and printing labels, saving a definition for a set, and applying that definition to another set. This application allows users to program the keys on a set, and then print the corresponding labels. The application also allows access to all the sets on the system.

Refer to the following topics for additional information:

- "Introduction to Desktop Assistant Pro — Administrator Edition" on page 187
- "Button programming" on page 190
- "Button labeling" on page 190
- "Menu bar commands" on page 188

Table 60 Feature matrix (Sheet 1 of 4)

Features/Functionality	Desktop Assistant	Desktop Assistant Pro	Desktop Assistant Pro AE
Overview			
Target user	End user	End user	Network administrators
Purpose	Print labels for the buttons of the T-series phones. This is a stand-alone client application installed on the user's PC.	Print labels for T or M series phones, and program button functions for digital and IP phones. The scope of this application is sets associated with the DN of the user. This application requires LAN CTE to connect to the BCM to program telephone set buttons. It can also run in offline mode without being connected to a BCM, for stand-alone support of label creation and printing.	Print labels for T and M series phones, and program button functions for digital and IP phones. The scope of this application is all sets that require labeling or button programming attached to a specified BCM. This application requires LAN CTE to connect to the BCM to program telephone set buttons. It can also run in offline mode without being connected to a BCM, for stand-alone support of label creation and printing.
Creating paper labels for telephone set buttons	Yes	Yes	Yes
Programming telephone set buttons	No	Yes	Yes
Phones supported *Sets requiring paper labels indicated by (L) *Sets in which buttons can be programmed using the application indicated by (P)	T7100 (L) T7208 (L) T7316 (L) T7406 (Wireless) (L) T7316E (L) T24 KIM (L)	M7100 (L+P) M7208 (L+P) M7310 (L+P) M7324 (L+P) M7324 CAP (L+P) - labeling in online mode only M7100N (L+P) M7310N (L+P) M7324N (L+P) T7100 (L) T7208 (L+P) T7316 (L+P) T7316E (L+P) T7406 (Wireless) (L+P) T24 KIM (L+P) - labeling in online mode only 2001 (P) 2002 (P) 2004 (P)	M7100 (L+P) M7208 (L+P) M 7310 (L+P) M7324 (L+P) M7324 CAP (L+P) - labeling in online mode only M7100N (L+P) M7310N (L+P) M7324N (L+P) T7100 (L) T7208 (L+P) T7316 (L+P) T7316E (L+P) T7406 (Wireless) (L+P) T24 KIM (L+P) - labeling in online mode only 2001 (P) 2002 (P) 2004 (P)

Table 60 Feature matrix (Sheet 2 of 4)

Features/Functionality	Desktop Assistant	Desktop Assistant Pro	Desktop Assistant Pro AE
Language Support	Multilingual labels — French, Spanish	English only	English only
Accessing Desktop Assistant features			
Application download	Download Desktop Assistant client from the User Applications selection on the BCM web page.	Download LAN CTE and Desktop Assistant Pro client from the User Applications selection on the BCM web page.	Download LAN CTE and Desktop Assistant Pro AE client from the Administrator Applications selection on the BCM web page.
Steps and procedures to launch and use the application	Install Desktop Assistant client application on User workstation. User starts Desktop Assistant application. User selects telephone set model from List of Phones.	Install Desktop Assistant Pro client application on User workstation Install LAN CTE client on User workstation if button programming required. User starts Desktop Assistant PRO application Log on to the BCM is implicit through LAN CTE client If the PC is unable to connect to the BCM through LAN CTE, then the application opens in offline mode (not connected).	Install Desktop Assistant Pro AE client application on User workstation Install LAN CTE client on User workstation User starts Desktop Assistant Pro AE Client application User logs on to a BCM using BCM administrator account User selects phone device (DN) from a menu If you cannot connect the PC to the BCM through LAN CTE, then the application opens in offline mode (not connected)
Access to locally connected telephone sets (on user's desk)	No. Not needed. This application is not programming buttons; it is only providing a printout of labels that can be applied to the sets.	Yes. Access to all sets associated with DNs associated with your workstation (through LAN CTE)	No. This is an administrator tool, not an end user tool.
Operates in offline mode (not connected to BCM)	Yes	Yes - label creation only	Yes - label creation only
Operates in online mode (connected to BCM)	No	Yes - label creation and button programming for own sets only	Yes - label creation and button programming Can switch between different BCMs

Table 60 Feature matrix (Sheet 3 of 4)

Features/Functionality	Desktop Assistant	Desktop Assistant Pro	Desktop Assistant Pro AE
Access to networked telephone sets - online programming	No	Yes, limited. Access to all sets associated with DNs associated with your workstation (via LAN CTE)	Yes. All sets managed by the BCM
Features			
Selection of Telephone set(s)	User selects from menu	User selects from menu	User selects DN from list Set associated with the DN is presented by the application Can select only one DN at a time
Pictorial View of Phone	Yes	Yes	Yes
Programmable Features	None	Messaging Paging Call Logging Set Options Call Initialization Call Answering/Modification Voice Mail Call Centre Hospitality IP Features Application Features Others (All end-user programmable features)	Messaging Paging Call Logging Set Options Call Initialization Call Answering/Modification Voice Mail Call Centre Hospitality IP Features Application Features Others (All end-user programmable features)
Save to File	Yes, label definitions only	Yes Save for a DN/Set combo. Label, font, bkgd color, button programming.	Yes Save for a DN/Set combo. Label, font, bkgd color, button programming.
Load Settings to phone	No	Yes Can retrieve a saved file and apply to a different set of same type One at a time; bulk operation not supported	Yes Can retrieve a saved file and apply to a different set of same type One at a time; bulk operation not supported
Customize fonts for labels (text size, text color, background fill color)	Yes	Partial. Text color cannot be changed.	Partial. Text color cannot be changed.
Print Labels	Yes	Yes (N/A for IP Phones)	Yes (N/A for IP Phones)
Print Preview	Yes	Yes (N/A for IP Phones)	Yes (N/A for IP Phones)

Table 60 Feature matrix (Sheet 4 of 4)

Features/Functionality	Desktop Assistant	Desktop Assistant Pro	Desktop Assistant Pro AE
Print Multiple Sets	Yes	No	No
Help Features/ Documentation	No	Yes - Integrated with application. Includes bubble help over button on diagram of set type.	Yes - Integrated with application. Includes bubble help over button on diagram of set type.

Introduction to Desktop Assistant Pro — Administrator Edition

The Nortel Desktop Assistant Pro AE is a LAN CTE-based application that the system administrator can use to manage the configuration of desktop telephones. The following functions are available:

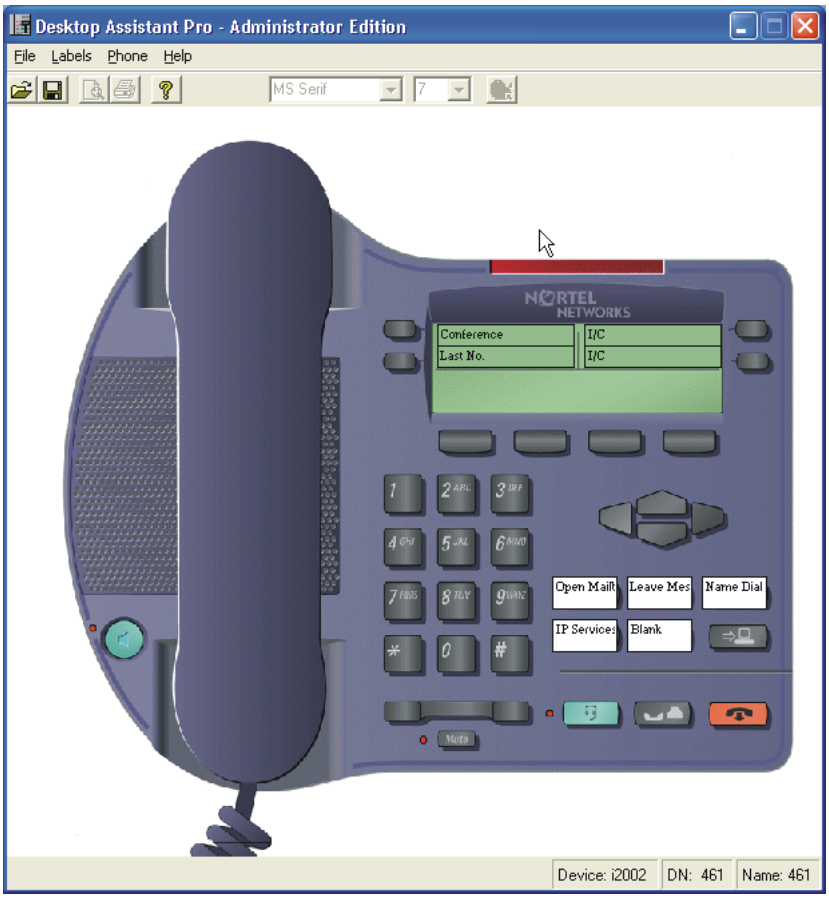
- button labeling including font, font size, and background color control
- label printing
- button programming of end-user accessible features (requires CTE access to devices)
- saving a telephone configuration
- telephone feature help system
- ability to switch between systems without exiting the program

Desktop Assistant Pro — Administrator Edition main window

The main window shows the following:

- menu bar
- toolbar
- telephone being programmed/labeled
- status bar
  See Figure 63.

Figure 63 Desktop Assistant Pro - Administrator Edition



Menu bar commands

The menu bar in the Desktop Assistant Pro AE offers the following options for configuring your telephone set and printing your labels:

- "File menu"
- "Labels menu" on page 189
- "Phone menu" on page 189

File menu

The file menu offers the following commands:

- **System** — Change systems.
  To open the System Selection dialog box, click File > System. From this dialog box, you can select a different BCM system.
- **Phone Device** — Select a device to view or program.
  To open the Phone Device Selection dialog box, click File > Phone Device. From this dialog box, you can select one of the accessible BCM phone devices available.

- **Save Current Settings** — Save the settings from a current device in a designated file.
  Click File > Save Current Settings to open the Windows Save As dialog box. From this dialog box, you can select the filename under which the current device settings are saved. The default file extension for this file is pcf (Phone Configuration File).
- **Load Settings** — Load a previously saved configuration into the current device.
  Click File > Load Settings to open the Windows file open dialog box. From the file open dialog box, you can select the phone configuration file (pcf) to load into the currently selected phone device. The device that you load is accepted only if the saved device type is the same as the current device. Also note that Line appearances, Answer Keys, Hunt Group keys, Handsfree keys and Intercom keys are not end-user programmable features and, therefore, are skipped.
  The Load Settings command is available for offline button labeling and online phone device programming.
- **Exit** — Exit the Desktop Assistant Pro AE.

Labels menu

The labels menu offers the following commands:

- **Print Preview** — Previews the label before printing.
  To open the Print Preview window, click Labels > Print Preview.
  From this window, you can preview the labels for the current device and print them from here or close the dialog box.
- **Print** — Prints the label from the current device to the selected printer.
  To open the Print window, click Labels > Print. From this window, you can select the printer and number of copies of the current label set to print.

Phone menu

Use the phone menu to switch between the different phone types. In offline mode, the entire list of supported phones (except for the IP Phone 2007, IP Phone 2004, IP Phone 2002, IP Phone 2001, 1140e, 1120e, and 2033) are available for labeling. In programming mode, you can select only those phones in the same class as the current one. The classes of phones are as follows:

- M7100
  M7100N
  T7100
- M7208
  T7208
- M7310
  M7310N
  T7316
  T7406
- M7324
  M7324N

- 2004
  2007
  1140e
- 2002
  1120e
- 2001
  2033

This menu also offers a set refresh command. Select this command to reset all labels to blank in offline mode. In programming mode, all buttons are queried from the set, and all labels are set to the programmed values.

Button programming

With Desktop Assistant Pro AE, you can program buttons on a set so there is no need to memorize feature codes.

You can program buttons on any valid device by right-clicking the appropriate label. At this point, you see a list of all the features you can program. Scan the list or sub-lists, and select the feature to program on that button.

Button labeling

In addition to button programming, Desktop Assistant Pro AE provides the capability to label buttons on a set. You can label buttons in offline mode or during button programming.

To label a button

1. Click the appropriate label.
   A cursor appears in the label area.
2. Change the text, font size, font type, or background color.
   You can view the current font size, font type, and background color in the toolbar at the top of the window.

Note: This application does not retain labels, font size, font type or background color between sessions. To save or restore this information, use the Save Current Settings and Load Settings on the File menu.

Button Labeling does not apply to the IP Phone 2007, IP Phone 2004, IP Phone 2002, IP Phone 2001, 1140e, 1120e, and 2033 sets because they do not have printable labels.

Chapter 23
Telephony features

Feature programming has two aspects. Some features are set for all telephones and devices, and some features are set on an individual basis in the DN record.

The following divides system features in terms of how they are used. Each feature section contains both system programming and how the feature is used at the telephone.

- “Features to set up telephone set features” on page 191
- “Feature configuration: Answering calls” on page 197“Feature configuration: Making calls” on page 217“Global VoIP features” on page 143
- “Using telephones for special features” on page 229

Refer to the *Telephone Features User Guide* (NN40020-100) for a quick reference about using the system features.

Also refer to:

- “System features and feature codes” on page 33 (quick reference list of codes)
- “Relocating telephones” in the *Telephony Device Installation Guide* (NN40020-309)

Features to set up telephone set features

These features are available only on digital and IP telephones. You can block the user from using these feature keys by setting the set lock for the telephone to Partial or Full (**Configuration > Telephony > Sets > Active Sets > Restrictions** tab **> Set Lock** drop-down list).

Contrast adjustment

The following path indicates where to access the contrast adjustment:

- Element Manager**: Configuration > Telephony > Sets > All DNs > top panel - Capabilities and Preferences > bottom panel - Preferences**
- Telset Admin**: **CONFIG > Terminals and Sets > User prefernces > Display cntrst**

- At the telephone:

  1 Press **FEATURE *7**.

  2 Press a number from 1 to 9 (depending on your telephone).

  3 Press **HOLD** to set your choice.

Select how you dial your calls

Digital telephones provide three methods for dialing calls:

- **Standard dial:** allows you to make a call by selecting a line and dialing the number. If you have a prime line, it is selected automatically when you lift the handset, or press the Handsfree button.
- **Automatic dial:** allows you to dial a number without selecting a line. Your Prime line is selected when you start dialing a number. Your Prime line must be free to make a call.
- **Pre-dial:** allows you to enter a telephone number, check it, then change it before making the call. The call does not dial until you select a line or line pool, or lift the handset. You can pre-dial both external and internal numbers. However, you must select the correct type of line (external or internal) for the type of number you have entered.
- Using the system:
  (Note that not all telephones allow all three types of dialing).

  Element Manager: **Configuration > Telephony > Sets > All DNs > top panel - Capabilities and Preferences > bottom panel - Preferences**

- Using the telset interface:

  Telset Admin: **Terminals and Sets > User prefernces > dialing opt'ns**

- At the telephone:

  1 Press **FEATURE *82**.

  2 Press # to select the mode.

  3 Press **HOLD** to store the mode.

Choosing the language for the telephone display

- Using the system:

  Element Manager: **Configuration > Telephony > Sets > All DNs > top panel - Capabilities and Preferences > bottom panel - Preferences**

- Using the telset interface:

  Telset Admin: **Terminals and Sets > User prefernces > Language**

- At the telephone:
  - **FEATURE *501** to select Primary Language for the telephone display.
  - **FEATURE *502** to select Alternate Language for the telephone display.
  - **FEATURE *503** to select Alternate Language 2 for the telephone display.
  - **FEATURE *504** to select Alternate Language 3 for the telephone display. (Not available in all country profiles.)

Moving line buttons

Change the position of your line or hunt group line buttons.

To move line buttons

1. Press **FEATURE *81**.
2. Press the line button that you want to move.
3. Press the button to which you want to move the line.
4. Press **RLS**.
   The two buttons are exchanged.
5. Update the button label strip on your telephone.

Note: Line buttons cannot be exchanged with intercom, Answer DN, or Handsfree buttons.

You can block the user from using these feature keys by setting the set lock for the telephone to Partial or Full (**Configuration > Telephony > Sets > Active Sets > Restrictions tab**).

Receiver volume

- Using the system (determine if the handset or headset volume returns to a volume level set by the system, or to the volume set by the user):

  Element Manager: **Configuration > Telephony > Global Settings > Feature Settings > Receiver volume**

- At the telephone:

  Use the rocker switch under the dialpad to change the sound levels heard through your handset. This also changes the volume levels during handsfree calls.

Programming note: Handsfree speaker volume returns to the default value set at the telephone, after each call ends.

Programming distinctive ringing

You can program a line or a telephone to use a distinctive ring, when alerting at a telephone. Ring types are ordered in a hierarchy. Hence, an incoming call, on a line with a higher priority ring than that assigned to the telephone, uses the line distinctive ring. If the telephone has the higher ring priority, the call uses the ring defined by the telephone.

Distinctive ring can also be defined for hunt group calls.

- Using the system:

  For lines – **Configuration >Telephony > Lines > All Lines > Distinct Ring**

  For DN records – **Configuration > Telephony > Sets > Active Sets > Top panel - Capabilities and Preferences tab > Bottom panel - Preferences tab > Ring type**

  For hunt groups: **Configuration > Telephony > Hunt groups**

- Using the telset interface:

  Lines > Trunk/Line data > Distinct ring

  Terminals and Sets > User Prefernces > Ring type

  System progrming > Hunt groups > Dstnct rng

- At the telephone (for set distinct ring, only):

  1. Press **FEATURE *6**.
  2. Enter the ring type number (1 to 4).
  3. Press **HOLD**.

Note: There are only four distinct ring patterns in the system.

Ring volume

Adjust the volume of your telephone any time it rings.

Press **FEATURE *80** until the ring is at the volume you want.

Auxiliary ringer

This optional device can be connected through the RJ21 connection to your system. The auxiliary ringer is suited to locations that require loud ringing bells or horns (for example, factories or construction sites).

Enabling or disabling the feature for:

- lines — Element Manager: **Configuration > Telephony > Lines > Preferences - bottom panel**

- telephones — Element Manager: **Configuration > Telephony > Sets > Active Sets > Capabilities and Preferences - top panel > Preferences - bottom panel** ("Capabilities tab" on page 52)
- ring groups — Element Manager: **Configuration > Telephony >Ring groups > Line settings > Aux. Ringer** ("Ring Groups - Line Settings" on page 99)
- hunt groups — Element Manager: **Configuration > Telephony > Hunt Groups > Aux. Ringer** ("Hunt Groups system setup" on page 102)

Chapter 24
Feature configuration: Answering calls

Incoming calls can be answered or handled in a number of ways.

Refer to the following methods:

- "Answering calls directed to your telephone"
- "Answering calls not directed to your telephone" on page 198
- "Configuring privacy" on page 201
- "Holding calls" on page 204
- "Parking or transferring calls" on page 205
- "Call information" on page 213

Answering calls directed to your telephone

If a call comes into a designated line button, you press that button to answer the call.

If there are no line buttons on your telephone, or the call rings but no line buttons light up, choose one of three ways to answer a call at your telephone:

- lift the receiver.
- press the Handsfree button and speak through the external speaker.

Note: This feature is not available on all telephones. Refer to "Configuring handsfree and handsfree answerback" on page 197.

- answer through a headset.

Note: This feature is not available on all telephones.

Calls can also have special ring tones, depending on distinctive ring values for the lines and the telephone. Refer to "Programming distinctive ringing" on page 194.

Configuring handsfree and handsfree answerback

Enable Handsfree (HF) to use the telephone speakers or a headset.

Enable HF answerback to allow users to answer a call without lifting the handset, or to use a headset.

This feature is set on a per-telephone basis through Element Manager.

Note: The handsfree and handsfree answerback feature is not available on telephones with no speakerphone capability (2001, 7000, 7100),

To configure handsfree and handsfree answerback

1. Click **Configuration > Telephony > Sets > Active Sets** select the DN record for the telephone for which you want to enable or disable handsfree.
2. Click the Capabilities and Preferences tab.
3. In the bottom frame, click the Capabilities tab.
4. Set the Handsfree and HF answerback fields.

Handsfree speaker volume: The handsfree speaker volume returns to the telephone volume default setting, after a call is released.

Listen to a call as a group: This feature (**FEATURE 802**) allows more than one person to listen to a telephone, without the caller hearing everyone in the group (the handset is off-hook).

For general information about how handsfree and mute works, refer to the overview information.

Through the **CONFIG telset interface

Terminals and Sets > Capabilities > Handsfree and HF Answerback

Answering calls not directed to your telephone

There are a number of features you can use to answer incoming calls that do not come directly to your line or intercom buttons.

Refer to the following features:

- “Call Queuing”
- “Directed Pickup” on page 198
- “Pickup Group” on page 199
- “Answer DNs” on page 200

Call Queuing

This feature allows you to answer the next incoming call on your telephone, based on call priority. Call priority is based on waiting time. The caller that has waited the longest is answered first.

To use call queuing: Press **FEATURE 801.**

Directed Pickup

This feature allows a user to answer any ringing telephone in the system.

Enter **FEATURE 76,** and the DN of a ringing telephone, to answer any telephone in the system.

Enabling the feature:

In Element Manager (**Configuration > Telephony > Global Settings > Feature Settings**), select the check box to enable the feature for the entire system.

Pickup Group

This feature allows the user to answer calls on another telephone in the same pickup group.

To add a telephone to a pickup group

1. Click **Configuration > Telephony > Sets > Active Sets**, select the DN record for the telephone for which you want to enable or disable Pickup Group.
2. Click the **Capabilities and Preferences** tab.
3. In the bottom frame, click the **Capabilities** tab.
4. In the **Pickup group** field, enter a group number.

Using the feature

Enter **FEATURE 75.** The external call that has been ringing the longest is answered first.

Trunk Answer

This feature is only active when a ringing service schedule is running. It allows a user to answer a ringing call in any area in the system, from any telephone in the system. The line being answered does not have to appear, or ring, at the telephone being used to answer the call.

Press **FEATURE 800**.

To allow trunk answer

1. Assign the telephone to a ringing group.
2. Create a ringing group schedule, if necessary.

   When the schedule is active, this feature is active.

To block user access

You can block the user from using the feature keys by setting the telephone set lock to **Full**.

1. Click **Configuration > Telephony > Sets > All DNs**, select the DN record for the telephone for which you want to restrict trunk answer.
2. Click the **Restrictions** tab.
3. Select **Full** from the Set Lock drop-down list.

Answer DNs

Telephone DNs can be assigned to indicator buttons on other telephones to provide backup answering. You can assign a maximum of eight answer DNs to a telephone. You cannot assign Answer DNs to analog telephones, or to Model 7000 or 7100 telephones.

Determining which calls alert

You can also determine which calls alert at Answer DNs.

Under **Configuration > Telephony > Global Settings > Feature Settings**, beside **Answer keys**, choose the level of support. Refer to "Answer DN answer key levels" on page 78.

Warning: This setting affects all Answer DNs on the system. Some features, such as Hunt group overflow, require the setting to be either Enhanced or Extended. However, if you assign Answer DNs to Contact Center telephones, the setting must be **Basic**. Therefore, you must coordinate how your system uses Answer DNs.

Assigning Answer DNs to telephones

Answer DNs are assigned on a per-telephone basis by the system administrator.

To assign an Answer DN

1. Ensure that the telephone you want to assign with Answer DNs has available memory buttons with indicators.
2. Click **Configuration > Telephony > Sets > Active Sets,** under the **Line Access** tab, choose the DN record for the telephone where you want to add Answer DNs.
3. In the bottom panel, click the **Answer DNs** tab.
4. Use **Add** to enter a valid DN, and indicate how the call alerts at the telephone.
5. Click **OK** to save the record.

Answering a call coming to an Answer DN

The Answer DN button presents an incoming call as a flashing indicator.

To answer the call, lift the handset, use handsfree or headset, and press the button beside the indicator. The call is transferred to your telephone, freeing up the line on the originating telephone.

Note: The Answer DN also can be used as an autodial button to the assigned telephone. The indicator beside the Answer DN button must be idle to enable this feature.

Note: If call logging is enabled for the telephone, then calls received through Answer DN are logged at the receiving telephone that answers the call.

Configuring privacy

To maintain your privacy, or if you do not want to be disturbed, you can choose not to answer a call, or you can use one of the features described below.

If you choose not to answer the call, the Delayed ring transfer setting determines how many rings occur before the call is transferred to the prime telephone. (**Configuration > Telephony > Global Settings > Feature Settings**).

Refer to the following methods to configure privacy:

- "Do Not Disturb"
- "DND on Busy"
- "Turn Privacy on or off" on page 202
- "Intrusion controls" on page 203

Do Not Disturb

Forward your calls to a designated prime telephone, when there is no other telephone assigned with the line. An internal caller receives a display indicating that the telephone has Do Not Disturb active. They can either call back, or use the Priority call feature to override the feature.

DND on Busy

When you are busy on a call and a second call comes in, your telephone alerts you to the second call with a light ring. If you find this second-call ring disruptive, assign Do Not Disturb (DND) on Busy to prevent a second call.

