Meridian 1

Meridian Integrated Conference Bridge

Description, Installation, administration, and maintenance

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Contents

List of figures

List of tables

About this document

This document provides information about the implementation of the Meridian Integrated Conference Bridge (MICB) in the Meridian 1 system. It describes the MICB operation, installation, configuration, administration, applications, and maintenance.

It focuses on the application and administration of the MICB for scheduling and configuring multiple simultaneous conferences over a single MICB card.

The purpose of this document is to instruct the user how to install, configure, operate, and maintain the Meridian Integrated Conference Bridge (MICB) as a part of the overall Meridian 1 system.

The following describes what you will find in this document:

Product description describes the MICB functional and physical characteristics.

Installation and configuration describes how to prepare the Meridian 1 equipment, how to install the MICB into the Intelligent Peripheral Equipment (IPE) module, how to connect it to the administration terminal, and how to configure the MICB using the system TTY.

Administration describes the MICB administration procedures, MICB parameter configuration, conference scheduling, conference administration and maintenance, and report generation.

Maintenance describes how to perform maintenance functions and how to troubleshoot the MICB card and the associated equipment.

Appendix A lists the MICB pin assignment and connector types for external connections to the MICB.

Appendix B describes reliability, environmental specifications, product integrity, and regulatory standards for the MICB.

Description

This chapter describes the NT5D51 Meridian Integrated Conference Bridge (MICB) card, both at a system level and at a card level. It describes functions, specifications, applications, engineering guidelines, and operation of the MICB card.

System overview

The MICB is an Intelligent Peripheral Equipment (IPE) card compatible with Meridian 1 options 21E, 51, 51C, 61, 61C, 71, 81, and 81C. It is also compatible with Option 11E/11C system and SL-1 systems NT and XT upgraded to support IPE cards.

The system software required to support all 32 MICB ports is X11 release 22 or later. System software releases X11 releases 19 through 21 support only a maximum of 16 ports. The system software must contain the automatic call distribution (ACD) features and routing software modules to support the MICB operation. The ACD resources should be taken into account in the incremental software management (ISM) of the customer configuration, where each MICB port represents an ACD agent that uses up a DN and a TN from the system resources.

The MICB communicates with X11 system software by emulating a digital line card, which allows the use of the existing software to control the MICB operation. Each MICB port is defined as an automatic call distribution (ACD) ACD agent. All MICB ports are members of an ACD group controlled by an Control DN.

The organization, administration, and management (OA&M) of the MICB card is provided over a terminal or a personal computer using a terminal emulating software. The terminal is connected to the MICB card through the IPE module I/O panel.

The Conference/TDS card is not used in any application with the MICB card.

The terminal can be used by the operator who deals with conference management and the administrator who has additional responsibility such as; system and global conference attributes editing, bridge allocation, control directory numbers and event script editing, and audio recording.

The MICB card has two PCMCIA sockets. PCMCIA hard drive cards are used to store in memory the MICB voice prompts and firmware code. The MICB is shipped with the PCMCIA hard drive. The bottom socket is used to house the PCMCIA hard drive card that contains the current firmware and customer data and the top socket is used for upgrading the firmware.

Multiple MICB cards can be installed into the system, however each card operates as an independent unit and it is not connected to other MICB cards in the system.

To conduct conference administration and maintenance for that MICB card, you have to connect the terminal to the RS-232 port or the Ethernet connector associated with that MICB card. Each maintenance terminal is connected to each MICB card through an IPE module I/O panel connector or through the Ethernet adapter card.

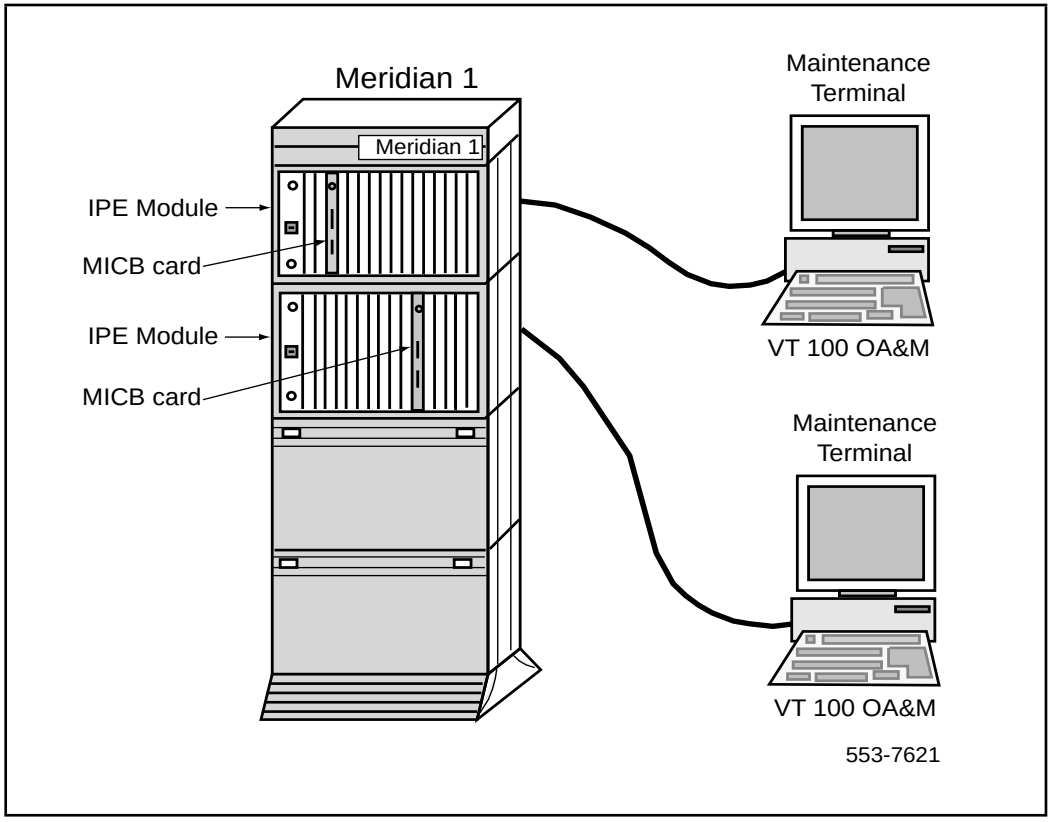
The Ethernet adapter provides two options:

— Direct terminal connection or modem connection to DB-9 connector

— Ethernet connection, where multiple terminals connected to the Ethernet can access an MICB card

Figure 1 shows Meridian 1 with two IPE modules. This example shows each IPE module with one MICB card and each MICB card is connected to its own maintenance terminal through the associated IPE module I/O panel connector. You can use one terminal for all MICB cards (one at the time) by moving the terminal cable to the I/O panel connector of the MICB card you wish to access.

Figure 1
MICB card in the Meridian 1 system



MICB description

The NT5D51 Meridian Integrated Conference Bridge (MICB) card can be installed into any IPE card slot that is associated with full 50-pin I/O cables. For specific information of the possible IPE card slots where the MICB can be installed, refer to Table 2 “MICB installation card slots in different PE modules” on page 25.

The MICB card provides up to 32 ports that can be partitioned into groups from 1 to 10 where each group represents an independent conference.

> ***Note:*** Systems with X11 release 22 or higher, support 32 MICB ports, systems with X11 releases 19 through 21, support only 16 ports.

Each MICB port is configured as an ACD M2616 digital telephone set. The Meridian 1 system ACD function routes the incoming calls to the MICB, where each MICB port is treated as an ACD agent. All MICB ports belong to the same ACD queue and are treated as a pool of ports with equal status. For ACD DN and Control DN description, refer to “Configuring the MICB ports” on page 18.

The MICB supports several conferences simultaneously. The number of conferences depends on the number of MICB ports available and the number of participants (conferees) in each conference. For an MICB with 32 ports, there can be a maximum of 10 conferences with three or four participants in each conference, 1 conference with a maximum of 32 participants, or any combination in between.

The CDNs and the corresponding TNs are system resources, which when assigned to the MICB ports cannot be used for other Meridian 1 stations. For an MICB with 32 ports, a maximum of 10 simultaneous conferences would require 20 CDNs and 20 TNs.

The main hardware and functional characteristics of the MICB card are described in:

— MICB functional characteristics

— MICB hardware design characteristics

MICB functional characteristics

The function of the MICB card is to schedule and administer multiple simultaneous conferences. These conferences are scheduled based on time-of-day, duration of each conference, and number of conferees or ports allocated for each conference.

It provides pre-programmed announcements and tones that correspond to specific events during conferences to advise the chairperson and other conferees of the status of the conference connection, indication when a conferee joins or leaves the conference, warns the chairperson and the conferees when the scheduled conference time is about to expire, etc.

System compatibility features:

— compatible with the IPE module in any system that supports IPE

— emulates a digital telephone set, such as M2616, on each MICB port

— supports both the A-law and the μ-law signal coding/decoding

— provides full duplex communication

— supports DTMF detection

— provides system reporting

Features supported through the MICB DSP firmware:

— selects two active speakers in a conference of up to 32 conferees

- analyzes the loudness of all received signals continuously and selects the two loudest signals to be the two active speakers
- the two speakers are not selected globally, but based on the signal strength associated with each timeslot.

— handles 2-way conversation in conferences with 2 to up to 32 conferees

— supports a maximum of 10 simultaneous conferences

— normalizes the PCM input samples

— handles both A-law and m-law companding

— provides gain control on all output samples

MICB expansion options:

— software upgrade using the PCMCIA Flash card

— port expansion by providing keycode selectable options of 12, 16, 24, or 32 ports

MICB conference features:

— provides for one or more permanent bridge configurations

— supports multiple conferences simultaneously

— allows conference extension beyond the scheduled time

— allow number of conferee expansion if MICB ports are available

— supports up to five different languages on each PCMCIA hard drive

— provides conference security (password option)

— automatically starts and terminates conferences based on reservations scheduled in advance

— issues 10-minute warning before the conference termination

— support of dial-in conference

— provides conference entry and exit tones or messages

— allows conference music turn off for the first conferee joining the conference

— controls access to the conference in progress by monitoring the maximum number of scheduled attendees at each conference

— manages time and date for scheduled conferences, reserves ports for each conference, and prevents overbooking of ports

— provides recorded announcements and tones to ports and conferences by playing pre-recorded files stored on the PCMCIA hard drive card

— supports brand line greeting (a customized greeting for each language)

— supports administration features such as; system configuration, scheduling, management, and report generation

— routes conferees to the appropriate conference based on the dialed directory number (CDN)

— issues audible responses to conferees based on the conference activity

— provides conference traffic report

Chairperson’s features:

— provides for one chairperson per conference

— allows conference music turn off if the chairperson is first to join the conference (or turn on the music if the music is off)

— allows the chairperson to dial *0# to get assistance

— allows chairperson’s access and command execution such as; dial-out, drop conferees, count conferees, and lock/unlock conference

MICB hardware design characteristics

An MICB card occupies one IPE slot in an IPE module.

