297-2051-104

DMS-100 Family

Meridian Digital Centrex Simplified Message Desk Interface

Setup and Operation

SN04 and up Preliminary 13.01 September 2004

NORTEL NETWORKS
How the world shares ideas.

DMS-100 Family

Meridian Digital Centrex Simplified Message Desk Interface

Setup and Operation

Publication number: 297-2051-104
Product release: SN04 and up
Document release: Preliminary 13.01
Date: September 2004

Publication history

June 2004

SN07 Preliminary 13.01

Added feature A59037993 “SMDI over TCP/IP” for CS 2000 - Compact offices that need to deploy a message desk service

October 2000

CCM14 Standard 12.02

- Added feature AQ1245 “Remote Call Forwarding Enhancements” to SMDI: features chapter

September 2000

CCM14 Standard 12.01

- Added two suboptions for the option DNSUPPR CALLING in table SLLNKDEV: COMPCND and COMPNODIR

March 2000

CCM13 Standard 11.02

- Added office parameter Dynamic_Memory_Size

March 2000

CCM13 Standard 11.01

- Added FX30 controller card for SMDI datalinks
- Changed the number of message desks each datalink supports from 63 to 999
- Changed table SLLNKDEV, field NUMDIGS to 7, 10, or var (variable)
- Added FX30 to table SLLNKDEV, field DEVTYPE and field EQ for table MPC

- Added IOM$LOAD for the FX30 to table MPC, field DLDFILE
- Changed explanation and action of field LINKKEY, subfield LINKNO in table MPCLINK
- Added log report descriptions and examples for SLNK100 to SLNK106, added log SLNK108
- Added log report description and examples for SMDI103, SMDI107, and SMDI108
- Added log report descriptions and examples for NMS100 to NMS104
- Changed the MWI requests for nodal configurations and MWI requests for network configurations charts and description in feature AF5725, “RES High Speed SMDI”
- Removed table TCAPTRID
- Changed message desks for UCD from 1 to 63 to 1 to 999

July 1998

CCM06 Standard 10.02

- Added description of PRA200 log message

March 1997

CCM06 and up

- Removed references to NT1X67FA
- Removed references to TERMDEV

August 1996

CCM06 Standard 10.01

- Changed title of feature "SMDI Calling DN Delivery Optionality" to "Flexible Line Delivery on SMDI”
- Added feature AF6300 to Chapter 9

June 1995

CCM04 Standard 09.01

- Added feature AF5725 "RES High Sppeed SMDI" to Chapter 9
- Added descriptions of logs SMDI104, SMDI105, and SMDI106 to Chapter 6
- Changed title of feature "Blocking of Restricted Number to SMDI" to "RES SMDI CLID Suppression
- Deleted feature AG1865 "Network Leave Message Service”
- Replaced feature package NTX797AA with NTXN34AA

December 1993

BCS36 Standard 08.03 reissued for standard release

December 1993

BCS36 Standard 08.02

- Added information on "How SMDI interacts with other features" to Chapter 1

October 1993

BCS36 Preliminary 08.01

- Added AF3679 to Chapter 9
- Added UM200354, "SMDI: Message Retrieval Fails When Desk 63 is Added" to Chapter 2
- Added text to description of the LINKNABL subfield in table MPCLINK to Chapter 2

March 1993

BCS35 Standard 07.01

- Added a document index
- Added BK04369, "The MPC LLINKNABL Parameter Description is Incorrect" to Chapter 2

July 1992

BCS34 Standard 06.01

- Added AF3893 to Chapter 5
- Remobed logs SLNK102, SLNK103, and SLNK106 from Chapter 6
- Added Message Data Stream to Chapter 1
- Changed outgoing messages to Chapter 3
- Changed BCS release of AG1638

  BCS Standard 05.02

- Changed BCS release of AG1638

October 1991

BCS33 Standard 05.01

- Tables DN, WRDN, and THOUGRP have been changed to tables DNINV, DNROUTE, and TOFCNAME, respectively
- Added AG1865 and AJ1538 to Chapter
- Made technical correction to AG1638

March 1991

BCS32 Standard 04.02

- Up–issued to reflect minor changes in format

  BCS32 Standard 04.01

- Added Chapter 5
- Added information on SMDI card devices to Chapter 1
- Added Chapter 9

September 1990

BCS31 Standard 03.01

- Added information on the Directory Number Suppression (DNSUPPR) feature
- Added table 1–5 and 1–6 to Chapter 1
- Revised table 2–2 in Chapter 2

February 1990

BCS30 Standard 02.01

- Modifications and additions reflecting enhancement to SMDI with the use of the NT1X67FA card and the NT1X89AA multi–protocol controller card.

Contents

About this document

When to use this document

This document describes the Simplified Message Desk Interface (SMDI) feature package (NTX732AA) and its associated features. SMDI integrates the following three features: call forwarding, message waiting, and uniform call distribution. SMDI allows the user to forward incoming calls to a message desk, retrieve messages from a message desk, and optionally block restricted directory numbers from being presented to the SMDI. This document is intended for the use of SMDI support personnel.

How to check the version and issue of this document

The version and issue of the document are indicated by numbers, for example, 01.01.

The first two digits indicate the version. The version number increases each time the document is updated to support a new software release. For example, the first release of a document is 01.01. In the *next* software release cycle, the first release of the same document is 02.01.

The second two digits indicate the issue. The issue number increases each time the document is revised but re-released in the *same* software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

To determine which version of this document applies to the software in your office and how documentation for your product is organized, check the release information in *Product Documentation Directory*, 297-8991-001.

This document is written for all DMS-100 Family offices. More than one version of this document may exist. To determine whether you have the latest version of this document and how documentation for your product is organized, check the release information in *Product Documentation Directory*, 297-8991-001.

References in this document

The following documents are referred to in this document:

- *Commands Reference Manual*, 297-1001-822
- *Customer Data Schema Reference Manual*, 297-YYYY-351
- *Log Report Reference Manual*, 297-YYYY-840
- *Meridian Digital Centrex Station Message Detailed Recording Reference Manual*, 297-2071-015
- *Office Parameters Reference Manual*, 297-YYYY-855
- *Operational Measurements Reference Manual*, 297-YYYY-814
- *Service Order Reference Manual*, 297-YYYY-808
- *Translations Guide*, 297-YYYY-350

What precautionary messages mean

The types of precautionary messages used in Nortel Networks documents include attention boxes and danger, warning, and caution messages.

An attention box identifies information that is necessary for the proper performance of a procedure or task or the correct interpretation of information or data. Danger, warning, and caution messages indicate possible risks.

Examples of the precautionary messages follow.

ATTENTION
Information needed to perform a task

ATTENTION
If the unused DS-3 ports are not de-provisioned before a DS-1/VT Mapper is installed, the DS-1 traffic will not be carried through the DS-1/VT Mapper, even though the DS-1/VT Mapper is properly provisioned.

DANGER
Possibility of personal injury

DANGER
Risk of electrocution
Do not open the front panel of the inverter unless fuses F1, F2, and F3 have been removed. The inverter contains high-voltage lines. Until the fuses are removed, the high-voltage lines are active, and you risk being electrocuted.

WARNING
Possibility of equipment damage

DANGER
Damage to the backplane connector pins
Align the card before seating it, to avoid bending the backplane connector pins. Use light thumb pressure to align the card with the connectors. Next, use the levers on the card to seat the card into the connectors.

CAUTION
Possibility of service interruption or degradation

CAUTION
Possible loss of service
Before continuing, confirm that you are removing the card from the inactive unit of the peripheral module. Subscriber service will be lost if you remove a card from the active unit.

How commands, parameters, and responses are represented

Commands, parameters, and responses in this document conform to the following conventions.

Input prompt (>)

An input prompt (>) indicates that the information that follows is a command:

```
>BSY
```

Commands and fixed parameters

Commands and fixed parameters that are entered at a MAP terminal are shown in uppercase letters:

```
>BSY CTRL
```

Variables

Variables are shown in lowercase letters:

```
>BSY CTRL ctrl_no
```

The letters or numbers that the variable represents must be entered. Each variable is explained in a list that follows the command string.

Responses

Responses correspond to the MAP display and are shown in a different type:

```
FP 3 Busy CTRL 0: Command request has been submitted.
FP 3 Busy CTRL 0: Command passed.
```

The following excerpt from a procedure shows the command syntax used in this document:

1 Manually busy the CTRL on the inactive plane by typing

```
>BSY CTRL ctrl_no
```

and pressing the Enter key.

where

ctrl_no
is the number of the CTRL (0 or 1)

Example of a MAP response

```
FP 3 Busy CTRL 0: Command request has been submitted.
FP 3 Busy CTRL 0: Command passed.
```

1 Learning the basics of SMDI

What type of message desk works with SMDI?

Simplified Message Desk Interface (SMDI) is implemented as described in Bell Communications Research Technical Reference, *Interface Description-Interface Between Customer Premise Equipment; Simplified Message Desk and Switching System: 1AESS*, TR-TSY-000283. All message desk systems that support the message protocol standards are also defined in TR-TSY-000283 and are compatible with the DMS-100, Communications Server 2000 (CS 2000), and CS 2000 - Compact switches Unless specifically indicated, any features or interactions that work on a DMS-100 switch also work on CS 2000 and CS 2000 - Compact switches.

SMDI functions

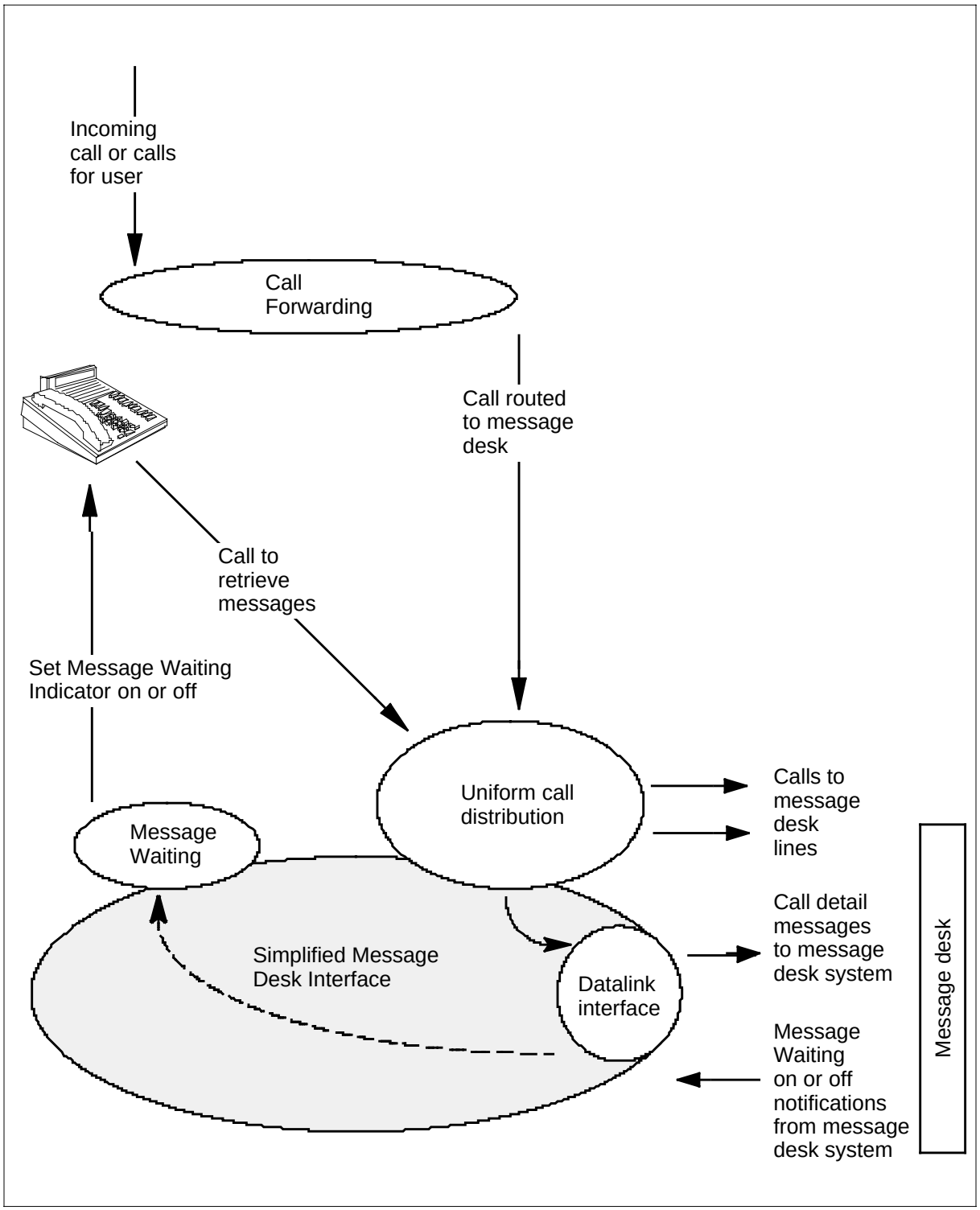
The Call Forwarding features enable a user to forward calls to another directory number (DN) when he or she is not available to answer calls.

The Message Waiting (MWT) feature enables a caller to set up a *please call me* request. The *please call me* request is passed on to the user by a message waiting lamp or by stuttered dial tone. This feature is only available for calls within a customer group.

In many companies, a message desk service is provided to give users a central directory number to which their calls can be forwarded when they are not available to answer the phone. By using the uniform call distribution (UCD) capability, one or more message desk directory numbers can be supported, with calls being distributed automatically to message desk lines.

SMDI integrates call forwarding, message waiting, and UCD with a datalink interface to a message desk system as shown in the following figure.

Figure 1-1 SMDI overview



What is a message desk?

A message desk is a central answering service which takes calls for users not available to answer their phones. Users access this service by call forwarding their phones to the message desk DN.

What is the message desk system?

The message desk system provides capabilities for answering the calls that users *call forward* to a message desk directory number.

A message desk can be either a voice messaging system (VMS) or a text messaging system (TMS). Both systems use a datalink connection to a telephone switch to receive incoming call information and to issue two types of notification:

- message waiting notification - sent when messages have been recorded
- cancel message waiting notification - sent when messages have been retrieved

A *voice messaging system* is an automated recording device which can do the following:

- answer calls and play an appropriate recorded announcement to the caller
- record a message from the caller
- retrieve and play that message to the appropriate user

A *text messaging system* uses a visual display unit with a keyboard to provide a message desk agent with the following:

- an information display for each incoming call
- a text entry facility to record messages
- a text retrieval facility to display all the messages for a user

The operations of the voice messaging system and the text messaging system are described in the following sections.

What is the DNSUPPR feature?

The Directory Number Suppression (DNSUPPR) feature prevents the directory numbers of restricted calling stations and forwarding-from stations, from being presented to a SMDI.

The operation of the DNSUPPR feature is described in the following sections.

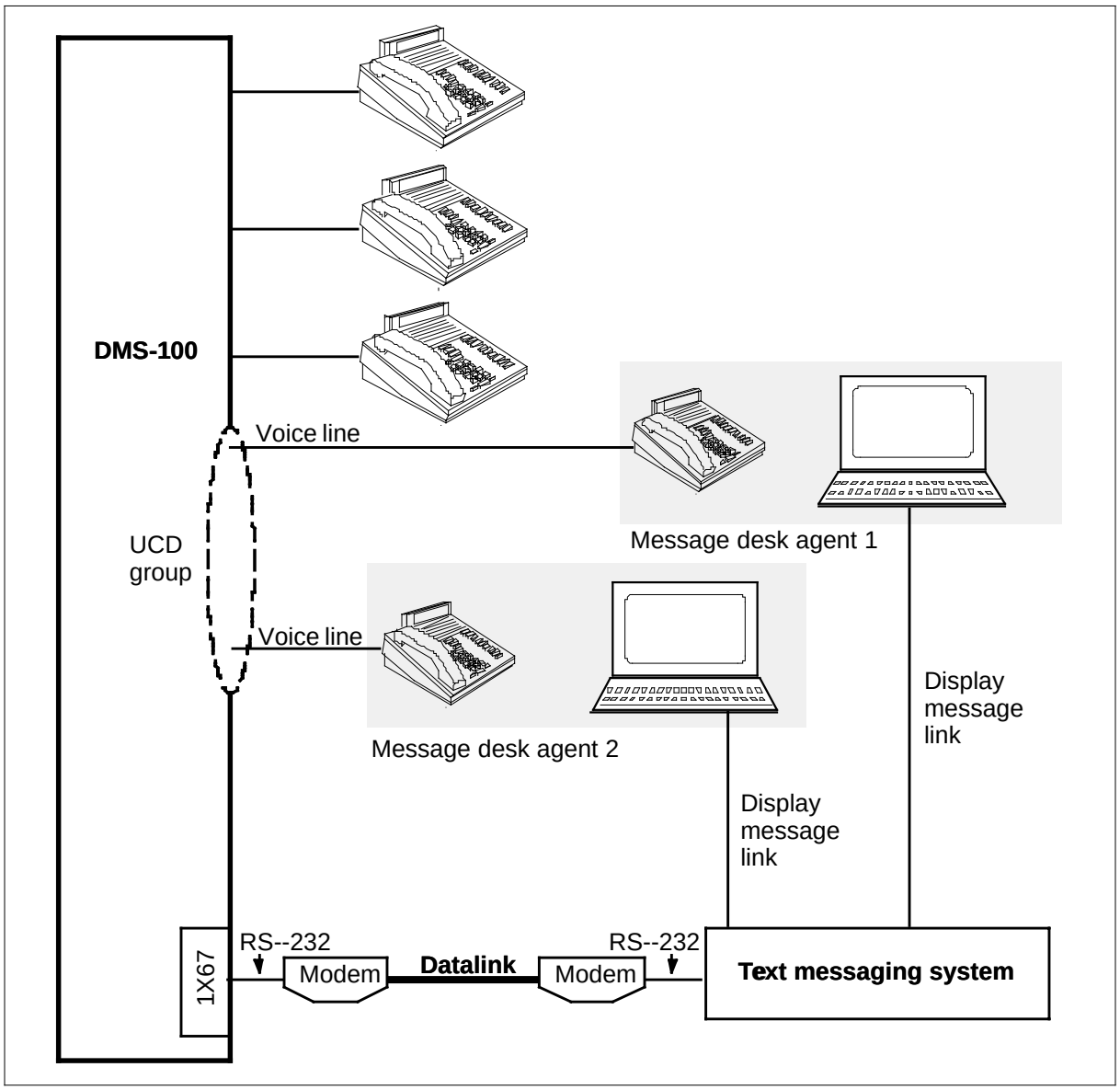
How the text messaging system works

The TMS electronically automates the recording, filing, and retrieval of messages. The TMS communicates with each message desk agent using a

terminal and a keyboard. Figure 1-2, "Text messaging system," shows the configuration of a TMS. The device controller card linking the datalink and the DMS-100 switch is a 1X67 card, 1X89 card, or a FX30 card. The card shown in the figure is a 1X67 card. Each SMDI device must have the assignment of one card. The ports of the assigned cards can not have another purpose. The CS 2000 - Compact does not use a device controller card. A TCP/IP datalink is set up between the CS LAN and the TMS.

Note: If the 1X67BC or 1X67BD circuit packs are being used, all SMDI links should be set to port 0.

Figure 1-2 Text messaging system



All calls forwarded to the message desk are answered by agents. The switch sends the call information to the TMS over the datalink. The call details are

- user's DN
- caller's DN (if available)
- call type (call forward busy, call forward no answer, call forward all)
- message desk number and line termination number of the line of the UCD group that the call is on

The TMS displays the pertinent call details on the message desk attendant's terminal. If the user has supplied additional information, such as whereabouts or schedule, this is also displayed.

Note: The user supplies the additional information by calling the message desk DN or by direct input on a TMS terminal.

The caller can leave a message for the user. The message desk agent enters the message through the terminal keyboard. The TMS then signals the switch to activate a message waiting indicator (MWI) for the user.

Retrieving messages from the text message system

A user who has messages waiting at the SMDI message desk is notified by an active message waiting indicator. The user retrieves messages from the message desk either by calling the message desk or by using a TMS terminal. The user calls the message desk by dialing one of the following:

- the message desk UCD DN
- the Call Request Retrieval (CRR) feature access code (if the station has CRR assigned)

The CRR method of retrieval is recommended to maximize the effectiveness of the SMDI capability.

The procedures for calling the message desk and for using a TMS terminal are described in the following table.

Table 1-1 Calling the message desk

Action	System response
The user dials the message desk UCD DN or uses the call request retrieval code.	The switch • notifies the TMS of the incoming call by transmitting a call detail message (showing the call type as message-retrieval or direct) over the datalink • connects the call to a message desk agent
The agent answers the call.	The agent's terminal displays the messages for the user.
The agent delivers the messages to the user.	The TMS notifies the switch through the datalink to deactivate the user's message waiting indicator

Table 1-2 Using a TMS terminal

Action	System response
The user enters the DN and any other information required by TMS on a TMS terminal.	Messages are displayed for the user, and the TMS notifies the Voice switch through the datalink to deactivate the message waiting indicator.

How the voice messaging system works

The VMS automatically stores and plays back the calling party voice message. The message transmits as delivered, without requiring an agent. Figure 1-3, "VMS for DMS-100 configuration," shows the configuration of a voice messaging system. The device controller card linking the datalink and the DMS-100 switch can have a 1X67 card, a 1X89 card, or a FX30 card. Shown in the figure is 1X67. Each SMDI device requires one card. The remaining ports of the assigned cards can not be used. Figure 1-4, "VMS for CS 2000 - Compact configuration," shows the configuration for a CS 2000 - Compact office. A CS 2000 - Compact uses a TCP/IP connection between the CS LAN and the VMS system.

Note: If the 1X67BC or 1X67BD circuit packs are being used, all SMDI links should be set to port 0.

Figure 1-3 VMS for DMS-100 configuration

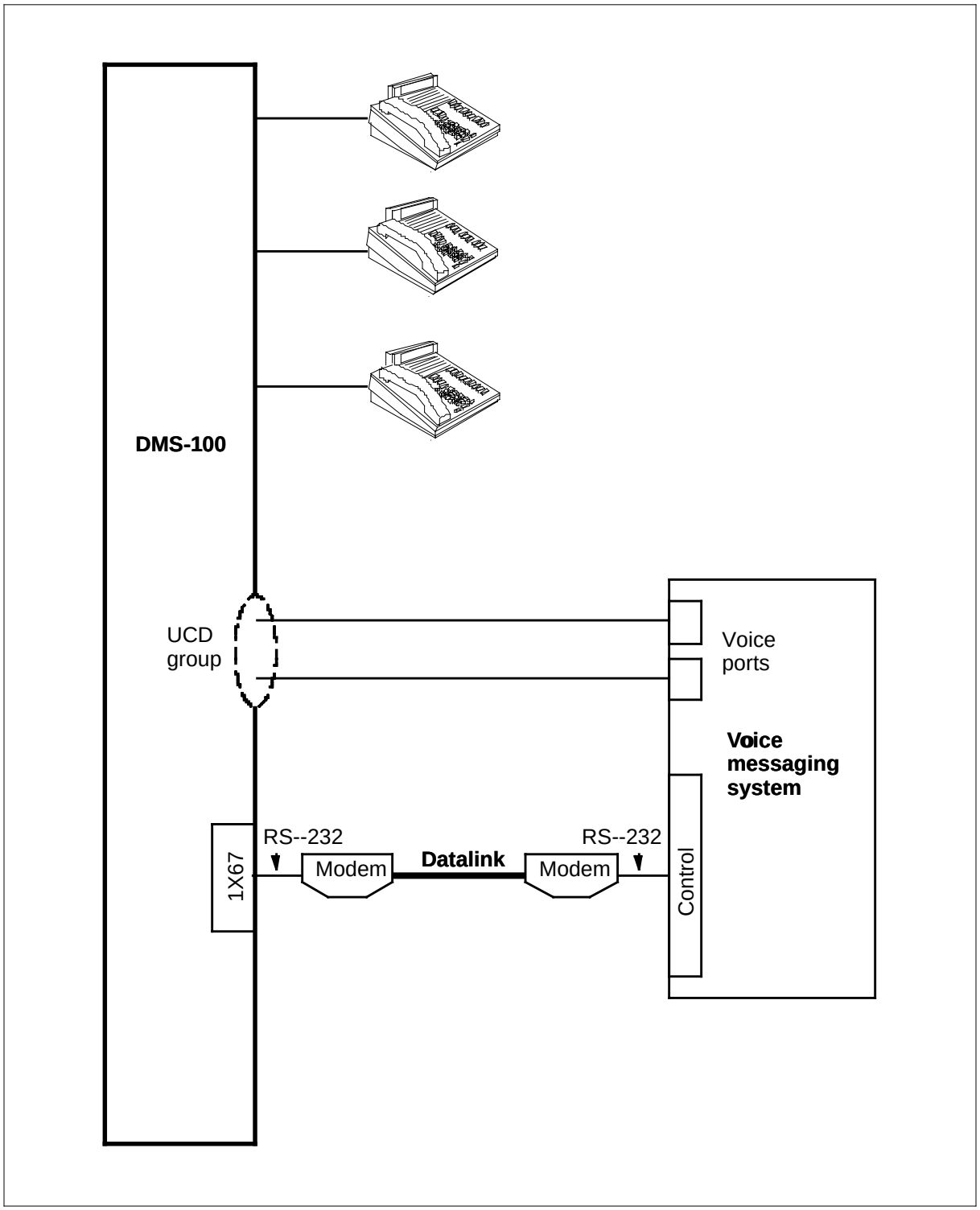
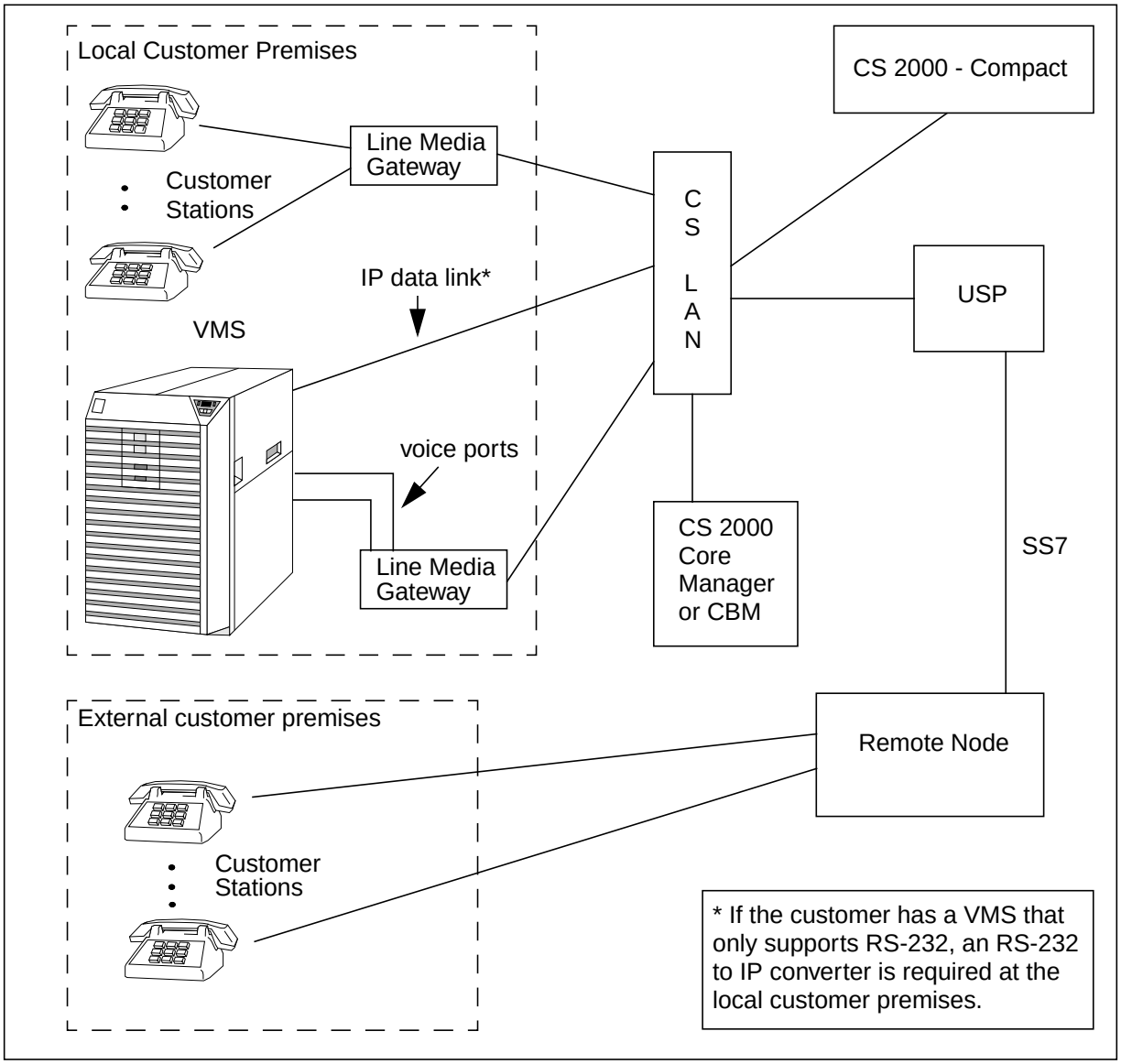


Figure 1-4 VMS for CS 2000 - Compact configuration



Note: If the VMS machine has a single Ethernet link connected to the CS LAN, then messaging over the IP datalink stops between the VMS and the CS 2000 - Compact when the CS LAN unit is upgraded. If the VMS machine is assigned a dynamic IP address and the IP address changes, messaging over the IP datalink is lost between the VMS and the CS 2000 - Compact when the IP address changes.

The message desk UCD group connects calls to voice lines served by the VMS system. These lines are used to carry voice transmissions to and from the user's mailbox. Each mailbox is a unique address in the VMS for each user.

When a forwarded call is connected to a VMS voice line, the switch sends details of the call over the datalink. The call details are

- user's DN
- caller's DN (if available)
- call type (call forward busy, call forward no answer, call forward all)
- message desk number and line termination number of the line of the UCD group that the call is on.

The caller can leave a voice message which the VMS records. When the caller hangs up, the call is released. The VMS notifies the switch through the datalink to activate the user's message waiting indicator.

Retrieving messages from the voice message system

The user retrieves messages by dialing the message desk DN or the call request retrieval code. The switch notifies the VMS of the incoming call and call information. The call information is the same as for TMS. The VMS terminates the call on the correct mailbox so the user can retrieve the messages. The VMS then notifies the switch to deactivate the message waiting indicator for the user.

Message data stream

The following example shows the format of an SMDI message:

```
MDaaabbbbiffffffff ccccccc
```

aaa
Message desk number (001-063)

bbbb
Message desk terminal (0001-2047)

fffffff
DN of the hunt group

ccccccc
calling station DN

i
D - direct call
A - forward all calls
B - forward busy calls
N - forward no answer calls

Communication between the switch and the message desk

The switch supports the following two types of communication links to a message desk system:

- *voice lines*, to which calls to the message desk are connected
- *a datalink*, over which data messages are exchanged

Voice connections to the message desk

Each message desk supported by the switch is provided with a primary directory number (the additional secondary directory numbers may also be used) that is associated with a set of voice lines. Calls to the message desk directory numbers are distributed amongst the voice lines.

In a VMS, the voice lines are connected to voice ports in the VMS system and calls are answered automatically.

In a TMS, the voice lines are connected to a phone that is answered by an agent.

Setting up voice connections to the message desk

The DNs (directory numbers) for each message desk and the message desk lines to which the calls are directed are associated by datafilling them as a UCD group.

The message desk lines are datafilled with both the UCD option and the SMDI option. It is recommended that the message desk lines within a SMDI UCD group have the Cutoff On Disconnect (COD) option. This ensures that when the caller hangs up, the line is immediately available to receive further calls.

For ASPEN voice processing systems, COD should be used if ASPEN does not have the USL TIC cards. COD should not be used if ASPEN has the USL TIC cards that recognize the absence of loop current.

Calls to the message desk DNs are distributed to the associated voice lines by UCD call processing. When a call is connected to a message desk voice line, SMDI processing sends a call detail message across the datalink.

To activate and deactivate a voice connection

For TMS, if the AUTOLOG option in table IBNFEAT is datafilled as N for no autolog, the message desk agent enters the UCD feature activation code to start receiving calls and the UCD feature deactivation code to stop receiving calls.

For VMS, if the AUTOLOG option in table IBNFEAT is datafilled as Y for autolog, there is no activation or deactivation because the line is always available.

Message interchange over the datalink with the message desk system

SMDI exchanges data messages with the message desk system over a datalink. The datalink connects the switch to the message desk system's central processing unit.

SMDI sends

The SMDI sends the following message types:

1. Call detail messages (one for each call connected to a message desk voice line) identifying the following:
   - user's DN
   - caller's DN (if available)
   - call type (call forward busy, call forward no answer, call forward all, or direct call)
   - message desk number and line termination number of the line of the UCD group that the call is on
2. Failure messages
   - Failure messages are described in Chapter 3.

SMDI receives

The SMDI receives the following message types:

1. MWT on messages (activate message waiting)
2. MWT off messages (deactivate message waiting)

Details of the structure and content of each of the messages sent over the datalink are shown under "Message protocol" on page 3-2.

Connections to multiple message desks

SMDI can simultaneously support many message desks and messaging systems. SMDI can use up to 64 datalinks with the 1X67 or 1X89 multi-protocol controller (MPC) cards, or any combination of the two. Each datalink supports one messaging system serving up to 999 message desks.