If this feature is active, the line indicator for an external incoming call flashes, but your telephone does not ring.

- Internal and private network callers hear a busy tone instead of ringing when you are on the telephone.
- External callers are transferred to the Prime set used in your system, or to your voice mail. Forward on Busy takes priority over DND on Busy. If an external call uses a target line, the call is processed according to the programming of the target line. If the target line is busy, the caller hears a busy tone, or the call is routed to the Prime set for the target line or to the voice mail system, even if DND on Busy is programmed.

Programming a telephone for DND on Busy

This feature is programmed on a per-telephone basis.

To program a telephone for DND on Busy

1. Ensure that target lines are programmed to route the unanswered call correctly.
2. Click **Configuration > Telephony > Sets > Active Sets**, select the DN record for the telephone to which you want to reroute second calls.
3. Click the **Capabilities and Preferences** tab.
4. In the bottom panel, click the **Capabilities** tab.
5. Select the **DND on Busy** check box.

Allowing Do Not Disturb on a telephone

This feature is programmed on a per-telephone basis.

Using the feature

Press **FEATURE 85** to activate the feature.

Use **FEATURE #85** to cancel DND.

Do Not Disturb also prevents voice calls from alerting at your telephone. Voice calls appear as normal intercom calls.

Blocking user access

You can block the user from using this feature key by setting the set lock for the telephone to **Full**. (**Configuration > Telephony > Sets > All DNs > Restrictions** tab **> Set Lock** drop-down list).

Turn Privacy on or off

When you have lines assigned to more than one telephone, anyone with the line appearance can answer a call, or join a call in progress. To provide exclusive access for a user, you can program privacy on a line, in which case, only one person at a time can use the line. (This does not apply to target lines.)

Programming privacy on a line

The privacy setting only applies to lines that are assigned individually to telephones.

Lines in line pools do not have this feature.

To program privacy on a line

1. Click **Configuration > Telephony > Lines > Active Physical Lines**, choose the line for which you want to assign privacy.
2. In the bottom panel, click the **Preferences** tab.
3. Beside **Trunk mode**, choose **Unspr** (unsupervised) from the drop-down list.

Programming a line to automatically enable privacy

You can program some lines to make a call private automatically.

To automatically enable privacy on a line

1. Click **Configuration > Telephony > Lines > Active Physical Lines**, select the line for which you want to automatically enable privacy.
2. In the bottom panel, click the **Preferences** tab.
3. Select the **Auto privacy** check box.
4. If the line is part of a line pool, ensure that all other lines in the pool also have this feature enabled.

Using the Privacy feature

Press **FEATURE 83** to change the privacy setting on the line.

- If a line normally has privacy, this permits another telephone, which shares the line, to join your call by selecting the line while you are using it.
- If a line normally has privacy disabled, this prevents another telephone, which shares the line from joining your call by selecting the line while you are using it.
- The privacy setting is re-established when you end your call, or when you enter the Privacy feature code again.

Note: Privacy control cannot be used for internal or conference calls.

When another telephone joins a call on a non-private line, the participants on the call hear a tone, and a message appears on the display.

Blocking user access

You can block the user from using this feature key by setting the telephone set lock to **Full**. (**Configuration > Telephony > Sets > All DNs > Restrictions tab > Set Lock** drop-down list).

Intrusion controls

If your system is part of a private network that uses the Meridian call attendant on a centralized voice mail system, the attendant can use the break-in feature to interrupt a call, regardless of any other settings on your line. The exception is if you have a higher intrusion priority than the attendant. If this is the situation, the attendant is forced to camp the call at your telephone, or redirect the call elsewhere in the system.

Setting intrusion controls

This feature is set on a per-telephone basis.

To set intrusion controls

1. Determine the intrusion level of the attendant telephone.
2. Click **Configuration > Telephony > Sets > Active Sets**, select the DN record for the telephone for which you want to change the intrusion level.
3. Click the **Capabilities and Preferences** tab.
4. In the bottom panel, click the **Capabilities** tab.
5. Select a level from the Intrusion protection level drop-down list.

Holding calls

After you answer a call, you can transfer the call, look up some information, or answer another call. Use the Hold feature to place a call on hold.

Refer to the following methods to place a call on hold:

- "Using Hold"
- "Hold automatically (autohold)"
- "Hold a call exclusively" on page 205

Using Hold

Place a call on hold by pressing **HOLD**.

If you have system wide call appearance (SWCA) keys defined, this can also place the call on a SWCA key, and allow others to answer the call. Refer to the SWCA section for more details.

To retrieve the call, press the held line button, or press the Hold button a second time if there is no line button.

There is no system programming for this feature: it is always active if the telephone has a Hold button.

Hold automatically (autohold)

A line or the telephone can be programmed to automatically place an active call on hold while answering another call, or placing a call.

Model 7100 and 7000 telephones, which do not have line keys, also use the **HOLD** key to toggle between active calls.

FEATURE 73 activates this feature. **FEATURE #73** cancels the feature.

To program full autohold on a line

1 Click **Configuration > Telephony > Lines > Active Physical Lines**, select the line record for which you want to enable Full autohold.

2 In the bottom frame, under the **Preferences** tab, select the **Full autohold** check box.

To program auto hold on a telephone

1 Click **Configuration > Telephony > Sets > Active Sets**, select the DN record for the telephone for which you want to enable auto hold.

2 Click the **Capabilities and Preferences** tab.

3 In the bottom panel, click the **Capabilities** tab.

4 Select the **Auto hold** check box.

Hold a call exclusively

You can put a call on Exclusive Hold so that the calls can be retrieved only at your telephone.

To program Exclusive Hold

FEATURE 79 or **FEATURE HOLD**

There is no system programming for this feature.

Parking or transferring calls

Calls coming in can be transferred after they are answered, or automatically transferred if they are not answered at the target telephone.

These features include:

- "Transfer (answered) calls" on page 206
- "Transfer (unanswered) calls" on page 206
- "Line redirection" on page 207
- "Call forward (unanswered) calls" on page 208
- "Camp-on" on page 209
- "Call Park" on page 210
- "Callback" on page 211
- "Sharing calls by parking on SWCA buttons" on page 211

Transfer (answered) calls

When you answer a call, you can transfer the call either to a telephone within the system, or to a telephone external to the system, such as a receptionist on another system in a private network.

Note: You may not be able to transfer a call on an external line to an external telephone, depending on the capabilities of the lines.

Setting up a transfer callback timer

If an external call is transferred to a busy internal or network extension, or is not answered after a number of rings (preset), the call automatically rings you back. A system timer determines how long the system waits for a transferred call to be answered, before it returns the call to the original answering telephone.

System settings: Transfer callback timeout

To use the transfer feature

1. Make or answer a call.
2. Press **FEATURE 70**. The call is placed on temporary hold.
3. Enter the number to which the call is to be transferred.
4. Stay on the line to speak to the person first.
5. Press **RLS** to complete the transfer.

Cancel feature: FEATURE #70, or simply press held line**.**

Transfer (unanswered) calls

Telephones which do not use call forward to a voice mail system, can be programmed to forward unanswered external calls to a designated prime telephone.

To transfer unanswered calls

1. Click **Configuration > Telephony > Sets > Active Sets > Line Access** tab, select the DN of the set to which you want to transfer the calls.
2. In the **Fwd No Answer** field, enter the number of the telephone to which incoming calls are to be redirected.

Line redirection

When you answer a call, you can redirect the line to an external number. When redirected, all incoming calls on that line are directed to the external number. You can configure a tone to sound on your telephone when a redirection occurs.

Lines can also be redirected through system programming. In this case, redirection can be removed only through system programming.

To redirect lines from the system

1. Click **Configuration > Telephony > Lines > Active Physical Lines**, select the line you want to redirect (ensure that the line is not in a line pool).
2. In the bottom panel, click the **Preferences** tab.
3. In the **Redirect to** list, enter the number to which to redirect the calls.
4. Enter a remote number. Ensure that the routing codes are included.
5. To turn off redirect, delete the remote number from the field.

Allowing redirect

You can enable the redirect feature on a telephone-by-telephone basis.

To allow redirect

1. Click **Configuration > Telephony > Sets > Active Sets**, select the DN record for the telephone for which you want to allow the redirect feature.
2. Click the **Capabilities and Preferences** tab.
3. In the bottom panel, click the **Capabilities** tab.
4. Select the **Allow redirect** check box.

Setting a redirect tone

You can cause a short ring to occur when a line is redirected using **FEATURE 84**. This is set for each telephone.

To set a redirect tone

1. Click **Configuration > Telephony > Sets > Active Sets**, select the DN record for the telephone for which you want to create a redirect tone.
2. Click the **Capabilities and Preferences** tab.
3. In the bottom panel, click the **Capabilities** tab.
4. Select the **Redirect ring** check box.

To redirect lines at the telephone

1 Press **FEATURE 84**.

2 Enter the external telephone number where you want the call to transfer.

Cancel feature: FEATURE #84

Note: Model 7000 and 7100 digital telephones, and 2001 IP telephones, do not support this feature.

Call forward (unanswered) calls

You can set up a telephone to send calls to another telephone automatically, or to a voice mailbox if the telephone is not answered, or if it rings busy. This feature can be programmed from the system for each telephone, as well as at the telephone.

Programming call forward on the system

Using system programming, you can forward calls internally or externally if the telephone is unanswered, if the telephone is busy, or you can forward all calls to an external number.

To program call forward on the system

1 Determine the dial string for the telephone to which the calls are to be forwarded. Include routing codes if the telephone is external to the system.

2 Click **Configuration > Telephony > Sets > Active Sets > Line Access** tab, select the DN record for the telephone for which you want to configure call forward.

3 Enter the dial string where to forward the call.

Note: Ensure that this entry is less than the **Delayed ring transfer** setting (**Configuration > Telephony > Global Settings > Feature Settings**).

Fwd No Answer: Calls are forwarded to the entered dial string after a set number of rings.

Fwd Delay: Enter the number of rings before the system forwards the call.

Fwd Busy: Calls are forwarded to the entered dial string immediately, if the target telephone is busy.

Fwd All: All calls are forwarded to the indicated number immediately.

Call Forward and voice mail

Note: If the call forward destination is external, ensure the DN has **Allow Redirect** enabled.

If you want a voice mail system to pick up unanswered calls:

- if you program Fwd No Answer and Fwd Busy, use the internal number of your voice mail as the destination.
- if your voice messaging system or service automatically retrieves calls, make the ring delay greater than the delay used by your voice mail system.
- if the voice mail system is on a remote system, ensure that the correct destination codes are added to the voice mail forwarding dial string.
- if calls are being forwarded to telephones or voice mail outside the system, ensure that **Allow redirect** is set for the telephones.

To use Call Forward at the telephone

1. Get the DN (internal), or the destination code and telephone number (external private network), for the destination telephone.
2. Enter **FEATURE 4**.
3. Enter the dial string of the telephone to which you want your calls transferred.

Cancel feature: FEATURE #4

To block user access

You can block the user from using the call forward feature by setting the Set Lock for the telephone to **Full**. (**Configuration > Telephony > Sets > All DNs > Restrictions** tab **> Set Lock** drop-down list).

Camp-on

Use this feature to reroute an answered call to another telephone, and to park the call at the other telephone if all lines to the telephone are busy. The target telephone displays a message, indicating a camped call, and a tone occurs. When a line becomes available, the call is uncamped and transferred to the available line.

Centralized voice mail, Meridian: If your system is part of a private network that uses the Meridian call attendant as part of a centralized voice mail system, the attendant can use camp-on to camp a call on any telephone in any system on the network.

Setting the timer

The system camps a call for a specified length of time before it returns the call to the original answering telephone. Set the timer under **Configuration > Telephony > Global Settings > Feature Settings**.

To use Camp-on

1. Press **FEATURE 82**.
2. Dial the extension of the receiving telephone.

Call Park

You can park a call on the system that can be accessed from any telephone on the system.

Calls are parked on a three-digit park code. The first digit of the code is a system access code. The last two digits range from 01 to 25. (**FEATURE 74**)

You can also set a delay period for when the call returns to the telephone from which it was parked; under **Configuration > Telephony > Global Settings > Feature Settings**. You can also determine the order used to assign the codes (Park mode).

Setting up the call park access code

This park prefix must be unique from any other access code (Default: 1).

Configuration > Telephony > Dialing Plan > General (Access Codes subpanel)

Setting up park timeout

Determine how many minutes the system waits between parking a call and returning the call to the original answering telephone.

Configuration > Telephony > Global Settings > Feature Settings > Timers subpanel

Determining the order in which call park codes are assigned to calls

Configuration > Telephony > Global Settings > Feature Settings > Park mode

To park a call

1. Enter **FEATURE 74**.
2. The display shows a three-digit retrieval code (*X01-X24).
3. Note the code, and inform other users about the parked call.

*X is the assigned access code.

To retrieve a parked call

1 On any system telephone, press an intercom button.

2 Dial the retrieval code (*X01-X024).

On the model 7000 and 7100 digital telephones and 2001 IP telephones, lift the handset, and dial the retrieval code *X25.

*X is the assigned access code.

Callback

When you direct an answered call to another telephone, the system monitors the call to ensure it is answered. If no one answers the call within a set length of time, the system returns the call to you.

To set the number of rings before the call is transferred back:

Click **Configuration > Telephony > Global Settings > Feature Settings**, in the Timers subpanel, select the number of rings from the **Transfer callback timeout** drop-down list.

Sharing calls by parking on SWCA buttons

System wide call appearance (SWCA) keys allow you to control call park and retrieval features on any type of line across the local system. These features expand the BCM call park and call retrieve features by providing visual indications of the status of any call parked on an SWCA button with indicators. The calls can also be controlled by directly entering the SWCA feature codes.

You can use SWCA programming to define logical groups of telephones. Each group can be assigned a set of the SWCA codes, which allows them to pass calls within the group. Each telephone in the group also displays the current status of the call, so users can determine which calls are being handled.

Configuring SWCA system controls

The following procedure describes how to perform the system configuration for the SWCA feature.

To configure the SWCA system controls

1 Check that the Call Park Access code has a digit entered as a value.

Programming note: If the value is set to None, the SWCA feature does not work.

2 Choose one of the following configurations for the SWCA controls for your system (**Configuration > Telephony > Global Settings > Advanced Feature Settings > SWCA** panel).

Configuration one
If you want all incoming calls to auto-associate to SWCA assignments on the receiving telephone:

a To auto-associate SWCA key to call, select **Automatically - life of call**.

b To include I/C calls when auto-associating, select the check box.

c To invoke SWCA parking by Hold, select the check box.

d To include I/C calls when invoked by Hold, select the check box.

Configuration two
If you want incoming calls to auto-associate to SWCA assignments on the receiving telephone, but you want calls on hold to remain on hold at the receiving telephone, unless the user presses a SWCA button, or enters a SWCA code:

a To auto-associate SWCA key to call, select the **Automatically - life of call**.

b To include I/C calls when auto-associating, select the check box.

c To invoke SWCA parking by Hold, clear the check box.

d **Include I/C calls when invoked by Hold** is not applicable in this configuration.

Configuration three
If you want external incoming calls to auto-associate to SWCA assignments on the receiving telephone, but you want all intercom calls to require manual parking:

a To auto-associate SWCA key to call, select the **Automatically - life of call**.

b To include I/C calls when auto-associating, clear the check box.

c To invoke SWCA parking by Hold, select the check box.

d To include I/C calls when invoked by Hold, clear the check box.

Configuration four
If you want all calls to require the user to press a SWCA button, or enter a SWCA code:

a To auto-associate SWCA key to call, select either **Manually- while parked** or **Manually - life of call**.

b **To include I/C calls when auto-associating** is not applicable in this configuration.

c To invoke SWCA parking by Hold, clear the check box.

d To include I/C calls when invoked by Hold is not applicable in this configuration.

3 Configure the SWCA keys to indicator memory buttons on the telephones.

Refer to "Programming memory buttons" on page 226 for details about programming memory buttons at the telephone.

4 Label the buttons.

5 Let the users know how the SWCA buttons work, and which SWCA codes are available to them.

Note: A user can park a call on any SWCA code; however only SWCA codes assigned to a telephone can be used to retrieve SWCA calls.

Using the SWCA

Refer to the *System-wide Call Appearance (SWCA) Features Card*.

Call information

You can view, or track, call information using these features:

- "Malicious Caller ID (MCID)"
- "Call log" on page 214

Call display information

If the telephone is programmed to allow CLID, the telephone displays the name, number, or line name of a ringing or active call. If the call is redirected, you can view redirection information.

To allow call display

1 Press **FEATURE 811**.
Displays the CLID of the active or ringing call.

2 Press # to move through the information displays.

Call duration timer

Briefly displays the approximate length of your current or most recent call.

Activate feature: FEATURE 77

Time and date display

- Static display changes the first line of the display to show the current time and date (based on system time).

  Activate feature: FEATURE 806.

  Cancel feature: FEATURE #806

- Active call display briefly displays the time and date.

  Activate feature: FEATURE 803

Malicious Caller ID (MCID)

Note: This feature is available only on an ETSI ISDN line.

This feature records caller information at the central office for the last external call on the active ETSI ISDN line. This feature must be available from your service provider before you can activate it in your system.

If this service is active on the line, you must press **FEATURE 897** within 30 seconds after a caller hangs up, and before you hang up.

Enabling the feature on the system:

Configuration > Telephony > Dialing Plan > Private Network > ETSI > MCID

Call log

If your system has the appropriate equipment, and you subscribe to the call information feature supplied by your service provider, you can record information about calls received on an external line. The line does not need to be assigned to the telephone that receives the call in order for the information to be logged, nor does an assigned line need to be a ringing line to log a call. ISDN service packages that come with calling line identification (CLID) can supply the same feature. Refer to "Setting call log space for the system" on page 214 and "Using the Call Log feature" on page 215.

Setting call log space for the system

The call log space heading allows you to reallocate the Call log space equally to all telephones in your system.

Warning: Use this heading only if you want to allocate an equal amount of log space to all the telephones in your system.
Reallocating Call log space can destroy Call log data at telephones that lose space. There are 600 Call log spaces available in the system. There are no spaces allocated by default. Changing the space allocation using Log defaults defines the log space available to all telephones in the system.

To reset call log space

1 Click **Configuration > Telephony > Global Settings > Advanced Feature Settings.**

2 Click the **Reset Logs** button.
The **Reset Call Log Space** dialog box appears.

3 Enter the Space per log, and the # of sets with logs.

4 Click **OK**.
A dialog box appears, warning you that all existing logs are cleared if you reset logs.

5 Click **OK** to reallocate the log space and clear all user logs.
Click **Cancel** if you do not want to clear user logs. In this case, the call log space is not reallocated.

Table 61 explains the type of content for the two fields in the dialog box.

Table 61 Call log options

Attribute	Value	Description
Space per log	<three digits>	Type a three-digit number, for example, 020, to give each set 20 spaces.
# of sets with logs	<read-only>	Lists the number of sets that have logs. If you click **OK** on this dialog, these logs are deleted.

Set call log options

Configuration > Telephony > Sets > All DNs > Capabilities and Preferences - top panel **> Preferences** - bottom panel

Reset Call Log Password

Configuration > Telephony > Sets > All DNs > Capabilities and Preferences - top panel **> Preferences** - bottom panel

Using the Call Log feature

This feature allows users to:

- manually log a call (**FEATURE 813**)
- delete old log items (**FEATURE 815**)
- view the log (**FEATURE 812**) or about a current call (**FEATURE 811**)
- view charges for a call (**FEATURE 818**)
- view details about a specific item
- make a call using a call log entry

Information, such as long distance indicator and the caller name and number, may not show in the log. The appearance depends on the Call Display services provided by your local telephone company, and the local telephone company of the caller.

Auto bumping

Ensure that you have auto bumping (**FEATURE 815**) enabled on any telephones that have call logging active; otherwise, the logs fill up, and subsequent calls are not logged.

LogIt

Store caller information for your current call in your Call Log.

Activate feature: FEATURE 813

Chapter 25
Feature configuration: Making calls

The following topics describe the features the system user can configure, or use to place outgoing calls.

- "Blocking user access to feature programming"
- "Protecting outgoing call privacy"
- "Deal with a busy signal on an internal call" on page 218
- "Other ways of communicating with internal users" on page 218
- "Dialing shortcuts" on page 224

Blocking user access to feature programming

You can block the user from using this feature key by setting the set lock for the telephone to Full (**Configuration > Telephony > Sets > Active Sets > Restrictions > Set Lock** drop-down list).

To block user access to feature programming

1. Click **Configuration > Telephony > Sets > Active Sets**, select the DN record for the telephone for which you want to restrict.
2. Click the **Restrictions** tab.
3. In the **Set Lock** drop-down list select None, Partial, or Full.
   None - allows access to all features.
   Partial - prevents programming autodial buttons and user speed dial.
   Full - no feature programming is allowed.

Protecting outgoing call privacy

Outgoing calls contain name and number information that displays on the target telephone, if this information is supported on the line, at the switch, and by the telephone.

You can block this information for outgoing calls using the ONN (outgoing name and number) blocking code.

For details about setting up ONN blocking on the system and for telephones, refer to "Programming outgoing CLID" in the *Networking Configuration Guide* (NN40020-603).

Activate feature: FEATURE 819

Cancel feature: FEATURE #819

Deal with a busy signal on an internal call

The following features can be used when the internal number you dialed is busy.

- "Priority Call"
- "Ring Again"
- "Leaving a message" on page 219

Priority Call

If your call is urgent, use this code to override a busy signal, or Do Not Disturb. This feature must be enabled in programming on the initiating set. This feature is set to off by default.

Note: Your telephone intrusion level must be equal to, or greater than, the telephone you are calling ("Intrusion controls" on page 203).

Allowing a telephone to make priority calls

Configuration > Telephony > Sets > Active Sets > Capabilities and Preferences tab **> Capabilities** tab - bottom panel

To allow a telephone to make priority calls

While the DN is ringing, enter **FEATURE 69,** or the priority softkey, on a two-line display set.

You are connected directly to the other person, unless they are on another call. That person has the option of pressing **FEATURE 85** (Do Not Disturb) to block the call. On two-line display telephones, the user also has the option of pressing the BLOCK SoftKey.

Ring Again

Use this code to have the system to notify you when a telephone you want to call is no longer busy, or becomes available.

There is no system programming to allow/disallow this feature.

Activate feature: While on the call, enter **FEATURE 2**.

Cancel feature: Enter **FEATURE #2**.

Other ways of communicating with internal users

If you cannot reach a person, or if you want to reach more than one person, there are other methods of communication, including:

- "Leaving a message" on page 219
- "Paging" on page 219

- "Making announcements to individuals (Voice Call)" on page 221
- "Create a conference call" on page 222

Leaving a message

The message feature is a standard system feature and has no specific programming. However, some telephones and remote voice mail systems can require programming to ensure that message waiting indicators (MWI) perform as expected.

This feature allows you to leave a message on the display of another telephone in your system, or to analog telephones connected to an Analog Station Module (ASM/ASM8+). The Messages feature indicates if you have any messages waiting.

The Messages feature uses a message waiting list to keep a record of your internal messages and your (external) voice mail messages. To keep a record of external voice mail messages, you must have access to an external Voice Messaging service with visual message waiting indication and a BCM digital telephone.

User messaging codes:

- Send message – **FEATURE 1** (Cancel using **FEATURE #1**).
- View and reply to message – **FEATURE 65.**
- Cancel Message Waiting – **FEATURE #65.**
- Erasing a message while viewing a message – Press **Hold**.

Paging

If you are unable to reach a person by telephone, or you want to deliver the same message to more than one person, use the page feature.

This feature allows you to make page announcements in various ways, depending on the audience you are trying to reach.

Feature constraints:

- Telephones that do not have external speakers can initiate pages, but cannot receive pages (7000 and 7100 digital telephones and the 2001 IP telephone).
- Using Page with external equipment: When you make a page that uses external paging equipment (external page or combined page), the DTMF Long Tones feature automatically activates for the external paging system only, thus allowing you to control optional equipment with the DTMF Long Tones feature.
- You can have a maximum of 50 digital telephones or a maximum of 60 IP telephones in a page zone.
- **Business Series Terminals note:** If the active call is on mute when the page comes in, it does not return to mute when the call comes off hold after the page.This is only applicable if the set has Auto Hold for incoming page enabled. Sets cannot receive a page if the set is in use.

Configuring system settings for page

Page is a standard system feature. However, there are two system settings that you must confirm or change, depending on your requirements. To configure the system settings for the page feature in Element Manager, navigate to **Configuration > Telephony > Global Settings > Feature Settings**.

To configure system settings for page

1. On the Feature Settings panel, select the **Page tone** check box.
2. Select the **Page tone** check box if you want a tone to sound before a page announcement, or if you want the page announcement to just occur.
3. On the Timers panel, in the **Page timeout** drop-down list, select the amount of time before the page automatically disconnects.

Setting the page timeout

Page announcements are programmed to time-out after a preselected amount of time that is set, by your System Administrator, under the **Timers** heading.