The MICB card has the following hardware interface characteristics:

— uses the MPU based on the 25MHz MC68EN360 Integrated Communications Controller

— uses standard interface buses and PCMCIA cards and handles MS-DOS compatible file on the PCMCIA storage device

— accesses all 32 DS-30X voice/signaling timeslots

— provides echo cancelling

— supports automatic gain control

— supports Card-LAN interfaces

— Performs X12 signaling protocol messages for input/output

— Uses Digital Signal Processor (DSP) for conferencing and DTMF detection

— Provides self-test of internal hardware components and allows card monitoring and maintenance through the maintenance port

— Provides one RS-232 serial port for administration and maintenance access

— provides optional Ethernet interface over the MMI

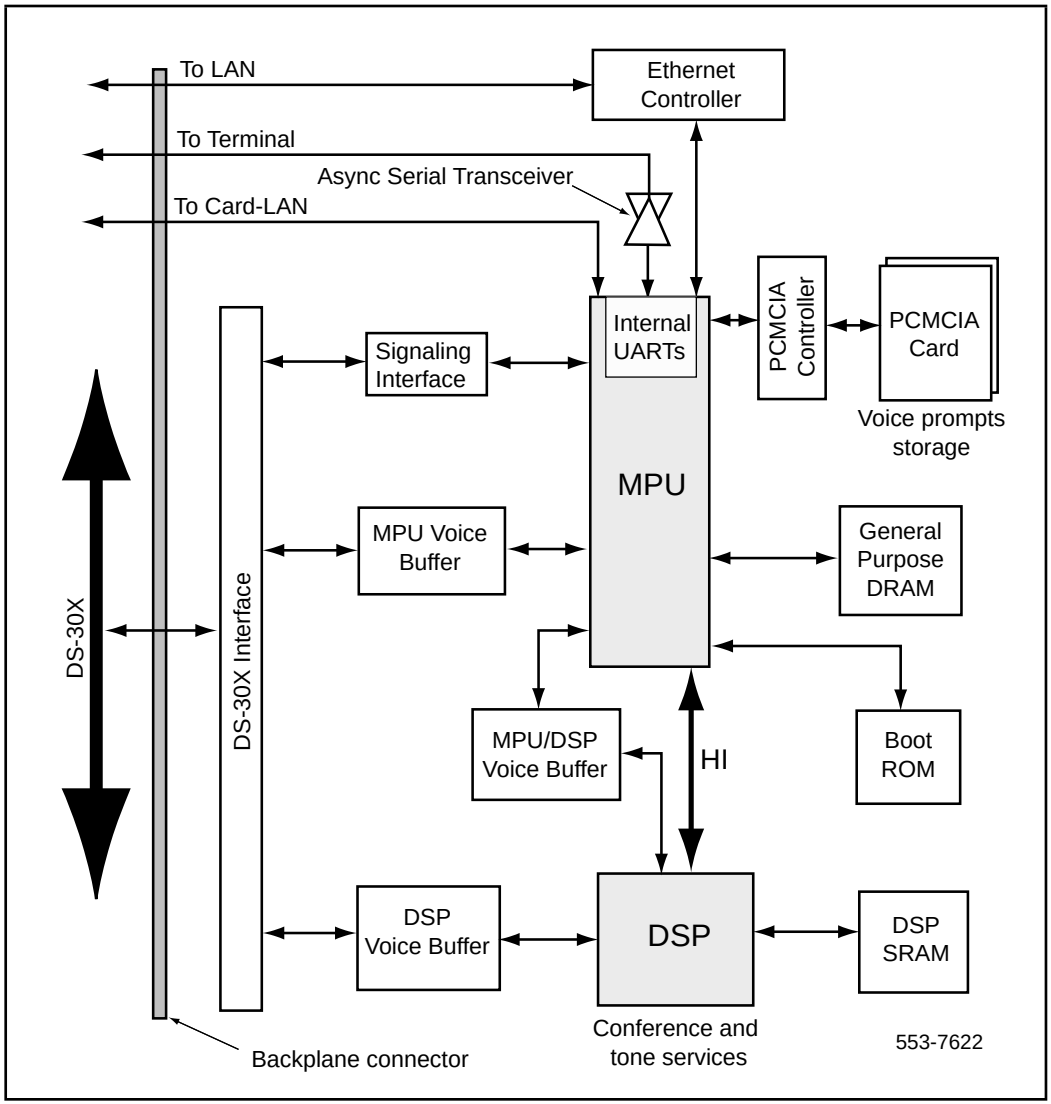
Table 1 describes each hardware component provided for the MICB application. These components are used to connect the MICB to the maintenance terminal locally and remotely.