Differences between message waiting and SMDI message waiting

The message waiting capability offered on the switch can be used to leave:

- a *please call me* request (initiated when a caller, in the same customer group as the user, dials a *call request activation* code)
- a *please call the message desk* request (initiated by SMDI when a *message waiting on* message is received from a message desk system)

Message waiting and SMDI message waiting are compared in Table 1-3 and Table 1-4. The user is notified that a message is waiting by one of the following:

- a stuttered dial tone
- a message waiting lamp

The feature activation codes required to set up and access message waiting are datafilled in table IBNXLA. Activation codes are used to do the following:

- activate MWT (Call Request Activate (CRA))
- retrieve calls in the MWT queue (Call Request Retrieval (CRR))
- remove calls from the MWT queue (Call Request Delete Specific (CRDS) and Call Request Delete All (CRDA))

Table 1-3 Comparison of message waiting with SMDI message waiting (activation)

Message waiting	SMDI message waiting
	The user forwards calls to the message desk UCD DN.
The caller calls the user, and receives busy signal, or the call is unanswered.	The caller calls the user.
The caller flashes or presses the Three-Way Calling (3WC) key to get special dial The caller dials the CRA access code, and gets confirmation tone.	The switch transmits call detail messages across the datalink to provide the message desk system with information about the call. The switch routes the caller to an appropriate message desk line. A message desk agent (TMS) or an automatic answering device (VMS) answers and records the message for the user.
The caller goes on-hook.	The caller goes on-hook.
	The message desk system sends a *message waiting ON* message over the datalink to the switch to activate the message waiting indicator for the user.
The switch adds the caller's DN to the MWT queue for the user, and activates the message waiting indicator for the user.	The switch adds the message desk UCD group name to the message waiting queue for the user.

Table 1-4 Comparison of message waiting with SMDI message waiting (deactivation)

Message waiting	SMDI message waiting
The message waiting indicator shows that a message has been left for the user.	The message waiting indicator shows that a message has been left for the user.
The user dials the CRR access code. If the user has an electronic business set (EBS) with display, then the caller's directory number is displayed on the top line of the user's set.	The user dials the CRR access code. If the user has an EBS with display then the message desk UCD group name (up to 16 characters) is displayed on the top line of the user's set.
	A *call detail* message is transmitted across the datalink to provide the message desk system with information about the call.
The caller is rung. The caller answers and talks to the user.	The switch routes the user to an message desk line. A message desk agent (TMS) or an automatic answering device (VMS) answers and retrieves the messages for the user.
When the call is complete, the user goes on-hook.	The user goes on-hook.
The caller's message is removed from the queue, and message waiting indicator is deactivated for the user.	The message desk sends a *message waiting OFF* message over the datalink to the switch to deactivate the message waiting indicator for the user. The message desk UCD group name is removed from the message waiting queue, and message waiting indicator is deactivated for the user. ***Note:*** The message waiting indicator can remain on momentarily until the switch receives and acts upon the deactivation message.

How SMDI interacts with other features

This section describes what occurs if other features or conditions are present on calls that involve SMDI:

- A station can have both MWT and SMDI message waiting activated against it.

  Part of the processing of call request retrieval ensures that all messages are retrieved. To avoid losing messages, messages must be retrieved using the call request retrieval code. With this method of retrieval, the user receives message waiting indication until both message desk call waiting messages and regular call waiting messages are retrieved. If the user dials the message desk directly to retrieve messages, the control message from the

message desk will cancel the message waiting indication, even though there may be other regular messages waiting.

- A call forward validation termination call is considered a direct call to the message desk.
- For an attendant console-extended call to the message desk, the source of the call is considered to be the calling party presented to the message desk.
- The DN presented to the SMDI message desk is blank if the originator of the call is a trunk, attendant console, or station-controlled conference.
- In the event of call forward chaining to a message desk, the called station information presented to the message desk is the first call forward base station in the chain.
- In 3WC, when the third party is call forwarded and then transferred to a station that is forwarded to a message desk and the party invoking the call transfer hangs up before the called station is forwarded, then the information presented to the message desk is the original third party (the first call forward station before the transfer), and not the first call forward base station after the call transfer.

  If the party invoking the call transfer does not hang up before the called party is forwarded to a message desk, then the first call forward base station after the transfer is presented to the message desk.

  Note: This scenario only applies when the station forwarded to the message desk uses the Call Forward Don't Answer feature.

Effect of restarts on SMDI operation

The following conditions are true for warm and cold restarts, but not for a reload restart:

- The message desk agents within an active UCD group are automatically logged in that group again.
- Active datalinks in the transferring state are automatically brought up ready for use.
- The message waiting indicator state on the user's station is preserved during cold restarts, even though the MWT messages queued against the user are lost.

  Note: Only warm restarts can preserve either message waiting messages or the message waiting indicator on the user's station.

How DNSUPPR works

DNSUPPR permits an office to suppress the appearance of the DNs of the forwarding-from station and the calling station on an individual SMDI basis.

Suppression is obtained by datafilling the DNSUPPR option fields in table SLLNKDEV.

The DNSUPPR option has two subfields: CALLING and FWDING, representing the calling DN and the forwarding-from DN, respectively. For each of these subfields, it can be specified how DN suppression is to be handled for that DN. See "Datafilling table SLLNKDEV" on page 2-11 for details of datafill.

The forwarding-from station DN may be either the original called station DN (default) or, if the LASTFWDN option has been assigned to the SMDI link, the last forwarding station DN.

The DNSUPPR option will also cooperate with the LASTFWDN option and suppress a restricted forwarding-from DN regardless of whether the LASTFWDN option has been assigned.

DN delivery with DNSUPPR option

The following table lists the DNs that will be delivered to an SMDI, depending on which mode of suppression is in effect, and which DNs are restricted. Note that for indirect calls to an SMDI, if the forwarding-from DN is suppressed, no call information is delivered to the SMDI.

Table 1-5 SMDI incoming call information with DNSUPPR options

Forwarding	Calling	Calling DN	Forwarding DN	DN Delivered
NEVER	NEVER	Unrestricted	Unrestricted	Both
			Restricted	
		Restricted	Unrestricted	
			Restricted	
	CONDITNL	Unrestricted	Unrestricted	
			Restricted	
		Restricted	Unrestricted	Forwarding
			Restricted	
	INDIRECT	Unrestricted	Unrestricted	
			Restricted	
		Restricted	Unrestricted	

Table 1-5 SMDI incoming call information with DNSUPPR options

Forwarding	Calling	Calling DN	Forwarding DN	DN Delivered
			Restricted	
	COMPCND	Unrestricted	Unrestricted	Both
		Unrestricted	Restricted	Both
		Restricted	Unrestricted	Forwarding ***Note:*** If the Calling DN and the Forwarding DN are in the same customer group, both the Forwarding DN and the Calling DN will be passed.
		Restricted	Restricted	Forwarding ***Note:*** If the Calling DN and the Forwarding DN are in the same customer group, both the Forwarding DN and the Calling DN will be passed.
	COMPNODIR	Unrestricted	Unrestricted	Both
		Unrestricted	Restricted	Both

Table 1-5 SMDI incoming call information with DNSUPPR options

Forwarding	Calling	Calling DN	Forwarding DN	DN Delivered
		Restricted	Unrestricted	Forwarding ***Note:*** If the Calling DN and the Forwarding DN are in the same customer group, both the Forwarding DN and the Calling DN will be passed.
		Restricted	Restricted	Forwarding ***Note:*** If the Calling DN and the Forwarding DN are in the same customer group, both the Forwarding DN and the Calling DN will be passed.
CONDITNL	NEVER	Unrestricted	Unrestricted	Both
			Restricted	Neither
		Restricted	Unrestricted	Both
			Restricted	Neither
	CONDITNL	Unrestricted	Unrestricted	Both
			Restricted	Neither
		Restricted	Unrestricted	Forwarding

Table 1-5 SMDI incoming call information with DNSUPPR options

Forwarding	Calling	Calling DN	Forwarding DN	DN Delivered
			Restricted	Neither
	INDIRECT	Unrestricted	Unrestricted	Forwarding
			Restricted	Neither
		Restricted	Unrestricted	Forwarding
			Restricted	Neither
	COMPCND	Unrestricted	Unrestricted	Both
		Unrestricted	Restricted	Neither
		Restricted	Unrestricted	Both
		Restricted	Restricted	Neither
	COMPNODIR	Unrestricted	Unrestricted	Both
		Unrestricted	Restricted	Neither
		Restricted	Unrestricted	Forwarding
				Note: If the Calling DN and the Forwarding DN are in the same customer group, both the Forwarding DN and the Calling DN will be passed.
		Restricted	Restricted	Neither

Interactions and limitations of DNSUPPR

Certain combinations of datafill in table SLLNKDEV for the DNSUPPR option cause interactions and limitations to occur at the subscriber's message

waiting indicator (MWI). The following table lists these datafill combinations and the resulting effects.

Table 1-6 DNSUPPR interactions and limitations

DNSUPPR datafill	Effect
FWDING=CONDITNL	INTERACTION. SMDI cannot update the MWI of a subscriber whose DN is restricted. Also, if the forwarding DN is restricted, no call information is delivered to the SMDI.
CALLING=CONDITNL	INTERACTION. SMDI will be unable to allow a subscriber whose DN is restricted to retrieve messages.
CALLING=CONDITNL FWDING=NEVER	LIMITATIONS. A restricted forwarding DN will still be presented to the SMDI, and the SMDI will be able to activate the subscriber's MWI. If a subscriber whose DN is restricted, calls the SMDI directly to retrieve messages from the subscriber's MWI, no calling DN is presented to the SMDI. Since the subscriber's DN is unknown, the subscriber will not be able to retrieve these messages, and the SMDI will not be able to activate the subscriber's MWI. In this case, the subscriber can use Calling Number Delivery Blocking (CNDB) to toggle the suppression on the subscriber's DN, when calling to retrieve messages from the SMDI system.

2 Datafilling for SMDI

Datafill

The following tables require datafill for Simplified Message Desk Interface (SMDI).

Table 2-1 Required datafill tables for SMDI

Table
SLLNKDEV
UCDGRP
DNROUTE
IBNXLA
IBNLINES
IBNFEAT
MPC *
MPCLINK *
* Tables and MPC and MPCLINK are not needed for a CS 2000 - Compact.

SMDI enhancements

The enhancement of the SMDI performance in the BCS30 software, allows the NT1X89AA device controller card for the SMDI datalinks.

The enhancement of the SMDI performance in the NA013 software release allows the FX30 device controller card for the SMDI datalinks.

The NA014 software release enhances the blocking of restricted number delivery to the SMDI by adding two suboptions to the option DNSUPPR CALLING in table SLLNKDEV: COMPCND and COMPNODIR.

Feature A59037993, “SMDI over TCP/IP” in the SN04 release allows SMDI messages to be transmitted over TCP/IP between a CS 2000 - Compact and a voice mail system (VMS).

The following are required office parameters that must be engineered (in table OFCENG) for the SMDI datalinks:

- GUARANTEED_TERMINAL_CPU_SHARE for the 1X67 link
- AUXCP_CPU_SHARE for the 1X89 link

Note: Configuring these office parameters is not needed for CS 2000 - Compact offices.

For information on office parameters refer to the *Office Parameters Reference Manual*.

With BCS31 software, the DNSUPPR option is available, through table SLLNKDEV, provided that the directory number (DN) fields in tables NETNAMES, DNGRPS, and DNATTRS have been set to SUPPRESS. Refer to the *Customer Data Schema Reference Manual.*

Note: The blocking of restricted DNs is handled in the same manner for both nodal and network call types. A network call type is a call type with Integrated Services Digital Network (ISDN) user part (ISUP) or primary rate interface (PRI) over the span of the entire call.

In addition, a Custom Local Area Signaling Services (CLASS) line may have the Calling Number Delivery Blocking (CNDB) option, which allows an originating subscriber to control, on a call-by-call basis, the availability of the subscriber's DN.

NT1X89AA card

For SMDI applications, the multi-protocol controller (MPC) card is used alone. With increased bandwidth, performance, and reliability, it enhances the data communication for SMDI by providing the following:

- data rates from 300 bits to 19.2 kbit/s
- buffering: when the SMDI traffic load increases, the messages are buffered into the MPC to central control (CC) buffer. The MPC can buffer up to 250 kilobytes of data. Due to message compression by the MPC, each message takes 6 bytes of data, and thus, 250 kbytes is over 40 000 messages.
- software to control the input and output of data; it reduces DMS CC real time for input/output
- SMDI load and overload controls

- support for two SMDI links per card
- support for 64 SMDI datalinks, and ten-digit DNs for outgoing and incoming SMDI messages

MPC datafill for SMDI

The following tables require entries for the MPC datafill for SMDI:

- Table MPC defines the MPC card to the DMS, and it includes the MPC number, the input/output controller (IOC) shelf and circuit number, and the download file name.
- Table MPCLINK identifies the MPC links to the DMS, and it includes protocol (ASYNC) and application (APLDEFN).

FX30AA card

The NA013 software release introduces the card FX30AA for the Input Ouput Multiprotocol Controller (IOM MPC) to replace IOC hardware in the DMS-100 switch. Before this enhancement, the IOM MPC entry in the table SLLNKDEV is 1X89. The 1X89 uses the MPC software to support SMDI. The IOM MPC now uses the FX30 card

IOM MPC datafill for SMDI

The tables that follow require entries for IOM MPC datafill for SMDI:

- Table MPC defines the IOM MPC card in the DMS-100 switch and the table includes the MPC number, the input or output (IOC) controller shelf, the circuit number, and the download file name
- Table MPCLINK identifies the MPC links in the DMS-100 switch and the table includes the protocol (ASYNC) and application (APLDEFN)

SMDI over TCP/IP

The SN04 release allows a CS 2000 - Compact to send SMDI messages over a TCP/IP datalink to a VMS. No datafill is required for tables MPC or MPCLINK. Software optionality control (SOC) SMDI0001 must be activated to enable provisioning of a TCP device in table SLLNKDEV.

Required datafill

The following table identifies, in summary, the tables and the fields in the tables that require datafill for SMDI.

MPC	MPCNO	Enter the MPC number of the device associated with SMDI.
	MPCIOC	Enter the MPC IOC shelf number associated with MPC SMDI card.

	IOCCCT	Enter the IOC circuit number.
	EQ	Enter 1X89AA for the MPC card. Enter FX30AA for the FX card.
	DLDFILE	Enter the MPCAXXYY which is the name of the 8-character download file for SMDI. XXYY represents the BCS load designation. for the MPC card. Enter IOM$LOAD for the FX30 card.
MPCLINK	MPCNO	Enter MPC number of the device associated with SMDI.
	LINKNO	Enter port 2 or 3 of the MPC card (for the MPC card.) Enter port 3 of the FX30 card (for the FX30 card.).
	PROTOCOL	Enter ASYNC.
	LINKNABL	Enter a value from 0 to 32 765.
	APLDEFN	Enter SMDI.
SLLNKDEV	DEVNAME	Enter a valid device name.
	DEVTYPE	Enter 1X89 for the MPC card. Enter FX30 for the FX30 card. Enter TCP and the IP address and port number of the VMS for a CS 2000 - Compact. ***Note:*** If DEVTYPE is 1X89, then subfields MPCNO and LINKNO are presented. If DEVTYPE is TCP, then subfields REM_SMDR_IP_ADDR and PORT are presented.
	XFERS	Enter SMDIDATA.
	OPTION	Enter NUMOFDIGS.
	NUMDIGS	Enter 7, 10, or var (variable).
	OPTION	Enter DNSUPPR.
	CALLING	Enter NEVER, CONDITNL, INDIRECT, NODIRECT, COMPCND, or COMPNODIR.
	FWDING	Enter NEVER or CONDITNL.

UCDGRP	OPTIONS	Enter UCD_SMDI to designate this uniform call distribution (UCD) group as the SMDI message desk.
DNROUTE	AREACODE, OFCCODE, and STNCODE	Enter a valid directory number from table TOFCNAME.
IBNXLA	TRSEL	Enter FEAT.
	FEATURE (refinement of TRSEL=FEAT)	Enter UCDA, UCDD, CRA, CRR, CRDA, or CRDS.
Note: Table IBNLINES and table IBNFEAT should be filled through the Service Order system (SERVORD). See the service orders section of this document for examples.		
IBNLINES	OPTION	Enter UCD. Agents within this UCD group must have this option to become UCD agents.
IBNFEAT	DF	Enter SMDI. Agents within a UCD group must have the SMDI option to indicate that their UCD lines have the SMDI feature.
	FEATURE	Enter SMDI.

Before you begin datafill

This section describes recommendations, requirements and restrictions for datafilling the message desk UCD group and the user station.

Recommendations for the message desk UCD group

The list that follows describes recommendations for the datafill of the message desk in the UCD group:

- The agents within the UCD group should have the Cutoff On Disconnect (COD) option in table IBNLINES.
- For ASPEN voice processing systems, COD should be used if the ASPEN does not have the USL TIC cards. COD should not be used if ASPEN has the USL TIC which recognize the absence of loop current.
- The assignment of multiple desk numbers per datalink should be done during off-hours so that any UCD group handling call retrievals is not abruptly affected by this change.
- Changing from multiple desk numbers to a single desk number should be done during off-hours so that any UCD group handling call retrievals is not abruptly affected by this change.

Requirements for message desk UCD group

SMDI supports a maximum of 63 datalinks to transfer messages. Each datalink supports a maximum of 999 message desks. For the switch, each UCD group is a message desk and each UCD group has a message desk number. Table DNROUTE must have the assignment of the UCD feature with the primary and secondary directory numbers.

Restrictions for the message desk UCD group

The list that follows describes the restrictions for the datafill for the message desk in the UCD group:

- The SMDI option cannot be added to a UCD group if any agents in the UCD group are active.
- The SMDI option cannot be modified for a UCD group if any agents in the UCD group are active.
- Use SERVORD to provision the line in a UCD group. This action provisions table IBNFEAT.

Requirements for the user station

The list that follows describes the requirements for the datafill for the user station:

- To forward calls to the message desk the user must have one of the call forward features: call forward busy, call forward don't answer, or call forward all.
- To enable the message waiting indicator (MWI) on the station to be turned on, the user must have the Message Waiting (MWT) feature provisioned through SERVORD. The user can define some other means of message waiting indicator other than the standard MWT light or stuttered dial tone. In this case, the user's station does not have to be datafilled with the MWT option. However, if the message desk attempts to activate or deactivate MWT through the datalink without the MWT option, an error results and a log (SMDI100) will be generated.

Datafill errors

If the datafill is not correct, SMDI will not function properly. The following examples of incomplete datafill will give the results described:

- No SMDI option in table UCDGRP, and table DNROUTE is not datafilled

If the UCD_SMDI option is not assigned to the UCD group in table UCDGRP, and table DNROUTE is not datafilled, then a direct call to the message desk

will receive the defined treatment and a call request retrieve call will go to the night service route.

- No SMDI option in table UCDGRP

  If the UCD_SMDI option is not assigned to the UCD group in table UCDGRP, but table DNROUTE is datafilled with the UCD group DN, then a direct call to the message desk and a Call Request Retrieval (CRR) will terminate on an active UCD group member. However, no SMDI messages will be transmitted across the datalink. If there are no active UCD group members, then the direct call and the CRR call will go to the night service route.

- No SMDI option in table UCDGRP, and tables DNROUTE and UCDGRP are not datafilled

  If there is no UCD group defined in table UCDGRP, a direct call and a CRR call will be routed to the defined treatment. The user should activate Call Request Delete Specific (CRDS) or Call Request Delete All (CRDA) to reset the message waiting indicator.

Datafilling table MPC

The following procedure shows the datafill for table MPC. The MPC table defines the MPC card 1X89 or FX30 for the SMDI datalinks to the switch. For the SMDI application, the datafill includes the MPC number, the MPCIOC shelf, the IOC circuit number, the card code (1X89 or FX30), and the download file name. For SMDI datalinks that use an MPC, the download file (DLDFILE) field is MPCAxxyy, where A represents ASYNC, and xxyy represents the BCS load designation. For the FX30 card, enter IOM$LOAD for the download file (DLDFILE) field.

Table MPC must be datafilled before tables MPCLINK and SLLNKDEV. This procedure contains only those fields that apply to SMDI. Refer to the *Customer Data Schema Reference Manual* for a description of the other fields.

Table 2-2 Datafilling table MPC

Field	Subfield	Explanation and action
MPCNO		*Multi-protocol controller number* Enter the number of MPC used for SMDI. Valid entries are from 0 to 255.
MPCIOC		*Multi-protocol controller input/output controller shelf* Enter the number associated with the (MPC or FX30) SMDI card. Valid entries are from 0 to 19.

Table 2-2 Datafilling table MPC

Field	Subfield	Explanation and action
IOCCCT		*Input/output controller circuit number* Enter the slot position on the IOC shelf multiplied by 4, then subtract 1. Valid entries are from 0 to 35.
EQ		*Equipment product engineering code* Enter the NT PEC for the MPC or FX30 card. Enter 1X89AA or 1X89BA, or FX30.
DLDFILE		*Download file* Enter the 8-character download file name for SMDI. Enter MPCAxxyy for an 1X89. MPCA represents MPC async, and xxyy represents the BCS load designation. Enter IOM$LOAD for DLDFILE for the FX30 card.

An example of the datafill for table MPC follows:

System prompt	User input
>	table mpc
TABLE: MPC	
>	add
MPCNO:	
>	1
MPCIOC:	
>	10
IOCCCT:	
>	16
EQ:	
>	1x89aa
DLDFILE:	
>	mpca30bh

Datafilling table MPCLINK

The following procedure shows the datafill for the table MPCLINK. The table MPCLINK must have the entries for the SMDI datalinks for the MPC card 1X89 or FX30. Table MPCLINK identifies the datalinks to the DMS switch. For the SMDI application, the following subfields should be datafilled in table MPCLINK:

- PROTOCOL
- APLDEFN

In addition, table MPCLINK has the following two parameters:

- L1IDLY
- L2IDLY

These parameters represent the input delay (in 10 milliseconds) for layer1 and layer2, respectively. L1IDLY defaults to 100 and L2IDLY defaults to 200. Thus, the maximum time that the MPC can delay sending messages to the central control (CC) is 300 (10 millisecond units) or 3 seconds. L1IDLY and L2IDLY only delay the MPC input during periods of low link occupancy. However, if three seconds is an unacceptable delay, then these parameters may be changed to smaller values.

L1IDLY must be less than L2IDLY, and for SMDI, L1IDLY cannot be set to 0. The 0 value for L1IDLY indicates that the input from the MPC to the CC should be sent on a character by character basis.

The BAUDRATE parameter defaults to 1200. However, the MPC supports baud rates of up to 19.2 kbit/s.

The MPCLINK table must be datafilled before table SLLNKDEV. This procedure contains only those fields that apply to SMDI. Refer to the *Customer Data Schema Reference Manual* for a description of the other fields.

Table 2-3 Datafilling table MPCLINK

Field	Subfield	Explanation and action
LINKKEY		*Link key field* This key field is comprised of subfields MPCNO and LINKNO.
	MPCNO	*Multi-protocol controller number* Enter the MPC number, the same value datafilled in table MPC. Valid entries are from 0 to 255.

Table 2-3 Datafilling table MPCLINK

Field	Subfield	Explanation and action
	LINKNO	*Link number* Enter the MPC link number for the SMDI application with ASYNC protocol. The valid entries are 0 to 3 for the MPC card. Enter the FX30 link number for the SMDI application with ASYNC protocol. The valid entry is 3.
PRTCLDAT		*Protocol data* This field is comprised of subfields PROTOCOL, LINKNABL, and APLDEFN.
	PROTOCOL	*Protocol* Enter the link protocol. It must be consistent with the download file specified in table MPC. Enter ASYNC.
	LINKNABL	*Link enable* Enter the number of minutes, in multiples of 5, a link is system busied and returned to service when the link fails to enable. Valid entries are from 0 to 32 767. (See Note.)
	APLDEFN	*Application definition* Enter the name of the application. Enter SMDI.

Note: The purpose of the LINKNABL capability is to re initialize mechanisms on the MPC card in an attempt to enable the link. If this capability is not desired, the LINKNABL subfield can be datafilled as 0, which disables the function. If the LINKNABL subfield is datafilled with a non-zero value and one link is enabled and the second link has reached the LINKNABL timeout threshold (that is, the link has been system busied), the enabled link and the MPC card will become system busied and returned to service. To prevent the MPC card and the enabled link from becoming system busied and returned to service, the LINKNABL subfield can be datafilled with 0 for the system busy link.

An example of the datafill for table MPCLINK follows:

System prompt	User input
>	table mpclink
TABLE: MPCLINK	
>	add
LINKKEY:	
>	1 2

System prompt	User input
LINKALM:	
>	y
PROTOCOL:	
>	async
LINKNABL:	
>	55
PARM:	
>	apldefn
APLDEFN:	
>	smdi
PARM:	
>	$
STRID:	
>	$

Datafilling table SLLNKDEV

The following procedure shows the datafill for table SLLNKDEV. Table SLLNKDEV is used to specify characteristics of datalinks used by the CI command LNKUTIL. The SMDILNK level is also used for TCP/IP datalinks.

All devices must be datafilled in table SLLNKDEV before they are connected in the command interpreter increment LNKUTIL. These devices must be datafilled in table TERMDEV before they can be datafilled in table SLLNKDEV. TCP/IP datalinks for CS 2000 - Compact are automatically connected upon datafill completion and do not require datafill in table TERMDEV.

There is no dependency between the table control software and the SLLNK software. An entry in table TERMDEV can be manipulated independently of any corresponding entry in table SLLNKDEV. The only restriction imposed is that the datalink device must be datafilled in table TERMDEV before it can be datafilled in table SLLNKDEV, and the device must be datafilled in table SLLNKDEV before it can be accessed by LNKUTIL.

This procedure contains only those fields that apply to SMDI. Refer to the *Customer Data Schema Reference Manual* for a description of the other fields.

Table 2-4 Datafilling table SLLNKDEV

Field	Subfield	Explanation and action
DEVNAME		*Device name* Enter the 1- to 16-character device name used in SMDILNK.
DEVTYPE		*Device type* Enter the type of device. Enter 1X89 for the MPC card. Enter FX30 for the FX30 card. Enter TCP for CS 2000 - Compact offices. ***Note 1:*** If the field DEVTYPE is 1X89, the subfields MPCNO and LINKNO require datafill before the datafill in the field XLATION. ***Note 2:*** If field DEVTYPE is TCP, subfields REM_SMDR_IP_ADDR and PORT require the IP address and port number of the VMS.
XLATION		*Translation* Enter the translation used for outgoing and incoming datalinks. Enter NONE or BCDTOASCII.
PROTOCOL		*Protocol* Enter the protocol expected by the datalink and the switch concerning the connection and starting messages, as well as any leading byte information required. Valid entries are NONE and X400.
DRECTION		*Direction* Enter the direction that the data travels through the datalink. Enter INOUTLK for in/outlink. Enter INOUTLNK for CS 2000 - Compact offices.
XFERS		*Transfers* Enter the report types that are allowed on the datalink. Enter SMDIDATA for SMDI I/O communication.
	OPTION	*Options* Enter NUMOFDIGS (number of digits) for the number of digits for SMDIDATA. Or enter COMMON to select a common message desk number for each SMDI link to be used during CRR.
If NUMOFDIGS is the option, datafill the subfield NUMDIGS.		

Table 2-4 Datafilling table SLLNKDEV

Field	Subfield	Explanation and action
	NUMDIGS	*Number of digits* Enter the number of digits in the DN to send to the voice messaging system (VMS). Valid entries are 7, 10, or var (variable).
	OPTION	*Option* Enter DNSUPPR for DN suppression.
If COMMON is the option, datafill subfield DESKNUM.		
	DESKNUM	*Desk number* Enter a number from 1 to 999 to indicate the common message desk number for CRR.
	CRRTYPE	*Call request retrieval type* Enter ALL if all link users are to use the common message desk during CRR. Or enter NETWORK if only subscribers outside the host node are to use the common message desk during CRR.
If DNSUPPR is entered, subfields CALLING and FWDING are presented:		

Table 2-4 Datafilling table SLLNKDEV

Field	Subfield	Explanation and action
	CALLING	*Calling directory number suppression* Enter whether the calling DN is suppressed when presented to the SMDI. Valid entries are NEVER, CONDITNL, INDIRECT, NODIRECT, COMPCND, and COMPNODIR. Enter NEVER if the calling DN is never suppressed. Enter CONDITNL if the calling DN is conditionally suppressed. That is, the calling DN is suppressed if it is restricted. Enter INDIRECT if all indirect calls are suppressed. ***Note:*** If INDIRECT is chosen, it implies that on indirect calls, no DN suppression is performed on the calling DN. Enter NODIRECT if the calling DN is always delivered, regardless of its privacy status. Enter COMPCND • for an indirect call, the calling DN is suppressed only if the calling DN and the forwarding DN are not in the same customer group • for a direct call, the calling DN is delivered if the calling DN is unrestricted or if the network of the calling DN and the network of the SMDI_LINK are the same Enter COMPNODIR • for an indirect call, the calling DN is suppressed only if the calling DN and the forwarding DN are not in the same customer group • for a direct call, if the calling DN is always delivered
	FWDING	*Forwarding directory number suppression* Enter whether the forwarding DN is suppressed when presented to the SMDI. Valid entries are NEVER and CONDITNL. Enter NEVER if the forwarding DN is never suppressed. Enter CONDITNL if the forwarding DN is conditionally suppressed. That is, the forwarding DN is suppressed if it is restricted.

An example of the datafill for table SLLNKDEV follows:

System prompt	User input
>	table sllnkdev
TABLE: SLLNKDEV	
>	add
DEVNAME:	
>	smdi5
DEVICE:	
>	1x67 (Refer to Note 1.)
XLATION:	
>	none
PROTOCOL:	
>	none
DRECTION:	
>	inoutlk
XFER:	
>	smdidata
OPTION:	
>	numofdigs
NUMDIGS:	
>	7
OPTION:	
>	dnsuppr (Refer to Note 2.)
CALLING:	
>	indirect
FWDING:	
>	conditnl

System prompt	User input
OPTION: > XFER: >	 $ $

Note 1: Enter HS1X67 if field PEC in table TERMDEV is 1X67FA.

Note 2: In this example, the SMDI device SMDI5 will suppress restricted forwarding DNs and all calling DNs on indirect calls, and will not perform any DN suppression on direct calls.

Datafilling table UCDGRP

Table UCDGRP defines the message desk number for each UCD group.

Avoiding MWT error using table UCDGRP

The retrieval methods CRR or the depression of the MWT key retrieve the SMDI messages and terminate on a retrieval message desk.To prevent the appearance of the retrieval message desk number in the message, the entry in the NSROUTE field in the table UCDGRP must go to an IBN route. Table IBNRTE includes the N selector to point to a loop-around trunk and a DMI (digit manipulation index) to point to table DIGMAN. The entry in table DIGMAN includes the directory number of another UCD group to use for message retrievals.

Note: ISUP (Integrate Services Digital Network user part) or PRI (primary rate interface) loop-around trunks should be used in this scenario.

This procedure contains only those fields that apply to SMDI. Refer to the *Customer Data Schema Reference Manual* for a description of the other fields.

Table 2-5 Datafilling table UCDGRP

Field	Subfield	Explanation and action
UCDNAME		*Uniform call distribution name* Enter the 1- to 16-character name assigned to UCD group.
ACD		*Automatic Call Distribution* Enter N because Automatic Call Distribution is not supported.
CUSTGRP		*Customer group name* Enter the 1- to 16-character name of the customer group to which the UCD group belongs.

Table 2-5 Datafilling table UCDGRP

Field	Subfield	Explanation and action
UCDRNGTH		*Uniform call distribution ringing threshold* Enter the ringing threshold, in one-second intervals, after which an unanswered call to a UCD agent is forwarded to the route specified in field THROUTE. Valid entries are from 0 to 63.
THROUTE		*Threshold route* Consists of subfields TABID and INDEX. Specifies the route in tables IBNRTE, IBNRT2, IBNRT3, OFRT, OFR2, or OFR3 to which overflow and time-outs are routed.
	TABID	*Table name* Enter the table name to which overflow and time-outs are routed. Valid entries are IBNRTE, IBNRT2, IBNRT3, OFRT, OFR2, and OFR3.
	INDEX	*Index* Enter the number assigned to the route list to which overflow and time-outs are routed. Valid entries are from 1 to 1023.
NSROUTE		*Night service route* Consists of subfields TABID and INDEX. Specifies the route in tables IBNRTE, IBNRT2, IBNRT3, OFRT, OFR2, or OFR3 to which calls for the UCD group in night service mode are routed.
	TABID	*Table name* Enter the table name to which night service calls are routed. Valid entries are IBNRTE, IBNRT2, IBNRT3, OFRT, OFR2, and OFR3.
	INDEX	*Index* Enter the number assigned to the route list to which night service calls are routed. Valid entries are from 1 to 1023.
PRIOPRO		*Priority promotion time-out* Enter the maximum time, in seconds, a call can wait in a queue. Valid entries are from 0 to 255 seconds.
MAXPOS		*Maximum number of positions* Enter the maximum number of UCD agent positions that can be active at one time. Valid entries are from 0 to 1023.