Configuring telephone settings for page

This procedure describes how to determine individual telephone access to the page feature and how the system handles page broadcasts. To configure a telephone for the page feature in Element Manager, navigate to **Configuration > Telephony > Sets > Active Sets**.

To configure telephone settings for page

1. Click **Configuration > Telephony > Sets > Active Sets**.
2. Click the **Capabilities and Preferences** tab.
3. Select the DN for the telephone where you want to define the page feature.
4. On the bottom frame, under the **Capabilities** tab:
   - Select the **Paging** check box if you want the telephone to have access to the paging feature.
   - Beside **Page zone**, enter the number of the zone that the telephone is to be part of for pages. Enter **None** if you do not want the set to receive a page.

Setting Auto hold on incoming pages

If this Page feature is enabled, telephones with active calls that receive internal pages have the active call placed on hold for the duration of the page. When the page message is finished, the active call is removed from hold.

Configuration > Telephony > Sets > Active Sets > Capabilities and Preferences > Capabilities

Business Series Terminals note: If the active call is on mute when the page comes in, the call is not returned to mute when the call comes off hold.

Making a page announcement

Internal page: Make a page announcement to all, or to a specific group of telephones, through the telephone speakers. Zone 0 pages all zones.

To make a page announcement

1 Enter **FEATURE 61**.

2 Press 0 to 6 to page a specific zone.

External page: Make a page announcement through an external loudspeaker system.

1 Enter **FEATURE 62**.

Internal and external page: Make a page announcement through both your telephone speaker and an external loudspeaker system. Zone 0 pages all zones.

1 Enter **FEATURE 63**.

2 Press 0 to 6 to page a specific zone.

Making announcements to individuals (Voice Call)

Use the Voice Call feature if you want to make an announcement through a specific telephone speaker.

Voice Call is a standard system feature, and does not require any programming to activate or deactivate the feature.

Feature constraints:

- Enable HF answerback if you want to respond to a voice call without lifting the handset.
- Telephones that do not have handsfree capability receive voice calls as ringing calls (7000 and 7100 digital phones, 2001 IP phones, and analog telephones).

Making a voice announcement

Make a voice announcement, or begin a conversation, through the speaker of another telephone without first making the other telephone ring.

To make a voice announcement

1 Enter **FEATURE 66**.

2 Speak through your handset using handsfree, or a headset.

Note: Voice calls made to portable handsets, as well as the BST cordless handset, occur as a ringing call.

Preventing voice announcements at a telephone

Prevent your telephone from receiving voice announcements by using:

FEATURE 88 or **FEATURE 85** (Do not Disturb)

Create a conference call

You can establish calls to two people at the same time, and allow each caller to hear the other two callers. You must have at least two intercom paths assigned to your telephone to initiate a conference call.

The person who establishes the conference call has several options available to provide control within a conference call.

- remove callers temporarily (put on Hold), or permanently
- split the conference into two separate calls
- leave the conference, and allow the other two callers to remain connected

Setting a conference tone

If your profile allows it, you can configure the system to sound a tone when a conference call is established.

Configuration > Telephony > Global Settings > Feature Settings

To set up a 3-party conference call

1. Place or answer the first call.
2. Put the first call on hold.
3. Place or answer the second call.
4. After the second call is connected, press **FEATURE 3**.
5. Press the line or intercom button of the first held call (not required on the 7100 digital phones).
6. Press **RLS** to end the conference call.

To set up an Ad Hoc Multiparty conference call

1. Complete the procedure for the 3-party conference call.
2. The conference master enters **FEATURE 807** or presses the NEWCALL softkey.
   The conference is placed on hold.
3. Dial the fourth party number.
   The fourth party answers the call.

4 The conference master enters **FEATURE 3** to create a second 3-party conference.

Note: A conference participant can also add parties to the conference by placing the conference on hold and calling a fourth party on a free intercom key. The fourth caller is placed into conference when the participant enters **FEATURE 3**. The participant placing that call is then a conference master for a new 3-party conference

Note: This procedure can be repeated to include up to 18 conferencees.

Other conference features:

- Remove yourself from the conference permanently: **FEATURE 70**.

Note: The other two callers remain connected. (Some external lines may not support this feature. Ask your System Administrator.)

Note: For **FEATURE 70** to work, at least one of the calls must be incoming.

- Put the conference on hold at one telephone: Press **HOLD**.

Note: The other two callers can continue to talk to each other.

- Split a conference: Press the line, or intercom button, of one caller to consult privately while the other caller is on hold.

  Re-establish the conference: Press **FEATURE 3,** and select the held line.

- Disconnect one party:

  a Press the line, or intercom button, of the caller you want to disconnect, then press **RLS**.

  b Press the line, or intercom button, of the remaining caller to resume your conversation.

- Independently hold two calls: Press the line or intercom button of the first caller, then press **HOLD**. The second caller is put on hold automatically.

  Re-establish the call: Press the line or intercom button to retrieve one call from hold, press **FEATURE 3**, then retrieve the second call from hold.

- Release privacy to create a conference call:

With a line programmed with privacy, you can turn privacy off to allow another person with the same line to join in your conversation to form a conference. All the rules for a conference apply; however, there is one line in use, instead of the normal two. This means that you cannot split a conference using Privacy.

a Press **FEATURE 83**.

b Tell the other person to press the line button and join your conversation.

Note: Only two BCM telephones and the external caller can take part in this kind of conference.

Send Hookswitch or DTMF during a conference call

Either system telephone engaged in a three-way conference call over a Network CLID or DS trunk can issue a hookswitch, or DTMF dialing request, without leaving the conference.

Allowing the feature:

Configuration > Telephony > Global Settings > Feature Settings > Force auto/spd dial over ic/conf

- If you want the other set to hear DTMF tones during dial, ensure that the Long Tones feature is active (**FEATURE 808**).

Note: This feature is not available for 20XX IP telephones, since they cannot receive long or short tones.

- If you want to add someone to the conference through the trunk, use the button marked **Link** (**FEATURE 71**).

Dialing shortcuts

Use the following features to save time when dialing:

- "Last Number Redial"
- "Saved Number Redial" on page 225
- "Autodial" on page 225
- "Speed dialing" on page 225
- "Programming memory buttons" on page 226

Last Number Redial

If the number you want to dial is the last number dialed from your telephone, use this feature to redial the external number.

Allowing the feature

You enable last number redial for each telephone through the restriction programming.

Configuration > Telephony > Sets > Active Sets > Restrictions tab > Allow Last Number check box

Using the feature

Press **FEATURE 5.**

Note: This feature records a maximum of 24 digits.

Saved Number Redial

Use this feature to save a number from an existing call, or from an autodial button, so that you can call the number later. Each telephone can save only one number at a time.

Allowing the feature

Enable last saved redial for each telephone through the restriction programming.

Configuration > Telephony > Sets > Active Sets > Restrictions tab **> > Allow Saved Number**

To allow last number redial

1 While on the call, enter **FEATURE 67**.

2 When your telephone is idle, enter **FEATURE 67**.

Autodial

You can program memory buttons for one-touch dialing of internal or external telephone numbers. When you program an external autodial, you must specify a path out of the system. You can also program autodial buttons with speed dial codes.

Programming DN records memory buttons for autodial:

Configuration > Telephony > Sets > All DNs > Capabilities and Preferences > Button programming tab

For information about programming memory buttons on the telephone, refer to "Programming memory buttons" on page 226.

Speed dialing

BCM provides two types of speed dialing:

- System Speed Dial programming allows you to assign two or three-digit speed dial codes to the external numbers called most often. You can set the system to have 01 to 70 codes or 001 to 255 codes.
- User speed dial numbers can be programmed during telephone DN record configuration, or at the telephones by the users (71-94).

To program speed dials in the DN record

1. DN record, select the telephone you want to program.
2. Select the **Capabilities and Preferences** tab.
3. Select the **User Speed Dial** tab.
4. Select **Add**.
5. Enter in User Speed Dials 71-94.
6. Enter **FEATURE 0,** and the system or user speed dial code.

To program user speed dials at the telephone

1. Enter **FEATURE *4**.
2. Enter a two-digit code from 71 to 94.
3. Specify the external line by pressing a line button, a line pool button, or the intercom button. (If you do not specify the external line, the system uses the prime line for the DN.)
4. Dial the telephone number you want to program (up to 24 digits).
5. Press **HOLD**.
6. Record the code and number you programmed.

Blocking user access

You can block the user from using this feature by setting the telephone set lock to Partial or Full (**Configuration > Telephony > Sets > Active Sets > Restrictions tab > Set Lock drop-down list**).

Programming memory buttons

The telephones with programmable memory buttons are given a default set of button assignments when the system is set up. The system administrator can change these defaults in system programming. The user can also program memory buttons for autodial and feature codes, as well as move button assignments to suit their working style.

If you want to remove a feature from a key, either replace it with another feature, or program it with a Blank external autodial.

The feature codes in this section allow you to program a memory key, and to view the information currently on a key.

Blocking user access

You can block the user from using this feature by setting the telephone Set Lock to Partial or Full (**Configuration > Telephony > Sets > Active Sets > Restrictions** tab **> Set Lock**).

To view the feature that is currently assigned to a button

1 Press **FEATURE *0** (button inquiry).

2 Press the memory key for which you want to view programming.

To check for your DN number, press an intercom key.

To configure memory buttons for features

1 Press **FEATURE *3.**

2 Enter the feature code, auto dial, speed dial feature code and number, or SWCA code that you want to program on your telephone.

Note: Using this feature overrides programming entered by the system administrator. You cannot change buttons that have handsfree, lines, intercom lines, or Answer DNs assigned to them.

To erase a memory button

1 Press **FEATURE *1.**

2 Press the memory key you want to erase.

3 Press **OK**.

Note: You cannot erase buttons assigned with lines, Answer DNs, or intercom keys.

To store more than one number or code on one button

1 Press **FEATURE *9** to insert a break point between numbers or codes.

You can program up to four numbers or codes separated by break points per memory key.

2 To use: The first press of the button dials the first number. Pressing the button a second time dials the next number.

External call codes

Call code features can be part of dial strings for calls to external numbers. These codes allow various actions to occur as part of the dialing sequence.

You can use special alphabetical designators in the following features when you are entering the dial strings from the Element Manager:

- hotline external number
- call forward to external numbers
- system and user speed dial numbers
- telephone and CAP button external number (auto dial)
- lines: Redirect to:
- routing dial string
- ONN block for Tone and BRI
- voice message center number

Table 62 External call codes and definitions

Link FEATURE **71** LN	Generate a Link signal to access a PBX or other host exchange. If you connect the system to a private branch exchange (PBX), you can use a Link signal to access special features. On some telephones, Link is called FLASH. You can include the Link signal as part of a longer stored sequence on an external autodial button, or in a speed dial code. The Link symbol uses two of the 24 spaces in a dialing sequence. (**FEATURE 71**) **Note:** This feature must be enabled under the restrictions for the telephone.
Pause FEATURE **78** P	Program within an external auto-dial sequence to insert a 1.5-second delay. This feature enters a 1.5-second delay in a dialing sequence on an external line. The use of this feature is required often for signaling remote devices, such as answering machines, or when accessing PBX features or host systems. You can program more than one pause in an external auto dial or speed dial sequence. (**FEATURE 78**) **Note:** This feature is not supported on ISDN trunks.
Run/Stop FEATURE ***9** B	Insert a break point into a sequence of dialed numbers or characters used for automatic dialing. This is necessary when you are connecting to a PBX or similar host system. For example, if a company has an automated attendant that instructs you to dial an internal number you need, you can program the company number, a Run/Stop, then the internal number on one external autodial button. The Run/Stop symbol uses one of the 24 spaces in an autodial or speed dial sequence. You can include up to three Run/Stop commands in a dialing string. The system ignores a fourth Run/Stop, and any digits or commands that follow three Run/Stop commands in a programmed dialing sequence. Programming: There is no system programming for this feature.
Wait for dial tone FEATURE **804** DT	Program with an external auto-dial number to cause the system to wait to receive a dial tone from another system before proceeding with the dialing sequence. This feature (**FEATURE 804**) causes a sequence of numbers to pause until dial tone is present on the line before continuing to dial. You can use this feature if you must dial a remote system, and then wait for dial tone from that system before dialing the remainder of your number. The Wait for Dial Tone symbol uses two of the 24 spaces in an autodial or speed dial sequence. Programming: There is no system programming for this feature.

Chapter 26
Using telephones for special features

You can program telephones and devices to perform specific feature services, such as dialing an emergency number as soon as the handset is picked up, or acting as the control set for the system schedules. ("Special feature telephones" on page 229 and "Setting up a central answering position" on page 231)

Special feature telephones

The following are telephones that are specifically programmed to perform a system operation.

Hotline telephone

You can define a telephone that automatically dials an emergency or direct number when the handset is lifted.

Setting up the hotline

Configuration > Telephony > Sets > Active Sets > Capabilities and Preferences tab **> Preferences** - bottom tab

Setting up the hotline for analog telephones

See also:

- "Line Assignment tab" on page 46
- "Assigning a pause for external dialing for data devices" on page 122 (analog devices)

Control telephone

The control telephone allows you to control other telephones in the system by turning service schedules off and on.

Defining a control telephone

You can define a control set for lines, individual telephones, and for hunt groups.

Configuration > Telephony > Lines > Active Physical Lines > Control Set column

Configuration > Telephony > Sets > Active Sets > Capabilities and Preferences tab

Also refer to:

- "System schedule settings and services scheduling" on page 29 (setting common features and restriction and routing schedule features)
- "Creating ring groups" on page 97

- "Restrictions main tab" on page 65 (telephones)
- "Restrictions (Line and Remote) in the *Networking Configuration Guide* (NN40020-603)
- "Destination codes" in the *Networking Configuration Guide* (NN40020-603)
- "Preferences tab" on page 55

Using the control telephone

- Show active schedules: Enter **FEATURE 870**.
- Ringing service:

  a Enter **FEATURE 871**.

  b Use NEXT to scroll to the schedule you want to activate. (On one-line display telephones, press #.)

  c Press OK to select the schedule.

  d Press QUIT to exit. (On one-line display telephones, press **RLS**.)

  Cancel feature: FEATURE #871

- Restriction service:

  a Enter **FEATURE 872**.

  b Enter the Service Control password.

  c Use NEXT to scroll to the schedule you want to activate. (On one-line display telephones, press #.)

  d Press OK to select the schedule.

  e Press QUIT to exit. (On one-line display telephones, press **RLS**.)

  Cancel feature: FEATURE #872.

- Routing service:

  a Enter **FEATURE 873**.

  b Enter the Service Control password.

  c Use NEXT to scroll to the schedule you want to active. (On one-line display telephones, press #.)

  d Press OK to select the schedule.

  e Press QUIT to exit. (On one-line display telephones, press **RLS**.)

  Cancel feature: FEATURE #873

Supervisor telephone for silent monitoring

The silent monitoring feature enables specified two-line display telephones to be used to monitor Hunt group and Contact Center operators. You can specify whether the system sounds a tone before breaking into a call or whether the break-in is silent. Display prompts on the supervisor telephone allows the supervisor to unmute or move from user to user.

Setting up Silent Monitoring

The following path indicates where to set up silent monitoring parameters in Element Manager:

- Element Manager: **Configuration > Telephony > Global Settings > Advanced Feature Settings**

Security Note: Change the password regularly.

Assigning a supervisor telephone

A maximum of 30 two-line display telephones can be configured as supervisor telephones for monitoring. This feature can be assigned in Element Manager under **Configuration > Telephony > Sets > All DNs > Capabilities and Preferences > Capabilities.** Refer to "Monitoring external hunt group calls" on page 109.

Hospitality services telephones

This feature enables small to medium service facilities to provide customer telephone service, as well as administration services, through a telephone interface.

Programming: Besides the general line and telephone programming required for individual group members, "Configuring Hospitality services" on page 111 explains the feature in detail.

Also refer to the *Hospitality Features Card*.

Setting up a central answering position

For incoming calls, you can have a central answering position, or you can specify target lines to one or more telephones to receive directed calling.

If you are using the central answering position to answer all calls, or to monitor incoming calls, you may need the extended capabilities of a T24 Key Indicator Module (KIM) for digital phones or a Key Expansion Module (KEM) for IP Phone 2002 and 2004. These telephones allow you to expand the number of line assignments, SWCA code assignments, and Hunt group indicators.

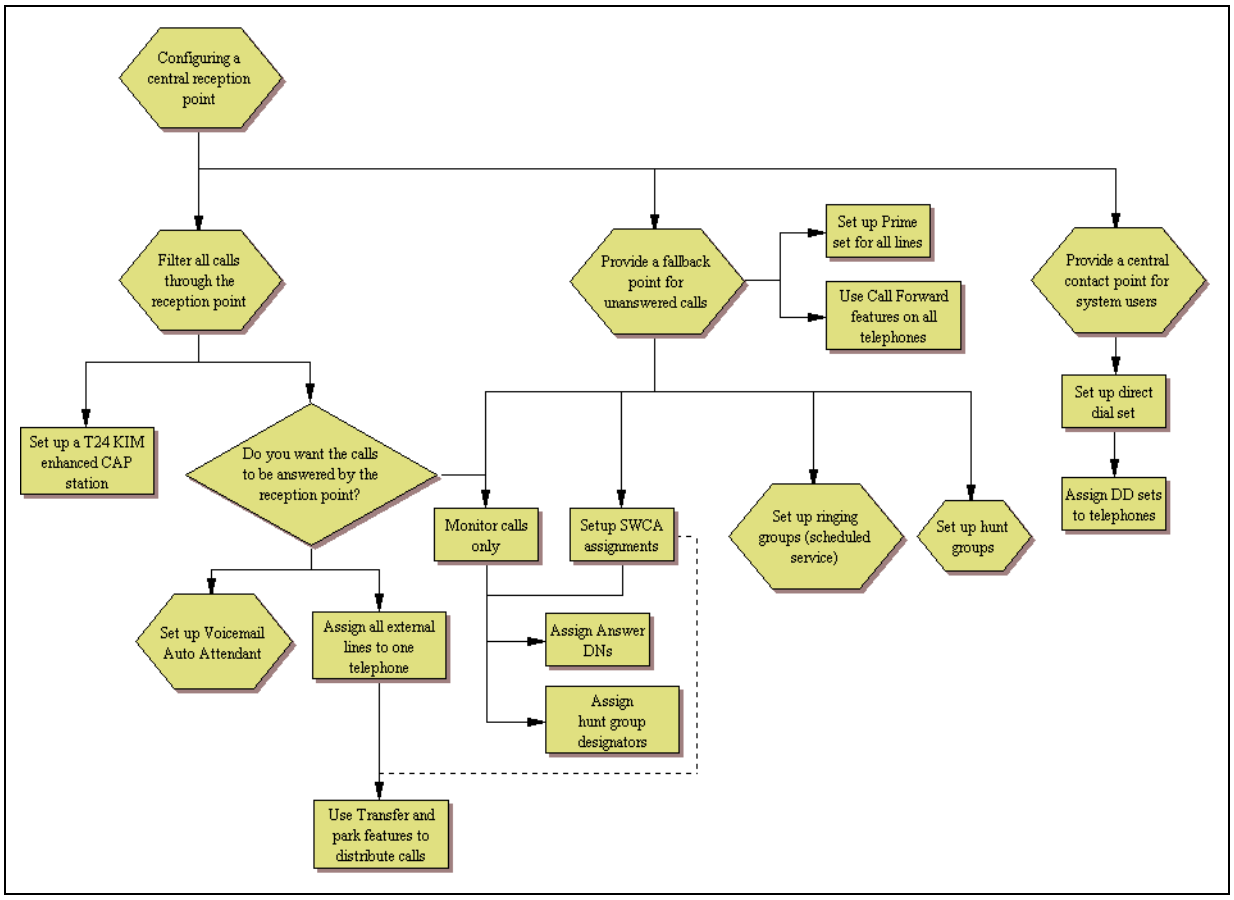
If you do not filter incoming calls through an central answering position, you can arrange your telephones in Hunt groups, ringing groups, or call groups that use system wide call appearance (SWCA) assignments to share calls.

You can set up a central answering position to enable you to:

- To filter all incoming calls through one point.
- To provide fallback for unanswered telephones.
  Set up the prime telephone feature or use call forward.
- To provide one number for callers that can be distributed to an internal group.
  Set up hunt groups for service groups or System Wide Call Appearance (SWCA) assignments for small groups.

- To provide a central answering position for internal users.
  Set up a direct dial code.

Central Answering Position overview



Prime line

The prime line is the DN that the line rings when the system cannot ring the intended DN.

Configuration > Telephony > Sets > All DNs > Capabilities and Preferences

Also refer to "Transfer (unanswered) calls" on page 206 and "Call forward (unanswered) calls" on page 208.

Direct dial telephone

The direct dial telephone is the telephone that system users can dial with one digit, the direct dial access code. A receptionist telephone is one example of this. This telephone is usually the control telephone for system scheduling. You can create up to five direct dial telephones. However, they all respond to the same direct dial access code.

Programming

Configuration > Telephony > Dialing Plan > General

Configuration > Telephony > Sets > All DNs > Capabilities and Preferences > Capabilities

Extra direct dial set: **Configuration > Telephony > Scheduled Services**

Creating an enhanced CAP station

Central answering position (CAP station): A CAP can consist of a 7316E digital phone plus one to four eKIMs (key indicator modules), or one to nine OKIMs. When the CAP is assigned under **CAP/KIM assignment** in the system, the CAP becomes an enhanced CAP (eCAP), and the modules become known as eKIMs. The system supports a maximum of 12 eCAPs.

eCAPs can:

- monitor system telephone status.
- answer external calls on line buttons.
- monitor Hunt group appearances.
- support multiple appearances of a target line.
- answer external calls on up to 112 lines on a KIM (120 lines on a legacy CAP), and extend calls to other BCM telephones.
- provide extra memory buttons for the 7316E digital phones.

Telephones with KIMs that are not configured in system programming allow only memory button programming on the modules. In this case, the KIM is known as an OKIM (ordinary KIM). There is no specific limit for the number of CAPs using OKIMs for the system, except from a call processing point of view.

Legacy CAP: A 7324(N) plus one or two CAP(N)s (Central Answer Position modules)

Hunt groups

Use this feature to group your Contact Center operators so you can target specific types of calls to specific groups. As well, you can define how calls enter the group, so you can control workload based on operator requirements.

Programming: Besides the general line and telephone programming required for individual group members, “Hunt Group members and lines” on page 105 provides details about setting up hunt groups and hunt group features.

The operation of some features varies if the BCM telephone is part of a Hunt group. Table 63 shows the affected features.

Table 63 Hunt group feature operation

Feature	Description
Call Forward All Calls	The system ignores Call Forward All Calls feature, and the Hunt group call rings at the telephone.
Call Forward No Answer	The system ignores Call Forward No Answer, and the Hunt group call continues to ring until the hunt time expires.
Call Forward on Busy	The system ignores Call Forward on Busy and the Hunt group call continues to ring until the hunt time expires.
Do not Disturb on Busy	If this feature is active, the set does not receive notification of incoming Hunt group calls.
Group Pickup	If a set is part of a Hunt group and a call pickup group, then an incoming Hunt group call can be picked up from any set that is in the call pickup group.
Transfer via Hold	The system supports transfer for Hunt group sets. However, you cannot Transfer by using Hold. Once you answer a call on a Hunt group set, the Hunt group notification disappears from all other sets in the Hunt group.
Priority Call	You cannot make Priority calls to Hunt group DNs.
Ring Again	You cannot use Ring Again when calling a Hunt group DN.
Line Redirection	The Allow redirect attribute must be selected for DNs assigned to Hunt groups. For more information, see “Capabilities tab” on page 52.
Page Zones	You cannot include Hunt group DNs in a Page zone.
Voice Call	Hunt groups cannot accept voice calls. Answer buttons have no appearances for voice calls, and the set does not ring.

Ringing groups

If you set up call scheduling on the system, you can define groups of telephones into ring groups. This allows you to specify schedules where Trunk Answer can be used within the ring group to answer incoming calls, even on telephones that do not have that line specifically assigned. You can also define a second direct dial set for a ringing group.

For details about setting up ringing groups, refer to “Creating ring groups” on page 97.

For information about using schedules, refer to “Using the control telephone” on page 230.

Setting up Contact Center

Refer to the Contact Center documentation for information about setting up this feature.

Chapter 27
Display prompts and messages

Use the following information for an explanation of the prompts you see on your telephone. The following tables show the prompt along with a description or required action, as appropriate. Prompts are listed alphabetically within the following categories:

- Common display prompts
- "Viewing active services" on page 246
- "Call log prompts" on page 247

Common display prompts

These prompts can appear during general call features:

Display prompt	Description of error or action
Key: NNN = DNs#; SSS = second DN#; XXX = line number; YYY = second line number	Double SS symbols indicate a long distance call. (May be available with Call Display services.)
01:9_ CANCL BKSP OK	Speed dial: Continue entering the number you want to program. You can change the number by pressing **BKSP** or the volume bar. When you are finished, press **HOLD** or **OK**.
3 parties only	Conference call: You are trying to add a fourth party to your conference call, or to join two conferences together. Release one call from the conference before adding another, or keep the two conferences separate.
4 calls	The conference master presses one of the keys representing the three-party conference slaves. The total number of conferees is displayed transiently for three seconds.
NNN 02:47	Call duration timer: The display shows the last call you made, or the total elapsed time in minutes and seconds on a current call.
XXX <LINENAME> SHOW OK	Button inquiry: The display shows the number and name of the line. Press **SHOW** to view the redirection status of the line.
NNN: Busy NEXT VIEW	Hunt group: The hunt group member is in a conference, and the supervisor cannot break in. The display briefly shows Conference busy, and then reverts to this prompt.
NNN: Idle NEXT VIEW	Hunt group: The hunt group member currently is not handling a call.