Table 1
MICB hardware list

Component	Description
NT5D51 MICB Card	An IPE card that provides bridge and conference scheduling for up to 10 simultaneous conferences. (The NT5D51 MICB card, the Security Device, and the NT5D62 PCMCIA hard drive card, all together are packaged as NT5D32).
NT5D62 PCMCIA Hard Drive Card	This PCMCIA card contains the MICB software and configuration. It must be installed into the lower PCMCIA drive for the MICB to operate.
NT5D52AA Ethernet Adapter card (for IPE module installation)	This adapter card is installed on the IPE module I/O panel only if the MICB is to be connected to the Ethernet.
NT5D52BA Ethernet Adapter card (for Option 11C/11E installation)	This adapter card is installed into the Option 11C/11E tip/ring connector only if the MICB is to be connected to the Ethernet.
NT5D19AA Maintenance cable	This cable is used to connect the terminal to the 50-pin tip/ring connector on the IPE module I/O panel or the Option 11C or 11E tip/ring connector. This cable requires a nullmodem for proper connection to the MMI terminal.
A0601396 Nullmodem	Compact DB-25F/DB-25M nullmodem adapter.
A0601397 Nullmodem	Compact DB-25F/DB-25F nullmodem adapter.
A0601464 Nullmodem Maintenance cable	This cable has a DB-9 female and a DB-25 male connectors and it is used to connect the terminal to the MICB using the Ethernet Adapter card DB-9 male connector. No additional nullmodem is required.

Figure 2 shows a high level block diagram of the MICB card components. It also shows the MICB interfaces at the IPE module backplane connector.

Figure 2
MICB block diagram



Micro Processing Unit (MPU)

The MPU coordinates and controls data transfer and addressing of the peripheral devices. Tasks that the MPU performs depend on the interrupts it receives. These interrupts are prioritized by the importance of the tasks they control.

The MPU is highly integrated and provides most of the decision making logic on the chip. Functions of the MPU include controllers, timers, control logic, address decoding, DRAM and independent direct memory access, Ethernet terminal and Card-LAN input/output ports, and independent full-duplex serial communication channels that support various protocols.

The MPU can be reset by:

— powering up the MICB card

— entering reset command on the MMI

— the watchdog timer

A resident boot code contained in Flash memory start the process of bringing up the MICB. This boot code loads a start-up program from a fixed location on the PCMCIA disk. The start-up program performs basic diagnostics and loads the main code to the RAM.

Digital Signal Processor (DSP)

The DSP communicates with the MPU over the host interface (HI) and the MPU-DSP voice buffer. It also communicates with the DS-30X interface over the DSP voice buffer. The DSP can access program and data stored in the DSP SRAM. The PCMCIA Flash card must always be installed in the low PCMCIA slot on the MICB.

Memory

The MICB card contains the following memory types:

— general purpose DRAM.

— Boot ROM.

— DSP SRAM.

Additional memory is available when the PCMCIA card(s) are installed into the MICB card.

Card-LAN interface

To implement the Card-LAN interface, the MICB card uses a internal UART device. The UART channel is a serial communication interface to Peripheral Controller card.

The Card-LAN is a 19.2 kbps asynchronous interface. It is used to poll and communicate with the Peripheral Controller card to transmit maintenance messages, which include:

— LED control of the IPE card enable/disable

— MICB card configuration

— MICB card type and version information

DS-30X

A DS-30X network loop is composed of two synchronous serial data buses that transport data:

— One bus transmits data toward the line facility (Tx)

— The other bus receives data toward the Meridian 1 CPU (Rx)

DS-30Y network loops extend between controller cards and superloop network cards, and function similarly to DS-30X loops. Essentially, a DS-30Y loop carries the PCM timeslot traffic of a DS-30X loop, but up to four DS-30Y loops form a *superloop* with a capacity of 128 channels (120 usable timeslots).

RS-232 port

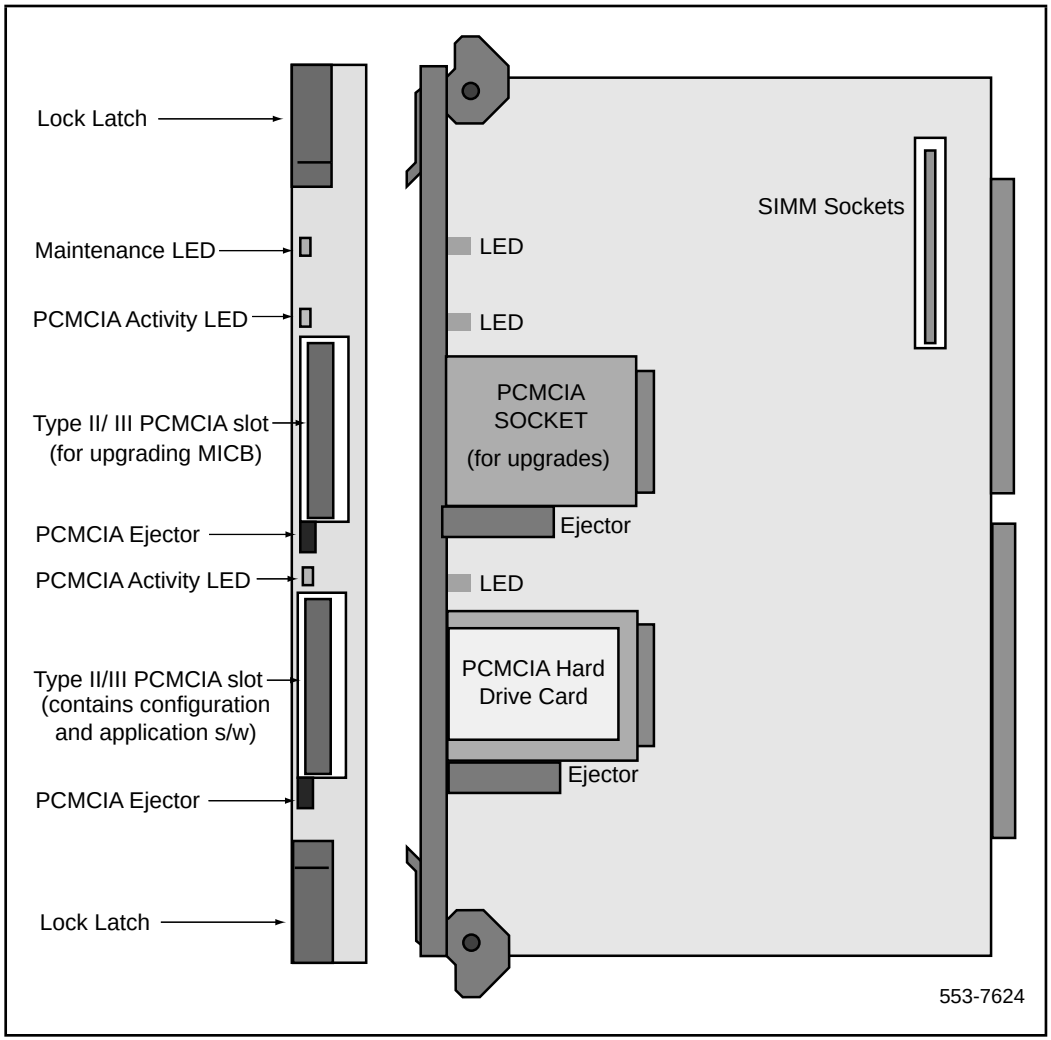
A serial port is provided on the MICB card for administration and maintenance functions. Access to this port is over the IPE module backplane connector to the I/O panel and from the I/O panel to the terminal.