Table 2-5 Datafilling table UCDGRP

Field	Subfield	Explanation and action
DBG		*Delayed billing* Enter Y if billing starts when the call is answered by a UCD agent. Enter N if billing starts when the caller receives recorded announcement.
DEFPRIO		*Default priority* Enter the default priority number which is applicable to local calls terminating upon the primary UCD number. Valid entries are from 0 to 3.
RLSCNT		*Release count* Enter the maximum number of calls which terminate on a UCD station, but are not answered. After this number is reached, the agent is automatically deactivated from the UCD group. Valid entries are from 0 to 31.
MAXWAIT		*Maximum wait time* Enter the maximum time, in seconds, that a call should have to wait in the incoming call queue before being answered. Valid entries are from 0 to1800.
MAXCQSIZ		*Maximum call queue size* Enter the maximum number of calls that can be in the incoming call queue. Valid entries are from 0 to 511.
OPTIONS		*Options* Enter UCD_SMDI so the number is part of a SMDI UCD group.
	SMDI_LINK	*SMDI link name* Enter the terminal designation defined in table SLLNKDEV.
	SMDI_DESK_NO	*SMDI message desk number* Enter the message desk number. Valid entries are from 1 to 999.
	MCOS_LIST	*Message class of service list* Enter up to four class of service names for the messages.

An example of datafill for table UCDGRP follows:

System prompt	User input
>	table ucdgrp
TABLE: UCDGRP	
>	add
UCDNAME:	
>	messdesk
ACD:	
>	n
CUSTGRP:	
>	cust1
UCDRNGTH:	
>	5
TABNAME:	
>	ofrt
INDEX:	
>	4
TABNAME:	
>	ibnrte
INDEX:	
>	7
PRIOPRO:	
>	99
MAXPOS:	
>	10
DBG:	
>	y

System prompt	User input
DEFPRIO:	
>	1
RLSCNT:	
>	0
MAXWAIT:	
>	120
MAXCQSIZ:	
>	90
OPTION:	
>	ucd_smdi
SMDI_LINK:	
>	smdi5
SMDI_DESK_NO:	
>	4
MCOS_LIST:	
>	classa
MCOS_LIST:	
>	$
OPTION:	
>	$

Datafilling table DNROUTE

The following procedure shows the datafill for table DNROUTE. The primary and secondary directory numbers are assigned to a UCD group in table DNROUTE.

This procedure contains only those fields that apply to SMDI. Refer to the *Customer Data Schema Reference Manual* for a description of the other fields.

Table 2-6 Datafilling table DNROUTE

Field	Subfield	Explanation and action
AREACODE		*Serving number plan area* Enter the serving NPA of the DN.
OFCCODE		*Office code digit register* Enter the NNX code of the directory number.
STNCODE		*Station code* Enter the DEFG digits of the directory number.
DNRESULT		*Directory number results* This field is comprised of the subfields DNSEL, FEATURE, UCDGRP, and DNAREA.
	DN_SEL	*Directory number selector* Enter the directory number selector FEAT.
	FEATURE	*Feature* Enter the feature UCD.
	UCDGRP	*Uniform call distribution group* Enter the 1- to 16-character name for this UCD DN, previously datafilled in table UCDGRP, field UCDNAME.
	DNAREA	*Directory number area* This subfield is composed of subfields DNTYPE, TOLLPRIO, MEMNO, and DNPRIO.
	DNTYPE	*Directory number type* Enter PRIM if the DN is the primary UCD DN for this UCD group, and complete subfield TOLLPRIO. Enter SUPP if the DN is one of the supplementary DN(s) for this UCD group, and complete subfields MEMNO and DNPRIO.
	TOLLPRIO	*Toll priority* Enter the priority of toll calls terminating on the primary UCD DN. Valid entries are from 0 to 3. The highest priority is zero.

Table 2-6 Datafilling table DNROUTE

Field	Subfield	Explanation and action
	MEMNO	*Member number* Enter the UCD member number of this DN in this UCD group. Valid entries are from 1 to 4.
	PNPRIO	*Directory number priority* Enter the priority of calls terminating on this UCD DN. Valid entries are from 0 to 3.

An example of the datafill for table DNROUTE follows:

System prompt	User input
>	table dnroute
TABLE: DNROUTE	
>	add
AREACODE:	
>	613
OFCCODE:	
>	722
STNCODE:	
>	4980
DN_SEL:	
>	feat
FEATURE:	
>	ucd
UCDGRP:	
>	messdesk
DNTYPE:	
>	prim

System prompt	User input
TOLLPRIO: >	 0

Datafilling table IBNFEAT

The following procedure shows the datafill for table IBNFEAT. Features are assigned to lines in table IBNFEAT. Table UCDGRP must be datafilled before table IBNFEAT for SMDI, because the subfield UCDGRP must contain the same name assigned to the field UCDNAME in table UCDGRP.

This procedure contains only those fields that apply to SMDI. Refer to the *Customer Data Schema Reference Manual* for a description of the other fields.

Table 2-7 Datafilling table IBNFEAT

Field	Subfield	Explanation and action
LEN		*Line equipment number* This field is comprised of subfields SITE, FRAME, UNIT, DRAWER, and CIRCUIT.
	SITE	*Site* Enter the site name of the remote location. If left blank, the default value is HOST.
	FRAME	*Frame number* Enter the line module frame number. Valid entries are from 0 to 99.
	UNIT	*Unit number* Enter the unit number of the line module to which the line is assigned. Valid entries are 0 and 1.
	DRAWER	*Drawer number* Enter the number of the line drawer or line subgroup to which the line is assigned. Valid entries are from 0 to 19.
	CIRCUIT	*Line card circuit number* Enter the line card circuit number. Valid entries are from 0 to 31.
DATA		*Data* This field is comprised of subfields DF, LINENO, UCDGRP, and AUTOLOG.

Table 2-7 Datafilling table IBNFEAT

Field	Subfield	Explanation and action
	DF	*Data feature* Enter the data feature SMDI.
	LINENO	*Line number* Enter the line number in the SMDI UCD group. Valid entries are from 1 to 1024.
	UCDGRP	*Uniform call distribution group name* Enter the 1- to 16-character UCD group name assigned in table UCDGRP.
	AUTO_LOG	*Automatic login* Enter Y if the line is to log automatically into the UCD group. Enter N if the line is to log manually into the UCD group.

An example of datafill for table IBNFEAT follows:

System prompt	User input
>	table ibnfeat
TABLE: IBNFEAT	
>	add
LEN:	
>	host 02 1 00 06
DNNO:	
>	0
DF:	
>	smdi
FEATURE:	
>	smdi
LINENO:	
>	2
UCDGRP:	

System prompt	User input
> AUTOLOG: >	messdesk (See Note.) y

Note: Must be same name as assigned in table UCDGRP.

3 Setting up and maintaining datalinks

Datalink used between the DMS-100 switch and the message desk

A multilink American Standard Code for Information Interchange (ASCII) device driver is the datalink used for the communication between the switch and the message desk. For 1X89 and FX30 MPC cards, the datalink consists of a 1200-baud, dedicated, full duplex line that transmits ASCII characters. It is an RS-232-C datalink which uses a device controller card. Neither end-to-end protocol nor integrity is provided. Retransmission of data that is incorrectly received is not supported. For CS 2000 - Compact, the ASCII messages are encapsulated in TCP/IP packets and sent to the IP address and port specified in fields REM_SMDR_IP_ADDR and PORT of table SLLNKDEV.

As many as 64 datalinks are used to handle Simplified Message Desk Interface (SMDI) messages. Each datalink supports up to 999 desk numbers.

Datafilling the datalink

The entry for the datalink device (NT1X89, FX30 types) is in tables MPC and MPCLINK before the datafill in table SLLNKDEV.

SMDI must have exclusive use of any datalink it uses in the multilink ASCII device driver.

The following tables need to be datafilled for the datalink:

Table 3-1 Required datafill for the datalink

Table
MPC * MPCLINK * SLLNKDEV
* - For CS 2000 - Compact offices, tables MPC and MPCLINK do not need datafill.

What happens to messages during datalink failure?

The switch (as instructed only by the input datalink messages from the TMS or VMS) activates or deactivates SMDI Message Waiting (MWT). Logs regarding the status of the datalink are generated for hardware or software failure.

If the switch is unable to execute the message desk request, or the input datalink message contains invalid data, then the switch performs no action. The switch sends a negative acknowledgement message to the message desk. The message desk should recheck the data and try the transmission again.

Message protocol

The switch checks the messages received from the message desk for adherence to the following message protocols:

Incoming messages—The switch accepts two kinds of incoming messages from the message desk:

1. A message to activate the message waiting indicator (MWI):

   OP: MWI(SP)nnnnnnn!(D)

2. A message to deactivate the message waiting indicator:

   RMV: MWI(SP)nnnnnnn!(D)

Where:

```
nnnnnnnnnn   station number (seven or ten digits)
 (D)          control-D (end of transmission)
 (SP)         space
```

For example, if the user with a directory number (DN) of 787-2000 has forwarded calls to the message desk and has received a message, the message desk activates the message waiting indicator for his station with the following:

```
OP: MWI 7872000!(D)
```

After the user has retrieved the messages from the message desk, the message desk deactivates the message waiting indicator for his station with the following:

```
RMV: MWI 7872000!(D)
```

Outgoing messages—The switch sends two groups of messages to the message desk.

1. Call detail messages provide details concerning calls being taken by the message desk, as shown in the following examples:

```
(LF)(CR)(CR)(LF)MDaaabbbbinnnnnnn(SP)ccccccc
(SP)(CR)(LF)(Y)

(LF)(CR)(CR)(LF)MDaaabbbbinnnnnnn(SP)(SP)(CR)(LF)(Y)

(LF)(CR)(CR)(LF)MDaaabbbbi(SP)ccccccc(SP)(CR)(LF)(Y)
```

2. MWI change failure messages indicate that the requests to change the message waiting indicator failed because it was invalid (INV) or because it was unable to perform the change when requested (BLK), as shown in the following examples:

```
(LF)(CR)(CR)(LF)MWInnnnnnn(SP)INV(CR)(LF)(DL)(DL)(Y)
(LF)(CR)(CR)(LF)MWInnnnnnn(SP)BLK(CR)(LF)(DL)(DL)(Y)
```

Where:

```
(SP)       space
(CR)       carriage return
(LF)       line feed
(DL)       delete character (ASCII value FF)
(Y)        control-Y
aaa        message desk number (001-063)
bbbb       message desk terminal or line number (0001-2047)
fffffff    DN of hunt group
nnnnnnnnnn forwarding from station number (can be seven or
ten digits)
ccccccc    calling station DN (can be seven or ten digits)
i          type of call
     D          direct calls
     A          forward all calls
     B          forward busy calls
     N          forward no answer calls
```

For example, the user with a directory number of 787-2000 has all calls forwarded to the message desk. The caller with a DN of 361-1234 calls the user and is forwarded to message desk number 002, terminal 0009. The switch sends the following message to the message desk:

```
(CR)(LF)MD0020009A7872000 3611234 (CR)(LF)(Y)
```

4 Changing datalink states

Datalink states

Depending on external conditions, (manual disconnection of the link, restarts, or hardware failures) and commands issued, the link can be in one of three states—connected, disconnected, or transferring. Only a link in the transferring state allows messages to pass across the link. Datalink states are checked with the LNKSTAT or SMDISTAT level commands. For a CS 2000 - Compact, if the link between the VMS and the CS LAN routers is not redundant, a switch of activity at the CS LAN will disconnect the link.

For TCP datalinks, if the VMS machine has a dynamically configured IP address and the IP address changes after a reset, table SLLNKDEV will not be automatically updated and the datalink will be disconnected.

Command applicability

For the 1X89 datalinks, the LNKSTAT , SMDISTAT, and QUIT commands are valid.

The 1X89 and TCP datalinks are automatically connected and started when datafilled in table SLLNKDEV. The 1X89 datalinks are returned to service at the multi-protocol controller (MPC) MAP level. TCP datalinks are managed with the SMDILNK level commands.

Command	New state	Description
SMDISTAT	connected	Queries the status of Simplified Message Desk Interface (SMDI) input/output (I/O) and related datalinks. This command does not affect datalink status.

Command	New state	Description
LNKSTAT	connected	Queries the status of SMDI I/O and related datalinks. This command does not affect datalink status. ***Note:*** LNKSTAT is available to only 1X89 datalinks.
QUIT	connected	Leaves the current command interpreter increment level. This command does not affect datalink or SMDI status.

Command	New state	Description
SMDISTAT	transferring	Queries the status of SMDI I/O communication on the links. This command does not affect SMDI or datalink status.
LNKSTAT	transferring	Queries the status of data links and related SMDI I/O communication. This command does not affect datalink status. ***Note:*** LNKSTAT is available to only 1X89 datalinks.
QUIT	transferring	Leaves the current command interpreter level. This command does not affect datalink or SMDI status.

Command interpreter commands

SMDILNK command is a command interpreter (CI) command. The SMDISTAT level of the SMDILNK command allows the user to query SMDI I/O information.

For information on the LNKUTIL command LNKSTAT, see *Commands Reference Manual*.

How to access SMDILNK command

To access SMDILNK, perform the following steps on a MAP workstation at the CI level:

```
System prompt     User input

CI:
>                  smdilnk
SMDILNK:
```

SMDILNK commands

In SMDILNK, the following commands are available to the user:

- SMDISTAT
- SMDICON - this command is only applicable to CS 2000 - Compact
- SMDIDISC - this command is only applicable to CS 2000 - Compact
- QUIT

These commands are only available in SMDILNK CI increment and they require parameters that are related to SMDI I/O communication.

SMDISTAT

The SMDISTAT command gives information about SMDI I/O communication.

Procedure 4-1 Determine SMDI link status

At the MAP

1 Enter the SMDILNK level:

```
> SMDILNK
```

2 Enter the SMDISTAT command:

```
> SMDISTAT link <link_name>
```

link_name
is the name of the SMDI link datafilled in field DEVNAME of table SLLNKDEV

or use the ALL syntax: **SMDISTAT ALL**

The status of the specified link or all SMDI links is reported:

```
>SMDISTAT link smdi0

 LINK SMDI0
+---------------------------------+
SMDI I/O communication is routed on link SMDI0
>
```

Other responses:

```
SMDI I/O COMMUNICATION IS ROUTED ON A POOL SECOND ON
DEVICE SMDI5.
```

SMDISTAT POOL SECOND was entered and a previous SMDICON command has been entered successfully.

```
NO SMDI I/O COMMUNICATION HAS BEEN ROUTED ON POOL SECOND.
```

No SMDI I/O communication has been routed on pool SECOND.

```
SMDI I/O COMMUNICATION IS POSSIBLE ON THE FOLLOWING POOLS
AND THEIR ASSOCIATED DEVICES:
 POOL       DEVICE         SMDI I/O STATUS
 ----       ------         ---------------
 BOTTOM     SMDI3          ROUTING
 TOP        SMDI6          NOT ROUTING
 SECOND      SMDI5          ROUTING
```

SMDISTAT ALL was entered and two previous SMDICON commands have been entered successfully. TOP has either been started with LNKUTIL: DEVSTART but not connected with SMDILNK: SMDICON, or the link was connected with SMDILNK: SMDICON but not started with LNKUTIL: DEVSTART.

3 This procedure is complete.

SMDICON

The SMDICON command is only available for CS 2000 - Compact offices with a TCP/IP datalink. This command is used to reestablish a datalink connection with the VMS.

Procedure 4-2 Use SMDICON to connect TCP/IP datalink

At the MAP

1 Enter the SMDILNK level:

```
> SMDILNK
```

2 Enter the SMDICON command and indicate which SMDI link to connect:

```
> SMDICON <pool>
```

pool
is the name of the SMDI link datafilled in field DEVNAME of table SLLNKDEV

Log reports SLNK100 and SLNK102 are generated. The TCP/IP connection is reestablished:

```
>SMDICON smdi0
Device SMDI0 has been connected and started.
>
```

Note: *If the SMDI link was not provisioned in table SLLNKDEV, the following error message is printed:* `Device SDMI1 has not been datafilled in SLLNKDEV. No action taken.`

3 This procedure is complete.

SMDIDISC

The SMDIDISC command is only available for CS 2000 - Compact offices with a TCP/IP datalink. This command is used to disconnect a datalink connection to a VMS.

Procedure 4-3 Use SMDIDISC to disconnect a TCP/IP datalink

At the MAP

1 Enter the SMDILNK level:

```
> SMDILNK
```

2 Enter the SMDIDISC command and identify which SMDI datalink to disconnect:

```
> SMDIDISC <pool>
```

pool
is the name of the SMDI link datafilled in field DEVNAME of table SLLNKDEV

Log reports SLNK103 and SLNK101 are generated. The datalink is disconnected:

```
>SMDIDISC smdi0
Device SMDI0 has been stopped and disconnected.
>
```

Note: *If the SMDI link was not provisioned in table SLLNKDEV, the following error message is printed:* `Device SDMI1 has not been datafilled in SLLNKDEV. No action taken.`

3 This procedure is complete.

5 Taking down and bringing up SMDI links

Application of taking down and bringing up SMDI links

Simplified Message Desk Interface (SMDI) links must be taken down before a device controller card can be changed or a software patch can be applied. The procedures in this chapter show how to take down and bring back up links after any alterations are made. SMDI links on a CS 2000 - Compact do not need to be taken down during patching.

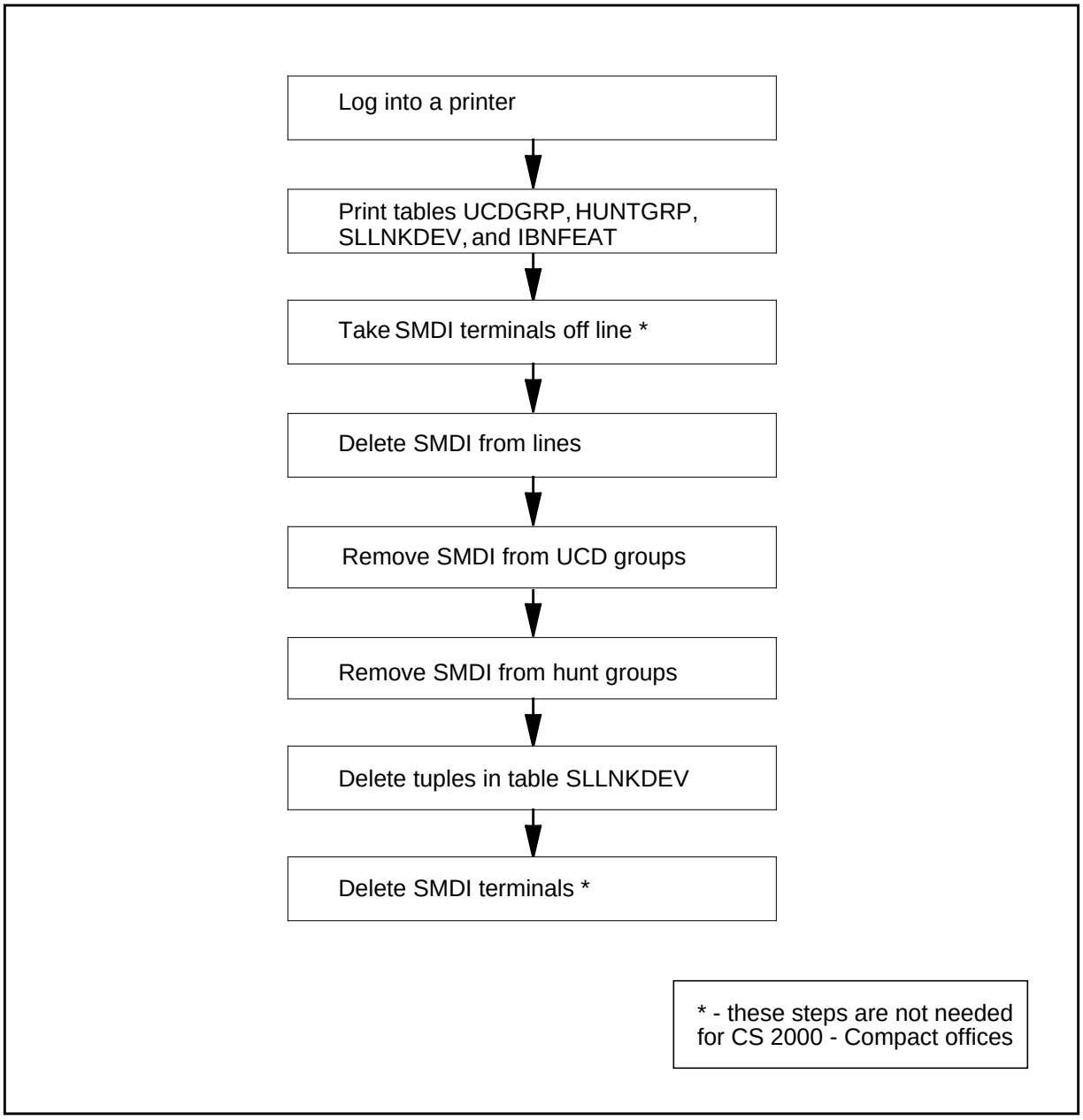
If a device controller card is being updated, this procedure should be used. If a card is going to be replaced with an identical card, this procedure is not necessary.

Note: All work done while taking links down and bringing links up should be printed. This printout provides a detailed record of the steps used to alter the links.

Taking down SMDI links

The following flowchart is a summary of taking down SMDI links. Use the instructions that follow the flowchart to do this procedure.

Figure 5-1 Taking down SMDI links



Printing table information

Before beginning the take down procedure, information from tables UCDGRP, HUNTGRP, SLLNKDEV, TERMDEV, and IBNFEAT is needed. A printout of each table gives the needed information on SMDI groups, lines, and directory numbers. The following procedure shows how these printouts can be retrieved.

System prompt User input

```
>                record start onto <prtname>
>                quit all
>                 table <table name>; lis all; quit
```

The following table shows the command to print the needed tables from a MAP (maintenance and administration position).

Note: The command to print table IBNFEAT is slightly different.

Table 5-1 Printing table information

```
>QUIT ALL
>RECORD START ONTO PRTA
>TABLE UCDGRP; LIS ALL; QUIT
```

Note: The entire contents of table UCDGRP will be printed

```
>TABLE HUNTGRP;LIS ALL;QUIT
```

Note: The entire contents of table HUNTGRP will be printed.

```
>TABLE SLLNKDEV;LIS ALL;QUIT
```

Note: The entire contents of table SLLNKDEV will be printed.

```
>TABLE TERMDEV;LIS ALL;QUIT
```

Note: The entire contents of table TERMDEV will be printed.

```
>TABLE IBNFEAT;LIS ALL (DF EQ SMDI); QUIT
```

Note: All lines in table IBNFEAT with the SMDI option will be printed.

Taking SMDI terminals offline

Terminals must be taken offline. This is done at the input/output controller (IOC) level of the MAP station. This step does not need to be done for CS 2000 - Compact offices.

The printout of table TERMDEV list all SMDI terminals. Use this printout to identify all terminals that need to be taken offline.

Note: If all links are not going to be taken down, remove SMDI from only the agents whose links are being taken down.

The following procedure shows how to get to the IOC level of the MAP and offline all SMDI terminals. Repeat this procedure for all SMDI terminals.

Procedure 5-2

Getting to the IOC level of the MAP

To get to the IOC level of the MAP, type in the following command:

```
>MAPCI;MTC;IOD;IOC #>
```

The following figure shows how a MAP station at the IOC level would look.

Figure 5-2 IOC MAP display

```
CM         MS  IOD     Net     PM      CCS     Lns     Trks    Ext     APPL
 .         .   .       .       .       .       .       .       .       .


IOC           IOD
  0  QUIT     IOC  0  1  2
  2           STAT .  .  .
  3
  4  ListDev_ DIRP : NO AMA XFER:  .   DPPP :  .  DPPU: .  NOP:  2 ARG:
  5           NX25 :   .    MLP:  .    SLM:  .
  6  Tst_
  7  Bsy_   IOC CARD       0    1    2    3    4    5    6    7    8
  8  RTS_   0   PORT       0123 0123 0123 0123 0123 0123 0123 0123 0123
  9  Offl_      STAT       .--- .--- .... .... -.-- .--- ---- ---- ----
  10 _IOC       TYPE       DDU  MTD  CONS CONS CONS MPC
  11 _Port_
  12
  13
  14 Trnsl
  15
  16
  17
  18 Card_

       08:15>
```

Select the SMDI card by entering the following:

```
>CARD <CARD#>
```

Busy the SMDI card by entering the following:

```
>BSY <CKT#>
```

Offline the card by entering the following:

```
>OFFL<CKT#>
```

To return to the CI level of the MAP, enter the following:

```
>QUIT ALL
```

Deleting SMDI from lines

After taking all SMDI terminals offline, the terminals can be deleted from all voice lines. Using the printout of table IBNFEAT, identify all directory numbers (DN) or line equipment numbers (LEN) of voice lines with SMDI. The Service Order system (SERVORD) command deletes SMDI from all lines. The following procedure shows how to delete SMDI through SERVORD. Repeat this procedure for all DNs or LENs.

Procedure 5-3

Deleting SMDI using SERVORD

System prompt	User input
>	deo
SONUMBER: NOW 90 1 2 AM	
>	(CR)
DN_OR_LEN:	
>	<frame><bay><drwr><card>
OPTION:	
>	smdi
OPTION:	
>	$

The following table shows how deleting SMDI from lines using SERVORD would look at a MAP station.

Table 5-2 Deleting SMDI using SERVORD

Prompt mode
>DEO(CR) SONUMBER: NOW 90 1 2 AM >(CR) DN_OR_LEN: >0 0 1 4 (CR) OPTION: >SMDI OPTION: >$(CR) COMMAND AS ENTERED: DEO NOW 90 1 2 AM 0 0 1 4 SMDI$ ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT >Y(CR) *No-prompt mode* > DEO $ 0 0 1 4 SMDI $ (CR)

Removing SMDI from UCD groups

SMDI must be deleted from all universal call distribution (UCD) groups. Using the printout of table UCDGRP, identify all UCD groups with SMDI. The following procedure shows how to delete SMDI from one UCD group. Repeat this procedure for all UCD groups with SMDI links that need to be taken down.

Procedure 5-4

Deleting SMDI from UCD groups

System prompt	**User input**
>	table ucdgrp
TABLE UCDGRP:	pos <ucd_name>
>	cha options
OPTION: UCD_SMDI	
>	$

The following table shows how disabling SMDI messages would look at a MAP station.

Table 5-3 Deleting SMDI from UCD groups

```
>TABLE UCDGRP
 TABLE UCDGRP:
 >POS NDL3C
 UCDNAME ACD      CUSTGRP UCDRNGTH          THROUTE
 NSROUTE PRIOPRO MAXPOS DBG DEFPRIO RLSCNT MAXWAIT MAXCQSIZ
                                                OPTIONS
```

```
NDL3C    N    50B_CON    0     OFRT    30
 OFRT    30    0    16    N    1   0    0    16$
 (UCD_SMDI SMDI1 4          (CLASSA)$)$
 CHA OPTIONS
 OPTION:   UCD_SMDI
 >$
 TUPLE TO BE CHANGED:
 NDL3C    N    50B_CON    0     OFRT    30
 OFRT    30    0    16   N     1   0    0    16
 ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
 >Y
 TUPLE CHANGED
 >QUIT
```

Note: This example shows a UCD group with only the SMDI option. If the UCD group has other options, do not delete them.

Removing SMDI from hunt groups

SMDI must be deleted from all hunt groups. Using the printout of table HUNTGRP, identify all UCD groups with SMDI. The following procedure shows how to delete SMDI from one hunt group. Repeat this procedure for all hunt groups linked to the SMDI links to be taken down.

Procedure 5-5

Deleting SMDI from hunt groups

System prompt **User input**

```
>            table huntgrp
 TABLE HUNTGRP:
 >             pos<huntgrp>
 >             cha grpdata
 CIR:
 >             (CR)
 TFO:
 >             (CR)
 TRMBOPT:
 >             (CR)
 TRMBILL:
 >             (CR)
 LOR:
 >             (CR)
 LOD:
 >             (CR)
 CFGDA:
 >             (CR)
 OFR:
 >             (CR)
 OFS:
 >             (CR)
 E911PSAP:
 >             (CR)
 SIZE: 1
 >             (CR)
 OPTION: SMDI
 >             $
 TUPLE TO BE CHANGED:
 0   619  5206100 DNH  N  N  N  RCVD     N
        N                     N
                                 N
                  N  1             $
 ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
 >Y
 >QUIT
```

The following table shows how disabling SMDI messages would look at a MAP station.

Table 5-4 Deleting SMDI from hunt groups

```
>TABLE HUNTGRP
 TABLE HUNTGRP:
 >POS 0
 HTGRP  SNPA DN         GRPTYP
                                                  GRPDATA
```

This example shows a hunt group with only the SMDI option. If the hunt group has other options, do not delete them.

Table 5-4 Deleting SMDI from hunt groups

```
0     619   5206100  DNH  N  N  N   RCVD          N
           N                                 N
                                                  N
                                N    1   (SMDI 63 SMDI1)$
 >CHA GRPDATA
 CIR:
 >(CR)
 TFO: N
 >(CR) TRMBOPT:    N
 >(CR)
 TRMBILL:   RCVD
 >(CR)
 LOR: N
 >(CR)
 LOD:
 >(CR)
 CFGDA:N
 >(CR)
 OFR: N
 >(CR)
 OFS: N
 >(CR)
 E911PSAP:   N
 >(CR)
 SIZE: 1
 >(CR)
 OPTION: SMDI
 >$
 TUPLE TO BE CHANGED:
 0     619   5206100  DNH  N  N  N     RCVD        N
           N                                 N
                                                    N
                           N   1                    $
 ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
 >Y
 >QUIT
```

This example shows a hunt group with only the SMDI option. If the hunt group has other options, do not delete them.

Deleting tuples in table SLLNKDEV

All tuples in table SLLNKDEV must be deleted. Use the printout of table SLLNKDEV to locate all tuples. The following procedure shows the procedure for deleting one tuple from table SLLNKDEV. Repeat this procedure to delete only the tuples that correspond to the links you are taking down.

Procedure 5-6

Deleting a tuple in table SLLNKDEV

```
System prompt    User input

>              table sllnkdev
 TABLE SLLNKDEV:
 >              pos<devname>
 >              del
```

Table 5-5 shows how deleting one tuple in table SLLNKDEV would look at a MAP station.

Table 5-5 Deleting a tuple in table SLLNKDEV

```
>TABLE SLLNKDEV
 table SLLNKDEV:
 >pos smdi1
 >DEL
 TUPLE TO BE DELETED:
 DEVNAME  DEVICE  XLATION  PROTOCOL  DRECTION
                                                    XFERS


SMDI1   1X67   NONE   NONE    INOUTLK
 ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
 >Y
 TUPLE DELETED
 >QUIT
```

Note 1: Repeat this procedure until no more tuples exist. Then enter the command QUIT.

Note 2: If you are not taking down all SMDI links, do not delete all tuples. You can position on a tuple by entering POS <devname>. Then delete by entering >DEL.

Deleting SMDI terminals

After the SMDI terminals are taken offline and deleted from voice lines, they can be deleted from table TERMDEV. Procedure 5-7 shows how to delete SMDI terminals. This procedure should be repeated for each SMDI terminal. This procedure is not needed for CS 2000 - Compact offices.

Procedure 5-7

Deleting all SMDI terminals from table TERMDEV

```
System prompt     User input
```

```
>                  table termdev
 TABLE TERMDEV:
 >                  pos<termdes>
 <TERMDES TUPLE>:
 >                  del
```

Table 5-6 shows how deleting an SMDI terminal would look at a MAP station.