Display prompt	Description of error or action
NNN <SETNAME> NEXT VIEW	Button inquiry: The display shows the directory number of the telephone, and the assigned name. Press **NEXT** to see the first line assigned to ring at the intercom button.
NNNNNNNNNNNNN... VIEW, OK	Press # or press **VIEW,** or **•VIEW** to view a number that is too long to fit on the display. Press **OK** when you have finished.
NNN>SSS CANCL RETRY JOIN	Transfer: You are talking to the person to whom you want to transfer the call. Press **RETRY** if you decide to transfer the call to another person. Press **RLS** or **JOIN** to transfer the call.
NNN DND CALLBCK	Camp-on: The person to whom you redirected a call has Do Not Disturb active. The call has returned to you. Press the **CALLBCK** button or the line button to reconnect to the call. On 7000 and 7100 digital phones, lift the handset.
NNN no reply CALLBCK	Transfer: The person to whom you tried to transfer a call did not answer. Press **CALLBCK** or the flashing line button to reconnect to the call. On 7000 and 7100 digital phones, lift the handset to reconnect.
NNN>SSS	– You are receiving an internal call from extension NNN forwarded by extension SSS – You have an Answer button for extension SSS and an internal call from NNN is ringing on SSS.
NNNNNNNN TRANSFR	This prompt remains on your display while you are on a call you have dialed. To transfer the call, press **TRANSFR**.
NNN TRANSFR	You are connected to an internal call. Press **TRANSFR** to transfer the call.
NNN busy PRIORITY LATER	The telephone you have called has no internal lines available. – Press **LATER** to use the Ring Again or Message features. – Press **PRIORITY** to make a priority call. Priority call: The telephone to which you want to transfer a call is busy.
NNN calling	You are receiving a call from extension 221.
NNN_ QUITBKSPOK	Continue entering digits. Press **BKSP** to delete incorrect digits. Press # or **OK** when you have finished. Auto dial: Continue to enter digits until the number is complete. Press the volume bar or **BKSP** to erase an incorrect digit. Press **HOLD** or **OK** when you finish.
OTHERJOINEXIT	Silent monitor: While a call is being monitored, you can choose to: – move to another Hunt group member (**OTHER**) – join the current conversation (**JOIN**) – exit the silent monitoring (**EXIT**)

Display prompt	Description of error or action
OTHERLEAVEEXIT	Silent monitor: When you join a monitored call, you can choose to: – move to another Hunt group member (**OTHER**) – mute your telephone out of the current conversation (this does not disconnect silent monitoring) (**JOIN**) – exit the silent monitoring (**EXIT**)
Access denied	Programming is busy, or the feature you are trying to use is not compatible with the configuration of the telephone or line. Silent monitor: You tried to start a monitoring session on a telephone that does not support the feature.
Already joined	Your telephone is connected to the telephone you are trying to call. Check your active line buttons, and return to that call. Pickup group: You are connected to the telephone that made the call you are trying to answer. This display appears if you are on a call to a colleague, your colleague dials the number of a telephone in your pickup group, and you try to answer that call.
Already parked	Call park: The person you were talking to has parked your call. You cannot park the same call.
Autodial full	Auto dial: The memory allocated to auto dial numbers in your system is full.
Button erased	Auto dial: While programming external auto dial, you erase the button by pressing **HOLD** or **OK** before entering any digits.
Call NNN? YES NO	You have received a Ring Again offer from a call to an internal telephone. Press the flashing internal line button or **YES** to call the number again. On 7000 and 7100 digital phones, just lift the handset. Otherwise, press **NO** or wait 30 seconds for Ring Again to expire.
Calling NNN PRIORITY LATER	Wait for the telephone to be answered. If no one answers, press **LATER** to use the Ring Again feature or Message feature, or press **PRIORITY** to make a priority call. Priority Call: You initiate the Priority call transfer to this local.
Call blocked	Priority call: You tried to place a priority call to another telephone in your system. The person you called has blocked your call.
Camped: NNN CALLBCK	The person at extension NNN has not answered the camped call. The call has come back to you. Press the line button or **CALLBCK** to reconnect to the call. On 7000 and 7100 digital phones, lift the handset to reconnect to the call.
Camp denied	Camp-on: You have tried to camp an internal call. You can camp external calls only.
Camp to: CANCL	Camp-on: Dial the number of the internal telephone to which you want to camp the call.
Cancel denied	Message: You entered an invalid number when trying to cancel a message.
Can't ring again	You cannot use Ring Again on your current call. You can use Ring Again while you have a busy signal on an internal call or line pool request, or while an internal call is ringing.
Cleared>LINENAM NEXT	Message: You cleared an external message from your message waiting list. The message exists in your message center until you erase it there.
CLI COPY INCOMP	You attempted to allow CLI for an assigned line for more than 30 telephones.

Display prompt	Description of error or action
Conference busy	Conference: You tried to make a conference call, but your system is handling the maximum number of conference calls (six).
Conf Resrce Full	Silent Monitor: The six conference resources on the system are already occupied. This is a transient display that reverts to HG Member DN: busy.
Denied in admin	You are trying to use a feature, but do not have access to it under administration. Last Number redial: The Last Number is not allowed.
Dial voice call	Voice call: Dial the internal number or press the internal auto dial button of the person to whom you want to speak.
DND from NNN	Prime telephone: The person at telephone NNN has forwarded a call to you using Do Not Disturb.
DND transfer	Prime telephone: The system has transferred a call to you from a telephone with Do Not Disturb activated.
DN: Idle	Silent monitor: The current call on the telephone you are monitoring is either not a Hunt Group call, or the call came in on a line key on that telephone. **Note:** Lines that are assigned to the hunt group must not be assigned to individual hunt group members.
DRT Line001	Prime telephone: No person answered this call, so the system transferred it to you.
Do not disturb PRIORITY LATER	The telephone you are calling has Do Not Disturb turned on. Press **LATER** to use the Ring Again or Messages features, or press **PRIORITY** to make a priority call. Priority Call: The telephone to which you want to transfer the call has Do Not Disturb active.
Do not disturb CANCL RETRY JOIN	Transfer: The person to whom you tried to transfer a call has Do Not Disturb active on their telephone. • Press **JOIN** to transfer the call. • Press **RETRY** to transfer the call to another person. • Press **CANCL** or the flashing line button to reconnect to the call. • On 7000 and 7100 digital phones use feature code **FEATURE #70** to cancel the call.
Enter code:	Feature button: If you are checking a speed dial button, enter the two-digit speed dial code that you want to check.
Enter digits QUIT OK	Auto dial: Enter the number you want to program, selecting the line first, if necessary, exactly as if you were placing a call. Speed dial: Enter the telephone number you want to program exactly as if you were dialing it normally. When you are finished, press **HOLD** or **OK**.
Enter zone:_ ALL	Page: Enter the required page zone number (0- 6) or press **ALL**.
Exchanged	Move button: The two buttons you selected have exchanged position.
Expensive route	You have dialed a number, but the least expensive route programmed for the system is busy. Unless you release the call, the number goes through on a more expensive route.
F_ QUIT CLEAR	Feature button: Enter the feature code, or press **RLS** or **QUIT** to end programming or **CLEAR** to clear the numbers entered. The system accepts the entry when you enter a valid feature code.

Display prompt	Description of error or action
Feature code: QUIT	Feature button: Press **FEATURE** and enter the feature code you want to assign to the button. Check that the code is valid.
Feature moved	Feature button: You have programmed a button with a feature programmed on another button. The feature has moved to the button you just programmed. The original button is now blank.
<Feature name> SHOW OK	Button inquiry: The name of the feature assigned to a button appears on the display when you press the button. Press # or **SHOW** for additional information.
Feature timeout	You took more than 15 seconds to press a button in response to a display.
Forward>NNN CANCL	Call forward: Your calls are being forwarded to telephone NNN.
Forward denied	Call forward: There are several reasons why you can receive this message. For example, you cannot forward your calls to a telephone that has Call Forward programmed to your telephone.
Hidden number	The last number you dialed, or the number you saved for Saved Number Redial, was a speed dial number that displayed a name instead of the number. You dialed the number correctly, but it is not visible.
Hold or release	While on a call, you must either release the call, or place the call on hold, before you can program a feature button. SWCA: The requested SWCA code already has a call parked on it. Choose another key position.
Inactive feature	You entered the feature code for an application that is disabled.
Incoming only	The line you are trying to use to redirect calls is for incoming calls only. Select an outgoing line.
In conference INFO	The active call display of the former conference master.
In observe: Monitor	Silent monitor: The hunt group member is being monitored already.
Intercom #: _ QUIT	Auto dial: Enter the internal telephone number you want to program.
Intercom	Line redirection: You selected the intercom button as the facility on which to place the call. Enter a line pool code or a destination code.
In use:XXX	You tried to program redirection while the feature is in use. Only one person can program line redirection at a time. SWCA: The requested SWCA code is being used by telephone XXX. Choose another key position. Message: You are trying to call from your message waiting list. The line that you are trying to use is in use by the identified user in your system.
Invalid code	You entered an invalid feature code. Speed dial: You have entered a code outside the code range (01-70 for system, 71-94 for user-based speed dials).

Display prompt	Description of error or action
Invalid location	Move button: You tried to move a line to a button that cannot be a line button, such as an intercom button, Handsfree/Mute button, or an answer button.
Invalid number	You entered an invalid line pool code or an invalid destination code. Auto dial: You are programming an internal autodial button and have entered a number that is not an internal number on your system. Enter a valid internal number. If the number you are entering is a destination code, use external autodial. Call park: You have entered an invalid retrieval code.
Invalid number CANCL RETRY	Transfer: You entered an invalid internal number. Press **RETRY** and enter the number again. On 7000 or 7100 digital phones, use the **FEATURE #70** feature code to cancel the call, and then retry.
Invalid number Observe	Silent monitor: The DN you entered is invalid for your system. Press **Observe** to enter another hunt group telephone.
Invalid zone	Page: You have entered a page zone code that is not between 0 and 6.
LineXXX 01:45	Call duration timer: You parked your last call. You cannot see the length of time a call was parked.
LineXXX>YYY	You are receiving an external call forwarded from extension YYY, or you have an answer button for extension YYY and an external call is ringing on that telephone.
LineXXX>YYY CANCLRETRYJOIN	Transfer: Press **JOIN** to transfer the call on line XXX to telephone YYY. Press **RETRY** if, after talking to the person at extension YYY, you decide to transfer the call to another person.
LineXXX NNN TRANSFR	Conference call: You are on a conference with the two lines or telephones shown. You can drop out of the conference, and leave the other two parties connected (Unsupervised Conference) by pressing **TRANSFR** or entering the Transfer feature code.
LineXXX TRANSFR	You are connected to an external call. Press **TRANSFR** to transfer the call. Enter the digits of the number you want to dial.
LineXXX callback CALLBCK	Prime telephone: A person camped, parked, or transferred a call on line XXX, but no one has answered the call. Press **CALLBCK** or the line button to connect to the call.
Line XXX hung up	Transfer: The external caller you were transferring hung up before the transfer was complete. Camp-on: A call you camped has returned to you, but the caller hung up before you can reconnect.
LXXX:LINENAMVMsg NEXT CALL CLEAR	Message: You are viewing your message list. The display shows the number and name of the line used for your message.
LineXXX>LineYYY	Prime telephone: The call coming in on line XXX for target line YYY has come to you because Line YYY is busy.
LineXXX to prime	Prime telephone: There is no telephone that can receive a call on line XXX, so the system has transferred it to you.
LineXXX transfer	Another user in the system is transferring a call to you on line XXX.
LineXXX waiting	A camped call is waiting. Press the line button, or use Call Queuing to answer the call. Press **HOLD** if you have 7000 and 7100 digital phones.

Display prompt	Description of error or action
Line denied	You selected a line that is private to another telephone. Trunk Answer: You have tried to pick up a call on a private line.
Line in use	The line is in use. Make the call using normal methods, or wait until a line is free.
Line Redirection QUIT ADD REMOVE	Line redirection: Press * or **ADD** to begin redirection. Press # or **REMOVE** to cancel a previous redirection.
Messages & Calls MSG CALLS	Message: You have one or more messages, and one or more new Call Logs. Press **FEATURE 806** to change the first line of the display to the current time and date.
Make calls first	The feature you tried to use requires you to be on an active call at your telephone. This prompt also appears when information about a call is cleared by a system reset.
Message denied	Message: You tried to send a message to an invalid internal number, or to a telephone that is out of service.
Message list SHOW ADD EXIT	Message: **SHOW** appears when you have remaining messages. Press **SHOW** to review messages you have sent. Press **ADD** to send a new message.
Message to:	Message: Enter the internal number of the telephone to which you want to send a message.
Microphone muted	Voice call: Your handsfree microphone is on the mute setting. Press the button labeled Handsfree/Mute, or pick up your handset to respond to the voice call.
Move line from: QUIT	Move button: Press the button of the line you want to move. Press **FEATURE** or **QUIT** when you have finished moving lines.
Move line to: QUIT	Move button: Press the button of the line to which you want to move the current line. Neither of the buttons is erased. The lines, or the line and feature, switch places.
Need Handsfree	Silent monitor: You entered the silent monitor feature code without lifting the handset, and the telephone does not support Handsfree operation.
No avail SWCA	SWCA: The **FEATURE *520** request was unsuccessful, either because the telephone has no associated SWCA keys, or all the SWCA keys for that telephone are associated with other calls. **Note:** If the call is an internal call and the destination set has a SWCA associated with the call, and if the originating set requests that the call be associated with a different SWCA, then the destination telephone transfers the call to the new SWCA position. If the destination telephone does not have a button programmed for the new SWCA position, the call disappears from all SWCA button appearances, and can only be retrieved by entering the corresponding SWCA code.
No button free	You tried to make, receive, or pick up a call when no line button was available. Some features require you to have a button free. Releasing calls can free up line buttons. Message: You have no line button free with which to reply to a message.
No call to park	Call park: You have tried to use Call Park with no active call on your telephone. If the call you want to park is on hold, reconnect to the call before you park it.
No call on: 101	Call park: There was no call on the retrieval code (101-125) that you entered.

Display prompt	Description of error or action
No calls waiting	You tried to use Call Queuing but no call was ringing at your telephone. SWCA: The **FEATURE *537** or **FEATURE *538** request was used, but there are no calls parked on any of the assigned buttons on your telephone.
No free lines	All the lines or line pools available to the telephone are in use. This prompt also appears when you try to dial an external number, or use a feature that conflicts with the lines, line pools, or prime line used by the telephone. Your installer must correct this situation.
No last number	You have not dialed an external telephone number since the last power interruption or system reset.
No line to use	Line redirection: You have one external line on your telephone, but you need a second line to perform line redirection. Redirect your external line using a line pool as the outgoing line.
No line selected	Auto dial or Speed dial: The telephone is set up to dial an external number on a prime line, but the telephone does not have a prime line. Your installer must correct this situation.
No line selected	There is no call ringing at your telephone. If you have a flashing line button, but your telephone is not ringing, press the line button to answer the call on that line.
No number saved	Saved number redial: You have tried to save the number of an incoming call. You can only save numbers that you have dialed.
No number stored	Speed dial: There is no number stored on the speed dial code you have dialed. Message: No number programmed for the message center. Contact your voice messaging service provider.
No voice call	Voice call: The telephone receiving the call cannot accept voice calls for one of the following reasons: • The telephone is active or ringing with another call. • Call Forward is on. • Do Not Disturb is on. • Voice Call Deny is on. • It is not a BCM telephone. • Your call continues as a normal ringing call.
Not available	You tried to use a feature that is currently not available from your system. Transfer: The telephone where you directed a call is not in service or is or unavailable. The call returns to your telephone.
Not HG member Observe	Silent monitor: The DN you entered is not a Hunt Group member. Press **Observe** to enter another hunt group telephone.
Not in service	Call forward: Two or more telephones are linked in a forwarding chain, and one is out of service or used for programming.
Not in service CANCL RETRY	Transfer: The telephone to which you are trying to transfer a call is out of service.
Not in service CALLBCK	Camp-on: The telephone to which you have camped a call is out of service or is used for programming. The call has returned to you. Press **CALLBCK** or the line button to reconnect to the call. On 7000 and 7100 digital phones, lift the handset to reconnect with the call.
Not in Service Observe	Silent monitor: The DN you entered did not respond to the system. Press **Observe** to enter another hunt group telephone.

Display prompt	Description of error or action
Not Supported Observe	Silent monitor: The DN you entered belongs to a portable telephone or an ISDN terminal. Press **Observe** to enter another hunt group telephone.
Observe: RETRY OK	Silent monitor: The supervisor, hunt group member and the caller are all connected. If you make a mistake entering a DN number, press **RETRY** and re-enter the number. If the number you entered is correct, press **OK**.
On another call LATER	The telephone you have called is on another call. Press **LATER** to use the Ring Again or Message features.
On another call PRIORITY LATER	Priority call: The telephone to which you want to transfer the call is on another call.
On hold: LINENAM	You have placed one or more calls on hold. The name of the line held the longest appears on the display.
Outgoing line	Line redirection: You are trying to redirect a line, and the line you have selected is the outgoing line you have selected as a destination. You cannot redirect a line to itself. Select another line.
Paging ALL	Page: You are making a page. The display shows the page zone you have selected. Press **FEATURE** or **RLS** when finished.
Paging busy	Page: A page is being made in the page zone you have requested.
Page choice: SETS SPKR BOTH	Page: Select the type of page you want.
Page timeout	Page: The time allocated for paging has expired.
Parked call CALLBACK	No one answered the call you parked. The call returns to you.
Park denied	Call park: You have tried to park a conference call. Split the conference, and park the calls separately. The person who retrieves the calls can reconnect the conference.
Parking full	Call park: All available retrieval codes are in use. Transfer the call, or take a message instead. SWCA: No park resources, out of the 27 that are available on the BCM, are free. Wait for one to become free, and then try again.
Parked on: n02 PAGE EXIT	Call park: Record the code shown (n01-n25). Use Page (**FEATURE 60**) or press **PAGE** to announce the call and its retrieval code.
Pickup:	Pickup group: Enter the internal number of the telephone that is ringing. You can use an internal auto dial button to do this. If you decide not to answer a ringing call after you have activated Directed Pickup, press **FEATURE**.
Pickup denied	Pickup groupers is no call to pick up, or the call has been answered, or you have tried to pick up a call on a person's private line. Trunk Answer: The call that is ringing is on a line that is not in a Ringing Service.

Display prompt	Description of error or action
Pick up receiver	You have used the Call Queuing feature without lifting the handset. Auto Handsfree is not assigned to your telephone. You must use the handset, or press the handsfree button to answer a call.
Please wait	Priority call: The party you are calling has eight seconds to decide to accept or reject your priority call.
Pool code: _ QUIT	Line redirection: Enter a valid line pool access code.
Press a button QUIT	Auto dial: Press the memory button you want to program. Button inquiry: Press the button you want to check. Press **FEATURE** or **EXIT** when finished.
Press a line	Move button: The button you are trying to move is not a line button. If you are trying to switch a line and a feature, move the line to the feature button, not the feature button to the line.
Press held line	Conference call: You have activated the Conference feature with one call active and another on hold. Press the held line to bring that person into the conference.
Program and HOLD	Auto dial: Enter the number you want to program on the button, then press **HOLD**. Speed dial: If you want to program a line or line pool selection for this speed dial number, select the line or line pool. If not, enter the telephone number exactly as if you were dialing it normally. When you are finished, press **HOLD**.
Program and OK QUIT OK	Enter the number you want to program on the button, then press **HOLD** or **OK**. You can include a line or line pool selection in an auto dial sequence by selecting the line before entering any digits. Speed dial: If you want to program a line or line pool selection for this speed dial number, select the line or line pool. If not, enter the telephone number you want to program exactly as if you were dialing it normally. When you are finished, press **OK**.
Programmed	The number is stored correctly on the button.
Priority> NNN BLOCK	You are receiving a priority call. If you are on another call, tell the person to whom you are speaking, that you are about to place the call on hold. Press the flashing line indicator of the priority call, or wait until the call connects automatically (in eight seconds). The priority call goes through after you hear the next beep. Your active call is on Exclusive Hold. It reconnects automatically when the priority call ends (unless you transfer the priority call, in which case, you must press the line button of your original call to reconnect). Use DND (**FEATURE 85**) or press **BLOCK** to reject a priority call.
Priority denied	Priority call: The telephone you are calling is receiving a priority call at the same time, or cannot receive priority calls.
Redir by NNN OVERRIDE	Line redirection: You have tried to redirect a line, but another person has redirected that line. Press * or **OVERRIDE** to override the previous redirection and redirect the line.
Redirect denied	Line redirection: You can redirect calls only on individual lines.
Release a call	You have no free line available to receive a call. Release one of your current calls, and try again to answer the incoming call. Camp-on: The line that the camped call is on is in use, or that line does not appear at your telephone. Release the line or release an internal line.

Display prompt	Description of error or action
Release calls	You tried to use a feature while you were on a call or had calls on hold. Release the call, or calls, before using the feature. Silent monitor: You entered the silent monitor feature code on a telephone that already has an active call. To continue, you must place that call on hold, or release it.
Restricted call	The destination you selected for line redirection is restricted. System programming has a restriction configured for the call you are trying to make, such as time-of-day restrictions for some calls.
Restricted call CANCL RETRY	Transfer: You cannot transfer the call because of telephone or line restrictions.
Ring Again? YES NO EXIT	Press **YES** to use Ring Again. Press **NO** to send a message.
Select a line	Either you have no prime line, or the prime line is in use, or the line programmed for an auto dial number, speed dial number, or Hotline is in use. Select a line and dial again. Speed dial: There is no line related with the speed dial number you are trying to use. Select a free external line or line pool and enter the speed dial feature code again.
Select line out QUIT	Line redirection: Select the line used to redirect calls out of the system.
Select line(s) QUIT ALL	Line redirection: Press the lines to redirect. To release a line selection, press the line to redirect again. Press **ALL** to redirect all your lines. Cancel redirection: Press the lines that no longer need redirection. The lines light up when pressed. After you cancel redirection for a line you cannot restore it by pressing the line again. Press **ALL** to cancel redirection for all your lines. When finished, press **HOLD** or **OK**.
Select line(s) ALL OK	Line redirection: Continue to press the lines to redirect. Press **HOLD** or **OK** when finished. Cancel redirection: Continue to press the lines that no longer need redirection. Press **HOLD** or **OK** when finished.
Send message? YES NO	Press **YES** to send a message. See Messages.
Set locked	You cannot use the feature you selected because your telephone is locked.
SetNam2 SetNam3 NEWCALL TRANSFR	The active call display for a three-party conference master.
Start of list NEXT	Message: You are at the beginning of your list of messages. Press **NEXT** to move through your messages.
Still in trnsfer CANCL RETRY	Transfer: Complete the transfer in progress before you access a new feature, answer another call, or select an outgoing line.
Supervisor Observe	Silent monitor: The DN you entered belongs to another Supervisor. You cannot monitor SM supervisor telephones. Press **Observe** to enter another hunt group telephone.

Display prompt	Description of error or action
Their list full	Message: You are trying to send a message to a user whose message waiting list is full.
Transfer denied CANCL RETRY	Transfer: Your transfer does not function for one of these reasons: • All the resources needed to perform a transfer are in use. Try again later. • You have tried to transfer an external call to another external party. Some restrictions apply. • You cannot transfer your conference call.
Transfer to:2_ CANCL RETRY	Transfer: Press **RETRY** if you entered the wrong internal number, or if the person to whom you are transferring the call is not available. On 7000 and 7100 digital phones, use the **FEATURE #70** feature code to cancel the call, and then retry.
Unequipped line	Line redirection: The line you are trying to redirect cannot be redirected because the hardware does not support redirection.
Unknown number	Speed dial: The system cannot dial the number stored. Reprogram the number.
Use line pool? YES NO	You received a Ring Again offer for a line pool. Press the flashing internal line button, or **YES** to use the line pool. On 7000 and 7100 digital phones, lift the handset. Otherwise, press **NO**, or wait 30 seconds for the Ring Again offer to expire.
Voice call	Voice call: The line is open for you to speak.
Your list full	Message: You tried to send a message, but your list of sent messages is full. Cancel one of the messages you sent, if possible, or wait until you have received a reply to one of those messages.
Your number Observe	Silent monitor: You entered your own DN. Press **Observe** to enter another hunt group telephone.