Ethernet interface

An Ethernet interface on the MICB is provided at the I/O panel by installing the Ethernet adapter. This adapter provides an Ethernet RJ-45 and a DB-9 connector. There are two options of the Ethernet adapter cards; one for Option 11E/11C and the other for Meridian 1 options 21E, 51, 51C, 61, 61C, 71, 81, and 81C, refer to Table 1 “MICB hardware list” on page 10. Also, refer to “Ethernet application” on page 30. You can have multiple terminals on the network be able to access the MICB card.

Figure 3 illustrates the component side of the MICB card and the faceplate. The component side shows the DRAM and the PCMCIA socket locations. The faceplate shows the card LED and the PCMCIA activity LED indicators and the slot locations for PCMCIA cards.

Figure 3
NT5D51 MICB card



Faceplate sockets and indicators

The MICB faceplate provides:

Card LED. The MICB faceplate provides a red card LED to indicate the enabled/disabled status of the card and to indicate the self-testing result during power up or card insertion into an operating system. This LED indicates the following:

— LED is ON when the MICB card is disabled

— LED is OFF when the MICB card is enabled and ready for use

— LED is BLINKING three times and stays ON (until is software enabled) when the MICB card has successfully completed self-test

PCMCIA activity indicator LEDs. These LEDs are next to the PCMCIA slots and indicate the following:

— LED is ON when the PCMCIA card is disabled

— LED is OFF when the PCMCIA card is enabled and ready for use

— LED is BLINKING when the PCMCIA card is in use

Type II/III PCMCIA slots. The MICB faceplate provides two Type II/III PCMCIA card slots. These slots are use to house the PCMCIA cards. The lower slot is used to install the PCMCIA hard drive card that stores voice prompts and firmware code. The upper slot is used for upgrading the firmware, when required.

MICB operation

The MICB card continuously monitors the audio signal level received from each conferee and selects the two loudest signals for transmission. The two loudest signals are summed and inserted into the PCM sample prior to their transmission to other conferees. This implementation of the two loudest signals improves the interrupting capability of a conference connection and allows normal two way conversation that all conferees can hear.

In addition to the conferee timeslots, the MICB provides a timeslot between the MPU and the DSP. This timeslot transmits message prompts and/or entry and exit tones that are broadcasted to all conferees when requested by the MPU.

The MICB card uses the system ACD features to schedule multiple simultaneous conferences, to route external incoming trunk and local line conferees to their appropriate conferences, to provide queuing, chairperson feature, and events reporting for each conference activities on an MICB card.

The ACD features used by the MICB card provide:

— expanded number of ports in the same pool allowing up to 1200 ACD agents for Meridian 1 systems and up to 120 for the Option 11E/11C system