Table 5-6 Deleting all SMDI terminals from table TERMDEV

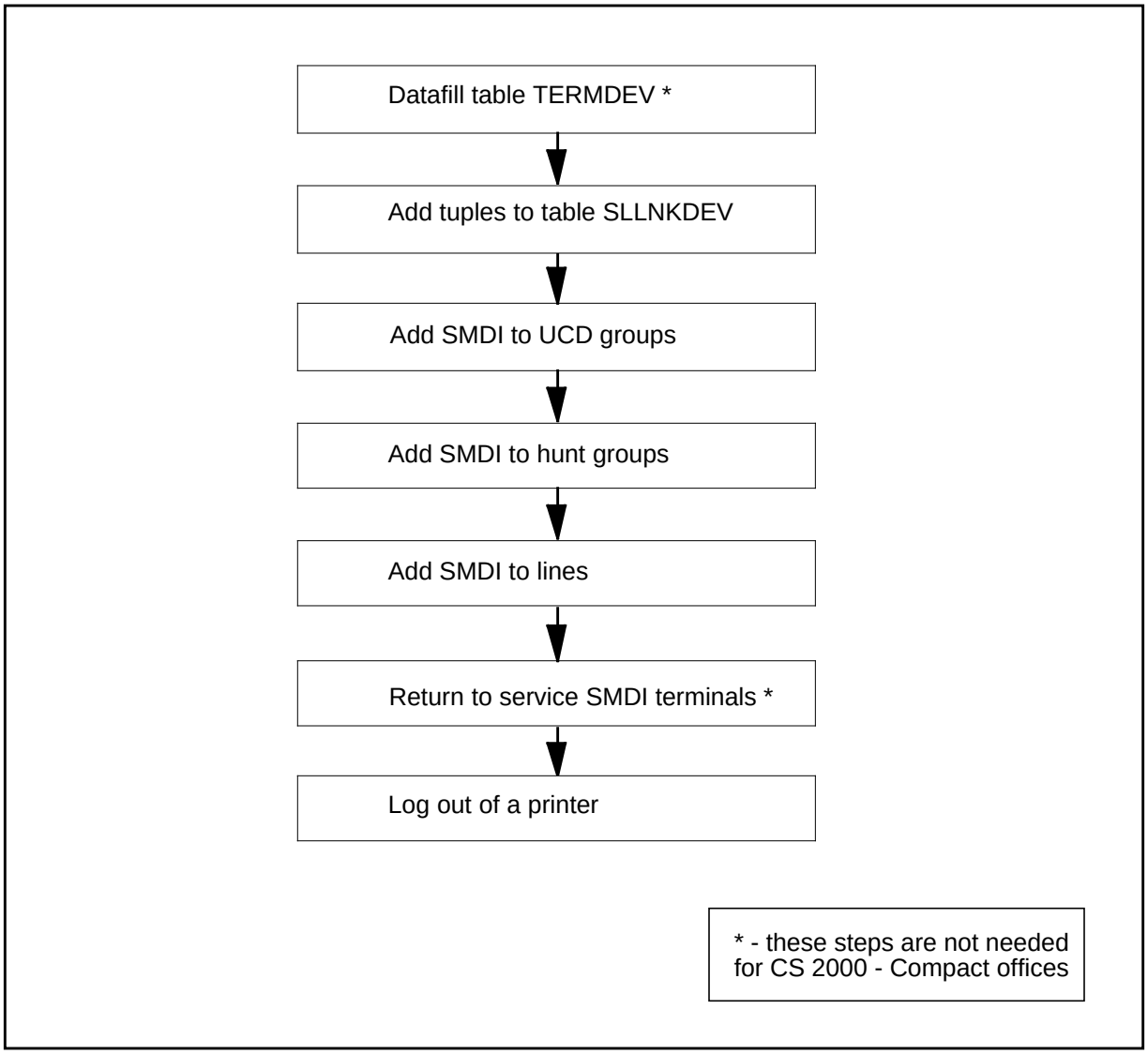
```
>TABLE TERMDEV TABLE TERMDEV:
 >POS SMDI1
 TERMDES IOCNO CKTNO TERMTYPE BAUDRT INTYP EQPEC PRTY GUAR
MODEM COMCLASS

SMDI1 0 8 SMDI B1200 EIA 1X67BC EVEN N NONE
                                        ALL
 >DEL
 TUPLE TO BE DELETED:
 SMDI1 0 8 SMDI B1200 EIA 1X67BC EVEN N NONE
                                        ALL
 ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
 >Y
 >QUIT
```

Bringing up SMDI links

The following flowchart is a summary of bringing up SMDI links. Use the instructions that follow the flowchart to do this procedure.

Figure 5-3 Bringing up SMDI links



Datafilling table TERMDEV

The first step in bringing up the SMDI links is to add SMDI terminals in table TERMDEV. It may be necessary to refer back to the printout for previous datafill information. Procedure 5-8 shows how the table TERMDEV would be datafilled to assign SMDI to terminals. This step is not needed for CS 2000 - Compact offices.

Procedure 5-8

Adding SMDI to table TERMDEV

System prompt **User input**

```
>                table termdev
 TABLE TERMDEV:
 >                add
 TERMDES:
 >                <device used in smdilnk>
 IOCNO:
 >                <input/output controller number>
 CKTNO:
 >                <input/output controller circuit number>
 TERMTYPE:
 >                smdi
 BAUDRT:
 >                b1200
 INTYP:
 >                eia
 EQPEC:
 >                <PEC of terminal controller circuit pack>
 PRTY:
 >                even
 GUAR:
 >                n
 MODEM:
 >                none
 COMCLASS:
 >                all
```

Table 5-7 shows how adding SMDI to table TERMDEV would look at a MAP station.

Table 5-7 Adding SMDI to table TERMDEV

```
>TABLE TERMDEV
 TABLE TERMDEV:
 >ADD
 TERMDES:
 >SMDI1
 IOCNO:
 >0
 CKTNO:
 >8
 TERMTYPE:
 >SMDI
 BAUDRT:
 >B1200
 INTYP:
 >EIA
 EQPEC:
 >1X67BC
 PRTY:
 >EVEN
 GUAR:
 >N
 MODEM:
 >NONE
 COMCLASS:
 >ALL
 TUPLE TO BE ADDED:
   SMDI1  O  8  SMDI  B1200  EIA  1X67BC  EVEN  N  NONE
                                                      ALL
 ENTER Y TO CONFRIM, N TO REJECT OR E TO EDIT
 >Y
 TUPLE ADDED
 >QUIT
```

Note 1: Field <EQPEC>should be datafilled with the card PEC code. Field <TERMTYPE>should be datafilled with SMDI. All other fields should be datafilled as shown on the printout of table TERMDEV.

Note 2: After the addition of one tuple, two tuples actually appear. The second tuple is identical except for field <TERMDES>. It cannot be changed or deleted. All changes or deletions must be made to the first tuple.

Datafilling table SLLNKDEV

After busying all terminals, all tuples that were deleted can be added back to table SLLNKDEV. Use the printout of table SLLNKDEV to identify the contents of each tuple. Procedure 5-9 shows how to add a tuple to table SLLNKDEV. Repeat this procedure until all original tuples are added.

Procedure 5-9

Adding tuples to table SLLNKDEV

System prompt	User prompt
>	table sllnkdev
TABLE SLLNKDEV:	
>	add
DEVNAME:	
>	<devname>
DEVICE:	
>	<devtype>(1X67, 1X89, FX30, TCP)
XLATION:	
>	none
PROTOCOL:	
>	none
DRECTION:	
>	inoutlk
XFER:	
>	smdidata
OPTION:	
>	numofdigs
NUMDIGS	
	<7,10,or var>
OPTION:	
>	dnsuppr
CALLING:	
>	indirect
FWDING:	
>	conditnl
OPTION:	
>	$
XFER:	
	$

Table 5-8 shows how adding tuples to table SLLNKDEV would look at a MAP station.

Table 5-8 Adding tuples to table SLLNKDEV

```
>TABLE SLLNKDEV
 TABLE SLLNKDEV:
 >ADD
 DEVNAME:
 >SMDI1
 DEVICE:
 >1X67
 XLATION:
 >NONE
 PROTOCOL:
 >NONE
 DRECTION:
 >INOUTLK
 XFER:
 >SMDIDATA
 OPTION:
 >NUMOFDIGS
 NUMDIGS:
 >7
 OPTION:
 >DNSUPPR
 CALLING:
 >INDIRECT
 FWDING:
 >CONDITNL
 OPTION:
 $
 XFER
 $
 TUPLE TO BE ADDED:
 DEVNAME DEVICE XLATION PROTOCOL DRECTION
                                                    XFERS
 ------------------------------------------------------------
 SMDI1     1X67    NONE     NONE     INOUTLK
 (SMDIDATA (NUMOFDIGS 7) (DNSUPPR INDIRECT CONDITINL $)$
 ENTER Y TO CONFIRM N TO REJECT OR E TO EDIT
 >Y
 TUPLE ADDED
 >QUIT
```

Adding SMDI to UCD groups

SMDI must be reassigned to UCD groups. Using the printouts of table UCDGRP identify all DNs or LENs of UCD groups that had SMDI. Procedure

5-10 shows how to delete SMDI from all UCD groups. Repeat this procedure for all UCD groups requiring SMDI.

Procedure 5-10

Adding SMDI to UCD groups

System prompt	User input
>	table ucdgrp
TABLE UCDGRP:	pos <ucd_name>
>	cha options
OPTION: AUDIO	
>	ucd_smdi
SMDI_LINK:	
>	<dev_name>
SMDI_DESK_NO:	
	<value of 1 to 999>
MCOS_LIST:	
	classa
MCOS_LIST:	
>	$
OPTION:	
>	$

Table 5-9 shows how adding SMDI to UCD groups would look at a MAP station.

Table 5-9 Adding SMDI to UCD groups

```
>TABLE UCDGRP
 TABLE UDCGRP:
 >POS
 UCDNAME ACD      CUSTGRP UCDRNGTH         THROUTE
 NSROUTE PRIOPRO MAXPOS DBG DEFPRIO RLSCNT MAXWAIT MAXCQSIZ
                                                  OPTIONS
 ---------------------------------------------------------
 NDL3C    N    50B_CON    0    OFRT    30
 OFRT    30   0      16   N   1    0   0         16$
 CHA OPTIONS
 OPTION: AUDIO
 >UCD_SMDI
 SMDI_LINK:
 >SMDI1
 SMDI_DESK_NO:
 >4
 MCOS_LIST:
 >CLASSA
 MCOS_LIST:
 >$
 OPTION:
 >$
 TUPLE TO BE CHANGED:
 NDL3C    N    50B_CON    0    OFRT    30
 OFRT    30   0      16   N   1    0   0         16
     (UCD_SMDI SMDI1 4        (CLASSA)$)$
 ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
 >Y
 TUPLE CHANGED
 >QUIT
```

Note: Verify that all tuples match originals from printout.

Adding SMDI to hunt groups

SMDI must be reassigned to hunt groups. Using the printouts of table HUNTGRP, identify all DNs or LENs of hunt groups that had SMDI. Procedure 5-11 shows how to delete SMDI from all hunt groups. Repeat this procedure for all hunt groups requiring SMDI.

Procedure 5-11

Adding SMDI to hunt groups

System prompt **User input**

```
>                 table huntgrp
 TABLE HUNTGRP:
 >                 pos <huntgroup>
 >                 cha grpdata
 CIR:
 >                 (CR)
 TFO:
 >                 (CR)
 TRMBOPT:
 >                 (CR)
 TRMBILL:
 >                 (CR)
 LOR:
 >                 (CR)
 LOD:
 >                 (CR)
 CFGDA:
 >                 (CR)
 OFR:
 >                 (CR)
 OFS:
 >                 (CR)
 E911PSAP:
 >                 (CR)
 SIZE:
 >                 (CR)
 OPTION:
 >                 smdi
 SMDIDESK:
                      63
 SMDILINK:
                      smdi1
 OPTION:
                      $
```

Table 5-10 shows how adding SMDI to hunt groups would look at a MAP station.

Table 5-10 Adding SMDI to hunt groups

```
>TABLE HUNTGRP
 TABLE HUNTGRP:
 >POS 4
 HTGRP   SNPA DN     GRPTYP
                                              GRPDATA

----------------------------------------------------------S
M 4      619  5206100  DNH  N  N  N   RCVD    N
                    N                           N
                                                         N
                                         N
                         N     1                         $
 >CHA GRPDATA
 CIR: N
 >(CR)
 TFO: N
 >(CR)
 TRMBOPT:   N
 >(CR)
 TRMBILL:   RCVD
 >(CR)
 LOR: N
 >(CR)
 LOD: N
 >(CR)
 CFGDA:N
 >(CR)
 OFR: N
 >(CR)
 OFS: N
 >(CR)
 E911PSAP:   N
 >(CR)
 SIZE: 1
 >(CR)
 OPTION:
 >SMDI
 SMDIDESK:
 >63
 SMDILINK:
 >SMDI1
 OPTION:
```

Table 5-10 Adding SMDI to hunt groups

```
>$
 TUPLE TO BE CHANGED:
 0      619    5206100  DNH  N  N  N       RCVD     N
             N                                  N
                                                    N
                                N     1       (SMDI 63 SMDI1)$
 ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
 >Y
 TUPLE CHANGED
 >QUIT
```

Adding SMDI to lines

SMDI must be reassigned to all lines. Using the printout of table IBNFEAT, identify all DNs or LENs of voice lines that had SMDI. The SERVORD command is used to reassign SMDI to all lines. Table 5-12 shows the procedure for adding SMDI to a line by SERVORD. Repeat this procedure for all DNs or LENs.

Procedure 5-12

Adding SMDI using SERVORD

System prompt	User input
>	ado
SONUMBER: NOW 90 1 2 AM	
>	(CR)
DN_OR_LEN	
>	<frame><bay><drwr><card>
OPTKEY:	
	4
OPTION	
>	smdi
LINENO:	
	5
UCDGRP:	
	<ucdgrp_number>
AUTO_LOG	
	y
OPTKEY	
>	$

The following table shows how adding SMDI to lines using SERVORD would look at a MAP station.

Table 5-11 Adding SMDI using SERVORD

Prompt mode

```
>ADO (CR) SONUMBER:    NOW  90  1  2  AM
 >(CR)
 DN_OR_LEN:
 > 0 0 1 4 (CR)
 OPTKEY:
 >4
 OPTION:
 >SMDI
 LINENO:
 >5
 UCDGRP:
 >_NUMBER>
 AUTO_LOG:
 >Y
 OPTKEY:
 >$ (CR)
 COMMAND AS ENTERED:
 ADO NOW 90 1 2 AM HOST 0 0 1 4 (4 SMDI 5 _NUMBER> Y)$
 ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
 >Y (CR)
```

No-prompt mode

```
>ADO $ HOST 0 0 1 4 4 SMDI 5 _NUMBER> Y $
```

Returning SMDI terminals to service

Before the tuples that have been deleted from table SLLNKDEV can be added, SMDI terminals must be RTS (returned to service). See table TERMDEV for a list of all SMDI terminals. This is procedure is not needed for CS 2000 - Compact offices.

Procedure 5-13 shows how to get to the IOC level of the MAP and RTS all SMDI terminals.

Procedure 5-13

Getting to the IOC level of the MAP

To get to the IOC level of the MAP, type in the following command:

```
>MAPCI;MTC;IOD;IOC #>
```

Figure 5-4 shows how a MAP at the IOC level would look.

Figure 5-4 IOC MAP display

```
CM         MS  IOD     Net     PM      CCS     Lns     Trks    Ext     APPL
 .         .   .       .       .       .       .       .       .       .


IOC           IOD
  0  QUIT     IOC  0  1  2
  2           STAT .  .  .
  3
  4  ListDev_ DIRP : NO AMA XFER:  .   DPPP :  .  DPPU: .  NOP:  2 ARG:
  5           NX25 :   .    MLP:  .    SLM:  .
  6  Tst_
  7  Bsy_   IOC CARD      0    1    2    3    4    5    6    7    8
  8  RTS_   0   PORT      0123 0123 0123 0123 0123 0123 0123 0123 0123
  9  Offl_      STAT      .--- .--- .... .... -.-- .--- ---- ---- ----
  10 _IOC       TYPE      DDU  MTD  CONS CONS CONS MPC
  11 _Port_
  12
  13
  14 Trnsl
  15
  16
  17
  18 Card_

       08:15>
```

Select the SMDI card by entering the following:

```
>CARD <CKT #>
```

Busy the SMDI card by entering the following:

```
> BSY <CKT #>
```

Return the card to service by entering the following:

```
> RTS <CKT #>
```

To return to the CI level of the MAP, enter the following:

```
> QUIT ALL
```

6 Log reports for SMDI

Logs

Logs provide a history of activities on each datalink. Logs record information regarding the following:

- start or stop of data transfer
- database initialization of the downstream processor (DSP)
- start or stop of call event message generation
- error conditions

The following logs contain information that applies to the Simplified Message Desk Interface (SMDI) input/output (I/O) communication:

- SLNK100
- SLNK101
- SLNK102
- SLNK103
- SLNK104
- SLNK105
- SLNK106
- SLNK107
- SLNK108
- AMAB150
- SMDI100
- SMDI101
- SMDI102
- SMDI103
- SMDI104
- SMDI105

- SMDI106
- SMDI107
- SMDI108
- PRA200
- NMS100
- NMS101
- NMS102
- NMS103
- NMS104

This section gives examples of possible log reports. For more information on logs, or information on multi-protocol controller (MPC) log reports, see the *Log Report Reference Manual*.

SLNK100

The SMDI Link (SLNK) subsystem generates log report SLNK100 for each datalink device when the device connects with the use of the DEVCON command in LNKUTI or SMDICON in the SMDILNK level.

Figure 6-1 Example of report format for SLNK100

```
SLNK100 FEB12 01: 45: 56 1181 INFO SESSION
   Session connected on device S134
```

SLNK101

The SLNK subsystem generates log report SLNK101 for each datalink device when the device disconnects with the use of the DEVDISC command in LNKUTIL level or SMDIDISC in the SMDILNK level.

Figure 6-2 Example of report format for SLNK101

```
SLNK101 FEB12 02: 45: 56 1181 INFO SESSION
   Session disconnected on device S134
```

SLNK102

The SLNK subsystem generates log report SLNK102 for each datalink device when the system starts data transfer with the DEVSTART command in the LNKUTIL for the CI increment.

Figure 6-3 Example of report format of SLNK102

```
SLNK102 FEB12 03: 45: 56 1181 INFO SESSION
   SMDR Reports transfer started on device MRLINK
```

SLNK103

The SLNK subsystem generates log report SLNK103 for each datalink device when the system stops data transfer with the DEVSTOP command in the LNKUTIL for the CI increment. The SLNK103 log is a critical log so the display includes three asterisk.

Figure 6-4 Example of report format of SLNK103

```
***SLNK103 FEB12  04: 45:56 2000 INFO SESSION
   SMDR Reports transfer stopped on device MRLINK
```

SLNK104

The SLNK subsystem generates log report SLNK104 when the system starts down stream processor initialization on a pool with the INIT command in the ACDMR CI interface. The SLNK104 log is a critical log so the display includes three asterisk.

Figure 6-5 Example of report format of SLNK104

```
***SLNK104 FEB12  04: 45:56 2000 INFO MGTRPT
   ACD Management Reports initialization started on
   pool MRPOOL
```

SLNK105

The SLNK subsystem generates SLNK105 log report when the system completes down stream processor initialization on a pool.

Figure 6-6 Example of report format of SLNK105

```
SLNK105 FEB14 01: 45: 56 2000 INFO MGTRPT
   ACD Management Reports initialization completed on
   pool MRPOOL
   Number of groups: 92 Number of positions: 857
```

SLNK106

The SLNK subsystem generates log report SLNK106 when the system does not queue a remote operation (RO) in the last 2 minutes. The system queues an RO for a data link device. The failure occurs because of a full queue. As a result, the system discards new messages or overwrites old messages.

Figure 6-7 Example of report format of SLNK106

```
SLNK106 FEB15 01: 45: 56 2000 INFO SESSION
   Last occurrence = 2000/02/15 01:43:20.940 SAT
   Total number of overflow msgs = 46
```

To reduce the message volume on the data links perform one of the following actions:

- assign additional devices to the pool to provide load-sharing
- reroute some of the message traffic assigned to the pool that overflows

SLNK107

The SLNK subsystem generates log report SLNK107. This report appears if the DMS-100 link wakeup (SLLNKWKP) does not restart a 1X67 datalink after a restart or link failure.

Manual intervention requires the following actions:

- determine if the datalink is in service. If the data link is not in service, return the link to service.
- determine if the link is in the connected state. If the link is not in a connected state, return the link to a connected state
- determine if the system starts the appropriate transfer types on the link. If the system did not start the appropriate transfer types on the link, start the transfer types.

Figure 6-8 Example of report format of SLNK107

```
SLNK107 JUN12 01: 45: 56 1181 INFO_LINK_WAKEUP_FAILURE
   Device SMDI5   has failed to restart.
   It requires manual intervention.
```

SLNK108

The SLNK subsystem generates log report SLNK108 when the SMDI incoming or outgoing process stops. The processes that follow refer to SMDI:

- SMDIOG is the outgoing process for the 1x67 device.
- SMDINC is the incoming process for the 1x67 device.
- SMDINMPC is the incoming process for the 1x89 and Fx30 devices.
- SLMPCOGT is the outgoing process for the 1x89 and Fx30 devices.
- SLLNKOGT is the outgoing process for the SMDI link.
- SLLNKICT is the incoming process for the SMDI link.

Each process is for each link except the SMDINMPC process. There is one process for the switch. The SMDI103 log generates when the SMDINMPC process stops instead of the SLNK108 log.

The SMDI process stops because of hardware or software problems. The SLNK108 log generates when the SMDI process stops because of the software problems that follow:

- file status is not acceptable for the 1x67 device
- did not take resource for the 1x67, 1x89, Fx30, and the SLLNKOGT (SL-100)
- did not allocate pool for the 1x67
- did not allocate resource for the 1x67, 1x89, Fx30, and SLLNKOGT (SL-100)
- did not get the resource for the 1x67, SLLNKOGT, SLLNKICT (SL-100)
- Nil SMDI descriptor for the 1x67
- did not setup the files for the 1x67
- incorrect message in the mailbox for the 1x67
- the mailbox is not acceptable for the 1x67, 1x89, and Fx30
- no entry in the datafill for the SLLNK device for SMDI for the 1x67
- no allocation for the SMDI pool for the 1x67
- did not allocate the mailbox for the 1x67
- the SMDIOG process is not acceptable for the 1x67
- the SMDI link is not available for the data transfer for the 1x89 or Fx30
- did not receive the SLMPC wakeup message for the 1x89 or Fx30

The SLNK108 log generates when the SMDI process stops because of the hardware problems that follow:

- input output controller (IOC) port is in service for the 1x67
- driver is not up for the 1x67
- port is not up for the 1x67
- deletion of the link for the 1x67
- the SLLNK device did not initialize for the 1x89 or Fx30
- the SMDI device is not part of the SLLNK pool for the 1x89 or Fx30
- did not release the resource for the 1x89 or Fx30
- did not send data out on the SLLNKOGT link for the SL-100

The switch generates the SLNK108 log as a MAJOR or CRITICAL log. If the SMDI process stops because of software problems the SLNK108 log is a major log. Two asterisk at the beginning of the report indicate a major log. If the SMDI process stops because of hardware problems the SLNK108 log is a

CRITICAL log and three asterisk appear at the beginning of the log report. The examples for the log report SLNK108 follows.

Figure 6-9 Examples of report format of SLNK108

```
***SLNK108 FEB15 18:14:33 4827 SMDI_DEAD_PROCESS_REPORT
Port is not up. SMDIINC process killed.
DATALINK = SMDIO


***SLNK108 FEB 15 18:15:33 4828 SMDI_DEAD_PROCESS_REPORT
Incorrect message in mailbox. SMDIOG process killed.
DATALINK = SMDIO
```

The SMDIERROR alarm for software problems and the SLNKERR alarm for hardware problems generate with the SLNK108 log.

For more information on the SLNK108 log software or hardware problems, descriptions, or actions, see the *Log Report Reference Manual*.

AMAB150

The number 10 in the TERM_FC field of AMAB150 indicates the type of call as a call request retrieval and is enclosed in quotes in the example to demonstrate the position of the TERM_FC field.

Figure 6-10 Example of report format of AMBA150

```
AMAB150 JUL03 15:25:29 6707 INFO SMDR_CALL_DATA


CUSTGRP =       CUSGRP1
0 0 0 6137227111 ** 00 0 6137227112 ** +
 '10' 0 25112*********** 002 12 30 02 000006
ORIG = LEN HOST 00 1 02 13  DN 7227111 +
 TERM LEN HOST 00 1 05 13 DN 7227112 +
 ANS=Y 0
DTO = ******* AUTH = ***** ACC =*******
```

Note: The plus sign (+) indicates that the next line is a continuation of the text. In the actual log report, all the information appears on the same line. Due to space limitations here, the text lines are split.

SMDI100

SMDI100 log generates when the switch finds an error in the SMDI message waiting indicator (MWI). The error report text indicates the reason for the error.

Figure 6-11 Example of report of SMDI100

```
SMDI100 NOV08 15: 26: 53 3122 INFO SMDI_ERR_REPORT
REQUESTEE STATION MISSING MWT OPTION
UCD GROUP INFO = IBNUCDGRP1    DATALINK = SMDILK0
REQUESTEE INFO = $ LEN HOST 2 0 0 13   DN 7227640
```

If the SMDI call retrieval billing option is active in the switch, an AMAB150 log report with a title SMDR_CALL_DATA generates for each SMDI call retrieval. This information is also on the SMDR tape. The SMDI call retrieval billing option also provides additional information within the AMAB150 report to determine a call retrieval using the call request feature from a direct call.

If the SMDR option is disabled, then SMDR reports are not generated. For more information on SMDR, refer to the *Meridian Digital Centrex Station Message Detail Recording Reference Guide*, 297-2071-119.

SMDI101

This report generates for each datalink the first time a call to a voice messaging system (VMS) voice link and the SMDI cannot send the SMDI message.

Figure 6-12 Example of report format of SMDI101

```
SMDI101 NOV08 15: 26: 53 3122 INFO SMDI_ERR_REPORT
DATALINK IS DOWN.  FAILED TO SEND SMDI MESSAGE.
DATALINK = VMSLINK1
```

SMDI102

This report generates for each datalink the first time an SMDI message could be successfully enqueued after an SMDI101 log was previously generated.

Figure 6-13 Example of report format of SMDI102

```
SMDI102 NOV08 15: 26: 53 3122 INFO SMDI_ERR_REPORT
DATALINK IS UP.  DATALINK = VMSLINK1
```

SMDI103

The SMDI103 log generates when the SMDINMPC (simplified message desk interface network multiprotocol controller) process stops. The SMDINMPC process is the incoming process for the 1x89 and Fx30 devices. There is one SMDINMPC process for the switch. The two asterisks in the SMDI103 log show that the log is a major log. The SMDIERROR (simplified message desk interface error) alarm generates with the SMDI103 log.

Figure 6-14 Example of report format of SMDI103

```
**SMDI103 FEB24 15:28:59 7500 INFO SMDI INCOMING PROCESS
SMDINMPC process died Require manual intervention
```

SMDI104

This report generates to indicate that the switch does not locate a primary desk for a host requesters line. The switch uses a rotational message desk for the host requesters line.

Figure 6-15 Example of report format of SMDI104

```
SMDI104 NOV08 15:26:53 3122 INFO SMDI_DESK_ERR_ REPORT
Rotational Desk used. NO primary desk for DN.
UCD GROUP INFORM    = VM1GRP       DATALINK = VMAIL1
REQUESTEE INFO = $ LEN HOST 2 0 0 13  DN 7224444
```

SMDI105

This report generates to indicate that the switch fails does not locate a common message desk for a network message waiting indicator (MWI) request (setting or removal). The first message desk datafilled is used to set MWI.

Figure 6-16 Example of report format of SMDI105

```
SMDI105 NOV08 15:26:53 3122 INFO SMDI_NETWORK_ERR_REPORT
Failed to determine a Common Desk for Network MWI
Request.
UCD GROUP INFORM    = VM1GRP       DATALINK = VMAIL1
```

SMDI106

This report generates to indicate that the switch does not locate the message desk number that relates to the option COMMON of table SLLNKDEV.

Figure 6-17 Example of report format of SMDI106

```
SMDI102 NOV08 15:26:53 3122 INFO SMDI_COMMON_ERR_ REPORT
DESKNUM message desk of COMMON option does not exist.
UCD GROUP INFO  = VM1GRP    DATALINK = VMAIL1
```

SMDI107

The SMDI107 log generates when the files of a 1x67 card does not allow the write option for outgoing messages and the read option for incoming messages.

Figure 6-18 Example of report format of SMDI107

```
SMDI107 NOV08 15: 26: 53 3122 INFO_SMDI_FILE_STATUS
FILE STATUS NOT O.K.
DATALINK_INDEX = VMAIL1
```

SMDI108

The SMDI108 log generates when the IOC (input output controller) port is not in service. The three asterisks appear in the SMDI108 log to indicate the critical status. The SLLNKERR alarm for hardware problems generates with the SMDI108 log.

Figure 6-19 Example of report format of SMDI108

```
***SMDI108 FEB15 09:21:59 4827 INFO_SMDI_HW_AUDIT
IOC PORT NOT IN SERVICE FOR LINK.
DATALINK_INDEX = VMAIL1
```

PRA200

This report generates at the host node if a Network Message-Waiting Indication (MWI) request specifies an invalid DN and there is no entry for a route in table MSGRTE.

Figure 6-20 Example of report format of PRA200

```
PRA200 NOV08 15:26:53 3122 INFO TCAP FAC SEND FAILED
ORG NETID:  0     DN:   6137221121
DST NETID:  0     DN:   6137221123
PKG TYPE:   QUERY_W_PERMISSION
REASON: NO ROUTE DATAFILLED
32E2  04C7  0000  0008  2AE8  28E9  01CF  D101
7E02  F203  AA1F  841D  0109  2100  160A  2273
3211  C0DF  0949  00FA  0A21  7316  1122  DF12
45C0  0101  007F  EBAD  CE12  210A  000A  001D
```

NMS100

The NMS100 log report generates at a host when a message service generates an address that is not valid. The NMS100 log generates if the network message service (NMS) subsystem is present. The NMS100 log relates to the OM register NMSINVAD of OM group NMS. The NMS100 log provides information only.

Figure 6-21 Example of report format of NMS100

```
NMS100 FEB28 08:12:57 1234 INFO INVALID ADDRESS FROM NMS
INVALID ADDR = 9999999999
```

NMS101

The NMS101 log generates at the server node. The log appears when there is a message wait indicator change request for a vacant subscriber directory number (DN). The NMS101 log generates if the NMS subsystem is present. The NMS101 LOG relates to the OM register NMSVACT of OM group NMS. The NMS101 log provides information only.

Figure 6-22 Example of report format of NMS101

```
NMS101 FEB28 09:12:57 1235 INFO VACANT NMS SUBSCRIBER DN
INVALID ADDR = 8153692666
```

NMS102

The NSM102 log generates at the server node when there is no notification to the subscriber DN for a short term reason. An example of a short term reason

is that the line is temporarily out of service. The NMS102 log detects problems that cause a network message service to send incorrect DNs. The network message services are empty subscriber DNs, global title translation is not functioning correctly, or the message service is generating invalid DNs. Refer to the DNINV table for the correct datafill.

Figure 6-23 Example of report format for NMS102

```
NMS102 FEB28 09:12:59 1236 INFO NOTIFICATION UNAVAILABLE
SUBSCRIBER DN = 6135252666
```

NMS103

The NMS103 log report appears at the server node when a transaction capabilities application part (TCAP) response receives a component return error. The NMS103 log detects problems that cause a network message service to send incorrect DNs. The network messages services are empty subscriber DNs, global title translation is not functioning correctly, or the message service is generating incorrect DNs. Refer to the DN table for the correct datafill. The NMS103 log relates to NMS group OM registers: NMSVACT and NMSINVAD.

Figure 6-24 Example of report format for NMS103

```
NMS103 FEB29 09:12:59 1237 INFO NOTIFICATION UNAVAILABLE
TO DESTINATION DN
SUBSCRIBER DN = 6135252681
```

NMS104

The NMS104 log generates when the transaction identifier (TRID) cannot release by the identifier pool (IDPL) functionality after sending a transaction capabilities application part (TCAP) message. The NMS104 log generates when the NMS subsystem is present. The IDPL functionality dynamically creates the TRID.

Figure 6-25 Example of report format for NMS104

```
NMS104 FEB28 10:12:59 1235 INFO TRID_UNRELEASE_REPORT
TRANSACTION ID cannot release.
```

7 Using the Service Order system

For the CS 2000 - Compact, customers may elect to use OSSgate for line option provisioning instead of the Service Order system (SERVORD).

Service Order system

SERVORD is used to add, change, or delete features. SERVORD goes through the table editor to fill the customer tables as if entries were made directly into the tables.

To open a service order, log on to the MAP (maintenance and administration position) and enter SERVORD. For instructions on how to log on to the MAP station and begin a service order, and an explanation of service order commands, see the *SERVORD Reference Manual*.

SMDI can be added to a uniform call distribution (UCD) line using the ADO command. This allows the line to be included in a Simplified Message Desk Interface (SMDI) UCD group and enables that UCD line to be a part of the message desk.

Always add the UCD option in table IBNLINES through SERVORD. The following examples show how the UCD and SMDI options are added through SERVORD. The UCD option must be assigned before adding the SMDI option.

System prompt	User input
>	servord
SO:	
>	ado
SO_NUMBER: NOW 92 12 12	
>	(CR)
DN_OR_LEN:	

System prompt	User input
>	7224111
OPTKEY:	
>	5
OPTION:	
>	UCD
OPTKEY:	
>	$
SO:	
>	ado
SO_NUMBER: NOW 92 12 13	
>	(CR)
DN_OR_LEN:	
>	7224111
OPTION:	
>	smdi
LINENO:	
>	25
UCDGRP:	
>	messdesk
AUTOLOG:	
>	y

The SMDI option can be removed from a UCD line through the DEO command.

8 Operational measurements

SMDI OM groups

Operational measurements (OM) control the collection and display of operating data associated with the switch. Refer to the *Operational Measurements Reference Manual*, for more detailed information.

For information on multi-protocol controller (MPC) OMs see the *Translations Guide*.

Simplified Message Desk Interface (SMDI) uses the following two OM groups:

- SLLNK
  - SLLNKOVF
  - SLLNKOK
  - SLLNKQU
- SLLNKINC
  - SLLNKIOV
  - SLLNKIOK
  - SLLNKIOF
  - SLLNKIQU
  - SLLNKBAD

SLLNK

The SLLNK provides the measurements for the outgoing datalink utilities pertaining to SMDI data communication. The following tables list information about the measurements.

Table 8-1 SLLNK measurements

SLLNKOVF	This is the number of messages that are overwritten or thrown away in an attempt to enter a full queue. A full queue is one that has no more available queue item buffers for queuing messages. It is incremented every time a valid message fails to enter because of a full queue and, as a result, is thrown away or overwrites a previous message. SLLNKOVF is expected to be very low, if not 0. The chance of message overflow increases as register SLLNKQU increases. It should not exceed the maximum value of the OM register. Log SLNK106 is also generated when a queue overflow occurs.
SLLNKOK	This is the number of messages successfully queued for transfer to the down stream processor. It is incremented every time a valid message is successfully queued for transfer to the down stream processor.
SLLNKQU	This records the number of messages in the queue waiting to be processed (queue usage). Averaging is done by dividing this number by the number of times slow samples were taken.