Viewing active services

These are the prompts you can receive if you are viewing or changing your service scheduling.

Table 64 Active services

Display prompt	Description of error or action
<Sched> Restr'n EXIT NEXT	You are viewing the active services. Press # or **NEXT** to view the other active services. Press **RLS** or **EXIT** to quit.
<Sched> Restr'n QUIT OK NEXT	The name of the current Restriction service schedule appears on the display. Press # or **NEXT** to view the other Ringing service schedules. Press **HOLD** or **OK** to select the required schedule.
<Sched> Ringing EXIT NEXT	You are viewing the active services. Press # or **NEXT** to view the other active services. Press **RLS** or **EXIT** to quit.
<Sched> Ringing QUIT OK NEXT	The name of the current ringing service schedule appears on the display. Press # or **NEXT** to view the other Ringing service schedules. Press **HOLD** or **OK** to select the required schedule.

Table 64 Active services (Continued)

Display prompt	Description of error or action
<Sched> Routing EXIT NEXT	You are viewing the active services. Press # or **NEXT** to view the other active services. Press RLS or **EXIT** to quit.
<Sched> Routing QUIT OK NEXT	The name of the current Routing service schedule appears on the display. Press # or **NEXT** to view the other Routing service schedules. Press HOLD or **OK** to select the required schedule.
<Sched> until * QUIT OK NEXT	Press HOLD or **OK** to select this schedule, # or **NEXT** to view the next available schedule, or RLS or **QUIT** to exit. If you select this schedule, it remains active until the next automatic schedule begins.
No services ON	You have entered the Show services feature code and there is no active service.
Services ON LIST	There is a service active in your system. Press * or **LIST** to view the active services.

Call log prompts

These are the prompts you can receive when you are viewing your call logs:

Table 65 Call log prompts (Sheet 1 of 2)

Display prompt	Description of error or action
1:Unknown name	The caller's name is not available.
1:Unknown number	The caller's number is not available.
12:KATE SMITH NEXT ERASE MORE	The colon indicates a new item.
12 KATE SMITH NEXT ERASE MORE	The symbol indicates that the call was answered.
12 KATE SMITH NEXT ERASE MORE	The symbol indicates a long distance call.
49/1234567890123 NEXT ERASE MORE	/ indicates the stored number was trimmed to its final 11 digits. Press the volume bar or **MORE** to show additional information about the call.
Call(s) bumped	One or more log entries are deleted by the Autobumping feature while you are viewing at the Call Log.
Hold or release	Hold or release your active call before entering Call Log.
In use: SETNAME	The external line is in use.

Table 65 Call log prompts (Sheet 2 of 2)

Display prompt	Description of error or action
Jan 4 9:00a 3X NEXT ERASE MORE	The repeat call counter, shown with time and date, indicates the number of calls you have received from the same caller.
Line061 227 NEXT ERASE MORE	This call was answered at another telephone (227).
Line061 Logit NEXT ERASE MORE	This call was logged manually.
Line061 NEXT ERASE MORE	This call was not answered.
Messages & Calls MSG CALLS	There are one or more items in your message waiting list, and there are one or more new items in your Call Log. Press **FEATURE 806** to change the first line of the display to the current time and date.
New calls begin	You have viewed your last old log item; now you can view your new log items.
No info to log	No information is available for the call.
No log assigned	No log space has been assigned to the telephone.
No resume item	The resume item has been removed because of Autobumping, repeat call update, or log reallocation while you are looking at the Call Log.

Report and record alarm codes

An alarm telephone display shows a BCM system alarm code when an alarm condition occurs. The installer assigns alarms to digital telephones with two-line displays.

When an alarm message appears, an Alarm number and a Time are displayed.

1. Record the alarm number and time.
2. Call your customer service representative and report the alarm code.

Chapter 28
Market profile attributes

This section describes some of the differences in the market profile attributes. These attributes are derived from the market profile selected when you configure the system. Each market profile uses a set of system attributes that provide specific functionality for the geographical area in which you deploy the system.

This section covers the following main topics:

- "Interface availability" on page 251
- "Tones and cadences" on page 253
- "Core parameters for market profiles" on page 260
- "Analog Trunk parameters" on page 272
- "GASM8 parameters" on page 276
- "GASI parameters" on page 278
- "ATA2 parameters" on page 280
- "ISDN line services" on page 283
- "Analog and digital trunk types" on page 284

Interface availability

Some of the BCM interfaces are customized for a specific region and are not available to all market profiles. Refer to the following tables for a list of interfaces available within each market profile:

- "Analog interface availability by market profile" on page 252
- "Digital interface availability by market profile" on page 252

Analog interfaces

Analog interfaces are not supported in the following market profiles: Denmark, France, Germany, Holland, Italy, Norway, Spain, Sweden, and Switzerland.

The symbols in Table 66 are defined as follows:

✓ indicates full support. The interface is available and is localized in the market profile.

✸ indicates that functionality and support is limited. The interface is available in the market profile, but is not localized.

Table 66 Analog interface availability by market profile

Market profile	ASM/ ASM8	ASM8+	GASM8	GASI	CTM4/ CTM8	GATM4/ GATM8	GATM4/ GATM8 (new)	4X16	G4x16 G8x16 (new)	GATI	ADID
Australia		✸	✓			✓	✓		✓	✓	
Bahrain		✸					✓		✓	✓	
Brazil						✓	✓		✓	✓	
CALA					✸	✸	✸	✸	✸	✸	
Canada	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Caribbean			✓	✓	✓	✓	✓	✓	✓	✓	✓
Global	✸	✸	✸	✸	✸	✸	✸	✸	✸	✸	
Hong Kong	✸	✸	✸	✸	✸	✸	✓		✓	✓	✓
Ireland							✓		✓	✓	
Mexico			✸			✓	✓		✓	✓	
New Zealand		✸	✸			✸	✸		✸	✸	
North America	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Poland	✸	✸	✓			✓	✓		✓	✓	
PRC					✸	✸	✓		✓	✓	
Taiwan					✸	✓	✓		✓	✓	✓
United Kingdom	✸	✸	✓			✓	✓		✓	✓	

Digital interfaces

Table 67 lists the digital interfaces supported in each market profile. Note that the Digital Station Interface and the BRI cNIC are onboard interfaces.

Table 67 Digital interface availability by market profile (Sheet 1 of 2)

Market profile	DSM16+/ DSM32+	Digital station interface	BRI	BRI cNIC	DTM	R2MFC
Australia	✓	✓	✓	✓	✓	
Bahrain	✓	✓	✓	✓	✓	
Brazil	✓	✓	✓		✓	

Table 67 Digital interface availability by market profile (Sheet 2 of 2)

Market profile	DSM16+/ DSM32+	Digital station interface	BRI	BRI cNIC	DTM	R2MFC
CALA	✓	✓	✓		✓	✓
Canada	✓	✓	✓	✓	✓	
Caribbean	✓	✓	✓	✓	✓	
Denmark	✓	✓	✓	✓	✓	
France	✓	✓	✓	✓	✓	
Germany	✓	✓	✓	✓	✓	
Global	✓	✓	✓	✓	✓	✓
Holland	✓	✓	✓	✓	✓	
Hong Kong	✓	✓	✓		✓	
Ireland	✓	✓	✓	✓	✓	
Italy	✓	✓	✓	✓	✓	
Mexico	✓	✓	✓		✓	✓
New Zealand	✓	✓	✓	✓	✓	
North America	✓	✓	✓	✓	✓	
Norway	✓	✓	✓	✓	✓	
Poland	✓	✓	✓	✓	✓	
PRC	✓	✓	✓		✓	
Spain	✓	✓	✓	✓	✓	
Sweden	✓	✓	✓	✓	✓	
Switzerland	✓	✓	✓	✓	✓	
Taiwan	✓	✓	✓		✓	
United Kingdom	✓		✓		✓	

Tones and cadences

The following tables provide region-specific settings for tones and cadences.

Note: The sum of two tones is indicated by “A+B”. The sequence of two tones is indicated by “A:B”.

- "Localized, Dial, and Quiet Dial" on page 254
- "Special Dial, Overflow, and Busy" on page 255
- "Ring Back, Aux Ring, Async Ring Back" on page 256
- "Hold, Warble, Intrusion" on page 258
- "Reorder" on page 259

Table 68 Localized, Dial, and Quiet Dial

Market profile	Localized	Dial			Quiet Dial		
		Tones (Hz)	Level per Tone (dBm0)	Cadence	Tones (Hz)	Level per Tone (dBm0)	Cadence
Australia	Yes	400	-13	Continuous	400	-21	Continuous
Bahrain	Yes	330+440	-16	Continuous	330+440	-20	Continuous
Brazil	Yes	425	-11.5	Continuous	425	-18	Continuous
CALA	No (North America)	440+350	-17	Continuous	440+350	-25	Continuous
Canada	Yes	440+350	-17	Continuous	440+350	-25	Continuous
Caribbean	No (North America)	440+350	-17	Continuous	440+350	-25	Continuous
Denmark	Yes	425	-11.5	Continuous	425	-19.5	Continuous
France	Yes	440	-11.5	Continuous	400	-17.5	Continuous
Germany	Yes	425	-11.5	200 ms on 275 ms off 200 ms on 275 ms off 200 ms on 875 ms off	425	-17.5	200 ms on 275 ms off 200 ms on 275 ms off 200 ms on 875 ms off
Global	No (North America)	440+350	-17	Continuous	440+350	-25	Continuous
Holland	Yes	425	-11.5	Continuous	425	-19.5	Continuous
Hong Kong	Yes	440+350	-11.5	Continuous	440+350	-17.6	Continuous
Ireland	Yes	425	-14.5	Continuous	425	-17.5	Continuous
Italy	Yes	350+425	-8.5	Continuous	350+425	-17.5	Continuous
Mexico	No (North America)	440+350	-17	Continuous	440+350	-25	Continuous
New Zealand	Yes	400	-13	Continuous	400	-21	Continuous
North America	Yes	440+350	-17	Continuous	440+350	-25	Continuous
Norway	Yes	425	-11.5	Continuous	425	-17.5	Continuous
Poland	Yes	425	-17.5	Continuous	425	-19.5	Continuous
PRC	Yes	450	-11.5	Continuous	450	-17.5	Continuous
Spain	Yes	425	-11.5	Continuous	425	-17.5	Continuous
Sweden	Yes	425	-11.5	Continuous	425	-17.5	Continuous
Switzerland	Yes	425	-11.5	Continuous	425	-17.5	Continuous
Taiwan	Yes	400	-12	Continuous	400	-20	Continuous
United Kingdom	Yes	440+350	-17.5	Continuous	440+350	-14.5	Continuous

Table 69 Special Dial, Overflow, and Busy (Sheet 1 of 2)

	Special Dial			Overflow			Busy		
Market profile	**Tones (Hz)**	**Level per Tone (dBm0)**	**Cadence**	**Tones (Hz)**	**Level per Tone (dBm0)**	**Cadence**	**Tones (Hz)**	**Level per Tone (dBm0)**	**Cadence**
Australia	400	-13	100 ms on 900 ms off	800	-13	100 ms on 100 ms off	425	-13	375 ms on 375 ms off
Bahrain	330+400	-16	100 ms on 900 ms off	800	-16	400 ms on 350 ms off 225 ms on 525 ms off	425	-15	375 ms on 375 ms off
Brazil	425	-11.5	500 ms on 500 ms off	950: 1400: 1800: silence	-18	333 ms: 333 ms: 333 ms: 1s off	425	-11.5	250 ms on 250 ms off
CALA	Silence			480+620	-21	250 ms on 250 ms off	480+620	-21	500 ms on 500 ms off
Canada	Silence			480+620	-21	250 ms on 250 ms off	480+620	-21	500 ms on 500 ms off
Caribbean	Silence			480+620	-21	250 ms on 250 ms off	480+620	-21	500 ms on 500 ms off
Denmark	Silence			950:1400: 1800: silence	-25	333 ms: 333 ms: 333 ms: 1s off	425	-11.5	250 ms on 250 ms off
France	Silence			950:1400: 1800: silence	-25: -11.5: -25: silence	333 ms: 333 ms: 333 ms: 1 s off	440	-11.5	500 ms on 500 ms off
Germany	Silence			425	-11.5	240 ms on 240 ms off	425	-11.5	150 ms on 475 ms off
Global	Silence			480+620	-21	250 ms on 250 ms off	480+620	-21	500 ms on 500 ms off
Holland	425	-11.5	500 ms on 50 ms off	950: 1400: 1800: silence	-18	333 ms: 333 ms: 333 ms: 1 s off	425	-21	500 ms on 500 ms off
Hong Kong	Silence			480+620	-14.5	500 ms on 500 ms off	425	-11.5	500 ms on 500 ms off
Ireland	400:432	-14.5	0.4 s:0.4 s	425	-17.5	450 ms on 450 ms off	425	-17.5	450 ms on 450 ms off
Italy	Silence			425	-8	200 ms on 200 ms off	425	-8	500 ms on 500 ms off
Mexico	Silence			480+620	-21	250 ms on 250 ms off	480+620	-21	500 ms on 500 ms off
New Zealand	400: silence	-13	0.1 s:0.1 s	400	-11.5	75 ms on 100 ms off 75 ms on 100 ms off 75 ms on 100 ms off 75 ms on 400 ms off	400	-11.5	500 ms on 500 ms off
North America	Silence			480+620	-21	250 ms on 250 ms off	480+620	-21	500 ms on 500 ms off

Table 69 Special Dial, Overflow, and Busy (Sheet 2 of 2)

Market profile	Special Dial			Overflow			Busy		
	Tones (Hz)	Level per Tone (dBm0)	Cadence	Tones (Hz)	Level per Tone (dBm0)	Cadence	Tones (Hz)	Level per Tone (dBm0)	Cadence
Norway	Silence			950:1400: 1800: silence	-25	333 ms: 333 ms: 333 ms: 1.0 s	425	-11.5	500 ms on 500 ms off
Poland	Silence			950:1400: 1800: silence	-25	333 ms: 333 ms: 333 ms: 1.0 s	425	-17.5	500 ms on 500 ms off
PRC	Silence			450	-11.5	400 ms on, 400 ms off	450	-11.5	350 ms on 350 ms off
Spain	Silence			950:1400: 1800: silence	-25	333 ms: 333 ms: 333 ms: 1.0 s	425	-11.5	200 ms on 200 ms off
Sweden	425	-11.5	320 ms on 25 ms off	950: 1400: 1800: silence	-25	333 ms: 333 ms: 333 ms: 1.0 s	425	-11.5	250 ms on 250 ms off
Switzerland	Silence			950: 1400: 1800: silence	-25	333 ms: 333 ms: 333 ms: 1.0 s	425	-11.5	500 ms on 500 ms off
Taiwan	Silence			950: 1400: 1800: silence	-25	333 ms: 333 ms: 333 ms: 1.0 s	480+620	-21	500 ms on 500 ms off
United Kingdom	440+350: 440	-17.5	0.75 s:0.75 s	400	-11.5	Continuous	400	-11.5	375 ms on 375 ms off

Table 70 Ring Back, Aux Ring, Async Ring Back (Sheet 1 of 3)

Market profile	Ring Back			Aux Ring			Async Ring Back		
	Tones (Hz)	Level per Tone (dBm0)	Cadence	Tones (Hz)	Level per Tone (dBm0)	Cadence	Tones (Hz)	Level per Tone (dBm0)	Cadence
Australia	400+450	-14.5	400 ms on 200 ms off 400 ms on 2 s off	Silence			400+450	-14.35	Continuous
Bahrain	425	-15	400 ms on 200 ms off 400 ms on 2s off	Silence			Silence	-15	Continuous
Brazil	425	-11.5	1 s on 4 s off	Silence			Silence		
CALA	440+480	-11.5	2 s on 4 s off	Silence			440+480	-16	2 s on 4 s off
Canada	440+480	-16	2 s on 4 s off	Silence			440+480	-16	2 s on 4 s off

Table 70 Ring Back, Aux Ring, Async Ring Back (Sheet 2 of 3)

Market profile	Ring Back			Aux Ring			Async Ring Back		
	Tones (Hz)	Level per Tone (dBm0)	Cadence	Tones (Hz)	Level per Tone (dBm0)	Cadence	Tones (Hz)	Level per Tone (dBm0)	Cadence
Caribbean	440+480	-16	2 s on 4 s off	Silence			440+480	-16	2 s on 4 s off
Denmark	425	-11.5	1 s on 4 s off	Silence			Silence		
France	440	-11.5	1.5 s on 3.5 s off	Silence			440+450	-14.5	Continuous
Germany	425	-11.5	1 s on 4 s off	Silence			Silence		
Global	440+480	-16	1 s on 4 s off	Silence			440+480	-16	2 s on 4 s off
Holland	425	-11.5	1 s on 4 s off	Silence			Silence		
Hong Kong	440+480	-11.5	400 ms on 200 ms off 400 ms on 3 s off	Silence			Silence		
Ireland	400+450	-14.5	400 ms on 200 ms off 400 ms on 3 s off	Silence			400+450	-14.5	Continuous
Italy	425	-8	1 s on 4 s off	Silence			Silence		
Mexico	440+480	-16	2 s on 4 s off	Silence			440+480	-16	2 s on 4 s off
New Zealand	400+450	-14.5	400 ms on 200 ms off 400 ms on 2 s off	Silence			440+480	-14.5	Continuous
North America	440+480	-16	2 s on 4 s off	Silence			440+480	-16	2 s on 4 s off
Norway	425	-11.5	1 s on 4 s off	Silence			Silence		
Poland	425	-17.5	1s on 4 s off	Silence			Silence		
PRC	450	-11.5	1s on 4 s off	Silence			Silence		
Spain	425	-11.5	1.5 s on 3 s off	Silence			Silence		
Sweden	425	-11.5	1 s on 5 s off	Silence			Silence		
Switzerland	425	-11.5	1 s on 4 s off	Silence			Silence		
Taiwan	440+480	-21	1 s on 2 s off	Silence			440+480	-21	1 s on 2 s off

Table 70 Ring Back, Aux Ring, Async Ring Back (Sheet 3 of 3)

Market profile	Ring Back			Aux Ring			Async Ring Back		
	Tones (Hz)	Level per Tone (dBm0)	Cadence	Tones (Hz)	Level per Tone (dBm0)	Cadence	Tones (Hz)	Level per Tone (dBm0)	Cadence
United Kingdom	400+450	-14.5	400 ms on 200 ms off 400 ms on 2 s off	Silence			400+450	-14.5	Continuous

Table 71 Hold, Warble, Intrusion (Sheet 1 of 2)

Market profile	Hold			Warble			Intrusion		
	Tones (Hz)	Level per Tone (dBm0)	Cadence	Tones (Hz)	Level per Tone (dBm0)	Cadence	Tones (Hz)	Level per Tone (dBm0)	Cadence
Australia	400	-13	Continuous	Silence			425	-13	Continuous
Bahrain	400	-16	Continuous	Silence			400	-16	Continuous
Brazil	425	-11.5	0.5 s on 9.5 s off	Silence			Silence		
CALA	440	-14	Cadenced by CoreTel	Silence			Silence		
Canada	440	-14	Cadenced by CoreTel	Silence			Silence		
Caribbean	440	-14	Cadenced by CoreTel	Silence			Silence		
Denmark	Silence			Silence			425	-11.5	50 ms on 500 ms off
France	400	-11.5	Continuous	Silence			1400	-11.5	Continuous
Germany	425	-11.5	Continuous	Silence			425	-11.5	Continuous
Global	440	-14	Cadenced by CoreTel	Silence			Silence		
Holland	425	-11.5	0.5 s on 9.5 s off	Silence			Silence		
Hong Kong	Silence			Silence			1400	-11.5	Continuous
Ireland	400	-11.5	Continuous	Silence			1400	-11.5	Continuous
Italy	Silence			Silence			425	-12	Continuous
Mexico	440	-14	Cadenced by CoreTel	Silence			Silence		
New Zealand	400	-11.5	Continuous	Silence			1400	-11.5	Continuous
North America	400	-14	Cadenced by CoreTel	Silence			Silence		
Norway	425	-11.5	200 ms on 600 ms off 200 ms on 10 s off	Silence			1400	-11.5	Continuous

Table 71 Hold, Warble, Intrusion (Sheet 2 of 2)

Market profile	Hold			Warble			Intrusion		
	Tones (Hz)	Level per Tone (dBm0)	Cadence	Tones (Hz)	Level per Tone (dBm0)	Cadence	Tones (Hz)	Level per Tone (dBm0)	Cadence
Poland	425	-17.5	Continuous	Silence			1400	-25	Continuous
PRC	Silence			Silence			1400	-11.5	Continuous
Spain	Silence			Silence			1400	-25	Continuous
Sweden	Silence			Silence			1400	-25	Continuous
Switzerland	Silence			Silence			1400	-25	Continuous
Taiwan	440	-14	Continuous	Silence			Silence		
United Kingdom	400	-11.5	Continuous	Silence			1400	-11.5	Continuous

Table 72 Reorder (Sheet 1 of 2)

Market profile	Reorder		
	Tones (Hz)	Level per Tone (dBm0)	Cadence
Australia	425	-13 : off : -23 : off	375 ms on 375 ms off
Bahrain	400	-16	75 ms on 100 ms off 75 ms on 400 ms off
Brazil	425	-11.5	250 ms on 250 ms off
CALA	480+620	-21	250 ms on 250 ms off
Canada	480+620	-21	250 ms on 250 ms off
Caribbean	480+620	-21	250 ms on 250 ms off
Denmark	Silence		
France	Silence		
Germany	425	-11.5	240 ms on 240 ms off
Global	480+620	-11.5	250 ms on 250 ms off
Holland	425	-11.5	250 ms on 250 ms off
Hong Kong	480+620	-14.5	250 ms on 250 ms off
Ireland	200	-11.5: Silence: -17.5: Silence	400 ms on 350 ms off 225 ms on 525 ms off

Table 72 Reorder (Sheet 2 of 2)

Market profile	Reorder		
	Tones (Hz)	Level per Tone (dBm0)	Cadence
Italy	425	-8	200 ms on 200 ms off
Mexico	480+620	-21	250 ms on 250 ms off
New Zealand	400	-11.5: Silence: -17.5: Silence	400 ms on 350 ms off 225 ms on 525 ms off
North America	480+620	-21	250 ms on 250 ms off
Norway	425	-11.5	200 ms on 200 ms off
Poland	425	-17.5	200 ms on 200 ms off
PRC	450	-11.5	700 ms on 700 ms off
Spain	425	-11.5	200 ms on 200 ms off 200 ms on 200 ms off 200 ms on 600 ms off
Sweden	425	-11.5	250 ms on 750 ms off
Switzerland	Continuous	-11.5	200 ms on 200 ms off
Taiwan	480+620	-21	300 ms on 300 ms off
United Kingdom	400	-11.5: Silence: -17.5: Silence	400 ms on 350 ms off 225 ms on 525 ms off

Core parameters for market profiles

The core parameters for the available market profiles are provided in the following tables:

- “Australia, Brazil, CALA, Canada, Caribbean, and Denmark parameters” on page 261
- “France, Germany, Global, Holland, Hong Kong, and Italy parameters” on page 263
- “Mexico, New Zealand, North America, Norway, Poland, and PRC parameters” on page 266
- “Spain, Sweden, Switzerland, Taiwan, and United Kingdom parameters” on page 269

Table 73 Australia, Brazil, CALA, Canada, Caribbean, and Denmark parameters (Sheet 1 of 3)

Functionality	Attribute	Market profile						
		Australia	**Bahrain**	**Brazil**	**CALA**	**Canada**	**Caribbean**	**Denmark**
Access codes	Direct dial digit	9	0	9	0	0	0	0
	Dest code for default route	0	9	0	9	9	9	9
Protocols	Digital trunking protocols	ISDN DASS2 DPNSS	ISDN DASS2 DPNSS	ISDN DASS2 DPNSS	ISDN DASS2 DPNSS	ISDN	ISDN	ISDN DASS2 DPNSS
	BRI trunk protocol variants	ETSI-403 ETSI-QSIG	ETSI-403 ETSI-QSIG	ETSI-403 ETSI-QSIG	ETSI-403 ETSI-QSIG	NI-2	NI-2	ETSI-403 ETSI-QSIG
	BRI S-loop protocol variant	ETSI-102	ETSI-102	ETSI-102	ETSI-102	NI-2	NI-2	ETSI-102
	PRI trunk protocol variants	ETSI-403 ETSI-QSIG MCDN	ETSI-403 ETSI-QSIG MCDN	ETSI-403 ETSI-QSIG MCDN	ETSI-403 ETSI-QSIG MCDN	NI-2 DMS100 DMS250 4ESS MCDN	NI-2 DMS100 DMS250 4ESS MCDN	ETSI-403 ETSI-QSIG MCDN
	Global analog trunk versions	GATv1 GATv2	GATv2	GATv1 GATv2	GATv1 GATv2	GATv1 GATv2	GATv1 GATv2	N/A
Telephony feature settings	Conference tone supported	Yes	No	Yes	Yes	No	Yes	No
	Held line reminder	After 30 seconds	Off	Off	Off	Off	Off	Off
	Delay ring transfer	After 15 rings	After 4 rings	After 4 rings	After 4 rings	After 4 rings	After 4 rings	After 4 rings
	Transfer callback timeout	After 15 rings	After 4 rings	After 4 rings	After 4 rings	After 4 rings	After 4 rings	After 4 rings
	Network callback	30	30	30	30	N/A	30	30
	Host delay (ms)	1000	1000	1000	1000	1000	1000	1000
	Link time (ms)	N/A	600	300	600	600	600	600
	Target line if busy setting	Busy	Prime	Prime	Prime	Prime	Prime	Prime
	BRI ISDN Answer Mode	Manual	Manual	Manual	Manual	Manual	Manual	Manual
System settings	Companding law	A-law	A-law	A-law	A-law	mu-law	mu-law	A-law
	DTI carrier type	E1	E1	E1	E1	T1	T1	E1
	Number of rings in a cycle	2	1	1	1	1	1	1
	M7000 set supported	Yes	Yes	Yes	Yes	No	Yes	Yes