— Meridian 1 options 21E through 81C support 240 CDNs or ACD DNs

— Option 11E/11C supports 100 CDNs or ACD DNs

— simple software configuration

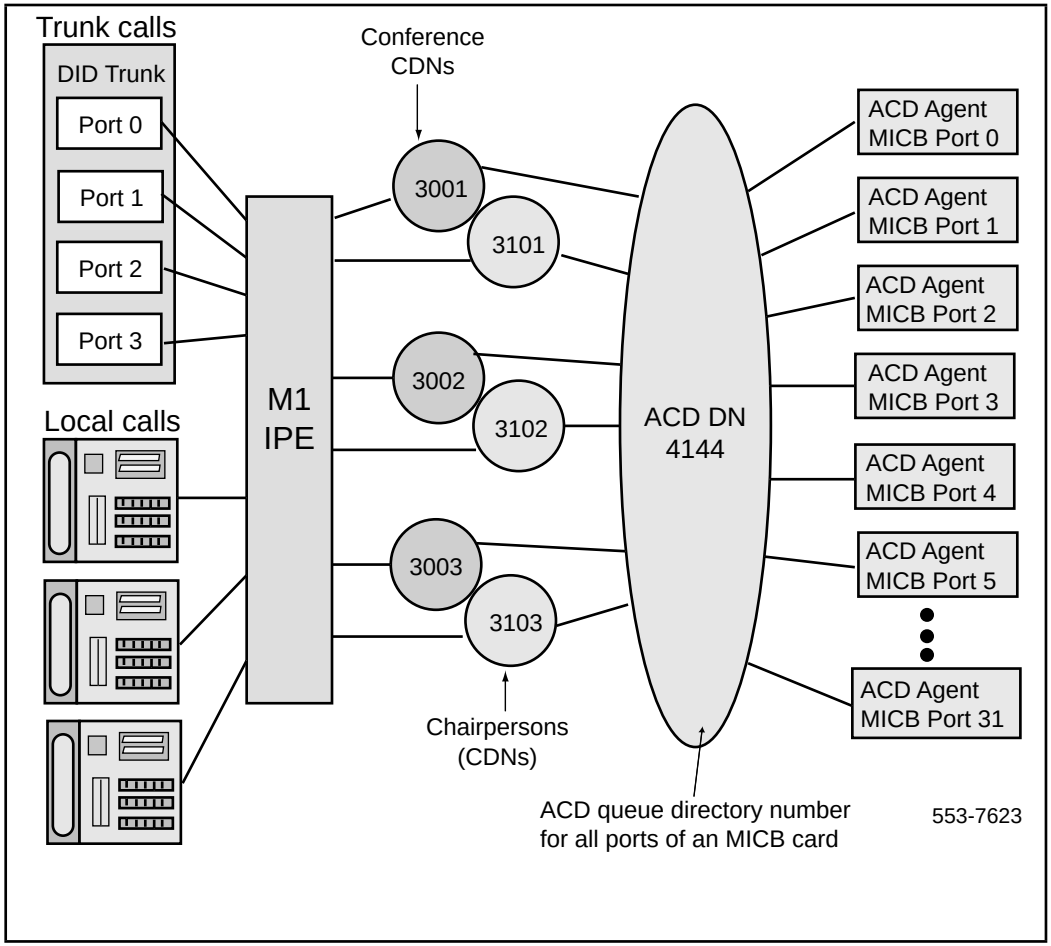
— queuing of incoming calls, announcement on arrival, call management, and reporting

— operational statistics reports

— enhanced call routing

Figure 4 illustrates the call routing for three conferences. It shows the conference chairperson access control directory number (CDN) for each conference and the ACD DN for the ACD queue that controls the path of all ports on an MICB card. The right-hand-side of the figure shows the distribution of MICB ports as ACD agents.

Figure 4
Call routing with chairperson access



Configuring the MICB ports

Ports on the MICB card are configured as ACD digital sets, where each port is considered to be an ACD agent. All ports on an MICB card belong to an ACD queue (group). This ACD queue is identified with an ACD directory number (ACD DN) that handles the connection of conferees (ACD agents) to the appropriate conference Control Directory Number (CDN), which represents the specific conference.

Each conference has assigned a unique CDN and a chairperson CDN. The CDN's are configured in Meridian 1 at the time the MICB card is installed. The total number of CDN's is equal to two times the number of simultaneous conferences. Example, if there are ten conferences, there will be twenty CDN's one for the chairperson and one regular conference CDN that each conferee dials to join the conference.

Joining the conference

When several conferences take place simultaneously in the same MICB card, the conferee dials the CDN assigned to a specific conference. The MICB card recognizes the dialed CDN and routes the conferee to the appropriate conference represented by that specific CDN. All ports belonging to an MICB card are routed to the appropriate conference (CDN) through the ACD DN assigned to that MICB card i. e. that ACD queue. The chairperson dials the chairpersons CDN to access their specific conference. This number is different than the CDN dialed when the conferees are accessing that same conference.

The MICB performs DTMF detection only on MICB ports tagged as chairperson ports. The DTMF also detects when conferees enter the password. A conference may start without the chairperson and if all allocated ports for a conference are occupied with conferees, the chairperson will not be allowed to join the conference unless conference expansion is allowed and there are free un-scheduled (floating) ports available.

The first conferee joining the conference hears an announcement that indicates that no other conferee joined the conference yet and this announcement is followed by 60 seconds of music. This announcement with 60 seconds of music is repeated continuously until at least one more conferee joins the conference.

The MICB provides flexibility in configuring conferences. They can be configured as:

— pre-scheduled conference with fixed number of ports, fixed start and stop times

— pre-scheduled elastic conference with variable number of ports where they are added when required (if available) and subtracted as people leave the conference

— permanent bridge with fixed number of ports that can be used without pre-scheduling the conference

Expanding the conference

Conference expansion may be allowed or denied by using an administration command. This feature is enabled during the conference scheduling. If enabled, the number of conferees belonging to a conference can be expanded as long as there are a sufficient number of the remaining MICB ports to satisfy other simultaneous pre-scheduled conferences.

When reserving the MICB ports for each simultaneous conference, specific ports are not tagged for a specific conference. The MICB counts the number of reserved ports and compares them against the total number of ports provided by the MICB card and makes sure that the reserved ports do not exceed the total number of ports provided by the MICB card.