SLLNKINC

SLLNKINC provides the following measurements for the incoming datalink utilities pertaining to SMDI data communication.

Table 8-2 SLLNKINC measurements

SLLNKIOV	This is the number of messages that are overwritten or thrown away in an attempt to enter the queue on a full incoming queue. A full queue is one which has no available free queue item buffers with which to queue a message. It is incremented every time a valid message fails to enter the queue due to a full queue and, as a result, the message is discarded or overwrites a previous message. SLLNKIOV is expected to be very low, if not 0. The chance of message overflow increases as register SLLNKIQU increases. It should not exceed the maximum value of the OM register. Log SLNK106 is also generated when a queue overflow occurs. The log alerts the user to this failure so that a reference to OM can be made for details.
SLLNKIOK	This is the number of messages queued successfully that will be received from the datalink. This OM is incremented every time a valid message is queued successfully and will be received from the datalink.
SLLNKIOF	This is the overflow register for SLLNKIOK. This OM is incremented every time a valid message is queued successfully and received from the datalink, and SLLNKIOK has overflowed.

Table 8-2 SLLNKINC measurements

SLLNKIQU	This records the number of messages in the queue waiting to be processed (queue usage). Averaging is done by dividing this number by the number of times slow samples were taken. This OM usage register is incremented every 100 seconds.
SLLNKBAD	This is the number of messages in an invalid format that are received from the datalink. It is incremented every time an invalid message is removed from the queue by the incoming processing task.

9 SMDI:features

Simplified Message Desk Interface (SMDI) features apply to the SMDI package. Table 9-1 lists features associated with the SMDI feature package.

Table 9-1 SMDI features

Feature name	Number	Package	Release
Message Service - Network Message Waiting Indicator	AG1638	NTXA68AA and NTX797AA	BCS30
RES SMDI CLID Suppression	AG1980	NTXN07AA	BCS31
SMDI: Called DN Option and KSH Support	NC0009	NTX732AA	BCS31
Message Waiting Indicator - PRI	AJ1538	NTX797AA	BCS33
Flexible Line Delivery on SMDI	AF6300	NTXN07AB	DMSCCM06
RES High Speed SMDI	AF5725	NTX732AA and NTXN10AA	DMSCCM04
Remote Call Forwarding Enhancements	AQ1245	RES00020	NA001

AG1638 - Message Service—Network MWI

Name

Message Service—Network Message Waiting Indicator

Number

AG1638

Package

NTXA68AA and NTX797AA

BCS

BCS33 and up

Feature package prerequisites

The Message Service—Network Message Waiting Indicator feature in feature package NTXA68AA requires the following feature packages:

Feature package prerequisites	
Feature package	**Feature package name**
NTX000AA	Bilge
NTX001AA	Common Basic
NTX100AA	Integrated Business Networks - Basic (IBN)
NTX101AA	IBN - Enhanced Business Services
NTX119AA	IBN - Message Service
NTX167AB	CCS7 - Trunk Signalling
NTX550AA	CCS7 - Transaction Service Support
NTX901AA	Local Features I
NTXR12AA or	CCS7 MTP/SCCP For LPP Based Platforms
NTX041AB	CCS7 MTP/SCCP

AG1638 - Message Service—Network MWI (continued)

The Message Service—Network Message Waiting Indicator feature in feature package NTX797AA requires the following feature packages:

Feature package prerequisites	
Feature package	**Feature package name**
NTX001AA	Common Basic
NTX100AA	Integrated Business Networks - Basic (IBN)
NTX106AA	IBN - Proprietary Business Set
NTX108AA	IBN - Display Features
NTX142AA	DS–1 64 KBPS Clear
NTX244AA or	Sequential Trunk Selection
NTX244AB	Enhanced Sequential Trunk Hunting
NTX270AA	New Peripheral Maintenance Package
NTX750AB-AD	ISDN Basic Access
NTX790AB or AC	ISDN - Primary Rate Access Base
NTX901AA	Local Features I
NTXA68AA	Network Message Service

Description

This feature allows a message service to activate and deactivate the message waiting indicator (MWI) of a subscriber located on another node. The nodes must support transaction capability application part (TCAP) communications, in accordance with the voice message storage and retrieval. They must also have Integrated Services Digital Network (ISDN) primary rate interface (PRI) connections. These connections provide the message service with subscribers' directory numbers (DN) and names, if the names are available.

This feature also allows ISUP PRI trunks to terminate on a Simplified Message Desk Interface (SMDI), thereby allowing SMDI to activate and deactivate the MWI of subscribers located on other nodes.

Background information

Message waiting (MWT) notifies station users that a message is queued against their DN. The station users dial an access code to access the message service and retrieve messages.

AG1638 - Message Service—Network MWI (continued)

TCAP builds and sends messages instructing the user's node to activate or deactivate an MWI. The messages are sent in packages. A TCAP package's destination address is obtained through global title translation (GTT), performed by the signaling connection control part (SCCP) of the Common Channel Signaling No. 7 (CCS7) network.

GTT provides a TCAP package's destination address in a called party address (CDPA). A CDPA consists of a combination of point code (PC), subsystem number (SSN), and global title (GT). The PC identifies each node within a CCS7 network and routes messages through the network. The SSN and GT identify each TCAP application.

SMDI connects a voice messaging system (VMS) or text messaging system (TMS) to an end office. Users forward their phones to the message desk, where callers can leave messages on an answering machine (VMS) or with an operator (TMS). Users retrieve messages from VMS by dialing the SMDI directly and entering a password. They retrieve TMS messages by logging onto the SMDI system and reading the messages posted by the attendant.

ISDN PRI connects a DMS–100 ISDN switch to another switching node. PRI allows users to access advanced network services for voice and data.

Operation

The message center's node is called the host; the subscriber's node is called the server. Hosts must be connected to servers by a TCAP (for message centers) or an ISUP PRI (for SMDIs).

Message service—When a message service initiates a request to activate a subscriber's MWI, the following occur:

1. From the host node, the VMS requests message waiting activation on the server node. The request includes the following data:
   - destination DN
   - calling DN
   - message service identification (ID) DN
   - time stamp
   - calling name
   - message service ID name
   - message service type

   The calling name, message service ID name, and message service type are not used by the Message Service—Network Message Waiting Indicator

feature, but the calling and message service ID names may be used by feature “Network Name Display.

2. The server node successfully activates the subscriber's message waiting lamp.
3. The server node sends the host a TCAP acknowledgement of successful activation.

Network MWI deactivation is handled the same way. The host node VMS system initiates the deactivation request, sending the same data except for omitting the timestamp. The server node deactivates the message waiting lamp and notifies the host.

SMDI—When an SMDI agent initiates a request to activate a subscriber's MWI, the following occur:

1. From the host node, the SMDI agent enters the command OP:MWI ffff!
2. GTT uses the subscriber's DN and the null SSN to provide a destination point code (DPC).
3. TCAP then sends a package with the DPC and the instructions MWT on to the server node.
4. On the server node, the DPC is used to locate the subscriber's line. Message waiting is then activated.
5. The server node sends the host a TCAP acknowledgement of successful activation.

The message recipient retrieves messages by dialing the SMDI directly, dialing a Call Request Retrieval (CRR) code, or for a Meridian business set (MBS) user by pressing the CRR key. Network Message Service (NMS) CRR uses reverse DN translations to route the call to the message desk. Therefore, tables CUSTNTWK, DNREGION, and DNREVXLA must be properly datafilled in order for network CRR to work. For more information on reverse DN translations, see feature “Network Dial Plan Display” in the *Translations Guide*.

The message is not automatically removed from the subscriber's message queue when the messages are retrieved with CRR. Instead, they are removed when the MWI is deactivated.

Network MWI deactivation is handled similarly to activation. An SMDI agent enters the command RMV:MWI ffff. A DPC is generated by GTT, and a TCAP package with the instructions MWT OFF is sent to the server.

AG1638 - Message Service—Network MWI (continued)

TCAP negative acknowledgement—If a request to activate or deactivate an MWI fails, TCAP returns a negative acknowledgement to the host. The acknowledgement indicates one of the following reasons for failure:

- *Task Refused* indicates that the server is overloaded and cannot currently handle the request.
- *Unassigned DN* indicates that the destination DN is not currently assigned to an active interface.
- *Notification Unavailable to Destination DN* indicates that the destination DN cannot be immediately notified, perhaps because the DN is temporarily out of service.
- *VMSR ID did not Match User Profile* indicates that the destination DN is not a subscriber of the VMSR system.

Activation/deactivation by the end–user

Activation and deactivation of an end–user's MWI is initiated by VMS or SMDI.

Users forward their phones to VMS or SMDI by pressing the appropriate call forward button and dialing the SMDI directory number. Users retrieve VMS messages by dialing the message service directly and talking to an agent.

Users retrieve SMDI messages in one of the following ways, depending on their stations and SMDI configuration:

- Users dial the SMDI desk directly to retrieve their messages through an agent.
- Users dial a CRR code to retrieve their messages from an answering machine.
- MBS users press the CRR key to retrieve their messages from an answering machine.

Limitations and restrictions

The limitations and restrictions of the Message Service—Network Message Waiting Indicator feature include the following:

- SMDIs that are datafilled in table SLLNKDEV with the NUMOFDIGS option set to 10 digits can convert a seven–digit DN to a ten–digit DN outside the numbering plan area (NPA) of the SMDI. Therefore, such an SMDI can activate and deactivate a MWI of a subscriber residing outside the NPA of the SMDI. However, SMDIs that are datafilled in table SLLNKDEV with the NUMOFDIGS option set to 7, convert a seven–digit DN to a ten–digit DN by assigning the NPA of the SMDI to the DN. Thus,

the SMDI can activate an MWI of a subscriber residing inside the NPA of the SMDI.

- SMDI users cannot delete messages or turn off their MWIs with the CRR option; only the SMDI agent can deactivate the MWI.
- The Call Request Delete All (CRDA) option deactivates the MWI, but does not remove the messages queued against subscribers' stations. Only the message service or SMDI agent can delete messages from the queue.
- Security codes are not screened on the server node when a subscriber's MWI is turned on; therefore, an unauthorized user could activate an MWI. However, security codes are screened, when a subscriber's MWI is turned off, thereby eliminating the risk of an unauthorized Network Message Service deactivating MWIs and deleting subscribers' messages.
- This feature does not direct MWT notification to a remote phone. The MWT and Message Service—Network Message Waiting Indicator features are separate.

Feature interactions

The Message Service—Network Message Waiting Indicator feature interacts with SMDI, but does not change its function. In addition, the following features are affected:

- CRDA—CRDA turns off a user's MWI, but does not remove messages from that user's queue. Messages are removed when the message service or SMDI deactivates the message waiting indicator.
- Message service - list management—With the message list editing (MLE) environment, a user can identify a call requestor's name and DN before retrieving the message. When an MLE subscriber's MWT is activated by the Message Service—Service—Network Message Waiting Indicator feature, the name and DN of the message service is displayed when the subscriber retrieves messages.

Office parameters

Network MWI introduces two office parameters. Two current parameters must change for this feature. Parameters NO_OF_SMALL_EXT_ BLKS and NO_OF_XLARGE_EXT_BLKS must change. The new parameters are NMS_ ACKNOWLEDGMENT_TIMEOUT and DYNAMIC_MEMORY_SIZE. All four parameters are in Table OFCENG.

AG1638 - Message Service—Network MWI (continued)

Datafill procedure for office parameters on server nodes

The following procedure identifies the server node datafill for the office parameter Dynamic_Memory_Size.

Datafill procedure for table OFCENG on server nodes	
Parameter	**Explanation and action**
Dynamic_Memory_Size	This parameter is used to specify the amount of memory available for several pools of memory. It has immediate activation and can be re-sized at any time. The parameter value may need to be increased as the number of Network MWI subscribers increases. Use the call processing tool manager (CPPOOLMGR) to see the current parameter value.

Datafill example for table OFCENG

The following example of a MAP display shows sample server node datafill for the office parameter Dynamic_Memory_Size.

```
          DYNAMIC MEMORY SIZE PARM

PARM      MEMORY IN KBYTES              VAST AREAS

SIZE      Total       USED              Total USED

15MB      15360K      2112K  13%        240     33K  13%

          POOLS IN ALARM

POOL      FTRQ2WPERMS is in alarm for a POOL_LIMIT alarm
```

AG1638 - Message Service—Network MWI (continued)

Datafill procedure for office parameters on host nodes

The following procedure identifies the host node datafill for the office parameters NMS_ACKNOWLEDGEMENT_TIMEOUT, NO_OF_XLARGE_EXT_BLKS and NO_OF_SMALL_EXT_BLKS.

Datafill procedure for table OFCENG on host nodes

Parameter	Explanation and action
NMS_ACKNOWLEDGEMENT_TIMEOUT	Set this parameter to the number of seconds that an NMS TCAP request waits for acknowledgement from the server node during an MWT activation or deactivation. The number of seconds can be between 0 and 32 767; 3 seconds is the default. Assigning 0 has the effect of disabling the timeout mechanism: the TCAP request will never time out. For the formula for this parameter, refer to the *Office Parameters Reference Manual*, 297–1001–455. Any change in this parameter takes effect immediately. A restart is *not* necessary. Underestimating causes too many NMS TCAP requests to time out. Overestimating causes transaction IDs to exist for too long, which in turn exhausts the supply of transaction IDs.

AG1638 - Message Service—Network MWI (continued)

Datafill procedure for table OFCENG on host nodes	
NO_OF_XLARGE_EXT_ BLKS	This parameter indicates the number of extra large extension blocks used by NMS. It can be from 0 to 32 767 blocks. The default is 16 blocks. For the formula for this parameter, refer to the *Office Parameters Reference Manual*. An extra large extension block is used each time a Message Service—Network Message Waiting Indicator feature activation or deactivation times out. To accommodate NMS, this parameter should be increased by NMS_ACKNOWLEDGEMENT_TIMEOUT times the sum of all requests in an office's SMDIs per second. Parameter autoprovisioning was added in TL10. A parameter increase change is immediate. Changes associated with decreases require a cold restart. Each extra large extension block uses 200 words of storage; therefore, the number of words required is NO_OF_XLARGE_EXT_BLKS times 200. This parameter is associated with the EXT OM group. To verify that it is set and working properly, ensure that EXTOVFL is not 0. If it is, the parameter is too low. Also, EXTHI records the maximum number of extension blocks in simultaneous use during a given transfer period. Underestimating this parameter prevents the Message Service—Network Message Waiting Indicator feature from functioning properly. Overestimating it can waste storage.
NO_OF_SMALL_EXT_ BLKS	This parameter indicates the number of small extension blocks used by NMS when a request times out. It can be from 0 to 32 767 blocks. The default is 16 blocks. For the formula for this parameter, refer to the *Office Parameters Reference Manual*. Parameter autoprovisioning was added in TL10. A parameter increase change is immediate. Changes associated with decreases require a cold restart. Each small extension block uses 10 words of storage; therefore, the number of words required is NO_OF_SMALL_EXT_BLKS times 10. This parameter is associated with the EXT OM group. To verify that it is set and working properly, ensure that EXTOVFL is not 0. If it is, the parameter is too low. Also, EXTHI records the maximum number of extension blocks in simultaneous use during a given transfer period. Underestimating this parameter prevents Network MWI from functioning properly. Overestimating it wastes storage.

Datafill example for table OFCENG

The following example shows datafill for office parameters NMS_ACKNOWLEDGEMENT_TIMEOUT, NO_OF_XLARGE_EXT_BLKS, and NO_OF_SMALL_EXT_BLKS.

Datafill example for table OFCENG

```
Example of a MAP display:
```

PARMNAME	PARMVAL
NMS_ACKNOWLEDGEMENT_TIMEOUT	3
NO_OF_XLARGE_EXT_BLKS	16
NO_OF_SMALL_EXT_BLKS	16

Datafill sequence

The following tables are affected by the Message Service—Network Message Waiting Indicator feature.

Data tables required for Network MWI

C7NETSSN

C7GTTYPE

C7GTT

C7LOCSSN

C7RPLSSN

C7RSSCRN

Datafill procedure for table C7NETSSN

The following procedure identifies the datafill for table C7NETSSN. This procedure contains only those fields that apply to Message Service—Network Message Waiting Indicator. Refer to the *Translations Guide* for a description of the other fields.

Datafill procedure for table C7NETSSN

Field	Subfield	Explanation and action
SSNAMES		Field SSNAMES is comprised of the subfields SSNAME and SSNUMBER. The two subfields in SSNAMES identify a subsystem.

AG1638 - Message Service—Network MWI (continued)

Datafill procedure for table C7NETSSN	
SSNAME	Enter NMS, the predefined subsystem name to be used by Message Service—Network Message Waiting Indicator.
SSNUMBER	Enter a subsystem number from 2 to 255. This number must be unique within table C7LOCSSN.

Datafill example for table C7NETSSN

The following example shows sample datafill from table C7NETSSN.

Datafill example for table C7NETSSN	
`Example of a MAP display:`	
`PCNAME`	`SSNAMES`
`S2_RTE`	`(NMS 123)$`

Datafill procedure for table C7GTTYPE

The following procedure identifies the datafill for table C7GTTYPE. This procedure contains only those fields that apply to Message Service—Network Message Waiting Indicator. Refer to the*Translations Guide* for a description of the other fields.

Datafill procedure for table C7GTTYPE		
Field	**Subfield**	**Explanation and action**
GTTNAME		Enter NMSGT, the global title translation name used by the Message Service—Network Message Waiting Indicator feature.
GTTID		Enter NMSGT, the global title translation identifier used by the Message Service—Network Message Waiting Indicator feature.

Datafill example for table C7GTTYPE

The following example shows sample datafill from table C7GTTYPE.

Datafill example for table C7GTTYPE		
`Example of a MAP display:`		
`GTTNAME`	`GTTYPE`	`GTTID`
`NMSGT`	`ANSI7 252`	`( NMSGT) $`

Datafill procedure for table C7GTT

The following procedure identifies the datafill for table C7GTT. This procedure contains only those fields that apply to Message Service—Network Message Waiting Indicator. Refer to the*Translations Guide* for a description of the other fields.

Datafill procedure for table C7GTT

Field	Subfield	Explanation and action
GTTKEY		This key field is made up of three subfields. Only subfield GTTNAME is changed by the Message Service—Network Message Waiting Indicator feature.
	GTTNAME	Enter the global title translation name NMSGT.
GTTRSLT		Enter PCSSN. This field is composed of up to eight subfields. Only subfield SSNAME is changed by the Message Service—Network Message Waiting Indicator feature.
	SSNAME	Enter the predefined subsystem name NMS.

Datafill example for table C7GTT

The following example shows sample datafill from table C7GTT.

Datafill example for table C7GTT

```
Example of a MAP display:

                     GTTKEY               GTTRSLT

NMSGT                0                    9

                     PCSSN (S2_RTE NMS 80) $ GT
```

AG1638 - Message Service—Network MWI (continued)

Datafill procedure for table C7LOCSSN

The following procedure identifies the datafill for table C7LOCSSN. This procedure contains only those fields that apply to Message Service—Network Message Waiting Indicator. Refer to the *Translations Guide* for a description of the other fields.

Datafill procedure for table C7LOCSSN

Field	Subfield	Explanation and action
SSNAME		Enter NMS, the predefined subsystem name to be used by the Message Service—Network Message Waiting Indicator feature.

Datafill example for table C7LOCSSN

The following example shows sample datafill from table C7LOCSSN.

Datafill example for table C7LOCSSN

Example of a MAP display:

SSNAME	SSNUMBER	MININST	REPLINFO	TFMI; PCNAMES
NMS	123	1	N	N; &

Datafill procedure for table C7RPLSSN

The following procedure identifies the datafill for table C7RPLSSN. This procedure contains only those fields that apply to Message Service—Network Message Waiting Indicator. Refer to the*Translations Guide* for a description of the other fields.

Datafill procedure for table C7RPLSSN

Field	Subfield	Explanation and action
SSNAME		Enter NMS, the predefined subsystem name to be used by the Message Service—Network Message Waiting Indicator feature.

Datafill example for table C7RPLSSN

The following example shows sample datafill from table C7RPLSSN.

Datafill example for table C7RPLSSN

```
Example of a MAP display:
```

SSNAME				REPLIST
NMS	SP3	SP4	N	&

Datafill procedure for table C7RSSCRN

The following procedure identifies the datafill for table C7RSSCRN. This procedure contains only those fields that apply to Message Service—Network Message Waiting Indicator. Refer to the*Translations Guide* for a description of the other fields.

Datafill procedure for table C7RSSCRN

Field	Subfield	Explanation and action
SSNAME		Enter NMS, the predefined subsystem name to be used by the Message Service—Network Message Waiting Indicator feature.

Datafill example for table C7RSSCRN

The following example shows sample datafill from table C7RSSCRN.

Datafill example for table C7RSSCRN

```
Example of a MAP display:
```

PCSSN	PCNAMES
S2_RTE	NMS &

Operational measurements

The FTRQ OM group is affected by the Message Service—Network Message Waiting Indicator feature, and the NETMSG group is introduced.

FTRQ—The FTRQ provides OM data on usage and traffic of feature queuing software resources required for Meridian Digital Centrex (MDC) features. These measurements are on an office–wide basis.

AG1638 - Message Service—Network MWI (continued)

The Message Service—Network Message Waiting Indicator feature adds two new key fields: FTRQ32WAREAS and FTRQ32WPERMS.

Three registers are pegged for each key field. FTRQSEIZ is pegged each time a request for an FTRQ block of specific size is successful. FTRQOVFL is pegged each time a request for an FTRQ block of specific size fails because none are available. FTRQHI indicates the highest number of simultaneous usage for an FTRQ block of specific size during the current transfer period.

NETMSG—The NETMSG group records conditions that result from NMS. These OMs help detect potential problem areas.

The following table describes the registers for NETMSG.

OMs for group NETMSG

Register	Explanation
NMSTIME	On host nodes, counts the number of times an NMS TCAP request times out. This is a peg count. A peg on this register can be caused by a TCAP request being lost before reaching a server or by a TCAP acknowledgement being lost before reaching a host. This register is unaffected by office parameters.
NMSDENL	On host nodes, counts the number of times an NMS TCAP request receives a negative acknowledgement. This is a peg count. A peg on this register can be caused by a message service being unable to alter a subscriber's MWI.

OMs for group NETMSG	
Register	**Explanation**
NMSINVAD	On host nodes, counts the number of times a message service receives addresses that are not valid. This is a peg count. A peg on this register can be caused by a message service agent entering an incorrect DN or by a message service generating an incorrect DN. This register is unaffected by office parameters. Log NMS100: INVALID ADDRESS FROM NMS is generated each time this register is pegged.
NMSVACT	On server nodes, counts the number of NMS requests received for vacant subscriber DNs. This is a peg count. A peg on this register can be caused by a dropped subscriber or by a message service generating a valid, but incorrect, address. This register is unaffected by office parameters. Log NMS101: VACANT NMS SUBSCRIBER DN is generated each time this register is pegged.

Log reports

The logs associated with this parameter are: NMS100, NMS101, NMS102, NMS103, and NMS104. The logs generate if the optional NMS subsystem is present. The logs provide information only and require no action.

NMS100 - INVALID ADDRESS FROM NMS generates at a host when a message service generates an address that is not valid. The log relates to the OM register NMSINVAD of OM group NMS. The format of the log report follows:

```
NMS100 mmmdd hh:mm:ss ssdd INFO INVALID ADDRESS FROM
NMS

INVALID ADDR = nnnnnnnnnn
```

An example of an NMS100 log report follows:

```
NMS100 JUN09 08:12:57 1234 INFO INVALID ADDRESS FROM
NMS

INVALID ADDR = 9999999999
```

AG1638 - Message Service—Network MWI (continued)

NMS101 - VACANT NMS SUBSCRIBER DN generates at a server when a Network MWI request specifies a vacant subscriber DN. This log relates to OM register NMSVACT of OM group NMS. The format of the log report follows:

```
NMS101 mmmdd hh:mm:ss ssdd INFO VACANT NMS SUBSCRIBER
DN

INVALID ADDR = nnnnnnnnnn
```

An example of an NMS101 log report follows:

```
NMS101 JUN09 09:12:57 1235 INFO VACANT NMS SUBSCRIBER
DN

INVALID ADDR = 8153692666
```

NMS102 - NOTIFICATION UNAVAILABLE generates at a server when there is no notification to the subscriber DN for a short term reason. An example of a short term reason is that the line is temporarily out of service. The NMS102 log detects problems that cause a network message service to send incorrect DNs.The format of the log report follows:

```
NMS102 mmmdd hh:mm:ss ssdd INFO NOTFICATION
UNAVAILABLE

SUBSCRIBER DN = nnnnnnnnnn
```

An example of an NMS102 log report follows:

```
NMS102 JUN09 09:12:57 1236 INFO NOTIFICATION
SUSBSCRIBER DN

SUBSCRIBER DN = 8155262666
```

NMS 103 -NOTIFICATION UNAVAILABLE TO DESTINATION DN generates at a server when a transaction capabilities application part (TCAP) response receives a component return error. This log relates to OM registers NMSVACT and NMSINVAD of OM group NMS. The format of the log report follows:

```
NMS103 mmmdd hh:mm:ss ssdd INFO NOTFICATION
UNAVAILABLE TO DESTINATION DN

SUBSCRIBER DN = nnnnnnnnnn
```

An example of an NMS103 log report follows:

```
NMS103 JUN09 09:12:57 1236 INFO NOTIFICATION
UNAVAILABLE TO DESTINATION DN

SUBSCRIBER DN = 8156862666
```

NMS 104 -TRID UNRELEASE REPORT generates when the transaction identifier (TRID) cannot release by the identifier pool (IDPL) functionality after sending a transaction capabilities application part (TCAP) message. The IDPL functionality dynamically creates the TRID. The format of the log report follows:

```
NMS104 mmmdd hh:mm:ss ssdd INFO
TRID_UNRELEASE_REPORT

TRANSACTION ID CANNOT RELEASE
```

An example of an NMS104 log report follows:

```
NMS104 JUN09 09:12:57 1236 INFO
TRID_UNRELEASE_REPORT

TRANSACTION ID CANNOT RELEASE
```

Billing

The Message Service—Network Message Waiting Indicator feature does not affect billing.

Service orders

The Message Service—Network Message Waiting Indicator feature does not affect service orders.

AG1980 - RES SMDI CLID Suppression

Name

RES SMDI CLID Suppression

Number

AG1980

Package

NTXN07AA **(enhanced by AF3679)**

BCS

BCS31 and up

Feature package prerequisites

The RES SMDI CLID Suppression feature requires the following feature packages:

Feature package prerequisites	
Feature package	**Feature package name**
NTX000AA	Bilge
NTX001AA	Common Basic
NTX100AA	Integrated Business Networks - Basic (IBN)
NTX730AA	Multilink ASCII Device Driver
NTX732AA	Simplified Message Desk Interface (SMDI)
NTX901AA	Local Features I

Description

A restricted DN cannot be delivered to a terminating party. This feature blocks the delivery of restricted numbers to the SMDI. Prior to this feature, both restricted and unrestricted DNs were delivered to the SMDI.

Background information

The SMDI connects a VMS or TMS to an end office. Users forward their phones to the message desk, where callers can leave messages on an answering machine (VMS) or with an operator (TMS). By default, both the calling and forwarding party's DNs are delivered to the SMDI.

AG1980 - RES SMDI CLID Suppression (continued)

All calls forwarded to the SMDI are answered by a forwarding party's personal greeting, a generic system greeting, or an attendant. If the LASTFWDN option is datafilled for an SMDI link, the SMDI takes a message for the final forwarding party. Otherwise, the original forwarding party receives the message.

A DN is restricted if either of the following is true:

- The DN is assigned the SUPPRESS option in tables NETNAMES, DNGRPS, or DNATTRS.
- The DN is on a Custom Local Area Signalling Services (CLASS) line that has the Calling Number Delivery Blocking (CNDB) option, and the caller chose to block the number when placing the call.

Operation

Blocking is specified through the DNSUPPR option in table SLLNKDEV, which has two subfields, CALLING and FWDING. Each subfield accepts the following values:

- NEVER - never block the party's DN, even if it is restricted
- CONDITNL - block restricted DNs; don't block unrestricted DNs

In addition, the CALLING subfield accepts INDIRECT, which causes indirect calls to be blocked, even if they are unrestricted. (An indirect call to the SMDI is one that is forwarded there by another party.)

AG1980 - RES SMDI CLID Suppression (continued)

The following table shows the DN delivery for different settings of DNSUPPR subfields and for all combinations of restricted numbers.

DN Delivery to the SMDI			
DNSUPPR option			
FWDING subfield	**CALLING subfield**	**Restricted DNs**	**Delivered DNs**
NEVER	NEVER	neither	both
		forwarding	both
		calling	both
		both	both
	CONDITNL	neither	both
		forwarding	both
		calling	forwarding
		both	forwarding
	INDIRECT	neither	forwarding
		forwarding	forwarding
		calling	forwarding
		both	forwarding
Note: If the forwarding DN cannot be delivered to the SMDI, neither DN will be delivered, even though the CALLING subfield is NEVER or the DN is unrestricted.			

AG1980 - RES SMDI CLID Suppression (continued)

DN Delivery to the SMDI			
DNSUPPR option			
FWDING subfield	**CALLING subfield**	**Restricted DNs**	**Delivered DNs**
CONDITNL	NEVER	neither	both
		forwarding	neither (see note)
		calling	both
		both	neither (see note)
	CONDITNL	neither	both
		forwarding	neither (see note)
		calling	forwarding
		both	neither
	INDIRECT	neither	forwarding
		forwarding	neither
		calling	forwarding
		both	neither
Note: If the forwarding DN cannot be delivered to the SMDI, neither DN will be delivered, even though the CALLING subfield is NEVER or the DN is unrestricted.			

Based on datafill and the calling party's initiation of the call, there are three possible scenarios for blocking the DN delivery to the SMDI.

- The DNs of both the calling and forwarding parties are blocked. If the forwarding party's DN is restricted, the SMDI cannot take a message for that party. Therefore, neither DN is delivered to the SMDI. The SMDI plays a generic system announcement for the caller and does not take a message.
- The calling party's DN is blocked. As long as the forwarding party's DN is available, the SMDI can take a message for that party.
- Neither DN is blocked. The SMDI proceeds to take a message for the forwarding party.

AG1980 - RES SMDI CLID Suppression (continued)

Activation/deactivation by the end–user

Users forward their phones to the SMDI by pressing the appropriate call forward button and dialing the SMDI directory number.

If users are on a CLASS line that has the CNDB option, they can chose to block or not to block their numbers when placing the call.

For each SMDI datalink, the DNSUPPR suboptions NEVER, CONDITNL, and INDIRECT are activated automatically based on datafill.

Limitations and restrictions

Limitations of the RES SMDI CLID Suppression feature include the following:

- With CALLING = CONDITNL and FWDING = NEVER, a restricted forwarding DN will never be blocked. However, when that DN originates a call to the SMDI to retrieve messages, the DN will be blocked, because the calling DN was specified to be conditionally blocked. The user must then use CNDB to toggle the suppression of the DN when retrieving messages.

In addition, the limitations of the SMDI and SMDI Enhanced features apply to this feature.

Feature interactions

This feature interacts with the following features and options:

- LASTFWDN option
- If LASTFWDN is datafilled for the SMDI, the blocking level specified in the FWDING subfield applies to the final forwarding party. The restriction of other DNs in a call forwarding chain has no effect on DN delivery to the SMDI.
- SMDI
- This feature affects the calling information sent to the SMDI. If FWDING = CONDITNL and the forwarding DN is restricted, no call information will be delivered to the SMDI. Thus, no message will be taken for the forwarding party. If CALLING = CONDITNL, a subscriber with a restricted DN may be unable to retrieve messages.

Office parameters

The RES SMDI CLID Suppression feature does not affect office parameters.

AG1980 - RES SMDI CLID Suppression (continued)

Datafill sequence

Table SLLNKDEV is affected by the RES SMDI CLID Suppression feature.

Data table required for Blocking of restricted number to SMDI
Table
SLLNKDEV

Datafill procedure for table SLLNKDEV

The following procedure identifies the datafill for table SLLNKDEV. This procedure contains only those fields that apply to RES SMDI CLID Suppression. Refer to the *Translations Guide* for a description of the other fields.

Datafill procedure for table SLLNKDEV

Field	Subfield	Explanation and action
XFERS		Enter SMDIDATA as the transfer value.
	OPTION	Enter DNSUPPR to specify the DN blocking option.
	CALLING	Enter one of the following values: NEVER to never block calling DNs; CONDITNL to block restricted calling DNs; and INDIRECT to always block indirect (forwarded) calls and to conditionally block direct (message retrieval) calls to the SMDI.
	FWDING	Enter one of the following values: NEVER to never block forwarding DNs; and CONDITNL to block restricted forwarding DNs.

Datafill example for table SLLNKDEV

The following example shows example datafill from table SLLNKDEV. The device name SMDI1 has the DNSUPPR option assigned to it.

Datafill example for table SLLNKDEV

```
Example of a MAP display:

DEVNAME DEVTYPE XLATION PROTOCOL DRECTION XFERS

SMDI1   1X89 0 2     NONE    NONE    INOUTLK       (SMDIDATA
DNSUPPR INDIRECT  CONDITNL &) &
```

AG1980 - RES SMDI CLID Suppression (end)

Operational measurements

The RES SMDI CLID Suppression feature does not affect operational measurements.

Log reports

The RES SMDI CLID Suppression feature does not affect log reports.

Billing

The RES SMDI CLID Suppression feature does not affect billing.