Table 73 Australia, Brazil, CALA, Canada, Caribbean, and Denmark parameters (Sheet 2 of 3)

Functionality	Attribute	Market profile						
		Australia	**Bahrain**	**Brazil**	**CALA**	**Canada**	**Caribbean**	**Denmark**
Hunt groups	Mode	Sequential	Broadcast	Broadcast	Broadcast	Broadcast	Broadcast	Broadcast
	Default delay	4 ring cycles	4 ring cycles	4 ring cycles	4 ring cycles	4 ring cycles	4 ring cycles	4 ring cycles
	Queue timeout (sec)	60	60	60	60	60	60	60
	If busy	Busy tone	Busy tone	Busy tone	Busy tone	Busy tone	Busy tone	Busy tone
Service times	Night	Start 17:00 End 08:00	Start 23:00 End 07:00	Start 23:00 End 07:00	Start 23:00 End 07:00	Start 23:00 End 07:00	Start 23:00 End 07:00	Start 23:00 End 07:00
	Evening	Start 00:00 End 00:00	Start 17:00 End 23:00	Start 17:00 End 23:00	Start 17:00 End 23:00	Start 17:00 End 23:00	Start 17:00 End 23:00	Start 17:00 End 23:00
	Lunch	Start 00:00 End 00:00	Start 12:00 End 13:00	Start 12:00 End 13:00	Start 12:00 End 13:00	Start 12:00 End 13:00	Start 12:00 End 13:00	Start 12:00 End 13:00
Service modes	Ringing service mode	Off	Off	Off	Off	Off	Off	Off
	Ringing service trunk ans	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Restriction service mode	Off	Off	Off	Off	Off	Off	Off
	Restriction global overrides	000 131440	N/A	190	N/A	N/A	N/A	N/A
	Restriction filter 01	0(013), 1(13, 1800)	0, 1(1800, 1877, 1888), 911(911), 9411, 976, 1976, 1***976, 1900, 1***900, 5551212	0, 1(1800, 1877, 1888), 911(911), 9411, 976, 1976, 1***976, 1900, 1***900, 5551212	0, 1(1800, 1877, 1888), 911(911), 9411, 976, 1976, 1***976, 1900, 1***900, 5551212	0, 1(1800, 1877, 1888), 911(911), 9411, 976, 1976, 1***976, 1900, 1***900, 5551212	0, 1(1800, 1877, 1888), 911(911), 9411, 976, 1976, 1***976, 1900, 1***900, 5551212	N/A
	Restriction filter 05	00, 1(13, 11, 1800)	N/A	N/A	N/A	N/A	N/A	N/A
	Restriction filter 06	*	N/A	N/A	N/A	N/A	N/A	N/A
	Routing service mode	Off	Off	Off	Off	Off	Off	Off
	Routing service overflow	No	No	No	No	No	No	No
Public DN	Public DN lengths	Default(7)	Default(7), 0(11), 00(12), 01(17), 011(18), 1(11), 411(3), 911(3)	Default(7), 0(11), 00(12), 01(17), 011(18), 1(11), 411(3), 911(3)	Default(7), 0(11), 00(12), 01(17), 011(18), 1(11), 411(3), 911(3)	Default(7), 0(11), 00(12), 01(17), 011(18), 1(11), 411(3), 911(3)	Default(7), 0(11), 00(12), 01(17), 011(18), 1(11), 411(3), 911(3)	Default(8), 00(17), 1(3), 16(5), 17(4), 18(4)

Table 73 Australia, Brazil, CALA, Canada, Caribbean, and Denmark parameters (Sheet 3 of 3)

Functionality	Attribute	Market profile						
		Australia	**Bahrain**	**Brazil**	**CALA**	**Canada**	**Caribbean**	**Denmark**
Public OLI	Unknown number length	N/A	Variable	Variable	Variable	N/A	N/A	Variable
	Local number length	8	Variable	Variable	Variable	7	7	Variable
	National number length	9	Variable	Variable	Variable	10	10	Variable
Set capabilities	Handsfree	Auto	Auto	Auto	Auto	Auto	Auto	Auto
	Pickup group	1	None	None	None	None	None	None
	Allow redirect	Enabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled
	Call forward delay	Disabled (4)	Disabled (4)	Disabled (4)	Disabled (4)	Disabled (4)	Disabled (4)	Disabled (4)
Note: The field for number of rings is hidden in default mode (disabled). When you enter a value for call forward delay, the field for number of rings becomes visible with the given default value.								
Dial tone detection		Enabled	Enabled	Enabled	Enabled	Enabled	Enabled	Enabled
Set preferences	Language (first is default)	UK English VICAP	English French Spanish Turquish	Portuguese English Spanish	Spanish English French	English French Spanish	English French Spanish	Danish English Norwegian Swedish
ONN blocking	Analog VSC (tone)	1831	None	None	None	None	None	None
	Analog VSC (pulse)	1831	None	None	None	None	None	None
	BRI VSC	None	None	None	None	None	None	None
	BRI per loop	SuprsBit	SuprsBit	SuprsBit	SuprsBit	SuprsBit	SuprsBit	SuprsBit
Release reason	Release text	Simple	Simple	Simple	None	None	None	Simple
	Release code	On	On	On	Off	Off	Off	On
DTMF parameters	Tone duration (ms)	80	120	120	120	120	120	120
	Pause time (ms)	3.5	1.5	1.5	1.5	1.5	1.5	1.5
	Interdigit time (ms)	100	80	80	80	80	80	80

Table 74 France, Germany, Global, Holland, Hong Kong, and Italy parameters (Sheet 1 of 4)

Functionality	Attribute	Market profile					
		France	**Germany**	**Global**	**Holland**	**Hong Kong**	**Ireland**
Access codes	Direct dial digit	9	9	0	0	0	9
	Dest code for default route	0	0	9	9	9	0

Table 74 France, Germany, Global, Holland, Hong Kong, and Italy parameters (Sheet 2 of 4)

Functionality	Attribute	Market profile					
		France	**Germany**	**Global**	**Holland**	**Hong Kong**	**Ireland**
Protocols	Digital trunking protocols	ISDN DASS2 DPNSS	ISDN DASS2 DPNSS	ISDN DASS2 DPNSS	ISDN DASS2 DPNSS	ISDN DASS2 DPNSS	ISDN DASS2 DPNSS
	BRI trunk protocol variants	ETSI-403 ETSI-QSIG	ETSI-403 ETSI-QSIG	ETSI-403 ETSI-QSIG	ETSI-403 ETSI-QSIG	HKTA2015	ETSI-403 ETSI-QSIG
	BRI S-loop protocol variant	ETSI-102	ETSI-102	ETSI-102	ETSI-102	ETSI-102	ETSI-102 + BTNR191
	PRI trunk protocol variants	ETSI-403 ETSI-QSIG MCDN	ETSI-403 ETSI-QSIG MCDN	ETSI-403 ETSI-QSIG MCDN	ETSI-403 ETSI-QSIG MCDN	HkTA2015 MCDN	ETSI-403 ETSI-QSIG MCDN
	Global analog trunk versions	N/A	N/A	GATv1 GATv2	N/A	GATv1 GATv2	GATv1 GATv2
Telephony feature settings	Conference tone supported	No	Yes	No	No	No	Yes
	Held line reminder	Off	Off	Off	Off	Off	Immediate
	Delay ring transfer	After 4 rings	After 4 rings	After 4 rings	After 4 rings	After 4 rings	After 4 rings
	Transfer callback timeout	After 4 rings	After 4 rings	After 4 rings	After 4 rings	After 4 rings	After 4 rings
	Network callback	30	30	30	30	N/A	30
	Host delay (ms)	1000	1000	1000	1000	1000	1000
	Link time (ms)	N/A	N/A	600	600	600	N/A
	Target line if busy setting	PBX > Busy DID > Prime	PBX > Busy DID > Prime	Prime	Prime	Prime	PBX > Busy DID > Prime
	BRI ISDN Answer Mode	Manual	Manual	Manual	Manual	Manual	Auto
System settings	Companding law	A-law	A-law	A-law	A-law	mu-law	A-law
	DTI carrier type	E1	E1	E1	E1	T1	E1
	Number of rings in a cycle	2	2	1	1	1	2
	M7000 set supported	Yes	Yes	Yes	Yes	No	Yes
Hunt groups	Mode	Sequential	Sequential	Broadcast	Broadcast	Broadcast	Sequential
	Default delay	4 ring cycles	4 ring cycles	4 ring cycles	4 ring cycles	4 ring cycles	4 ring cycles
	Queue timeout (sec)	60	60	60	60	60	60
	If busy	Busy tone	Busy tone	Busy tone	Busy tone	Busy tone	Busy tone
Service times	Night	Start 23:00 End 07:00	Start 23:00 End 07:00	Start 23:00 End 07:00	Start 23:00 End 07:00	Start 23:00 End 07:00	Start 23:00 End 07:00
	Evening	Start 17:00 End 23:00	Start 17:00 End 23:00	Start 17:00 End 23:00	Start 17:00 End 23:00	Start 17:00 End 23:00	Start 17:00 End 23:00
	Lunch	Start 12:00 End 13:00	Start 12:00 End 13:00	Start 12:00 End 13:00	Start 12:00 End 13:00	Start 12:00 End 13:00	Start 12:00 End 13:00

Table 74 France, Germany, Global, Holland, Hong Kong, and Italy parameters (Sheet 3 of 4)

Functionality	Attribute	Market profile					
		France	**Germany**	**Global**	**Holland**	**Hong Kong**	**Ireland**
Service modes	Ringing service mode	Manual	Manual	Off	Off	Off	Manual
	Ringing service trunk ans	Yes	Yes	Yes	Yes	Yes	Yes
	Restriction service mode	Off	Off	Off	Off	Off	Off
	Restriction global overrides	N/A	N/A	N/A	N/A	N/A	N/A
	Restriction filter 01	N/A	N/A	0, 1(1800, 1877, 1888), 911(911), 9411, 976, 1976, 1***976, 1900, 1***900, 5551212	N/A	00***, 170, 172, 173, 1747, 1760, 1761, 1766, 1770, 1771, 1772, 1775, 1778, 1783, 1788, 900	0(0800), 1
	Restriction filter 05	N/A	N/A	N/A	N/A	N/A	010, 1, 00
	Restriction filter 06	N/A	N/A	N/A	N/A	N/A	*
	Routing service mode	Off	Off	Off	Off	Off	Off
	Routing service overflow	No	No	No	No	No	No
Public DN	Public DN lengths	Default(25)	Default(25)	Default(7), 0(11), 00(12), 01(17), 011(18), 1(11), 411(3), 911(3)	Default(7)	Default(7), 0(11), 00(12), 01(17), 011(18), 1(11), 411(3), 911(3)	Default(8), 0(11) 00(17), 1(3), 9(3)
Public OLI	Unknown number length	Variable	Variable	Variable	Variable	Variable	Variable
	Local number length	Variable	Variable	Variable	Variable	Variable	Variable
	National number length	Variable	Variable	Variable	Variable	Variable	Variable
Set capabilities	Handsfree	Auto	Auto	Auto	Auto	Auto	None
	Pickup group	None	None	None	None	None	None
	Allow redirect	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled
	Call forward delay	Disabled (4)	Disabled (4)	Disabled (4)	Disabled (4)	Disabled (4)	Disabled (4)
Note: The field for number of rings is hidden in default mode (disabled). When you enter a value for call forward delay, the field for number of rings becomes visible with the given default value.							
Dial tone detection		Enabled	Enabled	Enabled	Enabled	Enabled	Enabled
Set preferences	Language (first is default)	EuroFrench English	German English	English French Spanish Turkish	Dutch English EuroFrench	English French Spanish	UK English/ VICAP

Table 74 France, Germany, Global, Holland, Hong Kong, and Italy parameters (Sheet 4 of 4)

Functionality	Attribute	Market profile					
		France	**Germany**	**Global**	**Holland**	**Hong Kong**	**Ireland**
ONN blocking	Analog VSC (tone)	None	None	None	None	None	141
	Analog VSC (pulse)	None	None	None	None	None	141
	BRI VSC	None	None	None	None	None	141
	BRI per loop	SuprsBit	SuprsBit	SuprsBit	SuprsBit	SuprsBit	SrvcCode
Release reason	Release text	Simple	Detailed	Simple	Simple	None	Detailed
	Release code	On	Off	On	On	Off	Off
DTMF parameters	Tone duration (ms)	120	120	120	120	120	120
	Pause time (ms)	3.5	3.5	1.5	1.5	1.5	3.5
	Interdigit time (ms)	100	100	80	80	80	100

Table 75 Mexico, New Zealand, North America, Norway, Poland, and PRC parameters (Sheet 1 of 4)

Functionality	Attribute	Market profile					
		Italy	**Mexico**	**New Zealand**	**North America**	**Norway**	**Poland**
Access codes	Direct dial digit	9	0	0	0	9	0
	Dest code for default route	0	9	0	9	0	9
Protocols	Digital trunking protocols	ISDN DASS2 DPNSS	ISDN DASS2 DPNSS	ISDN DASS2 DPNSS	ISDN	ISDN DASS2 DPNSS	ISDN DASS2 DPNSS
	BRI trunk protocol variants	ETSI-102 ETSI-QSIG	ETSI-403 ETSI-QSIG	ETSI-403 ETSI-QSIG	NI-2	ETSI-403 ETSI-QSIG	ETSI-403 ETSI-QSIG
	BRI S-loop protocol variant	ETSI-102	ETSI-102	ETSI-102 + BTNR191	NI-2	ETSI-102	ETSI-102
	PRI trunk protocol variants	ETSI-102 ETSI-QSIG MCDN	ETSI-403 ETSI-QSIG MCDN	ETSI-403 ETSI-QSIG MCDN	NI-2 DMS100 DMS250 4ESS MCDN	ETSI-403 ETSI-QSIG MCDN	ETSI-403 ETSI-QSIG MCDN
	Global analog trunk versions	N/A	GATv1 GATv2	N/A	GATv1 GATv2	N/A	GATv1 GATv2

Table 75 Mexico, New Zealand, North America, Norway, Poland, and PRC parameters (Sheet 2 of 4)

Functionality	Attribute	Market profile					
		Italy	**Mexico**	**New Zealand**	**North America**	**Norway**	**Poland**
Telephony feature settings	Conference tone supported	Yes	No	Yes	No	No	Yes
	Held line reminder	Off	Off	Immediate	Off	Off	After 30 seconds
	Delay ring transfer	After 4 rings	After 4 rings	After 4 rings	After 4 rings	After 4 rings	After 15 rings
	Transfer callback timeout	After 4 rings	After 4 rings	After 4 rings	After 4 rings	After 4 rings	After 15 rings
	Network callback	30	30	30	N/A	30	30
	Host delay (ms)	1000	1000	1000	1000	1000	1000
	Link time (ms)	N/A	600	N/A	600	N/A	N/A
	Target line if busy setting	PBX > Busy DID > Prime	Prime	PBX > Busy DID > Prime	Prime	PBX > Busy DID > Prime	Busy
	BRI ISDN Answer Mode	Manual	Manual	Auto	Manual	Auto	Manual
System settings	Companding law	A-law	A-law	A-law	mu-law	A-law	A-law
	DTI carrier type	E1	E1	E1	T1	E1	E1
	Number of rings in a cycle	2	1	2	1	2	2
	M7000 set supported	Yes	Yes	Yes	No	Yes	Yes
Hunt groups	Mode	Sequential	Broadcast	Sequential	Broadcast	Sequential	Sequential
	Default delay	4 ring cycles	4 ring cycles	4 ring cycles	4 ring cycles	4 ring cycles	4 ring cycles
	Queue timeout (sec)	60	60	60	60	60	60
	If busy	Busy tone	Busy tone	Busy tone	Busy tone	Busy tone	Busy tone
Service times	Night	Start 23:00 End 07:00	Start 23:00 End 07:00	Start 23:00 End 07:00	Start 23:00 End 07:00	Start 23:00 End 07:00	Start 23:00 End 08:00
	Evening	Start 17:00 End 23:00	Start 17:00 End 23:00	Start 17:00 End 23:00	Start 17:00 End 23:00	Start 17:00 End 23:00	Start 00:00 End 00:00
	Lunch	Start 12:00 End 13:00	Start 12:00 End 13:00	Start 12:00 End 13:00	Start 12:00 End 13:00	Start 12:00 End 13:00	Start 00:00 End 00:00

Table 75 Mexico, New Zealand, North America, Norway, Poland, and PRC parameters (Sheet 3 of 4)

Functionality	Attribute	Market profile					
		Italy	**Mexico**	**New Zealand**	**North America**	**Norway**	**Poland**
Service modes	Ringing service mode	Manual	Off	Manual	Off	Manual	Off
	Ringing service trunk ans	Yes	Yes	Yes	Yes	Yes	Yes
	Restriction service mode	Off	Off	Off	Off	Off	Off
	Restriction global overrides	N/A	N/A	999 112	N/A	N/A	112 990
	Restriction filter 01	N/A	0, 1(1800, 1877, 1888), 911(911), 9411, 976, 1976, 1***976, 1900, 1***900, 5551212	0(0800), 1	0, 1(1800, 1877, 1888), 911(911), 9411, 976, 1976, 1***976, 1900, 1***900, 5551212	N/A	N/A
	Restriction filter 05	N/A	N/A	010, 1, 00	N/A	N/A	N/A
	Restriction filter 06	N/A	N/A	*	N/A	N/A	N/A
	Routing service mode	Off	Off	Off	Off	Off	Off
	Routing service overflow	No	No	No	No	No	No
Public DN	Public DN lengths	Default(25)	Default(7), 0(11), 00(12), 01(17), 011(18), 1(11), 411(3), 911(3)	Default(8), 0(11) 00(17), 1(3), 9(3)	Default(7), 0(11), 00(12), 01(17), 011(18), 1(11), 411(3), 911(3)	Default(25)	Default(7)
Public OLI	Unknown number length	Variable	Variable	Variable	N/A	Variable	Variable
	Local number length	Variable	Variable	Variable	7	Variable	Variable
	National number length	Variable	Variable	Variable	10	Variable	Variable
Set capabilities	Handsfree	Auto	Auto	None	Auto	Auto	Auto
	Pickup group	None	None	None	None	None	0
	Allow redirect	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled
	Call forward delay	Disabled (4)	Disabled (4)	Disabled (4)	Disabled (4)	Disabled (4)	Disabled (4)
Note: The field for number of rings is hidden in default mode (disabled). When you enter a value for call forward delay, the field for number of rings becomes visible with the given default value.							
Dial tone detection		Enabled	Enabled	Enabled	Enabled	Enabled	Enabled
Set preferences	Language (first is default)	Italian English	English French Spanish Turkish	UKEnglish VICAP	English French Spanish	Norwegian English Swedish Danish	Polish EuroFrench English Czech

Table 75 Mexico, New Zealand, North America, Norway, Poland, and PRC parameters (Sheet 4 of 4)

Functionality	Attribute	Market profile					
		Italy	**Mexico**	**New Zealand**	**North America**	**Norway**	**Poland**
ONN blocking	Analog VSC (tone)	None	None	141	None	None	1831
	Analog VSC (pulse)	None	None	141	None	None	1831
	BRI VSC	None	None	141	None	None	None
	BRI per loop	SuprsBit	SuprsBit	SrvcCode	SuprsBit	SuprsBit	SuprsBit
Release reason	Release text	Simple	Simple	Detailed	None	Simple	Simple
	Release code	On	On	Off	Off	On	On
DTMF parameters	Tone duration (ms)	120	120	120	120	120	110
	Pause time (ms)	3.5	1.5	3.5	1.5	3.5	1.5
	Interdigit time (ms)	100	80	100	80	100	80

Table 76 Spain, Sweden, Switzerland, Taiwan, and United Kingdom parameters (Sheet 1 of 4)

Functionality	Attribute	Market profile					
		PRC	**Spain**	**Sweden**	**Switzerland**	**Taiwan**	**United Kingdom**
Access codes	Direct dial digit	0	9	0	9	0	0
	Dest code for default route	9	0	0	0	9	0
Protocols	Digital trunking protocols	ISDN DASS2 DPNSS	ISDN DASS2 DPNSS	ISDN DASS2 DPNSS	ISDN DASS2 DPNSS	ISDN DASS2 DPNSS	ISDN DASS2 DPNSS
	BRI trunk protocol variants	ETSI-403 ETSI-QSIG	ETSI-403 ETSI-QSIG	ETSI-403 ETSI-QSIG	ETSI-403 ETSI-QSIG	ITU-T	ETSI-403 ETSI-QSIG
	BRI S-loop protocol variant	ETSI-102	ETSI-102	ETSI-102	ETSI-102	ETSI-102	ETSI-102 + BTNR191
	PRI trunk protocol variants	ETSI-403 ETSI-QSIG MCDN	ETSI-403 ETSI-QSIG MCDN	ETSI-403 ETSI-QSIG MCDN	ETSI-403 ETSI-QSIG MCDN	ITU-T MCDN	ETSI-403 ETSI-QSIG MCDN
	Global analog trunk versions	GATv1 GATv2	N/A	N/A	N/A	GATv1 GATv2	GATv1 GATv2

Table 76 Spain, Sweden, Switzerland, Taiwan, and United Kingdom parameters (Sheet 2 of 4)

Functionality	Attribute	Market profile					
		PRC	**Spain**	**Sweden**	**Switzerland**	**Taiwan**	**United Kingdom**
Telephony feature settings	Conference tone supported	No	No	No	No	No	Yes
	Held line reminder	Off	Off	Off	Off	Off	Immediate
	Delay ring transfer	After 4 rings	After 4 rings	After 4 rings	After 4 rings	After 4 rings	After 4 rings
	Transfer callback timeout	After 4 rings	After 4 rings	After 4 rings	After 4 rings	After 4 rings	After 4 rings
	Network callback	30	30	30	30	N/A	30
	Host delay (ms)	1000	1000	1000	1000	1000	1000
	Link time (ms)	600	N/A	600	N/A	600	N/A
	Target line if busy setting	Prime	PBX > Busy DID > Prime	Prime	PBX > Busy DID > Prime	Prime	PBX > Busy DID > Prime
	BRI ISDN Answer Mode	Manual	Auto	Manual	Auto	Manual	Auto
	Companding law	A-law	A-law	A-law	A-law	mu-law	A-law
	DTI carrier type	E1	E1	E1	E1	T1	E1
System settings	Number of rings in a cycle	1	2	1	2	1	2
	M7000 set supported	Yes	Yes	Yes	Yes	Yes	Yes
Hunt groups	Mode	Broadcast	Sequential	Broadcast	Sequential	Broadcast	Sequential
	Default delay	4 ring cycles	4 ring cycles	4 ring cycles	4 ring cycles	4 ring cycles	4 ring cycles
	Queue timeout	60 sec	60 sec	60 sec	60 sec	60 sec	60 sec
	If busy	Busy tone	Busy tone	Busy tone	Busy tone	Busy tone	Busy tone
Service times	Night	Start 23:00 End 07:00	Start 23:00 End 07:00	Start 23:00 End 07:00	Start 23:00 End 07:00	Start 23:00 End 07:00	Start 23:00 End 07:00
	Evening	Start 17:00 End 23:00	Start 17:00 End 23:00	Start 17:00 End 23:00	Start 17:00 End 23:00	Start 17:00 End 23:00	Start 17:00 End 23:00
	Lunch	Start 12:00 End 13:00	Start 12:00 End 13:00	Start 12:00 End 13:00	Start 12:00 End 13:00	Start 12:00 End 13:00	Start 12:00 End 13:00

Table 76 Spain, Sweden, Switzerland, Taiwan, and United Kingdom parameters (Sheet 3 of 4)

Functionality	Attribute	Market profile					
		PRC	**Spain**	**Sweden**	**Switzerland**	**Taiwan**	**United Kingdom**
Service modes	Ringing service mode	Off	Manual	Off	Manual	Off	Manual
	Ringing service trunk ans	Yes	Yes	Yes	Yes	Yes	Yes
	Restriction service mode	Off	Off	Off	Off	Off	Off
	Restriction global overrides	N/A	N/A	N/A	N/A	N/A	999 112
	Restriction filter 01	0, 1(1800, 1877, 1888), 911(911), 9411, 976, 1976, 1***976, 1900, 1***900, 5551212	N/A	N/A	N/A	0, 1(1800, 1877, 1888), 911(911), 9411, 976, 1976, 1***976, 1900, 1***900, 5551212	0(0800), 1
	Restriction filter 05	N/A	N/A	N/A	N/A	N/A	010, 1, 00
	Restriction filter 06	N/A	N/A	N/A	N/A	N/A	*
	Routing service mode	Off	Off	Off	Off	Off	Off
	Routing service overflow	No	No	No	No	No	No
Public DN	Public DN lengths	Default(7), 0(11), 00(12), 01(17), 011(18), 1(11), 411(3), 911(3)	Default(25)	Default(11), 00(17), 01(10), 02(10), 020(9), 0200(10), 02000(7), 020000(10), 0201(10), 02010(9), 07(10), 071(11), 0718(10), 072(11), 077(11), 09(11), 1(3)	Default(25)	Default(7), 0(11), 00(12), 01(17), 011(18), 1(11), 411(3), 911(3)	Default(8), 0(11) 00(17), 1(3), 9(3)
Public OLI	Unknown number length	Variable	Variable	Variable	Variable	Variable	Variable
	Local number length	Variable	Variable	Variable	Variable	Variable	Variable
	National number length	Variable	Variable	Variable	Variable	Variable	Variable
Set capabilities	Handsfree	Auto	Auto	Auto	Auto	Auto	None
	Pickup group	None	None	None	None	None	None
	Allow redirect	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled
	Call forward delay	Disabled (4)	Disabled (4)	Disabled (4)	Disabled (4)	Disabled (4)	Disabled (4)

Note: The field for number of rings is hidden in default mode (disabled). When you enter a value for call forward delay, the field for number of rings becomes visible with the given default value.