If additional (not scheduled) callers attempt to join a conference, but they are not allowed due to lack of floating ports or locked conference, the MICB card will issue an overflow tone and then disconnect the call.

If un-scheduled (floating) ports are released from a conference, they are immediately available to be used by conferees of other conferences if the expansion feature is enabled.

The minimum duration of a conference is 15 minutes and the maximum duration of a time-limited conference is 12 hours. Scheduled conference starting time and conference duration is incremented in steps of 5 minutes.

Ending the conference

When the conference was scheduled, the conference number of ports, start time, and duration were specified. The conference will end at the predetermined time, which is based on the start time and conference duration. Ten minutes before the end of the conference, the MICB card issues an announcement warning the conferees that the conference will terminate in 10 minutes.

When the conference time is up, the MICB card issues to conferees the final warning and it also send the release message to Meridian 1 for all the associated MICB ports. These ports now become available for the next pre-scheduled conference, or if not scheduled, they become floating ports not reserved for any other conference and can be used to expand conferences in progress if the conference expansion feature is enabled.

Individual conferees may leave a conference in progress at any time. The MICB detects a conferee leaving the conference, and exit prefix announcement is inserted in the conference and the conferee's name is announced, if this feature is enabled. When only one conferee is connected to the conference, an announcement is issued indicating that only one conferee is present followed by 60 seconds of music. This announcement and the music is repeated continuously until at least one more conferee joins in, or the conference is terminated.

> ***Note:*** A conference may begin and end two minutes before the specified time. This feature allows the system to close all terminating conferences two minutes earlier and start all conferences that should be started immediately after the terminating conferences are closed. This feature is important when terminating and starting conferences use some common CDNs.

Chairperson's function

The chairperson can control conference activities by executing commands on his/her telephone set. These commands consist of an asterisk (*) followed by one or two digits. If a star (*) is dialed only, after 5 seconds the command times out. If 2 stars are dialed (**), the command is aborted. These commands control the following functions:

Dial-out

The chairperson can dial out and call a new party outside of the conference with the intention to only confer with the party, or to include the party into the conference. To do this the chairperson dials *0DN# to dial a party outside the conference, or *0 to access the operator. The chairperson can then decide to bring the party into the conference by executing the *2 command or disconnect the call by executing the *3 command. If you dial the wrong number, you can dial *3 and re-dial. To redial the last number dialed, the chairperson dials *#.

The port for dialing out is selected by the MICB card and is available if the number of ports reserved for the conference is greater than the number of conferees that have joined the conference. The port may also be available if all the reserved ports are occupied for that conference, but there are some un-reserved ports available on the MICB card and the port expansion feature is enabled for that conference. If all reserved ports are occupied and there are no unscheduled ports available, the call will not be completed.

> ***Note:*** When the chairperson dials out, two ports are seized, the dial-out port of the local MICB and the dial-in port of the remote MICB. This connection can be terminated only if the chairperson drops the dial-out port of the local MICB.

Drop all conferees

The chairperson can drop all conferees from the conference except the chairperson by executing the *90 command. No announcement is issued to the conference before disconnecting the conferees if the chairperson is still connected. The chairperson is the only one still connected. The MICB card issues an announcement indicating that no other conferees are connected to the conference followed by 60 seconds of music. This announcement with 60 seconds of music is repeated continuously until at least one conferee joins the conference or the conference is terminated.

Drop last dialed conferee

The chairperson can remove the last conferee that dialed in or was included into the conference by the chairperson dialing out and including the called party into the conference. To drop the last conferee joining the conference by dialing out, the chairpersons executes the *91 command, to drop the last conferee that joined the conference by dialing in, the chairperson executes the *92 command.

Count conferees

The chairperson can count the number of conferees that joined the conference by executing the *6 command. The MICB card issues s string of voice prompts one for each conferee in the conference. If a new conferee joined the conference after the command was invoked, that new conferee will not be counted.

When you dial *6 the conferees will hear a faint click when the * is dialed.

Lock or unlock the conference

The chairperson can lock the conference to prevent any new conferees from joining the conference by executing the *4 command, or can unlock the conference by executing the *5 command and allow new conferees to join the conference. A caller attempting to join a locked conference hear an announcement indicating that the conference is locked and the connection is dropped. The chairperson can dial-out and include a conferee even if the conference is locked.

The chairperson trying to lock or unlocked the conference will hear normal confirmation tone as if the command was executed.

MICB capacity expansion

The MICB card can be configured to provide a maximum of 12, 16, 24, or 32 ports. To activate a different number of ports than currently active, you must access the General Administration commands *Functionality Upgrade* menu and select *Modify* to change the maximum number of ports to be activated, and then *Save* to save the changes.