Service orders

The RES SMDI CLID Suppression does not affect service orders.

NC0009 - SMDI: Called DN Option and KSH Support

Name

SMDI: Called DN Option and KSH Support

Note: This feature is not available for CS 2000 - Compact offices.

Number

NC0009

Package

NTX732AA

BCS

BCS31 and up

Feature package prerequisites

The SMDI - Called DN Option and KSH Support feature requires the following feature packages:

Feature package prerequisites

Feature package	Feature package name
NTX000AA	Bilge
NTX001AA	Common Basic
NTX100AA	Integrated Business Networks - Basic (IBN)
NTX101AA	IBN - Enhanced Business Services
NTX119AA	IBN - Message Service
NTX730AA	Multilink ASCII Device Driver
NTX901AA	Local Features I

Description

The SMDI: Called DN Option and KSH Support feature improves the SMDI product in two ways. First, for each SMDI datalink, customer offices can select whether the first or last forwarding party in a call forward chain will be the recipient of the message. Second, key short hunt (KSH) overflow calls are handled the same as call forward busy calls, and are therefore sent to the SMDI with the DN of the originally called party or the last forwarding party.

NC0009 - SMDI: Called DN Option and KSH Support (continued)

Background information

The SMDI connects a VMS or TMS to an end office. Users forward their phones to the message desk, where callers can leave messages on an answering machine (VMS) or with an operator (TMS). Users retrieve messages from VMS by dialing the SMDI directly and entering a password. They retrieve TMS messages by logging onto the SMDI system and reading the messages posted by the attendant.

Users set one of three levels of call forwarding to the SMDI: Call Forward Universal, which forwards all calls; Call Forward Busy, which forwards calls when the user's line is busy; and Call Forward No Answer, which forwards calls after a specified number of rings.

With KSH, calls coming into a key set can be routed to any DN on that set. The primary DN (the originally dialed number) is tried first. If that number is busy, other numbers in the key set are tried until an idle DN is found or all DNs in the key set are unsuccessfully tried.

Operation

All calls forwarded to the SMDI are answered by a forwarding party's personal greeting, a generic system greeting, or an attendant. If the LASTFWDN option is datafilled for an SMDI link, the SMDI takes a message for the final forwarding party. Otherwise, the original forwarding party receives the message.

If the called party's line is busy and the KSH feature is available for the office, a key short hunt is initiated. When all DNs in the key set are busy, the call is forwarded to the SMDI and the originally called DN in the key set is passed.

Activation/deactivation by the end–user

Users forward their phones to the SMDI by pressing the appropriate call forward button and dialing the SMDI DN.

The LASTFWDN option is activated automatically based on datafill in table SLLNKDEV.

The KSH feature is activated automatically based on datafill.

Limitations and restrictions

Limitations and restrictions of the SMDI - Called DN Option and KSH Support feature include the following:

- The LASTFWDN option requires both the original and final terminating parties to reside on the same switch. In other words, network call

forwarding calls always report the original forwarding DN to the SMDI, regardless of the presence of the LASTFWDN option in table SLLNKDEV.

- The KSH to SMDI feature requires both the original and final terminating parties to reside on the same switch. In other words, network KSH overflow calls are treated as direct calls: the caller receives a generic system announcement and cannot leave a message.

In addition, the restrictions imposed by KSH and Call Forwarding apply to this SMDI enhancement feature.

Feature interactions

These features interact with the SMDI - Called DN Option and KSH Support feature:

- KSH feature KSH overflow calls are sent to the SMDI as call forward busy calls. Therefore, a message is taken for the original or final forwarding party's DN, depending on the setting of the LASTFWDN option.

  Without the SMDI - Called DN Option and KSH Support feature, KSH overflow calls are sent to the SMDI as direct calls.

- LASTFWDN option. With the LASTFWDN option, the final forwarding party's DN is presented to the SMDI, and a message is taken for that user. If a KSH overflow follows a call forwarding chain, the originally called DN in the key set is considered the final forwarding party.

  Without LASTFWDN, the original forwarding party's DN is presented to the SMDI. If a KSH overflow initiates a call forwarding chain, the originally called number in the key set is presented to the SMDI.

- Three–way Calling. The SMDI: Called DN Option and KSH Support feature does not apply to DNs involved in a three–way call. When a three–way caller dials a number that is forwarded to the SMDI, the call is sent as a direct call, and the caller receives a generic system announcement. The same is true for KSH overflow calls routed to the SMDI.

Office parameters

The KSHUNT_EXT_BLOCKS parameter of table OFCENG is affected by the SMDI - Called DN Option and KSH Support feature. The parameter specifies the number of allocated KSH Extension blocks. Valid entries are from 0 to 32 767. The default is 1000 blocks. The SMDI - Called DN Option and KSH Support feature does not change this office parameter's definition, range of values, or default value. However, the data storage allocated for each block is increased from six words to eight.

NC0009 - SMDI: Called DN Option and KSH Support (continued)

A change in this parameter requires a cold or reload restart before the new value is effective.

Datafill sequence

Table SLLNKDEV is affected by the SMDI - Called DN Option and KSH Support feature.

Data table required for SMDI: Called DN Option and KSH Support Table
SLLNKDEV

Datafill procedure for table SLLNKDEV

The following procedure shows the datafill for table SLLNKDEV. This procedure contains only those fields that apply to SMDI - Called DN Option and KSH Support. Refer to the*Translations Guide* for a description of the other fields.

Datafill procedure for table SLLNKDEV

Field	Subfield	Explanation and action
XFERS		Specify a transfer value of SMDIDATA.
	OPTION	Enter LASTFWDN to identify the last forwarding party as the recipient of the message. Without this value, the original forwarding party is used.

Datafill example for table SLLNKDEV

The following example shows sample datafill for table SLLNKDEV. The device name VMSLINK has the LASTFWDN option assigned to it.

Datafill example for table SLLNKDEV

Example of a MAP display:

```
DEVNAME   DEVTYPE  XLATION   PROTOCOL   DRECTION
                                                  XFERS
```

```
VMSLINK 1X67 8 3 NONE NONE INOUTLK
 (SMDIDATA LASTFWDN $) $
```

Operational Measurements

The SMDI - Called DN Option and KSH Support feature does not affect operational measurements.

NC0009 - SMDI: Called DN Option and KSH Support (end)

Log reports

The SMDI - Called DN Option and KSH Support feature does not affect any logs.

Billing

The SMDI - Called DN Option and KSH Support feature does not affect billing.

Service orders

The SMDI - Called DN Option and KSH Support feature does not affect service orders.

AJ1538 - Message Waiting Indicator - PRI

Name

Message Waiting Indicator - PRI

Note: This feature is not available for CS 2000 - Compact offices.

Number

AJ1538

Package

NTX797AA

BCS

BCS33 and up

Feature package prerequisites

The Message Waiting Indicator - PRI feature requires the following feature packages:

Feature package prerequisites	
Feature package	**Feature package name**
NTX001AA	Common Basic
NTX100AA	Integrated Business Networks - Basic (IBN)
NTX106AA	IBN - Proprietary Business Set
NTX108AA	IBN - Display Features
NTX142AA	DS–1 64 KBPS Clear
NTX244AA or	Sequential Trunk Selection
NTX244AB	Enhanced Sequential Trunk Hunting
NTX270AA	New Peripheral Maintenance Package
NTX750AB-AD	ISDN Basic Access
NTX790AB or AC	ISDN - Primary Rate Access Base
NTX901AA	Local Features I
NTXA68AA	Network Message Service

AJ1538 - Message Waiting Indicator - PRI (continued)

Description

The Message Waiting Indicator - PRI feature provides a visual sign or a stuttered dial tone indicating that a message has been left at an SMDI for busy or unavailable clients. When a message is left at an SMDI, the MWI is activated at the client's set. Once the client retrieves the message, the MWI is deactivated.

The Message Waiting Indicator - PRI feature allows an SMDI to leave a message when the calling and called parties are on switches connected by PRI trunks or by a combination of PRI trunks and CCS7 signaling links.

SMDI leaves a message by sending TCAP messages. The Message Waiting Indicator - PRI feature routes TCAP messages through table MSGRTE. By routing TCAP messages through table MSGRTE, PRI, CCS7, or PRI/CCS7 networks are supported.

Background information

The MWI is currently available across a network. An SMDI on one switch can alter the state of an MWI on another switch with a TCAP message. Originally, TCAP messages could only be transported over a pure CCS7 network and routed in the GTT of the destination DN. GTT is a parameter in a TCAP message.

Simplified Message Desk Interface

SMDI provides a central answering service by integrating call forwarding (CFW), uniform call distribution (UCD), and Message Waiting (MWT). An SMDI is made up of a group of UCD agents who receive information on incoming calls through a dedicated datalink interface. (The incoming information includes the calling party number, the forwarding from station number, and the type of call forwarding.)

SMDI allows a user to

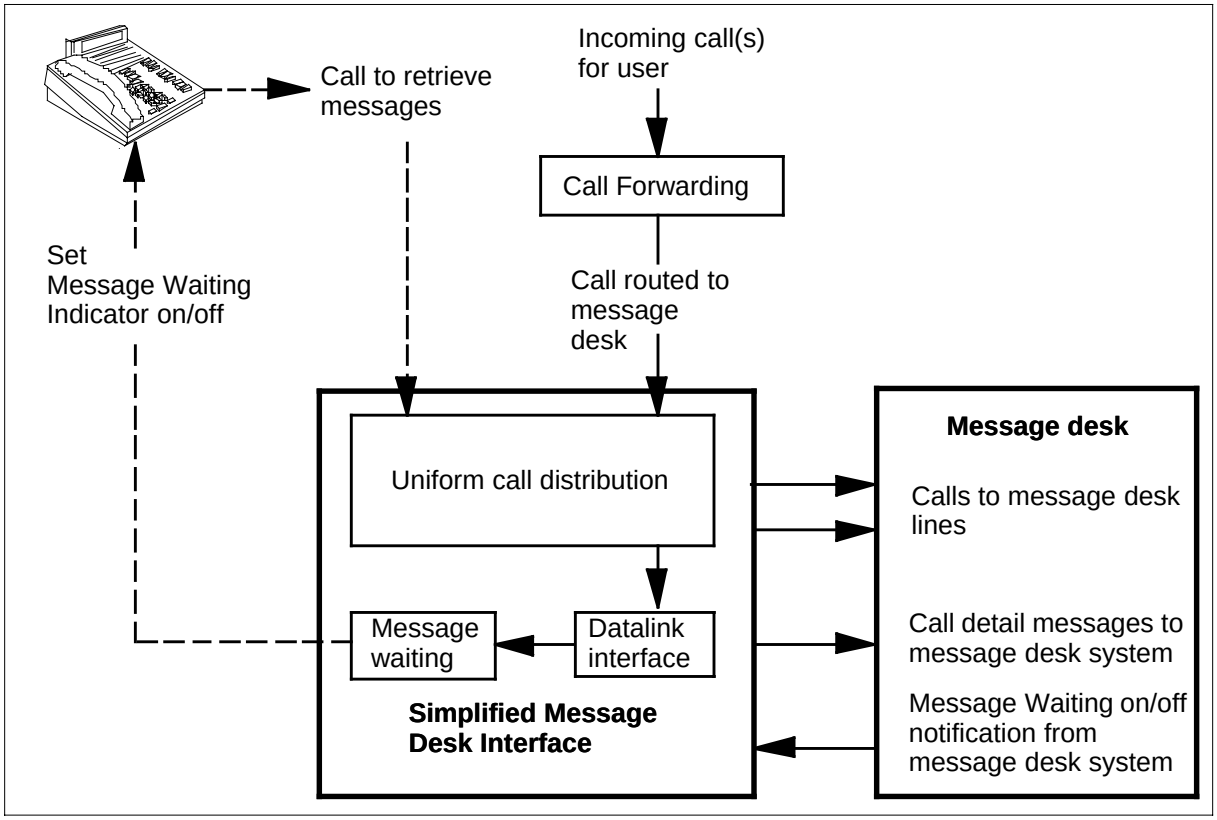
- forward incoming calls to a message desk
- be notified if any messages have been taken
- retrieve those messages from the message desk
- optionally block DNs from being presented to an SMDI

The DMS–100 CFW feature enables a user to forward calls to another DN when no one is available to answer calls. The DMS–100 MWT feature enables a caller to set up a *please call me* request. The user identifies the *please call me* request by a message waiting lamp or by a stuttered dial tone.

AJ1538 - Message Waiting Indicator - PRI (continued)

The following figure shows how an SMDI integrates CFW, MWT, and UCD.

SMDI overview



Message waiting indicator

Prior to the Message Waiting Indicator - PRI feature, the MWT feature was only available across a network. With TCAP messages, an SMDI on one switch could alter the state of a MWI on a separate switch.

Operation

The Message Waiting Indicator - PRI feature alters the method of routing the TCAP messages. The original application of MWI routed the messages in the GTT of the destination DN. With the Message Waiting Indicator - PRI feature, TCAP messages are routed through table MSGRTE. Table MSGRTE is datafilled with entries based on the destination DN and the destination network name. By routing TCAP messages through table MSGRTE, transportation of messages over a PRI, CCS7, or PRI/CCS7 networks is possible.

The Message Waiting Indicator - PRI feature is optional on a network name basis. A new option, NMSTBRTE, is added to field OPTION in table

NETNAMES. With field OPTION datafilled NMSTBRTE, TCAP messages will be routed through table MSGRTE.

The following figure shows how TCAP messages are routed over a PRI/CCS7 network.

Routing TCAP messages

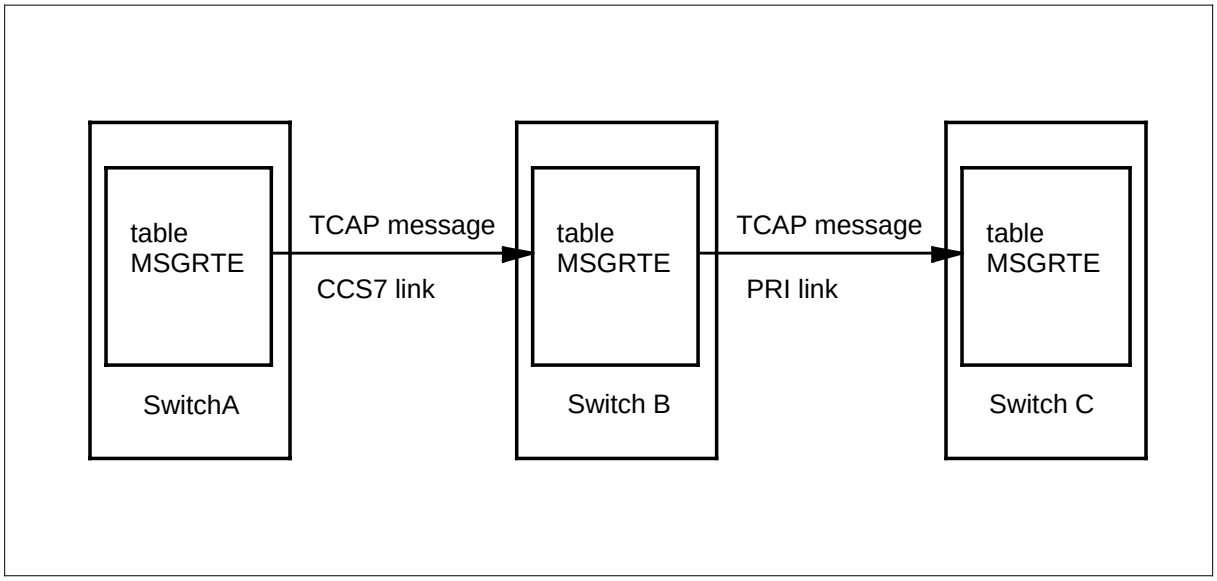


Table MSGRTE

Table MSGRTE determines where a message will be routed. This table performs a function similar to the translation and routing tables used by call processing. The difference, and thus the need for a distinct table, is that this table is concerned with routing messages and not with establishing call connections. All switches in the path must have appropriate datafill in table MSGRTE.

If the NMSTBRTE option is datafilled in table NETNAMES, table MSGRTE must be datafilled so TCAP messages can be routed correctly.

AJ1538 - Message Waiting Indicator - PRI (continued)

The following example shows three tuples from table MSGRTE.

Datafill example for table MSGRTE

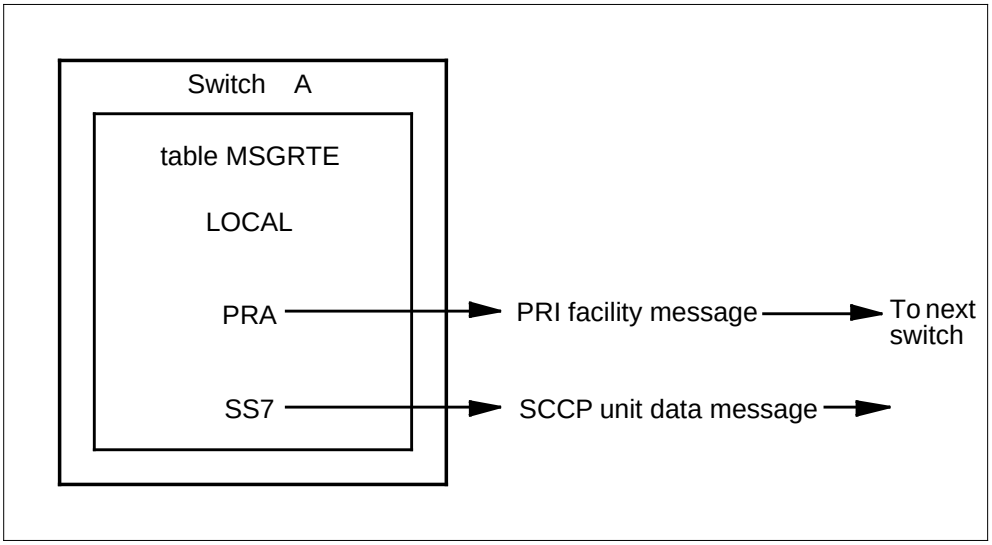
Example of a MAP display: MSGRTKEY	MSGRTRES
PUBLIC 427 446 SS7 SWITCHBPC	0 N $
PUBLIC 340 350 PRA K2KDT164CLP1	0 N $
PUBLIC 380 395 LOCAL 3 N $	3 N $

Table MSGRTE is indexed by a three–field key consisting of a network identifier (NETID), and two digit string fields (FROMDIGS and TODIGS). The digit strings determine a range of digits. The data in the table is a list of routes made up of one to four route elements. Each route element in the route list uses a route selector: LOCAL, PRA, or SS7. The route selector determines where the MWI will be routed as follows:

LOCAL	This route selector is used to route messages that should terminate within the switch. This selector also specifies how many digits, if any, should be deleted from the destination address in the message information and what digits, if any, should be prefixed to the destination address. If LOCAL is chosen as a selector, it must be the only route element in the route list.
PRA	This route selector is used to route messages to another switch over the D–channel on a PRI trunk group. This selector also specifies how many digits, if any, should be deleted from the destination address in the message information before sending the message and what digits should be prefixed to the destination address. If necessary, the option NEWNET can be datafilled to specify that the network identifier in the destination address should be replaced with a different network identifier. This allows a message to be received on one network and sent out on another.
S**S7**	This route selector is used to route messages to another switch over a CCS7 link. This selector also specifies how many digits, if any, should be deleted from the destination address in the message information and what digits should be prefixed to the destination address. If necessary, the option NEWNET can be datafilled to specify the network identifier. This allows a message to be received on one network and sent out on another.

When the selector is primary rate access (PRA), a PRI facility message is created and sent to the PRI facility process in the next switch. When the selector is SS7, an signaling connection control point (SCCP) unit data message is created and sent to the interwork SCCP subsystem in the switch. These messages contain the TCAP information needed by the MWI application.

Table MSGRTE routing



Routing through table MSGRTE

Network MWI will not send its messages through the SCCP subsystem network message service (NMS) if option MWRTBYTE is selected in table NETNAMES. The terminating DN and the network name of the terminating DN are used as an index into table MSGRTE. Table MSGRTE will be datafilled with the specific CCS7 link or PRI D–channel to be used to route the message.

If the TCAP message is to be routed over a PRI D–channel, a PRI facility message is constructed with the TCAP message and is sent to a PRI facility process at the next switch.

If the TCAP message is routed over a CCS7 signaling link, the TCAP message will be sent to INTERWRK SCCP subsystem at the next switch.

AJ1538 - Message Waiting Indicator - PRI (continued)

If table MSGRTE has no entry for the network and the digits specified, the message will not be routed.

Note: With the Message Waiting Indicator - PRI feature, the NMS subsystem will not be required. Customers wanting to use this subsystem should not enable the MWRTBYTE option in table NETNAMES.

Incoming messages

NMS TCAP messages can be received by one of the following:

- PRI facility process
- INTERWRK SCCP subsystem
- SCCP NMS subsystem

The message will be received by the PRI facility process if an NMS TCAP message is sent over a PRI D–channel. NMS TCAP messages sent over CCS7 links will be received by the SCCP NMS or the INTERWRK SCCP subsystem.

PRI facility process

The PRI facility process was created by Network ring again (RAG) to accept connection free PRI messages received from a PRI D–channel. Within these PRI messages is a TCAP message.

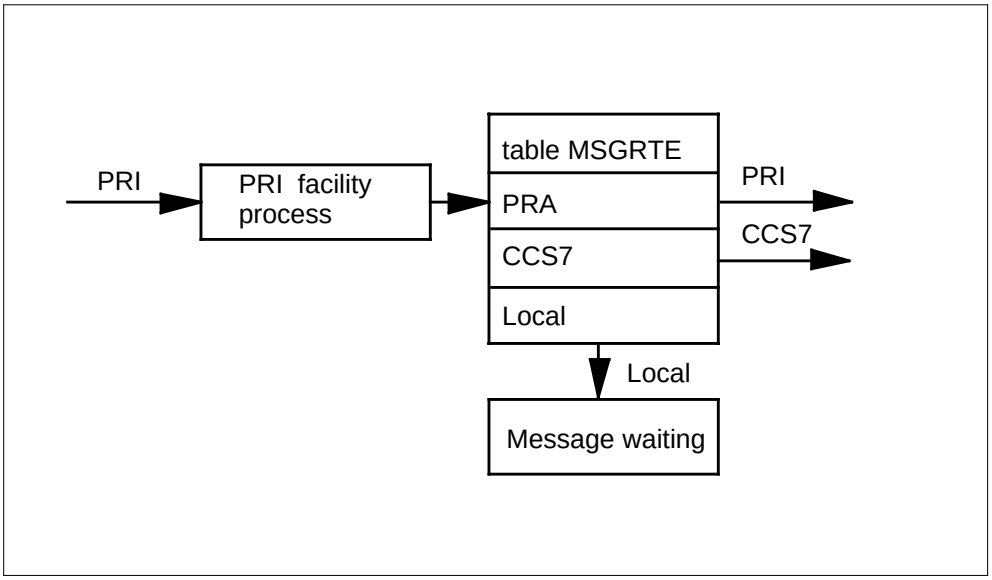
These TCAP messages have information relating to the following:

- NMS
- Network Automatic Call Distribution (NACD)
- Network RAG

The facility ID in the TCAP message determines which feature decodes the TCAP message.

The PRI facility process is invoked when a PRI message with a null call reference is received from a PRI D–channel. Table MSGRTE routes TCAP messages if the PRI facility message indicates that the TCAP message contains information for the NMS. If the message is to route locally, the TCAP message will be removed from the PRI facility message and passed to the feature specified by the facility identifier.

TCAP incoming to PRI facility proces



INTERWRK SCCP subsystem

The INTERWRK SCCP subsystem provides connection free signaling for TCAP messages between the CCS7 and PRI signaling links. All TCAP messages received by the INTERWRK SCCP subsystem have been sent over CCS7 links. To support the routing of a CCS7 network, a nonstandard GTT structure has been developed. This GTT structure contains the facility identifier and network identifier.

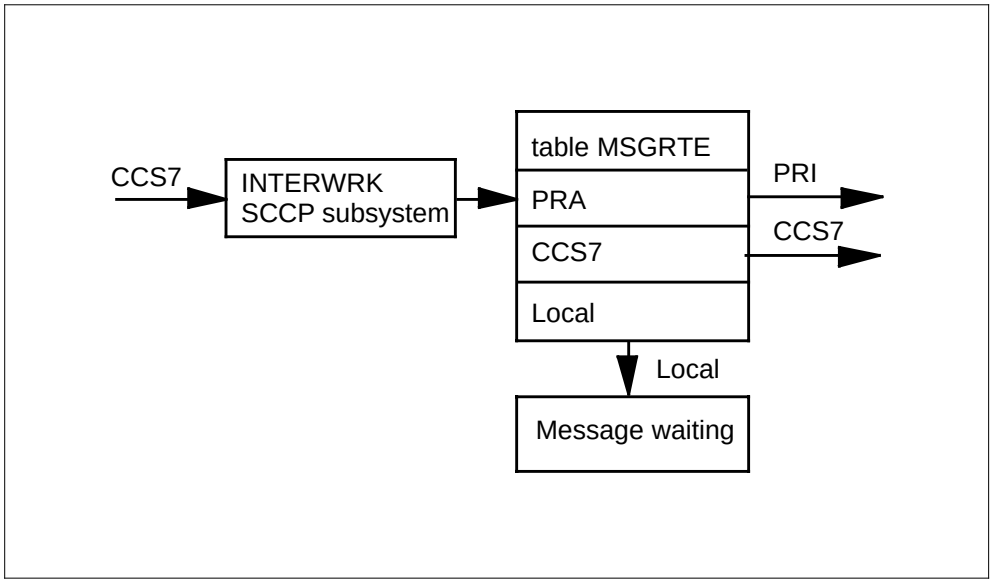
The entry in table MSGRTE is based on the network name and destination digits. The TCAP messages contain the destination DN and its corresponding network name.

Every TCAP message the INTERWRK SCCP subsystem receives has a facility ID. The facility ID identifies what feature is related to the TCAP message. The feature can be one of the following:

- ACD
- RAG
- MWT

AJ1538 - Message Waiting Indicator - PRI (continued)

TCAP incoming to INTERWRK SCCP subsystem

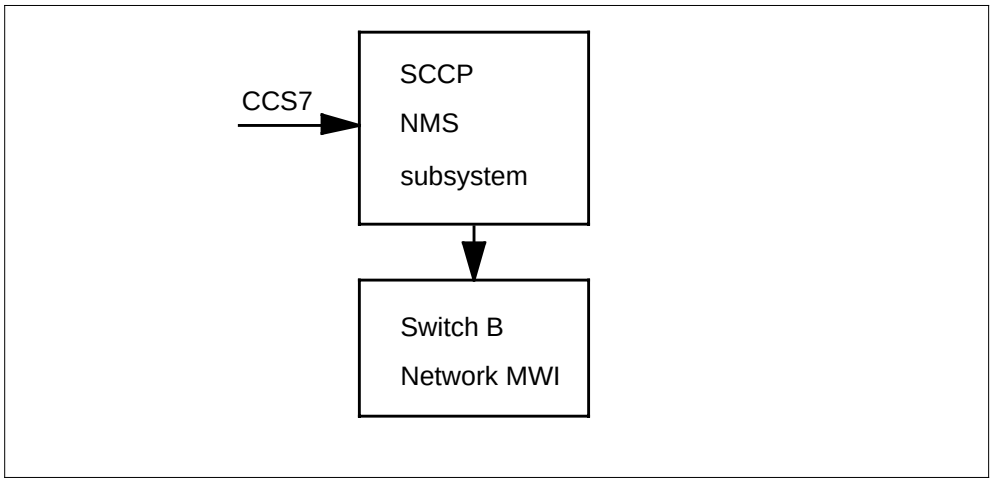


SCCP NMS subsystem

All TCAP messages received by the NMS subsystem have been sent over CCS7 links. The subsystem only receives messages for NMS. Any messages received by a SCCP NMS subsystem terminate locally regardless of the value of the NMSTBRTE option in NETNAMES.

Note: The Message Waiting Indicator - PRI feature does not change the way the SCCP NMS subsystem receives messages.

TCAP incoming to the SCCP NMS subsystem

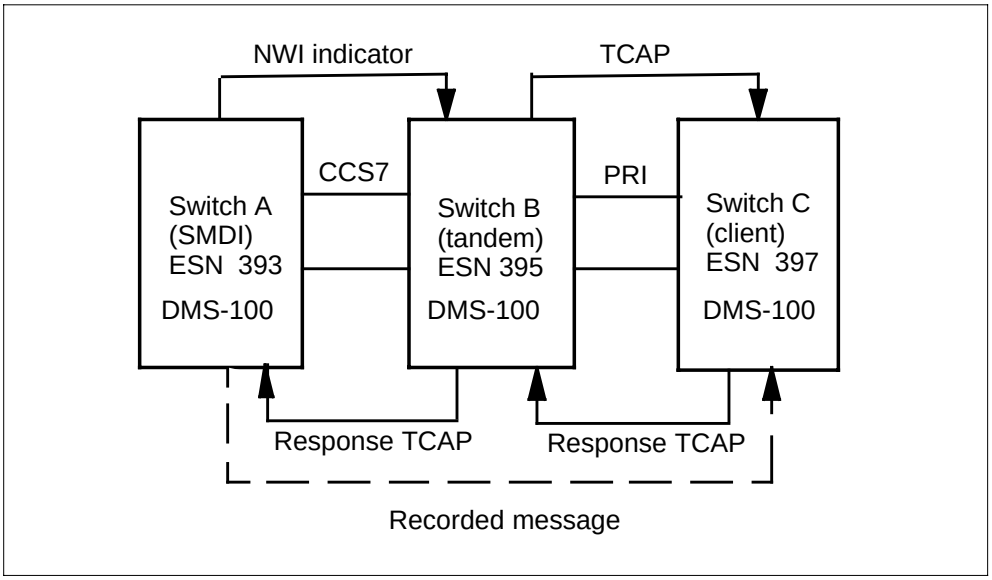


AJ1538 - Message Waiting Indicator - PRI (continued)

Network MWI example

In this example, the SMDI switch A (ESN 393) records a message for a client on switch C. A network MWI activation request is sent to a user on switch B (ESN 395). Table MSGRTE on switch B queries a TCAP message to initiate a leave message request for a DN on switch C. This message is sent as a PRI facility message to the PRI D–channel associated with trunk group K2KDTI64CLLP1. When the PRI facility process on switch C receives this message, the TCAP message is removed from the PRI facility message. The TCAP message is decoded, and the MWI is activated. Switch C sends a response TCAP message to switch B over the PRI D–channel. Switch B routes the response TCAP message over the CCS7 signaling link associated with trunk group NCSUSWITCHAPC.

Network MWI example



AJ1538 - Message Waiting Indicator - PRI (continued)

Datafill at switch A

Datafill example for table MSGRTE

Example of a MAP display:

```
MSGRTKEY                MSGRTRES

NCSU 397 397
       ( SS7 NCSUSWITCHAPC 0 N $)$
NCSU 393 393
      ( LOCAL 3 N)$
```

Datafill at switch B

Datafill example for table MSGRTE

Example of a MAP display:

```
MSGRTKEY                    MSGRTRES

NCSU 397 397
( PRA K2KDT164CLLP1 0 N )$
NCSU 393 393
( SS7 NCSUSWITCHAPC 0 N $)$
```

Datafill at switch C

Datafill example for table MSGRTE

Example of a MAP display:

```
MSGRTKEY                    MSGRTRES

NCSU 397 397
( PRA K2KDT164CLLP1 0 N )$
NCSU 393 393
( LOCAL 3 N)$
```

AJ1538 - Message Waiting Indicator - PRI (continued)

Activation/deactivation by the end–user

The Message Waiting Indicator - PRI feature requires no activation or deactivation by the end user.

Limitations and restrictions

Limitations and restrictions of the Message Waiting Indicator - PRI feature include the following:

- SMDIs that are datafilled in table SLLNKDEV with the NUMOFDIGS option set to ten digits can convert a seven–digit DN to a ten–digit DN outside the NPA of the SMDI. Therefore, such an SMDI can activate and deactivate a message waiting indicator of a subscriber residing outside the NPA of the SMDI. However, SMDIs that are datafilled in table SLLNKDEV with the NUMOFDIGS option set to 7 can convert a seven–digit DN to a ten–digit DN by assigning the NPA of the SMDI to the DN. Thus, the SMDI can activate a message waiting indicator of a subscriber residing inside the NPA of the SMDI.
- CRR will not remove the message from the SMDI. For example, if a user redials Meridian mail, the MWI lamp goes out. However, the voice message will not disappear unless it is deleted.
- Security codes are not screened on the server node when a subscriber's MWI is turned on; therefore, an unauthorized user could activate a message waiting indicator. However, security codes are screened when a subscriber's MWI is turned off, thereby eliminating the risk of an unauthorized network message service deactivating message waiting indicators and deleting subscribers' messages.
- This feature does not direct message waiting tone notification to a remote phone. The message waiting tone and network MWI features are separate.
- Network MWI does not know the network name of the destination DN. The destination DN will be sent as PUBLIC.
- TCAP messages received by the NMS subsystem will route no further regardless of the value of the NMSTBRTE option in NETNAMES.
- If a switch with the NMSTBRTE option routes a message to a switch without this option, it may not be possible to send a response message back. The first switch would assume, after the response timeout, that the feature activation has been unsuccessful.