Table 76 Spain, Sweden, Switzerland, Taiwan, and United Kingdom parameters (Sheet 4 of 4)

Functionality	Attribute	Market profile					
		PRC	Spain	Sweden	Switzerland	Taiwan	United Kingdom
Dial tone detection		Enabled	Enabled	Enabled	Enabled	Enabled	Enabled
Set preferences	Language (first is default)	English French Spanish Turkish	EuroSpanish English Portuguese	Swedish English Norwegian Danish	German English EuroFrench Italian	English French Spanish	UKEnglish VICAP
ONN blocking	Analog VSC (tone)	None	None	None	None	None	141
	Analog VSC (pulse)	None	None	None	None	None	141
	BRI VSC	None	None	None	None	None	141
	BRI per loop	SuprsBit	SuprsBit	SuprsBit	SuprsBit	SuprsBit	SrvcCode
Release reason	Release text	Simple	Simple	Simple	Simple	Simple	Detailed
	Release code	On	On	On	On	On	Off
DTMF parameters	Tone duration (ms)	120	120	120	120	120	120
	Pause time (ms)	1.5	3.5	1.5	3.5	1.5	3.5
	Interdigit time (ms)	80	100	80	100	80	100

Analog Trunk parameters

Table 77 contains information for the onboard GATI interface, the G4x16/G8x16 MBM (NT5B42AAABE5/NT5B42AAACE5), the new GATM4/8 MBM (NT5B44BAABE5/ NT5B44AAABE5), and the legacy GATM4/8 MBM (NT5B44BAAA/NT5B44AAAA) in a BCMR2 system. Differences between the interfaces are noted in this table. The 4x16 (NT5B42AAAA) and CTM4/8 MBM's are not covered in this table.

Global analog trunks are not supported in the following market profiles: Denmark, France, Germany, Holland, Italy, Norway, Spain, Sweden, and Switzerland.

The analog trunk parameters are provided in the following tables:

- "Localization, PSTN standards, and pulse dialing parameters" on page 272
- "Transmission parameters" on page 273
- "Call supervision parameters" on page 274
- "On-hook caller ID, disconnect supervision, and message waiting parameters" on page 275

Table 77 Localization, PSTN standards, and pulse dialing parameters (Sheet 1 of 2)

Market profile	Localized	Differences between GATI, G4x16/G8x16, New GATM4/8, and Legacy GATM4/8	Pulse Dialing (ms)		
			Break time	Make time	Interdigit time
Australia	Yes	None	66	34	860

Table 77 Localization, PSTN standards, and pulse dialing parameters (Sheet 2 of 2)

Market profile	Localized	Differences between GATI, G4x16/G8x16, New GATM4/8, and Legacy GATM4/8	Pulse Dialing (ms)		
			Break time	Make time	Interdigit time
Bahrain	Yes	Legacy GATM4/8 NOT supported (will not function)	25	17	700
Brazil	Yes	DTMF CLID NOT supported on GATI or Legacy GATM4/8	66	34	800
CALA	No (North American based A-law)	None	60	40	700
Canada	Yes	None	60	40	700
Caribbean	Yes	None	60	40	700
Global	No (North American based A-Law)	None	60	40	700
Hong Kong	Yes	Line Reversal NOT supported on Legacy GATM4/8	66	33	600
Ireland	Yes	Legacy GATM4/8 NOT supported (will not function)	66	34	1000
Mexico	Yes	None	60	40	700
New Zealand	No (UK-based telephony with Australian tones)	None	66	34	740
North America	Yes	None	60	40	700
Poland	Yes	None	66	33	700
PRC	Yes	DTMF CLID NOT supported on GATI or Legacy GATM4/8	34	66	700
Taiwan	Yes	None	66	33	800
United Kingdom	Yes	None	66	34	740

Table 78 Transmission parameters (Sheet 1 of 2)

Market profile	Transmission				
	PCM coding scheme	AC impedance	Loop length adjustment capability	Tx CO gain (short, medium, long)	Rx CO gain (short, medium, long)
Australia	A-law	220 Ω+ (820 Ω|| 120 nF)	No	(N/A, 0, N/A)	(N/A, 6 dB, N/A)
Bahrain	A-law	900 Ω+ 2.16 uF	Yes	(0, 3 dB, 3 dB)	(3, 3 dB, 6 dB)
Brazil	A-law	600 Ω/900 Ω	Yes	(-3 dB, 0, 0)	(0, 0, 3 dB)
CALA	A-law	600 Ω	Yes	(-3 dB, 0, 0)	(0, 0, 3 dB)
Canada	mu-law	600 Ω	Yes	(-3 dB, 0, 0)	(0, 0, 3 dB)
Caribbean	mu-law	600 Ω	Yes	(-3 dB, 0, 0)	(0, 0, 3 dB)

Table 78 Transmission parameters (Sheet 2 of 2)

Market profile	Transmission				
	PCM coding scheme	AC impedance	Loop length adjustment capability	Tx CO gain (short, medium, long)	Rx CO gain (short, medium, long)
Global	A-law	600 Ω	Yes	(0, 3 dB, 3 dB)	(3 dB, 3 dB, 6 dB)
Hong Kong	mu-law	600 Ω	No	(N/A, 0, N/A)	(N/A, 6 dB, N/A)
Ireland	A-law	270 Ω + (750 Ω||150 nF)	Yes	(0, 3 dB, 3 dB)	(3 dB, 3 dB, 6 dB)
Mexico	A-law	600 Ω	Yes	(0, 3 dB, 3 dB)	(3 dB, 3 dB, 6 dB)
New Zealand	A-law	320 Ω+ (1050 Ω || 230 nF)	No	(N/A, 3 dB, N/A)	(N/A, 3 dB, N/A)
North America	mu-law	600 Ω	Yes	(-3 dB, 0, 0)	(0, 0, 3 dB)
Poland	A-law	600 Ω	No	(N/A, 3 dB, N/A)	(N/A, 3 dB, N/A)
PRC	A-law	600 Ω	Yes	(-3 dB, 0, 0)	(0, 0, 3 dB)
Taiwan	u-law	600 Ω	Yes	(-3 dB, 0, 0)	(0, 0, 3 dB)
United Kingdom	A-law	320 Ω+ (1050 Ω || 230 nF)	No	(N/A, 3 dB, N/A)	(N/A, 3 dB, N/A)

Table 79 Call supervision parameters

Market profile	Call supervision				
	Link/flash time (ms)	OSI time (ms)	Force on-hook time (ms)	Wetting time (ms)	Ring confirmation count (ms)
Australia	100	100	1600	0	150
Bahrain	600	100	1600	N/A	256
Brazil	300	100	2000	N/A	256
CALA	600	100	1500	N/A	256
Canada	600	100	1600	N/A	256
Caribbean	600	100	1600	N/A	256
Global	600	100	1500	N/A	256
Hong Kong	500	100	1000	N/A	256
Ireland	150	100	2000	N/A	200
Mexico	600	100	1600	N/A	256
New Zealand	90	100	1600	15	200
North America	600	100	1600	N/A	256
Poland	500	500	1800	N/A	256
PRC	600	100	1600	N/A	256
Taiwan	600	100	1600	0	256
United Kingdom	90	100	1600	15	200

Table 80 On-hook caller ID, disconnect supervision, and message waiting parameters (Sheet 1 of 2)

Market profile	On-hook caller ID		Disconnect supervision			Message waiting		
	FSK	DTMF (Start Digit, Stop Digit)	OSI	Busy tone	Line reversal	FSK	Voltage reversal	Stutter dial tone
Australia	Bellcore	Not supported	No	No	ROI and ROA	Supported	Not supported	Not supported
Bahrain	ETSI	Not supported	No	Supported (425 ±10% Hz, 380 ±10% on/ 380 ±10%off)	No	Supported	Not supported	Not supported
Brazil	Not supported	Supported (A,C). NOTE: Not Supported on GATI or Legacy GATM4/8	No	Supported (425 ± 25 Hz, 250 ms On / 250 ms Off ± 10%)	No	Supported	Not supported	Not supported
CALA	Bellcore	Not supported	Yes	No	No	Supported	Not supported	Not supported
Canada	Bellcore	Not supported	Yes	No	No	Supported	Not supported	Not supported
Caribbean	Bellcore	Not supported	Yes	No	No	Supported	Not supported	Not supported
Global	Bellcore	Not supported	Yes	No	No	Supported	Not supported	Not supported
Hong Kong	Bellcore	Not supported	No	Supported (480 ± 10 Hz and 620 ± 10 Hz, 500 ± 100 ms On / 500 ± 80 ms Off)	Yes (NOT supported on Legacy GATM4/8)	Supported	Not supported	Not supported
Ireland	ETSI	Not supported	No	Supported (425 Hz ± 25%, 450 ms On/ 450 ms Off ± 23%)	No	Supported	Not supported	Not supported
Mexico	ETSI	Not supported	No	Supported (425 Hz, 250 ms On/ 250 ms Off)	No	Supported	Not supported	Not supported
New Zealand	ETSI	Not supported	Yes (500 ms UK Guarded Clear)	No	No	Supported	Not supported	Not supported
North America	Bellcore	Not supported	Yes	No	No	Supported	Not supported	Not supported
Poland	ETSI	Not supported	No	Supported in unsupervised mode (425 Hz, 500 ms On/ 500 ms Off)	Supported in supervised mode	Supported	Not supported	Not supported
PRC	Bellcore	Supported (A/C) NOTE: Not Supported on GATI or Legacy GATM4/8	No	Supported (450 ± 25 Hz, 350 ms On/350 ms Off ± 10%)	No	Supported	Not supported	Not supported

Table 80 On-hook caller ID, disconnect supervision, and message waiting parameters (Sheet 2 of 2)

Market profile	On-hook caller ID		Disconnect supervision			Message waiting		
	FSK	DTMF (Start Digit, Stop Digit)	OSI	Busy tone	Line reversal	FSK	Voltage reversal	Stutter dial tone
Taiwan	ETSI	Supported (D, C)	No	Supported (480 + 620 Hz, 500 ms On/ 500 ms Off)	No	Supported	Not supported	Not supported
United Kingdom	ETSI	Not supported	Yes (500 ms UK Guarded Clear)	No	No	Supported	Not supported	Not supported

GASM8 parameters

This section contains information for the GASM8 MBM.

Global analog stations are not supported in the following market profiles: Brazil, CALA, Denmark, France, Germany, Holland, Italy, Norway, PRC, Spain, Sweden, Switzerland, and Taiwan.

The GASM8 parameters are provided in the following tables:

- "Localization, DIP switch settings, specifications, and transmission parameters" on page 276
- "Loop interface and call supervision parameters" on page 277
- "Dial pulse and DTMF parameters" on page 278

Table 81 Localization, DIP switch settings, specifications, and transmission parameters (Sheet 1 of 2)

Market profile	Localized	DIP switch setting	Transmission		
			Terminal Input impedance	Nominal Network Input Impedance	PCM coding scheme
Australia	Yes	Australia	220 Ω+ (820 Ω|| 120 nF)	220 Ω+ (820 Ω|| 120 nF)	A-law
Bahrain	No (North American Based A-Law)	North America	600 Ω	600 Ω	A-law
Canada	Yes	North America	600 Ω	600 Ω	mu-law
Caribbean	Yes	North America	600 Ω	600 Ω	mu-law
Global	No (North American based A-law)	North America	600 Ω	600 Ω	A-law
Hong Kong	No (North American based mu-law)	North America	600 Ω	600 Ω	mu-law
Ireland	No (UK-Based)	UK	370 Ω+ (620 Ω|| 310 nF)	300 Ω+ (1000 Ω|| 220 nF)	A-Law

Table 81 Localization, DIP switch settings, specifications, and transmission parameters (Sheet 2 of 2)

Market profile	Localized	DIP switch setting	Transmission		
			Terminal Input impedance	Nominal Network Input Impedance	PCM coding scheme
Mexico	No (North American based A-law)	North America	600 Ω	600 Ω	A-law
New Zealand	No (UK-based telephony with Australian tones)	UK	370 Ω+ (620 Ω|| 310 nF)	300 Ω+ (1000 Ω|| 220 nF)	A-law
North America	Yes	North America	600 Ω	600 Ω	mu-law
Poland	Yes	Poland	600 Ω	600 Ω	A-law
United Kingdom	Yes	UK	370 Ω+ (620 Ω|| 310 nF)	300 Ω+ (1000 Ω|| 220 nF)	A-law

Table 82 Loop interface and call supervision parameters

Market profile	Loop interface				Call supervision			
	Ringing frequency (Hz)	Ringing amplitude (Vrms)	Loop Current Detect Threshold (mA)	Loop current limit (mA)	Min. seize duration (ms)	Min answer duration (ms)	Min/max recall duration (ms)	Min clear duration (ms)
Australia	25	65	18	32	200	50	30/150	1500
Bahrain	20	65	18	32	150	25	250/1100	1400
Canada	20	65	18	32	150	25	250/1100	1400
Caribbean	20	65	18	32	150	25	250/1100	1400
Global	20	65	18	32	150	25	250/1100	1400
Hong Kong	20	65	18	32	150	25	250/1100	1400
Ireland	25	65	18	32	200	50	15/150	1500
Mexico	20	65	18	32	150	25	250/1100	1400
New Zealand	25	65	18	32	200	50	15/150	1500
North America	20	65	18	32	150	25	250/1100	1400
Poland	25	65	18	32	180	80	75/520	680
United Kingdom	25	65	18	32	200	50	15/150	1500

Table 83 Dial pulse and DTMF parameters

Market profile	Dial pulse				DTMF	
	Dial pulse coding scheme	Min/max break duration (ms)	Min/max make duration (ms)	Min interdigit pause duration (ms)	DTMF coding scheme (digits)	Min DTMF detect level (dB)
Australia	N	40/90	20/60	300	16	-36
Bahrain	N	25/120	10/90	250	12	-36
Canada	N	25/120	10/90	250	12	-36
Caribbean	N	25/120	10/90	250	12	-36
Global	N	25/120	10/90	250	12	-36
Hong Kong	N	25/120	10/90	250	12	-36
Ireland	N	15/200	15/200	200	16	-36
Mexico	N	25/120	10/90	250	12	-36
New Zealand	N	15/200	15/200	200	16	-36
North America	N	25/120	10/90	250	12	-36
Poland	N	44/88	25/48	400	12	-36
United Kingdom	N	15/200	15/200	200	16	-36

GASI parameters

This section contains information for the onboard GASI interface.

GASI interfaces are not supported in the following market profiles: Australia, Bahrain, Brazil, CALA, Denmark, France, Germany, Holland, Ireland, Italy, Mexico, New Zealand, Norway, Poland, PRC, Spain, Sweden, Switzerland, Taiwan, UK.

Note that the GASI currently has not been localized for markets except North America. The GASI will function in some profiles outside of North America; however, the interface will respond with North American characteristics.

The GASI parameters are provided in the following tables:

Table 84 GASI parameters (Sheet 1 of 2)

Aspect	Parameter	Market Profile				
		Canada	Caribbean	Global	Hong Kong	North America
Market Support	Localized?	Yes	Yes	No (North American Based A-Law)	No (North American Based A-Law)	Yes
Transmission	Terminal Input Impedance	600 Ω	600 Ω	600 Ω	600 Ω	600 Ω
	Nominal Network Input Impedance	600 Ω	600 Ω	600 Ω	600 Ω	600 Ω
	PCM Coding Scheme	mu-Law	mu-Law	A-Law	mu-Law	mu-Law

Table 84 GASI parameters (Sheet 2 of 2)

Aspect	Parameter	Market Profile				
		Canada	**Caribbean**	**Global**	**Hong Kong**	**North America**
Loop Interface	Ringing Frequency (Hz)	20	20	20	20	20
	Ringing Amplitude (Vrms)	63	63	63	63	63
	Loop Current Detect Threshold (mA)	10.16	10.16	10.16	10.16	10.16
	Loop Current Limit (mA)	26	26	26	26	26
Call Supervision	Minimum Seize Duration (ms)	200	200	200	200	200
	Minimum Answer Duration (ms)	10	10	10	10	10
	Minimum/Maximum Recall Duration (ms)	250/1100	250/1100	250/1100	250/1100	250/1100
	Minimum Clear Duration (ms)	1400	1400	1400	1400	1400
	Disconnect Supervision OSI Time (ms)	800	800	800	800	800
Dial Pulse	Dial Pulse Coding Scheme	N	N	N	N	N
	Minimum/Maximum Break Duration (ms)	25/120	25/120	25/120	25/120	25/120
	Minimum/Maximum Make Duration (ms)	10/90	10/90	10/90	10/90	10/90
	Minimum Interdigit Pause Duration (ms)	250	250	250	250	250
DTMF	DTMF Coding Scheme (digits)	16	16	16	16	16
	Min DTMF Detect Level (A) (dBm)	-27	-27	-27	-27	-27
MWI	HIgh Voltage (HV)	Supported - 95V	Supported - 95V	Supported - 95V	Supported - 95V	Supported - 95V
	Line Reversal (LR)	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported
	Tone	Supported	Supported	Supported	Supported	Supported
	Class MWI	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported
On-hook Caller ID	FSK Support	Yes - Bellcore	Yes - Bellcore	Yes - Bellcore	Yes - Bellcore	Yes - Bellcore
DIsconnect Supervision	OSI	Supported	Supported	Supported	Supported	Supported
	Busy Tone	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported
	Line Reversal	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported

ATA2 parameters

This section contains information for the ATA2 device. The ATA2 is either DR6 or DR7 mode. The mode is determined by the region in which you are located, and is not a modifiable user preference. Refer to the following tables for a list of parameters in each mode.

- "ATA2 DR6 Market Support, Transmission, Loop Interface, Call Supervision, and Dial Pulse parameters" on page 280
- "ATA2 DR7 Market Support, Transmission and Loop Interface parameters" on page 282
- "ATA2 DR7 Call Supervision, Dial Pulse, and DTMF parameters" on page 283

ATA2 DR6

Table 85 ATA2 DR6 Market Support, Transmission, Loop Interface, Call Supervision, and Dial Pulse parameters (Sheet 1 of 2)

	Market Support	Transmission	Loop Interface	Call Supervision		Dial Pulse		
				Duration (ms)			Duration (ms)	
Market profile	Localized?	Terminal Input Impedance	Ringing Frequency (Hz)	Min/ Max Recall	Min Clear	Dial Pulse Coding Scheme	Min/ Max Break	Min/ Max Make
Australia	Yes	220 Ω+ (820 Ω|| 120 nF)	25	10/150	310	N	20/125	10/230
Bahrain	No (North American Based A-Law)	600 Ω	20	290/1010	1500	N	20/130	15/130
Canada	Yes	600 Ω	20	290/1010	1500	N	20/130	15/130
Caribbean	Yes	600 Ω	20	290/1010	1500	N	20/130	15/130
Global	No (North American Based A-Law)	600 Ω	20	290/1010	1500	N	20/130	15/130
Hong Kong	No (North American Based mu-Law)	600 Ω	20	290/1010	1500	N	20/130	15/130
Ireland	No (UK based)	300 Ω+ (1000 Ω|| 220 nF)	25	10/150	310	N	20/125	10/230
Mexico	No (North American Based A-Law)	600 Ω	20	290/1010	1500	N	20/130	15/130
New Zealand	No (UK Based)	300 Ω+ (1000 Ω|| 220 nF)	25	10/150	310	N	20/125	10/230
North America	Yes	600 Ω	20	290/1010	1500	N	20/130	15/130
PRC	No (North American Based A-Law)	600 Ω	20	290/1010	1500	N	20/130	15/130

Table 85 ATA2 DR6 Market Support, Transmission, Loop Interface, Call Supervision, and Dial Pulse parameters (Sheet 2 of 2)

Market profile	Market Support	Transmission	Loop Interface	Call Supervision		Dial Pulse		
				Duration (ms)		Dial Pulse Coding Scheme	Duration (ms)	
	Localized?	Terminal Input Impedance	Ringing Frequency (Hz)	Min/ Max Recall	Min Clear		Min/ Max Break	Min/ Max Make
Taiwan	No (North American Based mu-Law)	600 Ω	20	290/1010	1500	N	20/130	15/130
United Kingdom	Yes	300 Ω+ (1000 Ω|| 220 nF)	25	10/150	310	N	20/125	10/230

ATA2 DR7

Table 86 ATA2 DR7 Market Support, Transmission and Loop Interface parameters

	Market Support	Transmission		Loop Interface			
Market profile	**Localized?**	**Terminal Input Impedance**	**PCM Coding Scheme**	**Ringing Frequency (Hz)**	**Ringing Amplitude (Vrms)**	**Loop Current Detect Threshold (mA)**	**Loop Current Limit (mA)**
Brazil	Yes	900 Ω	A-Law	25	75	18	85
CALA	Yes	900 W	A-Law	25	75	18	85
Denmark	Yes	300 Ω+ (1000 Ω|| 220 nF)	A-Law	25	75	12	85
France	Yes	210 Ω+ (1020 Ω|| 140 nF)	A-Law	25	75	6	65
Germany	Yes	220 Ω+ (820 Ω|| 110 nF)	A-Law	25	75	6	55
Holland	Yes	300 Ω+ (1000 Ω|| 220 nF)	A-Law	25	75	12	55
Italy	Yes	180Ω+ (620 Ω|| 62 nF)	A-Law	25	75	6	23
Norway	Yes	120 Ω+ (840 Ω|| 110 nF)	A-Law	25	75	12	85
Poland	Yes	220 Ω+ (820 Ω|| 120 nF)	A-Law	50	80	18	40
Spain	Yes	220 Ω+ (820 Ω|| 120 nF)	A-Law	25	75	6	55
Sweden	Yes	200 Ω+ (1000 Ω|| 200 nF)	A-Law	25	75	12	30
Switzerland	Yes	220 Ω+ (820 Ω|| 120 nF)	A-Law	25	75	6	55

Table 87 ATA2 DR7 Call Supervision, Dial Pulse, and DTMF parameters

Market profile	Call Supervision				Dial Pulse				DTMF	
	Duration (ms)					Duration (ms)				
	Min Seize	Min Answer	Min/Max Recall	Min Clear	Dial Pulse Coding Scheme	Min/ Max Break	Min/ Max Make	Min Interdigit Pause	DTMF Coding Scheme (digits)	Min DTMF Detect Level (A) (dBm0)
Brazil	200	50	250/1100	750	N	40/90	15/55	250	16	-25
CALA	200	50	250/1100	750	N	40/90	15/55	250	16	-25
Denmark	200	50	80/140	750	N	15/200	15/200	200	16	-25
France	140	50	220/320	225	N	60/75	25/40	800	16	-25
Germany	150	50	80/120	225	N	50/70	30/50	650	16	-25
Holland	200	50	90/130	750	N	30/70	25/80	400	16	-25
Italy	150	50	80/140	225	N	50/70	30/50	700	16	-25
Norway	200	50	80/150	750	N	30/70	25/80	400	16	-40
Poland	200	50	25/150	750	N	40/90	20/60	300	16	-25
Spain	150	50	80/140	225	N	60/75	25/40	450	16	-25
Sweden	200	50	30/150	125	N+1	30/70	25/80	450	16	-28
Switzerland	150	50	80/140	225	N	50/70	30/50	350	16	-25

ISDN line services

The table ISDN line services on page 283 shows the ISDN private network services that are supported by BCM50. The table ISDN services by Protocol on page 284 shows the network-based ISDN supplementary services and the features available for each.