AJ1538 - Message Waiting Indicator - PRI (continued)

Feature interactions

The following features interact with the Message Waiting Indicator - PRI feature:

- NMS
- TCAP messages no longer have to be routed by the SCCP NMS subsystem over a pure CCS7 network. Now TCAP messages can be sent over a PRI by being routed through table MSGRTE.
- CCS7/PRI—CCS7 and PRI interworking is supported.
- Network executive message waiting
- network executive message waiting (network EMW) uses table MSGRTE if the option is defined in table NETNAMES.
- Network RAG , NACD , and network MWI
- network RAG, network ACD, and network MWI use table MSGRTE, the PRI facility process, and the INTERWRK subsystem. Entries in table MSGRTE are not feature dependent. Tuples existing in this table are used when the NMSTBRTE option is enabled. Changes to this table affect network RAG, network ACD, and network MWI.

Note: All restrictions for the Message Service-Network Message Waiting Indicator feature, AG1638, also affect the Message Waiting Indicator - PRI feature.

Office parameters

The Message Waiting Indicator - PRI feature does not affect office parameters.

Datafill sequence

The table NETNAMES is affected by the Message Waiting Indicator - PRI feature.

Data tables required for Message Waiting Indicator - PRI
Table
NETNAMES MSGRTE

Datafill procedure for table NETNAMES

The following procedure shows the datafill for table NETNAMES. Table NETNAMES along with table NCOS and table IBNXLA allows the operating

company to datafill station information against a DN on a logical network basis. This procedure contains only those fields that apply to Message Waiting Indicator - PRI. Refer to the *Translations Guide* for a description of the other fields.

A new option, NMSTBRTE, has been added to table NETNAMES. This option was created to route TCAP messages by table MSGRTE. If the NMSTBRTE option is not defined, the old method of routing TCAP messages through the SCCP NMS subsystem will be used.

Datafill for table NETNAMES

Field	Subfield	Explanation and action
NETNAME		Enter the 1– to 32–character SCCP logical network name.
EXTNETID		This field defines the external network identifier, which is used externally to identify logical networks. Valid entries are from 1 to 32 600.
NETDIGS		This field defines the value used to extract the correct number of digits from the stored DN. Enter a value that represents the number of digits in the logical network. Valid entries are from 0 to 10.
NETOPTS		This field contains the following subfields: OPTION, EXTERNAL, INTERNAL, and NMXCHG. The Message Waiting Indicator - PRI feature affects only subfield OPTION.
	OPTION	Enter NMSTBRTE to route the TCAP message to MSGRTE.

Datafill example for NETNAMES

The following example shows sample datafill for table NETNAMES.

Datafill example for table NETNAMES

```
Example of a MAP display:
NETNAME EXTNETID NETDIGS                                    NETOPTS

NCSU    0   0                                          ( NMSTBRTE )$
```

Datafilling table MSGRTE

Table MSGRTE provides the facility for routing networking features on PRI trunks. This table is the base for future networking development over PRI.

AJ1538 - Message Waiting Indicator - PRI (end)

The proper network and digits must be specified before a message can be routed. See the *Translations Guide* for more information.

Operational measurements

The Message Waiting Indicator - PRI feature does not affect operational measurements.

Logs

The Message Waiting Indicator - PRI feature does not affect logs.

Billing

The Message Waiting Indicator - PRI feature does not affect billing.

Service orders

The Message Waiting Indicator - PRI feature does not affect service orders.

AF6300 - Flexible Line Delivery on SMDI

Name

Flexible Line Delivery on SMDI

Number

AF6300

Package

NTXN07AB

BCS

DMSCCM06 and up

Feature package prerequisites

The Flexible Line Delivery on SMDI feature requires the following feature packages:

Feature package prerequisites	
Feature package	**Feature package name**
NTX000AA	Bilge
NTX001AA	Common Basic
NTX730AA	Multilink ASCII Device Driver
NTX732AA	Simplified Message Desk Interface (SMDI)
NTX901AA	Local Features I

Description

The Flexible Line Delivery on SMDI feature gives the SMDI Calling Number Delivery (SMDICND) option the ability to deliver, block, or perform intra–group comparison to determine the delivery of a calling directory number (DN) to a Simplified Message Desk Interface (SMDI). The SMDICND option's parameters can be datafilled independently for RES and IBN agents and direct and indirect call types. The SMDICND option will always deliver the forward–from DN, even if an intra–group check fails.

On direct calls to SMDI from RES and IBN agents, the SMDICND option performs intra–group comparison between the calling party's customer group and SMDI agent's customer group to determine if the calling DN should be delivered. For indirect calls, the intra–group comparison can be made between

AF6300 - Flexible Line Delivery on SMDI (continued)

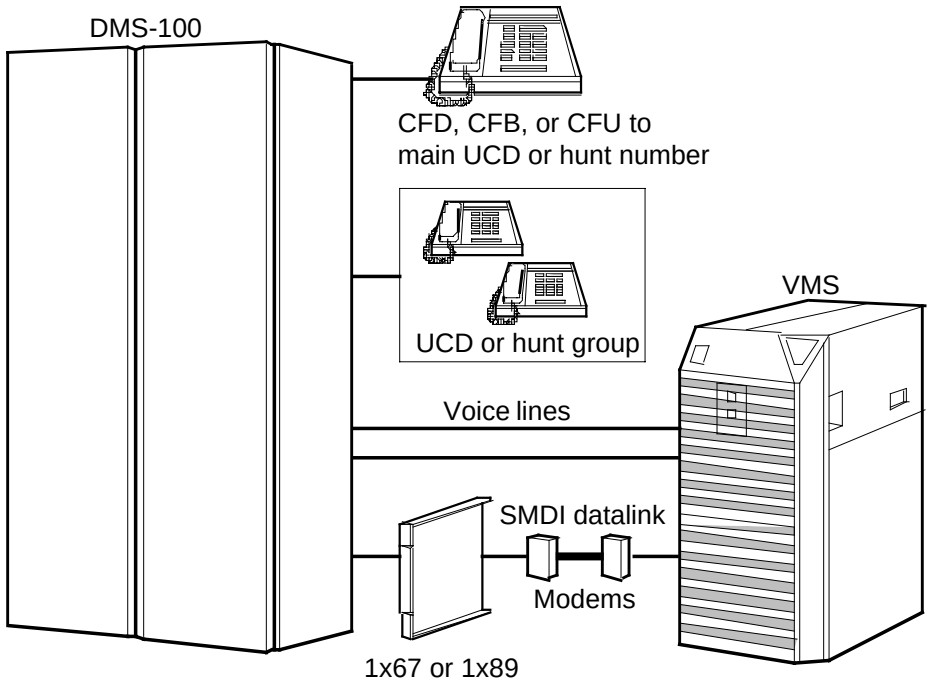
the calling party and the forward–from party or between both calling and forward–from parties and the SMDI agent. If the intra–group comparison fails, the calling DN is not delivered.

Background information

An SMDI provides a central answering service by integrating call forwarding and message waiting. An SMDI consists of a group of lines (a hunt group or uniform call distribution [UCD] group) and a dedicated datalink interface that provide the delivery of incoming call information to a voice mail system. The incoming information includes the calling party number, the forward–from party number, and the type of call forwarding involved: Call Forwarding Busy (CFB), Call Forwarding Don't Answer (CFD), or Call Forwarding All (CFW). See the following figure for an example of SMDI incoming call information.

AF6300 - Flexible Line Delivery on SMDI (continued)

SMDI incoming call information



Message format: MDaaabbbiffffffff ccccccc

Where: aaa = message desk number (001 -- 063)
bbbb = message desk terminal (0001 -- 2047)
ffffffff = forward-from station DN
ccccccc = calling station DN

i = type of call forwarding
A = forward all calls
B = forward busy calls
N = forward no answer calls
D = direct calls

Operation

The SMDICND option provides the ability to block, deliver, or perform intra–group checking to compare the calling DN to SMDI independently for RES and IBN agents and direct and indirect call scenarios. A direct call is an incoming call in which a user has directly dialed the hunt group DN or UCD

AF6300 - Flexible Line Delivery on SMDI (continued)

group DN for the purpose of message retrieval. An indirect call is an incoming call that has been forwarded to SMDI for the purpose of message deposit. The intra–group checking compares the agents involved to see if they are in the same customer group. If the agents being compared are not in the same customer group, the calling DNs are not delivered.

The SMDICND option has the following parameters for determining delivery of the calling DN:

- CGN_FOR_RES_DIRECT
- CGN_FOR_RES_INDIRECT
- CGN_FOR_IBN_DIRECT
- CGN_FOR_IBN_INDIRECT

Indirect calls can use the following delivery options: Block, Deliver, Compare_CG, or Compare_CG_ALL. Direct calls use only these delivery options: Block, Deliver, Compare_CG.

Option Compare_CG compares the customer group information of the calling party and the SMDI agent for direct calls and the calling party and the forward–from party for indirect calls. If the intra–group comparison fails, the calling DN is not delivered.

Option Compare_CG_ALL compares the customer group information of the calling party, the forward–from party, and the SMDI agent for indirect calls only. If the intra–group comparison fails, the calling DN is not delivered.

POTS lines are handled differently from RES and MDC lines. The SMDICND option will not deliver the calling DN on a direct call from a POTS agent. For indirect calls, the calling DN is not delivered if the forward–from party is a POTS agent, but the forward–from DN is delivered.

Intra–group determination

There are four ways to obtain the customer group information for intra–group determination. These are line agent status, multi–location business group (MBG) parameter, NETINFO parameter, and table TRKGRP static customer group. The line agent status is applicable to line calls while the MBG parameter, NETINFO parameter, and TRKGRP static customer group are applicable to trunk calls.

Intra–group checking using line agent status

The criteria used to determine if the agents are intra–group is the customer group information of the agent itself. Agents within the same customer family are considered to be in the same customer group. A customer group family is

created by uniting different customer groups as a customer family using table CUSTFAM. The way in which the call is translated does not influence the intra–group checking.

Intra–group checking using MBG parameter

An MBG call is an MDC customer–originated call that routes over a public common channel signaling 7 (CCS7) facility, but retains the identity of the associated originator's customer group. This is accomplished through the business group parameter in the initial address message (IAM). For a call to be considered an MBG call, it must not reach the public facility by means of a NET DOD access code in table IBNXLA.

In a POTS ISDN user part (ISUP) call to an SMDI, or to a line that is forwarded to an SMDI, the intra–group determination is accomplished using the MBG parameter. If the business group parameter is present in the ISUP IAM, this call may be an intra–group call, even if it is on a public facility. If the business group parameter is present, it is mapped to an entry in table BGDATA. If the entry in table BGDATA corresponding to the information passed in the IAM has the CUSTGRP option, and if the name of the customer group is the same as the customer group for the other agents needed to make this an intra–group call, then the DN is delivered to the SMDI.

Intra–group checking using NETINFO parameter

IBN ISUP trunks provide the capability to allow IBN trunks, specifically IBNTO, IBNTI, and IBNT2, to use ISUP signaling. This capability combines the advantages of IBN trunks with the functionality of ISUP trunks. In regard to SMDI, the advantage of this is the ability to know the calling and forward–from party information from the ISUP functionality as well as the customer group information from the IBN functionality. The customer group of the originating agent is extracted from the NETINFO parameter contained in the IAM. The IAM is the first message sent on the ISUP against each other network for an ISUP call. If this customer group is the same as that of the other agent used in the intra–group comparison, the calling DN is delivered to SMDI. If both the business group parameter and the NETINFO parameter exist in the IAM, the business group parameter takes precedence over the NETINFO parameter.

Intra–group checking using table TRKGRP static customer group

If neither the BG or NETINFO parameters are contained in the IAM, the static customer group from table TRKGRP is used to determine the customer group. If the static customer group is the same as that of the other agent used in the intra–group comparison, the calling DN is delivered to SMDI.

AF6300 - Flexible Line Delivery on SMDI (continued)

Activation/deactivation by the end–user

End–users forward their phones to the SMDI by activating call forwarding on either a Meridian business set (MBS) or a 2500 set and dialing the SMDI directory number.

Limitations and restrictions

The Flexible Line Delivery on SMDI feature has the following limitations and restrictions.

- When using IBN ISUP trunking, and both the NETINFO and the business group (BG) parameters are passed in the IAM, the BG parameter takes precedence to determine the customer group.
- On any call in which the forwarding party resides in a different office than the SMDI, the calling DN is blocked by SMDICND. This applies also to call forward chain scenarios, in that if any leg routes via a trunk, the calling DN is blocked by SMDICND.
- All non–IBN type trunks are treated as POTS agents by this feature in that the calling DN is blocked and the forward–from DN is delivered if it is available.
- If it is not possible to determine the customer group of an agent involved in a call, the call is not considered intra–group.
- The SMDICND option is not compatible with BNN, CPU, MPH, or PRH type hunt groups and is not assignable through SERVORD to MBS hunt group agents.

Feature interactions

The following paragraphs describe the interactions between Flexible Line Delivery on SMDI and other functionalities.

Virtual Facility Group

The customer group associated with a Virtual Facility Group (VFG) that has been spanned within a call will not be recognized by the intra–group determination process. This feature uses the customer group associated with the actual physical call processing agent to determine the customer group appearance. The only exception to this is an ISUP origination which includes MBG or NETINFO parameters.

LASTFWDN option

If the LASTFWDN option in table SLLNKDEV is assigned to the SMDI datalink, the LASTFWDN option has precedence in determining the identity of the forward–from party used in any customer group comparison initiated by the SMDICND option.

AF6300 - Flexible Line Delivery on SMDI (continued)

Office parameters

The Flexible Line Delivery on SMDI feature does not affect office parameters.

Datafill sequence

The following tables affect the Flexible Line Delivery on SMDI feature:

Data tables required for Flexible Line Delivery on SMDI
Table
UCDGRP
HUNTGRP

Datafill procedure for table UCDGRP

The following procedure identifies the datafill for table UCDGRP. This procedure contains only those fields that apply to Flexible Line Delivery on SMDI. Refer to the*Translations Guide* for a description of other fields.

Datafilling table UCDGRP		
Field	**Subfield**	**Explanation and action**
OPTIONS		Enter SMDICND for SMDI calling number delivery.
If SMDICND is entered, the following subfields are presented.		
	CGN_FOR_ RES_DIRECT	Calling number for RES direct. Specifies delivery of the calling party information given a direct call to SMDI from a RES agent. The possible entries are block, deliver, or compare_CG.
	CGN_FOR_ RES_ INDIRECT	Calling number for RES indirect. Specifies delivery of the calling party information given an indirect call to SMDI when the SMDI subscriber (forward–from party) is a RES agent. The possible entries are block, deliver, or compare_CG, or compare_CG_ALL.
	CGN_FOR_IBN _DIRECT	Calling number for IBN direct. Specifies delivery of the calling party information given a direct call to SMDI from a IBN agent. The possible entries are block, deliver, or compare_CG.
	CGN_FOR_IBN _INDIRECT	Calling number for IBN indirect. Specifies delivery of the calling party information given an indirect call to SMDI when the SMDI subscriber (forward–from party) is a IBN agent. The possible entries are block, deliver, or compare_CG, or compare_CG_ALL.

AF6300 - Flexible Line Delivery on SMDI (continued)

Datafill example for table UCDGRP

The following shows example datafill from table UCDGRP.

Datafill example for table UCDGRP

Example of a MAP display:

```
UCDNAME ACD CUSTGRP UCDRNGTH THROUTE NSROUTE
 PRIOPRO MAXPOS DBG DEFPRIO RLSCNT MAXWAIT MAXCQSIZ OPTIONS

 SMDI11 N BNR 0 OFRT 1 OFRT 1 12 12 N 0 0 1200 12
 (UCD_SMDI SMDI1 1 $) (SMDICND COMPARE_CG BLOCK DELIVER
COMPARE_CG_ALL) $
```

Datafill procedure for table HUNTGRP

The following procedure identifies the datafill for table HUNTGRP. This procedure contains only those fields that apply to Flexible Line Delivery on SMDI. Refer to the*Translations Guide* for a description of other fields.

Note: The preferred method of assigning the SMDICND option to a hunt group is through SERVORD.

Datafilling table HUNTGRP

Field	Subfield	Explanation and action
OPTIONS		Enter SMDICND for SMDI calling number delivery.
If SMDICND is entered, the following subfields are presented.		
	CGN_FOR_ RES_DIRECT	Calling number for RES direct. Specifies delivery of the calling party information given a direct call to SMDI from a RES agent. The possible entries are block, deliver, or compare_CG.
	CGN_FOR_ RES_ INDIRECT	Calling number for RES indirect. Specifies delivery of the calling party information given an indirect call to SMDI when the SMDI subscriber (forward–from party) is a RES agent. The possible entries are block, deliver, compare_CG, or compare_CG_ALL.

AF6300 - Flexible Line Delivery on SMDI (continued)

Datafilling table HUNTGRP		
Field	**Subfield**	**Explanation and action**
	CGN_FOR_IBN _DIRECT	Calling number for IBN direct. Specifies delivery of the calling party information given a direct call to SMDI from a IBN agent. The possible entries are block, deliver, or compare_CG.
	CGN_FOR_IBN _INDIRECT	Calling number for IBN indirect. Specifies delivery of the calling party information given an indirect call to SMDI when the SMDI subscriber (forward–from party) is a IBN agent. The possible entries are block, deliver, compare_CG, or compare_CG_ALL.

Datafill example for table HUNTGRP

The following shows example datafill from table HUNTGRP.

Datafill example for table HUNTGRP

Example of a MAP display:

```
HTGRP SNPA DN GRPTYP GRPDATA

1 619 6751234 DNH N N N RCVD N N N N N N 10 (SMDI 63
SMDI1)(SMDICND COMPARE_CG BLOCK DELIVER COMPARE_CG_ALL)$
```

Operational measurements

The Flexible Line Delivery on SMDI feature does not affect operational measurements.

Log reports

The Flexible Line Delivery on SMDI feature does not affect logs.

Billing

The Flexible Line Delivery on SMDI feature does not affect billing.

Service orders

SERVORD can be used to add or delete option SMDICND to or from a hunt group line. This option is compatible with hunt group types Multi–Position Hunt (MPH), Directory Number Hunt (DNH), and Distributed Line Hunt (DLH). This option is only compatible with RES and IBN hunt groups. The SMDI option must be present to assign the SMDICND option to a hunt group.

AF6300 - Flexible Line Delivery on SMDI (continued)

Service order limitations and restrictions

SMDICND is not compatible with the following options:

- AAK (Automatic Answer Key)
- ACD (Automatic Call Distribution)
- AUL (Automatic Line)
- BC (Basic Call)
- BNN (Bridged Night Number)
- CAG (Call Agent)
- CLSUP (Call Supervisor)
- CNAB (Calling Name Delivery Blocking)
- CNDB (Calling Number Delivery Blocking)
- CPU (Call Pickup)
- DTM (Denied Termination)
- EHLD (EKTS Hold)
- KSH (Key Short Hunt)
- MDN (Multiple Appearance Directory Number)
- MLAMP (MDN Lamp)
- MPH (Multiple Position Hunt)
- MREL (MDN Release)
- PREMTBL
- PRH (Preferential Hunting)
- RMB (Random Make Busy)
- SCMP (Series Completion)
- SHU (Stop Hunt)
- SLQ (Single–line Queuing)

The SMDICND option is not assignable to an MBS through SERVORD.

AF6300 - Flexible Line Delivery on SMDI (continued)

Service order prompts

The following table shows the service order prompts used to assign the Flexible Line Delivery on SMDI feature to a hunt group line.

Service order prompts for Flexible Line Delivery on SMDI

Prompt	Valid input	Explanation
SONUMBER	numeric	The unique number of the service order to be entered.
DN_OR_LEN	numeric	Enter the line's DN or LEN. In the case of MLH, DLH, or DNH hunt members, if a DN is specified, then the user is prompted for the LEN. If the LEN is entered, then the user is not prompted for the DN.
OPTION	SMDICND	Option(s) associated with a service to be established, modified, or deleted. A maximum of 20 options can be specified in any single ADD, ADO, EST, or NEW command. Enter SMDICND.
CGN_FOR_RES_DIRECT	block, deliver, compare_CG	Specifies delivery of the calling party information given a direct call to SMDI from a RES agent.
CGN_FOR_RES_INDIRECT	block, deliver, compare_CG, compare_CG_ALL	Specifies delivery of the calling party information given an indirect call to SMDI when the SMDI subscriber (forward–from party) is a RES agent.
CGN_FOR_IBN_DIRECT	block, deliver, compare_CG	Specifies delivery of the calling party information given a direct call to SMDI from a IBN agent.
CGN_FOR_IBN_INDIRECT	block, deliver, compare_CG, compare_CG_ALL	Specifies delivery of the calling party information given an indirect call to SMDI when the SMDI subscriber (forward–from party) is a IBN agent.

AF6300 - Flexible Line Delivery on SMDI (end)

Example service orders for implementing Flexible Line Delivery on SMDI

The following example shows a new hunt group line option, SMDICND, being added to an existing line using the ADO command.

Setting up SMDICND using ADO
Input and response
*Input in **Prompt** mode* **> SERVORD** SO: **> ADO** SONUMBER: NOW 92 7 9 AM **>** DN_OR_LEN: **> 6754000** OPTION: **> SMDICND** CGN_FOR_RES_DIRECT: **> COMPARE_CG** CGN_FOR_RES_INDIRECT: **> BLOCK** CGN_FOR_IBN_DIRECT: **> DELIVER** CGN_FOR_IBN_INDIRECT: **> COMPARE_CG_ALL** OPTION: **> $** *Input in **No–prompt** mode* **> ADO $ 6754000 (SMDICND COMPARE_CG BLOCK DELIVER COMPARE_CG_ALL) $**

AF5725 - RES High Speed SMDI

Name

RES High Speed SMDI

Note: This feature is not available for CS 2000 - Compact offices.

Number

AF5725

Packages

NTX732AA and NTXN10AA

BCS

DMSCCM013

Feature package prerequisites

The RES High Speed SMDI feature requires the following feature packages:

Feature package prerequisites	
Feature package	**Feature package name**
NTX000AA	Bilge
NTX001AA	Common Basic
NTX100AA	Integrated Business Networks - Basic (IBN)
NTX730AA	Multilink ASCII Device Driver
NTX732AA	Simplified Message Desk Interface (SMDI)
NTX901AA	Local Features I
NTXN10AA	High–Speed SMDI

Description

RES High Speed SMDI introduces a method of determining the call request retrieval (CRR) or Message Waiting (MWT) dial–back desk for local subscribers (on the host node) and external subscribers (outside the host node), eliminating the need for a default message desk.

In addition, RES High Speed SMDI modifies the removal of message waiting indicators (MWI) that were set at the message center for subscribers in a local configuration.

AF5725 - RES High Speed SMDI (continued)

Background information

Each message desk is provided with a primary directory number (PDN) that is associated with a set of uniform call distribution (UCD) or hunt lines. Formerly, the Simplified Message Desk Interface (SMDI) application selected one message desk as the only CRR access for each data link. For data links with only one message desk, the directory number (DN) associated with that desk served as the message waiting requestor. However, for data links with two or more message desks in service, SMDI was unable to determine which desk was the designated primary desk (based solely on the incoming data). Therefore, SMDI always assigned message desk 63 as the CRR route access to the voice messaging system (VMS).

Before this feature, the method of defaulting to message desk 63 contributed unnecessary engineering requirements into SMDI. External subscribers (located outside the host node) needed to use a common message desk during CRR to a message center.

If message desk 63 was assigned as the only CRR access, the following problems developed:

- Some message centers could not support multiple message desks with the same desk number (that is, message desk 63).
- The voice links associated with message desk 63 became overloaded during high traffic.
- Message desk 63 could be overbilled.

Also, SMDI failed to remove an MWI after changes to the PDN of a message desk. The MWI would remain stuck in the ON state.

Operation

RES High Speed SMDI modifies the MWI setting and removal functional areas against nodal and network subscribers by eliminating the need for default message desk 63. This method enables CRR routing to be executed through the subscriber's primary desk (nodal) or a common desk (nodal or network) other than message desk 63.

For network cases, option COMMON is introduced in table SLLNKDEV (Link Device Table) to enable telephone operating company personnel to select a common message desk other than message desk 63 for each SMDI link to be used during message retrievals.

If an entry for option COMMON is not in table SLLNKDEV, host subscribers must use their primary message desk, and external subscribers must use the

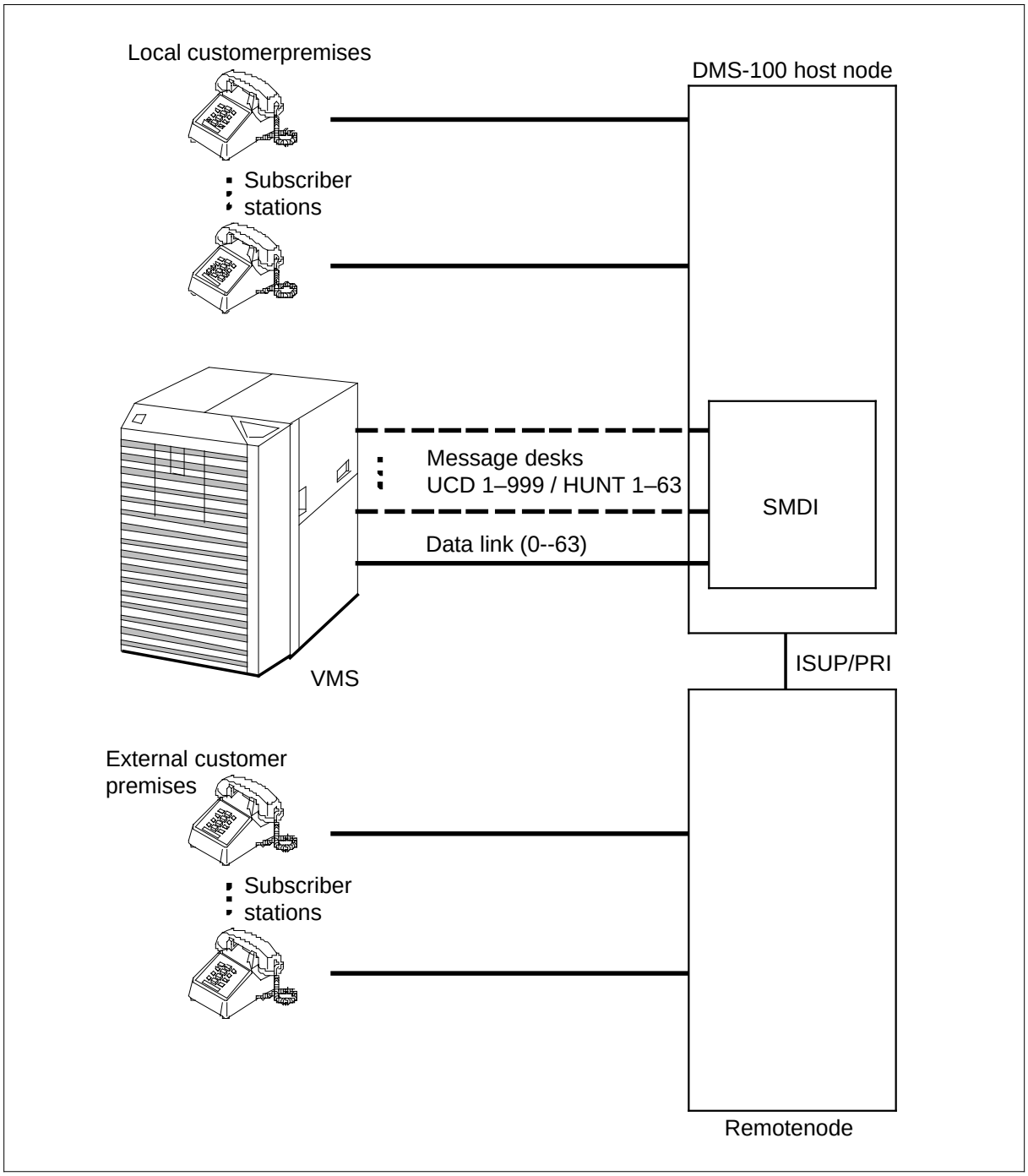
AF5725 - RES High Speed SMDI (continued)

first message desk. Network MWI requests on links without option COMMON generate an SMDI105 log.

The following figure shows a simple VMS configuration.

AF5725 - RES High Speed SMDI (continued)

Simple VMS configuration



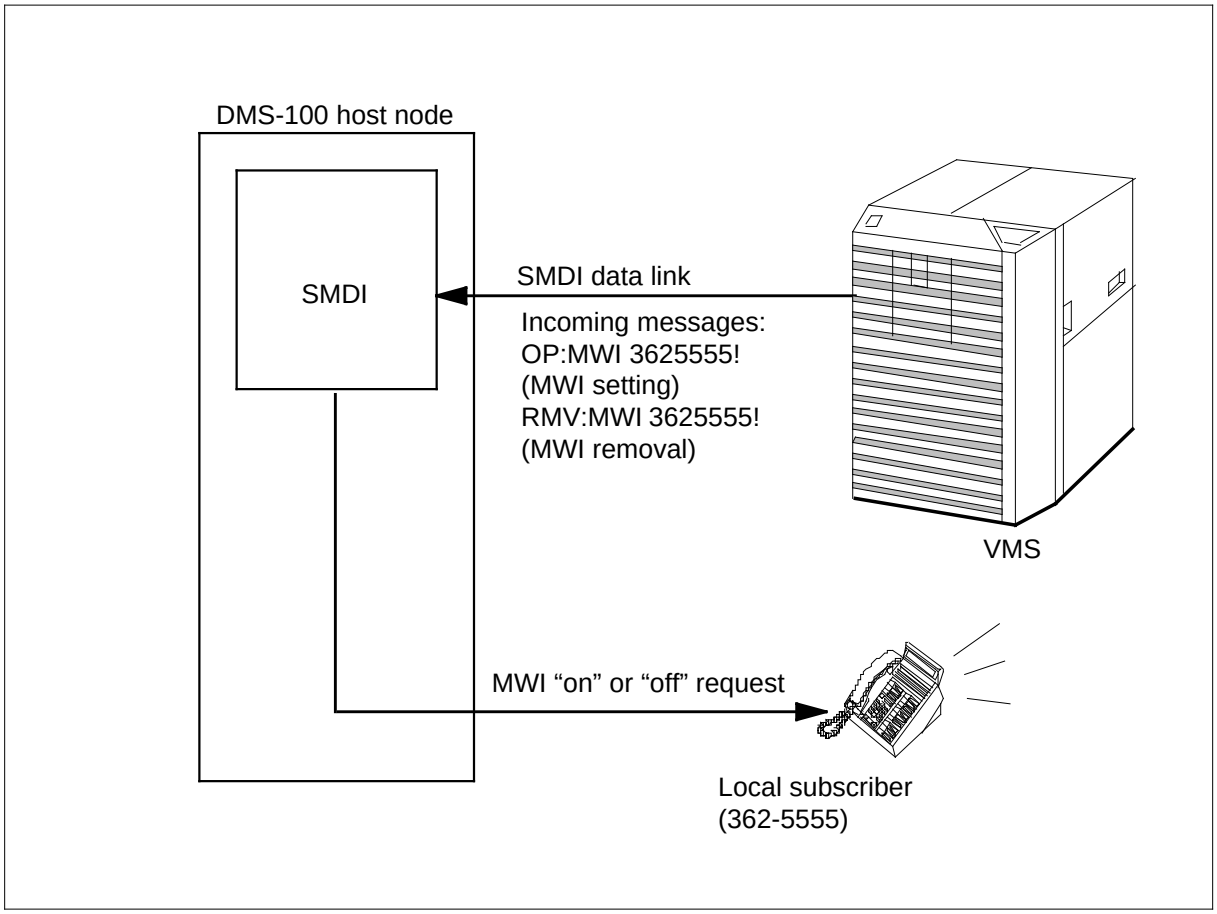
Nodal or host calls

Nodal or host calls are located on the host switch where the VMS and SMDI application are located.

RES High Speed SMDI provides local VMS subscribers CRR access to the message center through a (primary) message desk other than COMMON message desk.

The following figure depicts a typical MWI request (either setting or removal) data flow for a local (nodal) subscriber.

Nodal MWI request scenario



AF5725 - RES High Speed SMDI (continued)

The following table lists MWI request results for all possible nodal configurations.

MWI requests for nodal configurations

Number of desks	Option COMMON	MWI requests
1 desk	No Option	The message desk is used for MWI settings. The new MWT data block is not used. Removals are executed by the nodal MWI removal implementation.
	Option COMMON available (ALL or NETWORK)	This option is not necessary because there is only one desk.
2 or more desks message desks	No option COMMON or option COMMON with CRR type NETWORK	The nodal MWI setting (MWT data block) uses the primary desk. If a primary desk is not found during MWI setting, a rotational desk is used. MWIs do not "stick" due to nodal removal implementation.
	Option COMMON with CRR type ALL	The MWI setting uses a rotational desk. MWIs do not "stick" due to nodal removal implementation.

SMDI enhancements on nodal MWI settings and removals

This feature modifies the nodal MWI removal process, whereby MWI are removed.

To eliminate the need of a default desk for local subscribers, some MWT modifications are required. The MWT supplemental data block contains information about an agent's MWT.

RES High Speed SMDI expands the MWT data block to include an SMDI link number (0 to 63) and a message desk number (1 to 999) for nodal MWI settings. If option COMMON is datafilled in table SLLNKDEV with CRR type ALL set, this data block is not used. Network MWI requests do not use this enhancement.

The area inside the MWT data block is filled during call processing (for local subscribers) and is transparent to the subscriber and telephone operating company personnel.

In addition, when the message desk PDN is changed or deleted, SMDI can fail to remove MWT requestors against local telephone sets with MWIs turned on

prior to the change. This results in the MWIs being stuck in the on state until maintenance personnel dequeues all the requestors.

RES High Speed SMDI enhances the MWI (set by SMDI) removal on local subscribers only by dequeuing requestors based on their call processing identifiers (CPID) instead of their DNs.

Network or external calls

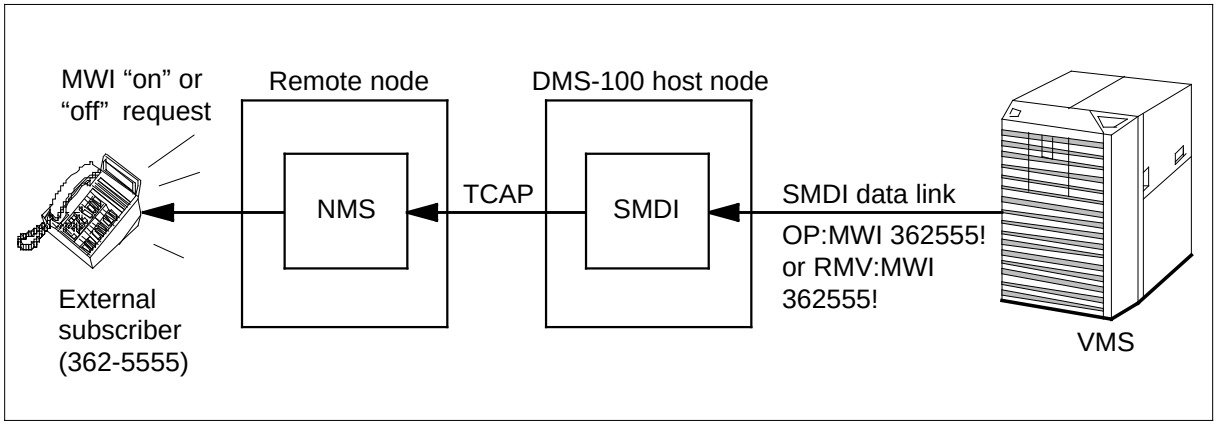
Network or external calls are located outside the host switch. Network message service (NMS) uses the signaling system 7 (SS7) protocol to access the MWI capability. This enables a message service on one node to activate and deactivate the MWI for a subscriber on a different node (provided the two nodes support transaction capability application part [TCAP] communication). The two nodes must have either ISDN user part (ISUP) or primary rate interface (PRI), or both, in order to support NMS.

Network subscribers must always use a common desk for CRR access.The option COMMON in the table SLLNKDEV can be used to select a common message desk on an individual data link basis. Once a common desk is defined, it is used during all network MWI requests (settings and removals) for subscribers of the link. When datafilling this option, the desk number is specified. Also datafilled is whether the specified message desk is to be used only by network subscribers or by both host and network subscribers.

Host subscribers must always use their primary message desk during CRR.

The following figure depicts a typical MWI request (either setting or removal) data flow for an external (network) subscriber.

Network MWI request scenario



AF5725 - RES High Speed SMDI (continued)

The following table lists MWI request results for all possible network configurations.

MWI requests for network configurations

Number of desks	Option COMMON	MWI requests
1 desk	No option	MWI settings and removals use the message desk.
	Option COMMON available (ALL or NETWORK)	This option is not necessary because there is only one desk.
2 or more desks	No option COMMON	MWI settings and removals use the first message desk. Log SMDI105 generates and appropriate action is taken.
	Option COMMON with CRR type ALL or NETWORK available	MWI settings and removals use the common desk refinement DESKNUM defined with option COMMON.

Activation/deactivation by the end–user

RES High Speed SMDI requires no activation or deactivation by the end user.

Limitations and restrictions

The following limitations and restrictions apply to RES High Speed SMDI

- Each telephone with option MWT can store information on only one SMDI link. Hence, subscribers belonging to more than one VMS may need to use a rotational message desk.
- The nodal MWI setting implementation (MWT data block expansion) is only applicable to subscribers who are redirected to a VMS. The redirecting options supported by SMDI include Call Forwarding (CFW), Series Completion (SCMP), Line Overflow to DN (LOD), and Key Short Hunting (KSH).

  Note: Call Forwarding (CFW) takes precedence over Line Overflow to DN (LOD), when sending redirecting information to the VMS, if both occur on the same node.

- A common message desk is always used for network MWI settings and removals.

Feature interactions

RES High Speed SMDI does not interact with any other features.

AF5725 - RES High Speed SMDI (continued)

Office parameters

RES High Speed SMDI does not affect office parameters.

Datafill sequence

Table SLLNKDEV is affected by RES High Speed SMDI.

Data table required for SMDI Data Link Reengineering
Table
SLLNKDEV

Datafill procedure for table SLLNKDEV

The following procedure identifies the datafill for table SLLNKDEV. This procedure contains only those fields that apply to RES High Speed SMDI.

Datafill procedure for table SLLNKDEV		
Field	**Subfield**	**Explanation and action**
XFERS		This field consists of subfield XFER.
	XFER	Enter SMDIDATA as the transfer value.
	OPTION	Enter COMMON to select a common message desk for each SMDI link to be used during CRR and datafill refinements DESKNUM and CRRTYPE.
	DESK_NUM	This refinement indicates the number of the common message desk used by subscribers when accessing CRR. Enter a value from 1 to 999.
	CRRTYPE	This refinement specifies the type of CRR that uses the common message desk number. Enter ALL if all link subscribers (host and remote) are to use the common message desk during CRR. Enter NETWORK if only subscribers outside the host node are to use the common message desk during CRR.

AF5725 - RES High Speed SMDI (continued)

Datafill example for table SLLNKDEV

The following example shows sample datafill from table SLLNKDEV. Option COMMON is assigned to device names VMAIL1 and VMAIL2.

Datafill example for table SLLNKDEV

```
Example of a MAP display:


DEVNAME  DEVTYPE XLATION PROTOCOL DRECTION
                                  XFERS
```

```
VMAIL11X89 3 2NONE NONEINOUTLK
(SMDIDATA $) (COMMON 2 NETWORK $) $

VMAIL21X89 4 2NONE NONEINOUTLK
(SMDIDATA (NUMOFDIGS 10) (COMMON
3 ALL) $ $
```

Operational measurements

RES High Speed SMDI does not affect operational measurements.

Log reports

RES High Speed SMDI introduces logs SMDI104, SMDI105, and SMDI106.

An SMDI104 log is generated to indicate that the switch failed to locate a primary message desk for a host requestee's line. Hence, a rotational message desk is used. (SMDI104 is an information–only log.)

An SMDI105 log is generated when the switch failed to locate a common message desk for a network MWI request (setting or removal). The first message desk datafilled is used to set the MWI. Telephone operating company personnel must define a common message desk by configuring the link (using message desk 63 or datafilling option COMMON in table SLLNKDEV).

An SMDI106 log is generated when the switch failed to locate the message desk number associated with option COMMON in table SLLNKDEV. Telephone operating company personnel must define the message desk number to be associated with option COMMON in table SLLNKDEV, or delete the option if it is not needed. The message desk number is defined by datafilling table UCDGRP for UCD group members or table HUNTGRP for HUNT group members.

AF5725 - RES High Speed SMDI (end)

Billing

RES High Speed SMDI does not affect billing.

Service orders

RES High Speed SMDI does not affect service orders.

AQ1245 - Remote Call Forwarding Enhancements

Name

Remote Call Forwarding Enhancements

Number

AQ1245

Packages

RES00020

Sourced release

NA001

Feature package prerequisites

The Remote Call Forwarding Enhancement feature requires the following feature packages:

Feature package	Feature package name
NTX021AA	Remote Call Forwarding (RCF)

Description

This enhancement to RCF passes the RCF number in the call forward data to the next signalling link for a remote call. This enhancement applies to call forwarding that involves either:

- CCS7 ANSI ISDN User Part (ISUP) trunks
- lines supported by a simplified message desk interface (SMDI) data link

Background information

The RCF Enhancements feature requires software optionality control (SOC) using SOC RES00020. The enhancement passes the original called number (OCN) and the redirecting number (RGN) as the called data for ISUP trunks and the forwarding from number and the type of forwarding information as the called data for SMDI data links.

To understand the RCF Enhancements feature, an originator (621-1234) dials an RCF number (777-1000) that forwards to a voice mail system with SMDI messaging. Without the RCF Enhancements feature, the originator's DN (621-1234) passes on to the SMDI as the calling number (CGN). With the RCF Enhancements feature, the dialed RCF number (777-1000) passes on to the SMDI as the CGN.

AQ1245 - Remote Call Forwarding Enhancements (end)

Operation

A response of RCF to the DNTYPE prompt in SERVORD generates a SIGDATA prompt. A SIGDATA response of Y (yes), enables the RCF Enhancements feature. A response of N (no) disables the RCF Enhancements feature. Refer to the SERVORD section of this document for a detailed description for adding RCF to a DN.

The SMDI link datafill in the SLLNKDEV table determines the SMDI forwarding from number. If the LASTFWDN option in the SLLNKDEV table is datafilled, the SMDI sends the RCF DN as the called number if the RCF DN is either:

- the last forwarding number in the call chain
- the only called number in the call chain

If the LASTFWDN option in the SLLNKDEV table is not datafilled, the SMDI sends the RCF DN as the called number if the RCF DN is either:

- the first forwarding number in the call chain
- the only called number in the call chain

59010576 - Messaging Services Functional Component Re-engineer

Feature name

Messaging Services Functional Component Re-engineer

Description

The Messaging Services Functional Component (FC) Re-engineer feature includes the present functionality or services that follow:

- DMS-100 switch to remote system link for 1X67, HS1X67, and 1X89 multiprotocol controller card (MPC)
- DMS-100 switch to remote system link for SMDIDATA, SMDRRPT, ACDRPT, and MGTRPT software
- Simplified Message Desk Interface (SMDI) software that supports Bellcore TR-TSY00283
- Station Message Detail Recording (SMDR) reporting software
- Message Waiting Indication (MWT) software
- Executive Message Waiting (EMW) software
- Network Message System (NMS) software for network MWT and network EMW
- Call retrieval software (CRR or CAR)
- Class Message Waiting Indication (CMWI) software

The development of the FC software occurred approximately in Batch Change Supplement (BCS) 23. The expansion of the FC software with many different features continued for more than ten years. The software did not include generic functionality and interactions with other features. The FC software does not have a clear architectural design for future support, expansion, and generic service for other features

The problems with the FC software require re-engineering to reduce service requests (SR) and provide manageable software. The FC re-engineering provides a service without major change.

59010576 - Messaging Services Functional Component Re-engineer

The Messaging Services Functional Component Re-engineer feature adds the functionality and improvements that follow:

- development of IOM support for SL-100 Link (SLLNK) link
- robustness improvements in table SLLNKDEV (SL-100 Link Device) for datafill, warnings, and alarms
- real time improvement for Auxiliary Call Processing (AUXCP) usage. The real time improvement includes reduction of the SMDI link AUXCP allocation. The present AUXCP allocation is 6%.
- expansion of SMDI to support 999 message desks to meet Bellcore requirements. SMDI supports 63 message desks before this feature.
- conversion of software from North American (NA) directory number (DN) system format to E.164-Universal DN system format
- improvement in the usage of feature queue software resources (FTRQs) for MWT or EMW and removal of switch activity (SWACT) problems
- addition of the Message Waiting Lamp (MWL) display as the MWT indicator for the EMW option on a MBS when operating company personnel use the QLEN command
- changes to the key list check for EMW to occur at the Service Order System (SERVORD) level that now is done in table write procedures in the EMW software

Hardware requirements

The Messaging Services Functional Component Re-engineer feature has no new hardware requirements.

Limitations and restrictions

The limitations and restrictions that follow apply to the Messaging Services Functional Component Re-engineer feature:

- The entry in the DMS-100 switch must use two-digit message desk numbers if the voice mail system can only support two-digit message desk numbers. The DMS-100 switch does not check for assignment of message desk numbers in the voice mail system.
- The DMS-100 switch does not convert three-digit message desk numbers. The DMS-100 switch sends three-digit message desk numbers to the voice mail system. SMDI pads zero as prefix digit for single or two-digit message desk numbers.

59010576 - Messaging Services Functional Component Re-engineer

Interactions

The Messaging Services Functional Component Re-engineer feature supports existing interactions with other functionalities.

Datafill

The list that follows includes the Messaging Services Functional Component Re-engineer feature data schema tables:

- Table SLLNKDEV
- Table UCDGRP

The Messaging Services Functional Component Re-engineer feature does not affect office parameters.

Service orders

The Messaging Services Functional Component Re-engineer feature does not add new commands or features to the Service Order System (SERVORD). The Messaging Services Functional Component Re-engineer feature allows an error message in SERVORD when the operating company personnel enters an invalid directory number list (DNLIST) for the EMW option. The error message applies to the NEW or CHF commands for the EMW option.

Operational measurements

The Messaging Services Functional Component Re-engineer feature does not change operational measurements (OM).

Logs

The Messaging Services Functional Component Re-engineer feature changes, updates, and adds logs.

User interface

The Messaging Services Functional Component Re-engineer feature does not change the user interface.

Billing

The Messaging Services Functional Component Re-engineer feature does not generate billing records or changes.

59037993 - SMDI over TCP/IP for CS 2000 - Compact

Name

Simplified Message Desk Interface over Internet Protocol support for CS 2000 - Compact.

Number

59037993

Packages

SMDI0001

Sourced release

SN04

Feature package prerequisites

This feature requires the following feature packages:

Feature package prerequisites

Feature package	Feature package name
NTX000AA	Bilge
NTX001AA	Common Basic
NTX100AA	Integrated Business Networks - Basic (IBN)
NTX101AA	IBN - Enhanced Business Services
NTX119AA	IBN - Message Service
NTX730AA	Multilink ASCII Device Driver
NTX901AA	Local Features I

Description

Simplified Message Desk Interface (SMDI) is a set of features for customers of a central office (CO) which provides an interface to a Voice Mail System (VMS), Automated Attendant, or Text Messaging System (TMS). SMDI over TPC/IP integrates call forwarding, message waiting, and UCD with a TCP/IP datalink interface to a message desk system.

The SMDI over TCP/IP feature requires software optionality control (SOC) using SOC SMDI0001. This feature enables a CS 2000 - Compact to interact with a VMS or TMS over an Ethernet link rather than an RS-232 link.

59037993 - SMDI over TCP/IP for CS 2000 - Compact (continued)

This feature enables transmission of SMDI data in ASCII format over Ethernet since the CS 2000 - Compact does not offer serial hardware. Transmission over TCP/IP is accomplished by provisioning a TCP device in table SLLNKDEV. During provisioning, a prompt is made for the IP address and port number of the VMS or TMS.

Hardware requirements

If the VMS or TMS does not support Ethernet and must use an RS-232 link, a protocol adaptor device to convert the IP packets from the CS 2000 - Compact to the RS-232 line levels of the VMS or TMS is needed.

Limitations and restrictions

This feature supports CS 2000 - Compact offices only. The SMDR application is available on CS 2000 - Compact, but it is unsupported because billing records are sent to the CS 2000 Core Manager or the Core Billing Manager (CBM). SMDR over TPC/IP for SLLNK is not supported for CS 2000 - Compact offices.

The TCP/IP link between the CS 2000 - Compact and the VMS or TMS is not carrier grade. If the VMS or TMS is assigned an IP address dynamically through DHCP, then the link will fail if the VMS or TMS is assigned an IP address that does not match the IP address provisioned in table SLLNKDEV.

If the VMS or TMS has a single Ethernet link to the CS LAN, then communication between the CS 2000 - Compact and the VMS or TMS is lost during a CS LAN upgrade. The messages are not lost, but connectivity is interrupted during the reboot of the router that is connected to the VMS or TMS.

The TCP/IP link cannot be set to OFFL since there is no hardware associated with the link. The TCP/IP link is managed through command at the SMDILNK MAP level. SMDIDISC is used to BSY the link, SMDICON is used to RTS the link.

Interactions

This feature interacts with the following SMDI features:

- AG1638 - Message Service - Network Message Waiting Indicator
- AG1980 - RES SMDI CLID Suppression
- AF6300 - Flexible Line Delivery on SMDI
- AQ1245 - Remote Call Forwarding Enhancements

59037993 - SMDI over TCP/IP for CS 2000 - Compact (continued)

The following features are not supported by this feature:

- NC0009 - SMDI: Called DN Option and KSH Support
- AJ1538 - Message Waiting Indicator - PRI
- AF5725 - RES High Speed SMDI

Datafill

This feature requires datafilling a DEVTYPE of TCP in table SLLNKDEV. The IP address and port number of the VMS or TMS are required for subfields REM_SMDR_IP_ADDR and PORT_NO.

Service orders

This feature does not add new commands or features to the Service Orders System (SERVORD).

Operational measurements

This feature does not add new operational measurements (OM). The following are OMs pegged for the TCP/IP link.

SLLNK provides measurements for the outgoing datalink utilities pertaining to SMDI data communication:

- SLLNKOVF - number of messages being thrown away or overwritten in an attempt to enter a queue on a full queue
- SLLNKOK - number of messages queue successfully to go across link
- SLLNKQU - usage count of the number of messages in a queue waiting to be processed, updating every 100 secs

SLLNKINC provides measurements for the incoming datalink utilities pertaining to SMDI data communication:

- SLLNKIOV - number of messages that are overwritten or thrown away in an attempt to enter the queue on a full incoming queue
- SLLNKIOK - number of messages queued successfully that will be received from the datalink
- SLLNKIOF - this is the overflow register for SLLNKIOK
- SLLNKIQU- number of messages in the queue waiting to be processed
- SLLNKBAD- number of messages in the invalid format that are received from the datalink

59037993 - SMDI over TCP/IP for CS 2000 - Compact (end)

Logs

This feature does not create new log reports. However, the SMDI and SLNK log reports do report status for SMDI over TCP/IP links.

User interface

Commands at the SMDILNK MAP level are used to manage SMDI over TCP/IP links.

Billing

This feature does not generate billing records or changes.

List of terms

ACD

Automatic Call Distribution

AMA

automatic message accounting

American Standard Code for Information Interchange (ASCII)

A coded character set used for the interchange of information among information–processing systems, communications systems, and associated equipment. ASCII defines one format in which data is exchanged between an input/output device and the device controllers of the DMS–100 Family of switches.

ASCII

American Standard Code for Information Interchange

ASCII device driver

A generic interface between the DMS–100 switch and the file system which interacts with various kinds of datalinks.

Automatic Call Distribution (ACD)

A set of Meridian Digital Centrex (MDC) features that assigns answering priorities to incoming calls and then queues and distributes the calls to a predetermined group of telephone sets designated as agent positions.

automatic message accounting (AMA)

An automatic recording system that documents all the necessary billing data of subscriber–dialed long distance calls.

batch change supplement (BCS)

A DMS–100 Family software release.

BCS

batch change supplement

caller

Refers to the originator of an incoming call that is redirected to the message desk.

call forwarding (CFW)

A Meridian Digital Centrex (MDC) service that allows a subscriber to have incoming calls to a station's directory number (DN) forwarded to a predetermined DN. There are five types of call forwarding, as follows:

- Call Forwarding Busy (CFB) permits all calls to a busy station to be forwarded to a designated station within the customer group.
- Call Forwarding Don't Answer (CFD) permits an incoming call not answered within a specified length of time to be forwarded to another designated station.
- Call Forwarding Fixed (CFF) permits stations to forward calls to locations determined by the operating company.
- Call Forwarding Intragroup (CFI) permits stations to forward calls only to customer–defined locations within the customer group.
- Call Forwarding Universal (CFU) permits stations to forward calls to locations inside or outside the customer group.

Calling Number Blocking (CNB)

An outgoing call service enabling a subscriber to block the display of the directory number (DN) information on the subscriber set of the person being called.

Calling Number Delivery Blocking (CNDB)

Custom Local Area Signaling Services (CLASS) software that blocks the display of the calling party's directory number (DN) on a Calling Number Delivery (CND) subscriber's set.

Call Request (CAR)

A line option assigned in table IBNFEAT which allows a user to activate call back.

Call Request Activate (CRA)

A feature activation code assigned in table IBNXLA which allows the user to activate call request.

Call Request Delete All (CRDA)

A feature activation code assigned in table IBNXLA to delete all call back requests to be retrieved.

Call Request Delete Specific (CRDS)

A feature activation code assigned in table IBNXLA which allows the user to delete a specific request for call back.

Call Request Retrieval (CRR)

A feature activation code assigned in table IBNXLA which allows the user to activate call back.

CAR

Call Request

CC

central control

CCS7

Common Channel Signaling No. 7

central control (CC)

A part of the NT40 processor that consists of the data processing functions with the associated data store (DS) and program store (PS).

CI

command interpreter

CLASS

Custom Local Area Signaling Services

CNB

Calling Number Blocking

CNDB

Calling Number Delivery Blocking

COD

Cutoff On Disconnect

command interpreter (CI)

A component in the Support Operating System (SOS) that functions as the main interface between machine and user. Its principal roles include the following:

- reading lines entered by a terminal user
- breaking each line into recognizable units
- analyzing the units

- recognizing command–item numbers on the input lines
- activating these commands

Common Channel Signaling No. 7 (CCS7)

A digital message–based network signaling standard defined by the CCITT that separates call signaling information from voice channels so that interoffice signaling is exchanged over a separate signaling link.

CRA

Call Request Activate

CRDA

Call Request Delete All

CRDS

Call Request Delete Specific

CRR

Call Request Retrieval

cutoff on disconnect (COD)

A line option that allows a line cutoff by overriding originating software call setup commands on disconnect by the receiving party.

Custom Local Area Signaling Services (CLASS)

A set of call services that provides the ability to supply calling line identification to the call destination, store information on the last incoming and last outgoing call, and monitor the status of a destination line.

datafill

The entry of data into tables.

datalink

A full–duplex data set used to connect message desk terminal devices to the DMS–100 switch. It is also used to transmit messages between the message desk and the DMS–100 switch.

destination point code (DPC)

A Common Channel Signaling no. 7 (CCS7) term defining the termination of a signaling message.

Digital Multiplex System (DMS)

A central office (CO) switching system in which all external signals are converted to digital data and stored in assigned time slots. Switching is performed by reassigning the original time slots.

directory number (DN)

The full complement of digits required to designate a subscriber's station within one numbering plan area (NPA)—usually a three–digit central office (CO) code followed by a four–digit station number.

directory number suppression (DNSUPPR) feature

The directory number suppression feature prevents directory numbers of restricted calling stations from being presented to a SMDI subscriber or message desk, or message desk agent.

DMS

Digital Multiplex System

DMS–100

A member of a family of digital multiplexed switching systems. The DMS–100 is a local switch.

DN

directory number

DNROUTE (table)

Directory Number Route table

DNSUPPR

directory number suppression

downstream processor (DSP)

A stand–alone computer that receives Automatic Call Distribution (ACD), call–related, and agent position–related event messages generated by a DMS–100 Centrex switch. The DSP stores and processes the information to generate real–time operation displays and historical reports.

DPC

destination point code

DSP

downstream processor

EBS

electronic business set

EIA

Electronic Industries Association

electronic business set (EBS)

A telephone set that provides subscribers with push–button access to various business features. Also known as electronic telephone set.

Electronic Industries Association (EIA)

An American organization made up of manufacturers of a wide variety of electronic products including telecommunications equipment. The EIA is active in setting industry standards.

Electronic Switched Network (ESN)

A business communications network consisting of a number of nodes that are connected through dedicated links. These nodes can be all DMS–100 Class 5 switches with Meridian Digital Centrex (MDC) software or any combination of DMS–100 MDC, SL–100, and SL–1 switches. These nodes have access to the public network. The various interconnections available to the network offer many possible choices for completing calls dialed by the network users.

ESN

Electronic Switched Network

global title (GT)

An application address that does not explicitly contain the necessary information that would allow routing by the signaling connection control part (SCCP) of the message transfer part (MTP). The SCCP global title translation (GTT) function is required to translate a GT into a valid network address.

global title translation (GTT)

The process that translates an application–specific address (such as a dialed 800 number) into the Common Channel Signaling 7 (CCS7) network address, usually that of the appropriate service control point (SCP).

GT

global title

GTT

global title translation

IBN

Integrated Business Network. Preferred term is Meridian Digital Centrex.

IBNFEAT (table)

IBN Line Feature table

IBNLINES (table)

IBN Line table

IBNXLA (table)

IBN Translations table

input message

Message formatted by the datalink interface from the message desk to be interpreted and sent to the appropriate station.

Integrated Services Digital Network (ISDN)

A set of standards proposed by the CCITT to establish compatibility between the telephone network and various data terminals and devices. ISDN is a fully digital network in general evolving from a telephone integrated digital network. It provides end–to–end connectivity to support a wide range of services, including circuit–switched voice, circuit–switched data, and packet–switched data over the same local facility.

Integrated Services Digital Network user part (ISUP)

A Common Channel Signaling No. 7 (CCS7) message–based signaling protocol that acts as a transport carrier for Integrated Services Digital Network (ISDN) services. The ISUP provides the functionality within a CCS7 network for voice and data services.

input/output (I/O)

A device or medium used to achieve a bidirectional exchange of data. Data exchange in the DMS–100switch is performed in accordance with the Input/Output Message System (IMS).

input/output controller (IOC)

An equipment shelf that provides an interface between up to 36 I/O devices and the central message controller (CMC). The IOC contains a peripheral processor (PP) that independently performs local tasks, thus relieving the load on the CPU.

Integrated Business Network (IBN)

See Meridian Digital Centrex.

I/O

input/output

IOC

input/output controller

ISDN

Integrated Services Digital Network

ISUP

Integrated Services Digital Network user part

LEN

line equipment number

line equipment number (LEN)

A seven–digit functional reference that identifies line circuits (LC). The LEN provides physical location information on equipment such as site, frame number, unit number, line subgroup (shelf), and circuit pack.

MADN

multiple appearance directory number

maintenance and administration position

See MAP.

man–machine interface (MMI)

See user interface.

MAP

Maintenance and administration position. A group of components that provides a user interface between operating company personnel and the DMS–100 Family switches. The interface consists of a visual display unit (VDU) and keyboard, a voice communications module, test facilities, and special furniture.

MDC

Meridian Digital Centrex

Meridian Digital Centrex (MDC)

A special DMS business services package that uses the data–handling capabilities of DMS–100 Family offices to provide a centralized telephone exchange service. Formerly known as Integrated Business Network (IBN).

message (MSG)

The unit of information transfer between nodes in the DMS–100 switch. A message is incoming if it is sent from a peripheral to the central control (CC) and outgoing if it is sent from the CC to a peripheral. A message is a type of control mechanism used in the I/O messages of the DMS–100 Family switches. The MSG byte specifies that the information to come is a data message.

message desk

A combination of uniform call distribution (UCD) groups, a primary UCD directory number, and a full–duplex datalink. It serves as an answering service for stations which have their calls forwarded to the message desk.

message desk messages

These are messages sent by the message desk system over the datalink to activate or deactivate the message waiting indicator for a station.

Message Waiting (MWT)

A service that allows the subscriber to receive notification of waiting messages. When MWT is activated, the subscriber's directory number (DN) is forwarded to a message desk. When a message is queued against the line, the MWT notification occurs.

message waiting indicator (MWI)

A change of state of an indicator (such as stuttered dial tone, a steadily lit or flashing message waiting lamp) that informs the user that a message has been queued against the station.

MMI

man–machine interface. Preferred term is user interface.

MPC

multi–protocol controller

multiple appearance directory number (MADN)

A directory number (DN) that appears on more than one Meridian Digital Centrex (MDC) station. The stations that are assigned these numbers are referred to as a MADN group. MADN groups can be configured with either single or multiple call arrangement.

multi–protocol controller (MPC)

A general–purpose card that allows data communications between a DMS–100 Family switch and an external computer (for example, between a central office (CO) billing computer and a DMS–100 Family switch). The MPC card resides on the input/output controller (IOC) shelf. MPC card protocol software is downloaded from the DMS–100 CPU and then used to support software routines for Data Packet Network (DPN) communications.

MWI

message waiting indicator

NCOS

network class of service

network class of service (NCOS)

Values used to determine call privileges for calls using the network. NCOS values, which are encoded as part of the network signals, are transmitted as part of the calls between the nodes of a Meridian switched network.

Northern Telecom (NT)

A part of the tricorporate structure consisting of Bell–Northern Research, Bell Canada, and Northern Telecom.

NPA

numbering plan area

NT

Northern Telecom

numbering plan area (NPA)

Any of the designated geographical divisions of the United States, Canada, Bermuda, Caribbean, Northwestern Mexico, and Hawaii within which no two telephones have the same seven–digit number. Each NPA is assigned a unique three–digit area code. Also known as area code.

OM

operational measurements

operating company

The owner/operator of a DMS switch.

operational measurements (OM)

The hardware and software resources of the DMS–100 Family switches that control the collection and display of measurements taken on an operating system. The OM subsystem organizes the measurement data and manages its transfer to displays and records. The OM data is used for maintenance, traffic, accounting, and provisioning decisions.

output message

Message to be formatted by the datalink interface and transmitted to the message desk from the DMS–100 switch.

PC

point code

PEC

product engineering code

peripheral side (P–side)

The side of a node facing away from the central control (CC) and toward the peripheral modules (PM).

point code (PC)

The address of a signaling point.

PRA

primary rate access. Preferred term is primary rate interface (PRI).

PRI

primary rate interface

primary rate access (PRA)

See primary rate interface.

primary rate interface (PRI)

An interface that carries nB+D channels over a digital DS–1 facility (23B+D in North America and 30B+D in Europe). PRI is used to link private networking facilities, such as private branch exchanges (PBX), local area networks (LAN), and host computers with a standardized architecture acting as the bridge between private switching equipment and the public network. Formerly known as primary rate access.

product engineering code (PEC)

An eight–character unique identifier for each marketable hardware item manufactured by Northern Telecom.

P–side

peripheral side

RAG

ring again

ring again (RAG)

A service that allows a calling party encountering a busy station to be notified when the busy station becomes idle and to be placed automatically in a RAG mode.

SCCP

signaling connection control part

Service Order system (SERVORD)

A user interface consisting of commands used to change, add, or delete subscriber lines. The format used for commands in the SERVORD comply with the standard telephone industry command format; for example, 3WC is three–way calling, ADO is add option, DEL is delete, and CWT is call waiting.

SERVORD

Service Order system

Simplified Message Desk Interface (SMDI)

An interface feature which enables a DMS–100 switch to communicate with a message desk and provides the directory number of the called station, the calling station number (if available), and the reason for call forwarding to a message desk. In addition, SMDI provides the message desk with the ability to activate or deactivate the message waiting indicator for any station able to forward calls to the desk.

signaling connection control part (SCCP)

A level of Common Channel Signaling No. 7 (CCS7) layered protocol. It supports advanced services such as E800 and service switching point (SSP) and the Automatic Calling Card Service (ACCS) feature. The main functions of the SCCP include the transfer of signaling units with or without the use of a logical signaling connection and the provisioning of flexible global title translations (GTT) for different applications.

SMDI

Simplified Message Desk Interface

SMDR

Station Message Detail Recording

SLLNKDEV (table)

Link Device table

SSN

subsystem number

Station Message Detail Recording (SMDR)

In Meridian Digital Centrex (MDC), a system that provides recording facilities for the details of billable and nonbillable calls for each MDC customer group.

subsystem number (SSN)

The identification of a subsystem located at a Common Channel Signaling 7 (CCS7) point code that can supply data.

TCAP

transaction capability application part

TCP/IP

transmission control protocol over internet protocol

text messaging system (TMS)

The text messaging system uses a visual display unit with a keyboard to provide the message desk agent with an information display for each incoming call, a text entry facility to record messages, and a text retrieval facility to display the messages for a subscriber.

TMS

text messaging system

transaction capability application part (TCAP)

A service that provides a common protocol for remote operations across the Common Channel Signaling No. 7 (CCS7) network. The protocol consists

of message formatting, content rules, and exchange procedures. TCAP provides the ability for the service switching point (SSP) to communicate with a service control point (SCP). TCAP is used by the ISDN layer facility message to transport service information for transaction signaling, not associated with an active call, over primary rate interface (PRI) links.

UCD

uniform call distribution

UCDGRP (table)

uniform call distribution table

uniform call distribution (UCD)

A Meridian Digital Centrex (MDC) service that allows calls to be evenly distributed to a number of predesignated stations known as UCD stations or UCD positions. This service is used to queue incoming calls to the message desk.

user

This is the person who forwards calls to the message desk UCD DN.

user interface

The series of commands and responses used by operating company personnel to communicate with the DMS–100 Family switches. It is achieved through the MAP terminal and other input/output devices (IOD). Formerly known as man–machine interface.

VFG

virtual facility group

virtual facility group (VFG)

A software structure that emulates a trunk. For example, a VFG can limit the number of calls coming into a customer group or simulate a loop–around trunk without using physical trunk resources. This software also allows E911 data, such as serving numbering plan area (SNPA), emergency service number (ESN), or emergency service central office (ESCO) digits, to be associated with an E911 call.

VMS

voice messaging system

voice messaging system

A voice messaging system is an automated recording device that automatically stores and plays back a caller's voice message. The message is transmitted exactly as it was delivered, without the intervention of a human agent.

Index

F

I

L

M

N

O

P

R

S

T

V

W

DMS-100 Family

Meridian Digital Centrex Simplified Message Desk Interface

Setup and Operation

electronic mail: cits@nortelnetworks.com

Publication number: 297-2051-104
Product release: SN04 and up
Document release: Preliminary 13.01
Date: September 2004
Printed in Canada

NORTEL NETWORKS™

How the world shares ideas.