Table 88 ISDN line services

MCDN over PRI (SL-1)	DPNSS	DASS2	ETSI QSIG
• Basic Call • DDI • Name display • Number display • Centralized voice mail • Camp-on • ISDN Call Connection Limit • Network Call Transfer • Break-in • Trunk Route Optimization (TRO) • Trunk Anti-Tromboning	• Basic Call • DDI • Diversion • Redirection • Centralized voice mail • Call Offer • Loop avoidance • Executive Intrusion • Three Party • Route Optimization	• Basic Call • DDI • Originating line identity (OLI) • Terminating Line Identity (TLI) • Call Charge Indication (CCI) • Call Charge Rate Indication (CCRD)	• Basic Call • DDI • Name display • Number display

Table 89 ISDN services by Protocol

Protocol	Market profile		Available ISDN services	
• NI	• Caribbean • North America		• Basic Call • DID • Name display	• Number display • ONN blocking
• ETSI Euro	• Australia • CALA • Denmark • Germany • Global • Holland • Hong Kong	• Italy • Norway • PRC • Spain • Sweden • Switzerland • United Kingdom	• Basic Call • DDI • sub addressing (on S-loop) • ETSI Call Diversion (partial rerouting)	• AOC-E (specific changes for Holland and Italy) • MCID • CLIP • COLP • CLIR

Analog and digital trunk types

The table Analog and digital trunk types and descriptions on page 284 describes the types of analog and digital trunks.

Some of these trunk types are available only when you select specific market profiles.

Table 90 Analog and digital trunk types and descriptions (Sheet 1 of 2)

Trunk types	Description
Digital trunk types	
T1/E1	Digital line that carries data on 24 channels at 1.544 Mbps (North American); 30 channels at 2048 Mbps (Europe) Loop, E&M, DID and ground start lines are also versions of T1 lines. You can program autoanswer T1 loop start, T1 E&M trunks, T1 DID, T1 ground start trunks, PRI and IP trunks to map to target lines to provide for attendant bypass (calling directly to a department or individual) and line concentration (one trunk can map onto several target lines).
DID	This is a type of T1 trunk line used by an outside caller to dial directly into a line on the BCM.
Loop	This is a type of T1 line. Use this type of line on systems where the service provider supports disconnect supervision for the digital loop start trunks. These trunks provide remote access to the Business Communications Manager from the public network. This trunk must have disconnect supervision so you can set the trunk to autoanswer, which provides the remote access portal.
Ground	T1-groundstart trunk These lines offer the same features as loop start trunks, but use these lines when the local service provider does not support disconnect supervision for digital loop start trunks. Ground start trunks work with T1 only. By configuring lines as ground start, the system recognizes when a call is released at the far end.
E&M	T1 and E&M. Use this type of trunk line to create simple network connections to other phone systems. This trunk always operates in a disconnected supervised mode.
PRI	ISDN interface with 23 B channels and 1 D channel at 1.544 Mbps (in Europe: 30 B-channels and 1 D-channels at 2.048 Mbps). These lines give you incoming and outgoing access to an ISDN network and are autoanswer trunks.

Table 90 Analog and digital trunk types and descriptions (Sheet 2 of 2)

Trunk types	Description
Digital trunk types	
BRI	ISDN loop that provides both T and S reference point loops. These loops can support both network (T and S loops) and terminal equipment (S loop) connections. This type of line provides incoming and outgoing access to an ISDN network. ETSI ISDN BRI is the European Telecommunications Standards Institute specification for BRI ISDN service. BRI provides two bearer B-channels operating at 64 kbits/s and a data D-channel that operates at 16 kbits/s. Use the D-channel to carry call information. Like loop start trunks, you can configure BRI lines as manual answer or autoanswer.
DASS2	(British) Trunk provides multiline IDA interconnection to the British Telecom network.
DPNSS	You can use a digital private network signaling system to tie together phone systems from various manufacturers over E1 lines, offering significant enhancements to BCM networking capabilities. DPNSS makes it easy to support centralized network functionality within private networks for operators and attendants dealing with large numbers of calls. The routing capabilities provide more larger-network capabilities without the expense of installing a new system, reconfiguring all the nodes or incurring extensive downtime. Most functionality over DPNSS lines is transparent after you program the DPNSS into the system. DPNSS uses a local node, acting as a terminating node, to communicate with other PBXs over the network using E1 lines. For example, you can link corporate offices separated geographically over DPNSS lines to other BCM systems, bypassing the restrictions of the PSTNs to which they are connected. BCM systems can function like a private network using DPNSS.
R2MFC	Provides MFC-R2 (Multi-Frequency Compelled R2) signaling over an E1 trunk.
Analog trunk types:	
Loop start	Standard PSTN telephone line.
ADID	An analog trunk that allows an outside caller to dial directly into a line on the BCM system. This type of trunk provides one way (incoming only) call service.

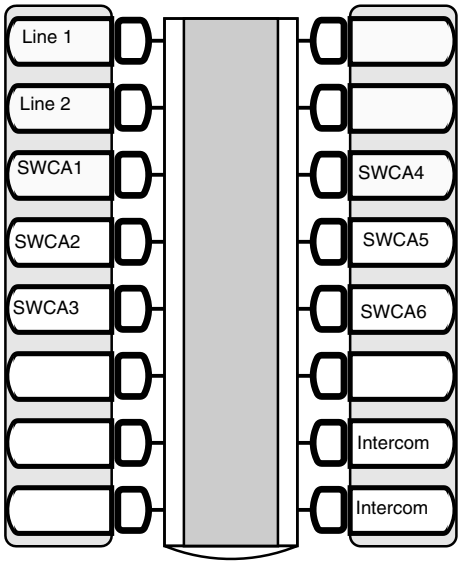
Chapter 29
About System-Wide Call Appearance (SWCA) keys

The System-Wide Call Appearance (SWCA) feature enables you to park incoming and outgoing calls on your BCM and, at the same time, provides call appearance to a group of telephones. Using this feature frees the line used by the call, and enables another user to pick up the call at any telephone that has been assigned the same SWCA keys.

Note: Your telephone must have a free intercom key to pick up SWCA calls.

Labelling your telephone keys provides identification about which code is applied to which key. (See diagram below.)

Assigning SWCA keys



If possible, assign the same set of buttons to the same SWCA user codes for all telephones in the call group.
You can use any name for the keys, but a reference to the SWCA code saved on the key is useful.
If you must find out which code has been assigned to a button, use Button Inquiry (**FEATURE** *0).

Indicate the label for your SWCA keys

Telephone key #	SWCA code
	FEATURE *521
	FEATURE *522
	FEATURE *523
	FEATURE *524
	FEATURE *525
	FEATURE *526
	FEATURE *527
	FEATURE *528
	FEATURE *529
	FEATURE *530
	FEATURE *531
	FEATURE *532
	FEATURE *533
	FEATURE *534
	FEATURE *535
	FEATURE *536

To add SWCA keys to your telephone

SWCA keys can be assigned by your system administrator to a group of telephones.

Also, each user can assign these keys on their own telephones:

1 Enter **FEATURE *3**.

2 Select a memory button with an indicator.

3 Enter a SWCA code (**FEATURE *521** to **FEATURE *536**).

Managing calls using SWCA keys

To receive a call and assign it to a SWCA key

Your system administrator can tell you how your system works. The system may be programmed in one of the following ways:

- An incoming call automatically assigns to a free SWCA key when the call is answered.
  - To park the call, press the SWCA key a second time.
  - **Answering a second call:** The original call is automatically parked on a free SWCA key. For this instance to occur, your system must be set for Full Autohold (**FEATURE 73**),
- You press a free SWCA key to park the call to that key.
- When you press **HOLD**, the call parks on a free SWCA key.

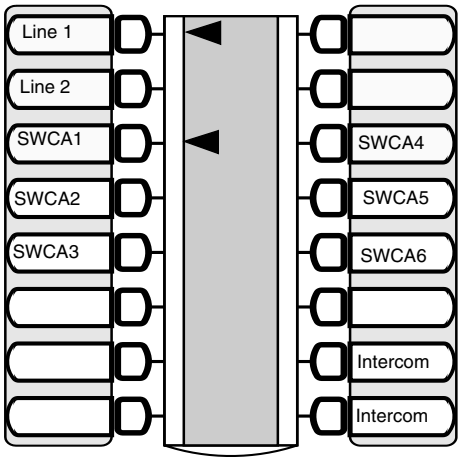
You also can perform one of the following steps to park the call:

- While the call is active, enter the SWCA code that corresponds to the key where you want to park the call. Refer to "To add SWCA keys to your telephone" on page 288.
- While the call is active, enter **FEATURE *520** to search for the next available SWCA code (assigned to your telephone).
  - If the system finds an available code, the call is associated with the code. Press **HOLD** or the assigned SWCA key to park the call.
  - If no code is available, the call remains active on your line only. Put the call on hold until a SWCA key becomes available.
  - If the call was already associated with a SWCA code (for the duration of the call), the call is reparked on that code.

No programmed SWCA keys

It is not necessary to have SWCA keys programmed on your telephone to unpark a SWCA call. You can also retrieve a call parked on a SWCA key by entering the SWCA code (**FEATURE *521** to **FEATURE *536**) that was used to park the call. However, this requires the person who parked the call to use other features to indicate where the call is parked, such as Page (**FEATURE 60**), Voice call (**FEATURE 66**), or Messaging (**FEATURE 1**).

Incoming call assigns to a SWCA key



In this example, the call comes in on line 1 and automatically transfers to SWCA1 (the first free SWCA key). The solid indicator beside SWCA1 and beside the line key indicates that the call is active on this telephone and it has not yet been parked.

On all other telephones in the group, the indicator would be solid only beside SWCA1. The line keys for the other telephones would be free to receive additional calls.

If you press SWCA1 again to park the call, the line indicator disappears and the indicator beside SWCA1 starts blinking on all telephones in the group, indicating that the call is available to be picked up.

Using Hold with SWCA keys

If a call does not automatically park on a SWCA key when you press **HOLD**, it means the call is parked only on your telephone on the line on which the call entered. To make the call available to the group, you must unhold the call (press **HOLD**), then press a free SWCA key. The call is parked on that SWCA key and the line on which the call entered becomes free.

Temporarily parked calls

Your system can be configured so that calls parked on SWCA keys release the SWCA key, once someone picks up the call. In this case, if the person who answered the call wants to repark the call, they must use one of the manual methods described above to repark the call on a free SWCA key.

The system can be configured to retain the call on the same SWCA key for the duration of the call, which is the period until someone hangs up, regardless of how many times the call is answered and reparked.

No available SWCA keys

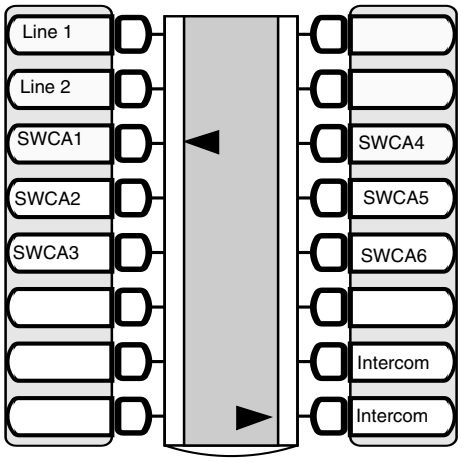
If all your SWCA keys have assigned calls, and you receive another call, you can:

- Put the call on **HOLD** until a SWCA key becomes free. Do this by picking up the call. The first call automatically is placed on hold at your telephone.
- Dial in a SWCA code that is not assigned to a button on your telephone.

  If you assign a call to a code that does not have an appearance on your telephone, use Page, Voice call, or Message to notify the group or another person that there is a call waiting, and on which code it was parked.

Retrieving a call from a SWCA key

If the indicator beside a SWCA key is blinking, you can retrieve the call by picking up the handset and pressing the SWCA key associated with the indicator, or by dialing in the SWCA code that associates with that key.



In this example, the call parked on SWCA1 was retrieved by this user, who pressed the SWCA1 key.
The flashing indicator beside SWCA1 becomes solid. As well, a solid indicator appears beside one of the intercom buttons.

On all other telephones in the group, the indicator displays solid beside SWCA1, indicating that the call has been retrieved and is active.

To retrieve a call from a SWCA key

If you are not sure which call to retrieve, you can use one of the following codes to find the longest parked call or the most recently parked call:

- **FEATURE *537** retrieves the oldest SWCA call. The indicator on all telephones in the group becomes solid, indicating an active call.

Note: These codes only work for telephones that have SWCA keys defined, and the system only searches across the range of codes that are assigned for that telephone.

- **FEATURE *538** retrieves the most recent SWCA call. The indicator on all telephones in the group becomes solid, indicating an active call.

Other features that affect how you use SWCA

Timed out SWCA calls

If a call remains parked and unanswered on a SWCA key for a pre-set period of time (the Call Park timeout timer), the call unparks from the SWCA key and rings again at the telephone from which it was last parked.

Outbound calls

You also can park out-dialed calls on a SWCA key. If your system is set up to automatically assign calls to a SWCA key, the call will assign to a key as soon as it is answered. Otherwise, during your call, you can press a free SWCA key or **HOLD** to park the call on a SWCA key. This makes the call available to other users in the group and it frees up your intercom or line.

Auto Hold FEATURE 73

Your telephone must be set to have Full Auto-hold so that a call automatically gets placed on Hold if you answer a second call. If your telephone does not have Auto Hold on, use **FEATURE** 73 to change the setting.

Transferring calls FEATURE 70

If you transfer the call to a telephone that does not have the same SWCA keys assigned, the call will disappear from the SWCA key on your telephone when the call transfers. If the call needs to be reassigned to your group, the person who answered the call enters a SWCA control code that is assigned to your group, to return the call to a SWCA designation at your telephone.

Conference calls FEATURE 3

A conference call cannot be parked on a SWCA key.

You cannot conference a call that is parked on a SWCA key until it is unparked.

To conference a call parked on a SWCA key

1 Press the SWCA key to unpark the call.

2 Press **HOLD**.

3 Press **FEATURE 3** to create the conference.

If a conference call is created from two SWCA-associated calls, and then a transfer occurs by the conference master releasing the call, the call is associated to only the currently associated SWCA keys (if any) on the slaves.

If a conference call is created from two SWCA-associated external calls, and then a transfer occurs by the conference master releasing the call, the remaining call between the lines and trunks are not be associated with any SWCA key.

Chapter 30
Configuring the music source

The Music on Hold and Background Music features provide music to users. For these features to function properly, a music source must be connected to the BCM.

There are three ways you can connect the music source to the BCM:

- You can connect an external music source to the BCM.
- You can use the IP Music feature to connect to Music Manager. Music Manager is an audio player application that resides on the BCM and provides a streaming audio signal to the BCM system.
- You can use the IP Music feature to connect to an external music source on the data network. This external music source must be connected to your network and must be accessible to the BCM. The external music source must also produce a streaming audio signal that is compatible with the BCM.

Note: A third party application, that supports streaming G.711, is required.

If you use an external music source connected to the BCM, refer to the *BCM50 2.0 Installation and Maintenance Guide* (NN40020-302) for information about how to connect the external music source. If you use an external IP music source connected on the data network, refer to the documentation that came with the music source for information about how to connect the music source to the data network.

Selecting the music source

After you have connected the music source, you must select the music source you want to use.

To select the music source

1. Click **Configuration > Applications > Music**.
   The Music panel appears. See Figure 64.
2. Configure the **Music** parameters. Refer to the information in Table 91.

Figure 64 Music panel

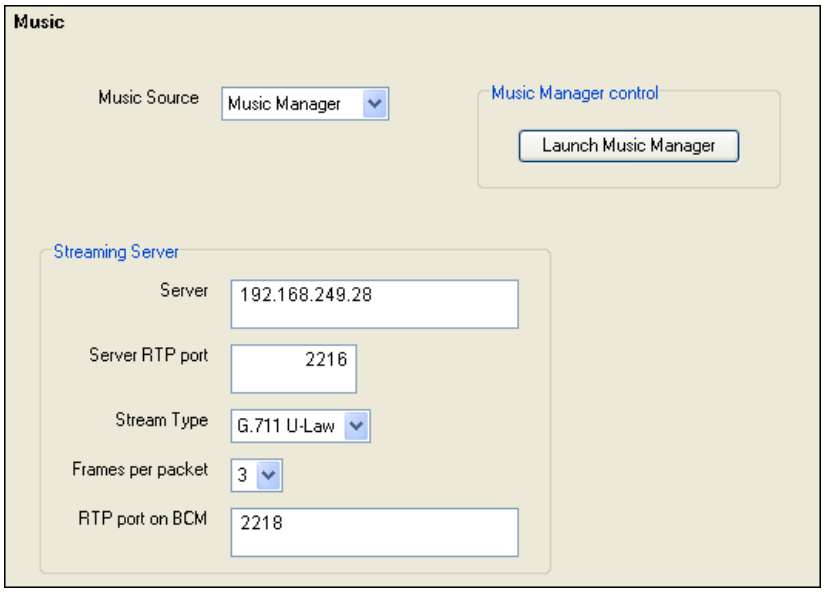


Table 91 Music parameters (Sheet 1 of 2)

Setting	Definition
Music Source	Select **Audio Jack** if you are using an external music source that is connected to the MSC card on the BCM. Select **Music Manager** if you are using the IP Music feature to connect to the music source available on the BCM. If you select Music Manager, you must then configure the BcmAmp application before you can use it. For information about how to configure BcmAmp, refer to "Configuring Music Manager" on page 297. Select **Streaming Server** if you are using the IP Music feature to connect to a music source on the data network. If you select Streaming Server, you must configure the Network Device before you can use it. For information about how to configure the Network Device, refer to "Configuring a Network Device to be the IP Music Source" on page 301. **Note:** A third party application, that supports streaming G.711, is required.
Audio Jack	
Server	Field not required.
Server RTP port	Field not required.
Stream Type	Field not required.
Frames per packet	Field not required.
Music Manager control	
Launch Music Manager	Launch the Music Manager Administration web page
Server	Field not required.
Server RTP port	Field not required.
Stream Type	Field not required.
Frames per packet	Field not required.

Table 91 Music parameters (Sheet 2 of 2)

Setting	Definition
Streaming Server	
Note: A third party application, that supports streaming G.711, is required.	
Server	Enter the IP Address of the network device that contains the music source.
Server RTP port	Enter the source port number to use when connecting to the network device that contains the music source.
Stream Type	Select the codec of the audio file provided by the network device.
Frames per packet	Enter the frames per packet to be received from the network device.
RTP port on BCM	Enter destination port number used on the BCM for sending out music to users.

Note: If you choose **Audio Jack** as the Music Source, there is no further configuration required for the Music Source.

Configuring Music Manager

BcmAmp is an audio player that resides on the BCM. If you choose to use Music Manager, you must configure the play list, which is the music available to the BcmAmp audio player. Configuring the play list involves:

- "Opening the Music Manager Administration application"
- "Loading music onto the BCM"
- "Deleting music from BCM" on page 298
- "Adding music to the Play List" on page 299
- "Removing music from the Play List" on page 299
- "Using the BcmAmp Player" on page 300

Opening the Music Manager Administration application

Use the Music Manager Administration application to load music files and compile play lists.

To open the Music Manager Administration application

1. Click **Configuration > Applications > Music**.
   The Music panel appears.
2. Select **Music Manager** from the **Music Source** drop-down list.
3. Click **Launch Music Manager**.
   The Connect to IP Address dialog box appears.
4. In the **User Name** box, enter the user name you use to log on to Element Manager.
5. In the **Password** box, enter the password you use to log on to Element Manager.
6. Click **OK**.
   The Music Manager Administration panel appears.

Loading music onto the BCM

Before you can add music to the play list, you must the load the music track onto the BCM.

To load music onto the BCM

1. Start the **Music Manager Administration** application.
2. Click the **File Manager** heading.
   A list of audio files already on the BCM appears, along with a form for uploading new files.
3. Click **Upload**.
   The **Upload file** dialog box appears.
4. Navigate to the folder that contains the sound file you want to load.

5 Click on the sound file and then click **Open**.
The sound file must be a .wav or .au file format.
The path for the sound file appears in the **Upload** box.

6 If you want to assign a name to this sound file, enter the name in the **As:** box.
This name appears on the File List to help identify the sound file.

7 Click the **Go** link.
The **Upload Completed** dialog box appears.

8 Click **Close** to close the dialog box.
The file is added to the File List.

9 Repeat steps 3 to 7 for each sound file you want to add to the BCM.

Restrictions on uploading files

The audio files loaded onto BCM are loaded into the same disk space that is used for CallPilot messages. Therefore, every minute of audio file loaded onto the BCM reduces the amount of message storage space available to CallPilot by one minute. To ensure the proper operation of both Music Manager and CallPilot, the following restrictions are applied to uploading audio files.

- The maximum size of any single sound file you load onto BCM is 5 MB.
- The maximum amount of disk space allowed for Music Manager audio files is 300 MB.
- To ensure there is sufficient disk space for CallPilot, Music Manager Administration prevents you from uploading audio files if there is less than 1 GB of free disk space on BCM.

Note: To minimize the time required to upload audio files, record the audio files as a single channel (mono) using 8-bit samples at a rate of 8 kHz.

Deleting music from BCM

To delete an audio file from BCM

1 Start the **Music Manager Administration** application.

2 Click the **File Manager** heading.
A list of audio files already on the BCM appears.

3 Click the **Remove** link beside the sound file you want to delete.
A confirmation dialog box appears.

4 Click **OK**.
The file is permanently removed from the BCM.

5 Repeat steps 3 and 4 for each file you want to remove.

Adding music to the Play List

The play list is an ordered list of songs that are heard by users of the Background Music and Music On Hold features.

To add a sound file to the Play List

1. Start the **Music Manager Administration** application.
2. Click the **Play List** link.
   The current play list appears.
3. Click the **Add** drop list and click the sound file you want to add.
   The sound files that appear on the Add list are the sound files loaded on the BCM.
4. Click the **To** drop list and click on the location on the list where you want to add the sound file (for example, **Bottom of List**).
5. Click the **Go** icon.
   The sound file is added to the Play list.
6. Repeat steps 3 to 5 for each sound file you want to add to the Play List.

Removing music from the Play List

To remove a sound file from the Play List

1. Start the **Music Manager Administration** application.
2. Click the **Play List** link.
   The current play list appears.
3. Click the **Remove** link beside the sound file you want to remove from the Play List.
   The file is removed from the Play List.
4. Repeat step 3 for each file you want to remove.

Note: Clicking the Remove link only removes the sound file from that location in the Play List. If the same sound file appears in another location on the Play List, the other entry is not removed.

Removing a sound file from the Play List does not delete the file from the BCM. For information about how to delete a sound file from the BCM, refer to "Deleting music from BCM" on page 298.

Using the BcmAmp Player

The BcmAmp Player is a web-based interface. Use the BcmAmp Player to select, play, stop, or pause sound files that appear on the Play List.

To access the BcmAmp Player

1 Start the **Music Manager Administration** application.

2 Click the **BcmAmp Player** link.
The BcmAmp Player interface appears.

Figure 65 BcmAmp Player

Note: When a song is stopped, the Stop button changes to the Play button.

The following explains the actions associated to the BcmAmp buttons.

Table 92 BcmAmp Player button actions

Button	Explanation
	Next - Move to Next sound file
	Previous - Move to Previous sound file
	Play - Play selected sound file

Table 92 BcmAmp Player button actions

Button	Explanation
	Pause - Pause play for selected sound file
	Stop - Stop play for the selected sound file

To select and play a sound file

- click **Next**
- click **Previous**
- click the sound file you want to play

To play a sound file, click the **Play** button.

To stop a sound file, click the **Stop** button.

To pause a sound file, click the **Pause** button.

Configuring a Network Device to be the IP Music Source

To configure a Network Device to be the IP Music source

1 Click **Configuration > Applications > Music**.
The Music panel appears.

Note: A third party application, that supports streaming G.711, is required.

2 Select the **Streaming Server** from the **Music Source** list.

3 Configure the **Streaming Server** section of the **Music** panel. Table 5 lists the fields and the associated parameters.

Table 5 Network Device parameters (Sheet 1 of 2)

Attribute	Value	Description
Server	<IP address>	Enter the IP address of the music source.
Server RTP Port	Default port: 2216	Enter the number of the source port used for the music source. This is the port the BCM uses to receive music from the music source.

Table 5 Network Device parameters (Sheet 2 of 2)

Attribute	Value	Description
Stream Type	G.711 U-Law G.711 A-Law G.729 G.723	Enter the codec that is used for the incoming music source audio stream. The codec you enter here must match the codec used by the IP Music source. Default: G.711 U-Law
Frames per packets	1, 2, or 3	Number of audio frames per RTP packet. The number of frames you enter must match the number of frames per packet sent from the IP Music source. Default: 3
RTP port on BCM		Enter the number of the destination port used for the music source. This is the port BCM uses to send music to the users. Default: 2218

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