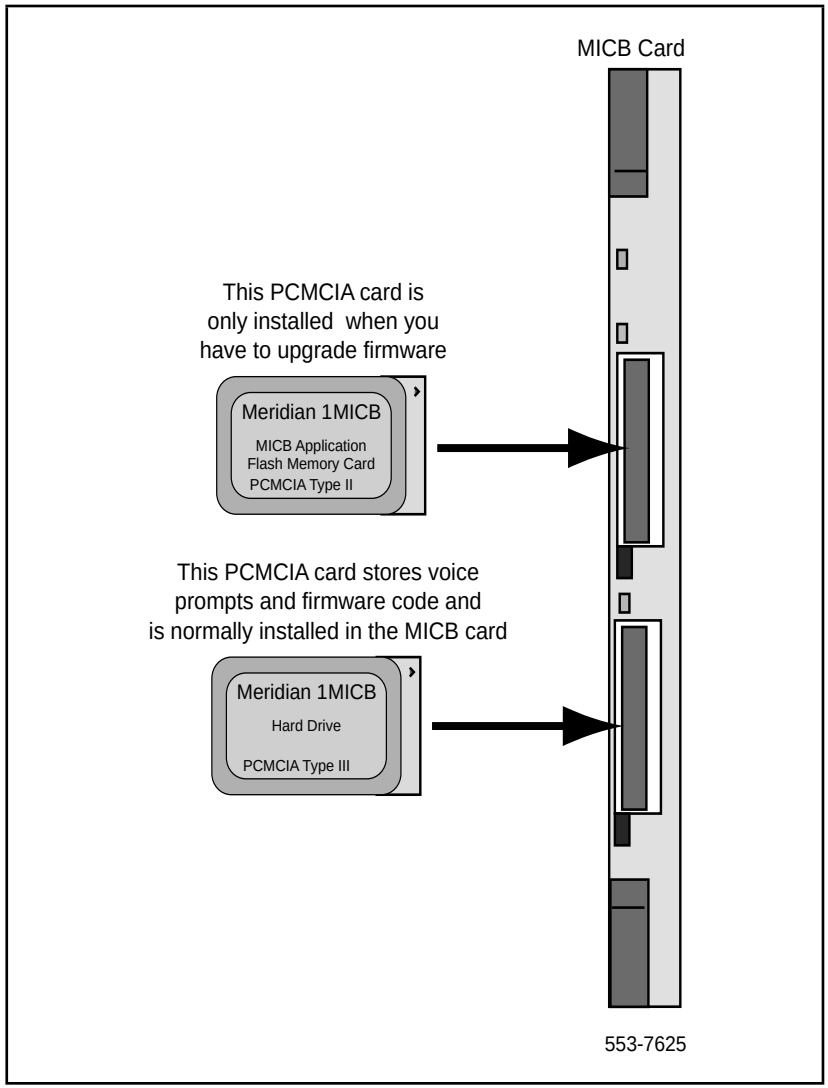
After the changes were saved, you must enter the correct keycode that will allow the changes to be activated. The keycode is 24 characters long entered in three sets of 8 digits called key-code1, key-code2, and key-code3. Refer to the Administration chapter of this document for details.

External memory expansion, new voice announcements, and firmware upgrade can be accomplished by inserting a PCMCIA card into the top PCMCIA slot accessible through the MICB faceplate.

The available storage for voice prompts on the PCMCIA disk is 130 Mbytes, providing 260 minutes of voice recording. The MICB uses the PCMCIA ATA, Type II and Type Flash cards for MICB software upgrade and backup.

Figure 5 illustrates how PCMCIA cards are loaded into the MICB faceplate slots to upgrade the MICB capacity.

Figure 5
Installing a PCMCIA card into the MICB faceplate slot



Security

A keycode is implemented to protect against unlawful MICB feature usage, because industry-standard PCMCIA cards are used as the software medium on the MICB. All upgrades of either port capacity or application software are restricted to a given MICB card and are accurately tracked to allow for satisfactory handling of field repairs and incremental upgrades.

Security is required for the following upgrades:

— port capacity upgrades

— feature enhancements

— new applications

Security is not required for the following upgrades:

— backup and restore operations

— application patching/bug fix

Nortel provides the customer with a keycode to enable them to install any desired upgrade. The keycode is entered over the local maintenance port on the MICB card. The keycode is 24 characters long and is entered in three sets of 8 digits called key-code1, key-code2, and key-code3.

Keycodes can enable additional functionality within an existing application (adding ports, features, etc.) or can be used with a PCMCIA card to provide new software or pre-recorded announcements.

Engineering guidelines

Meridian 1 general system engineering guidelines are described in *Meridian 1 system engineering* (553-3001-151). The following information deals specifically with engineering guidelines for the MICB planning and implementation. For system integrity and standards, refer to "Appendix B: Product integrity" on page 119.

System compatibility

Each MICB port is emulating a digital set assigned to an ACD agent. All ports on an MICB card belong to an ACD queue, which is controlled by the ACD DN assigned to that specific MICB card.

To support a maximum of 32 ports, the Meridian 1 system must be running on X11 release 22 or later software. Software X11 release 19, 20, and 21 supports a maximum of 16 ports. Starting with X11 release 22, the software provided for flexible voice and data TN feature allowing configuration of up to 32 ports.

The MICB is supported by:

— Meridian 1 options 21E, 51, 51C, 61, 61C, 71, 81, and 81C

— SL-1 systems NT and XT upgraded to support IPE cards

— Option 11E, 11C

Table 2 lists the Meridian 1 modules and the card slots suitable for MICB installation. The MICB card may be installed in to the following IPE card slots:

Table 2
MICB installation card slots in different PE modules

Meridian 1 modules	MICB card slots
NT8D37BA/EC IPE modules, NT8D11BC/ED CE/PE modules	All available IPE card slots.
NT8D37AA/DC IPE modules	0, 4, 8, and 12
NT8D11AC/DC CE/PE modules	0

System resources

The system ACD resources should be taken into account. Incremental Software Management (ISM) for the specific Meridian 1 system option must be reviewed. Each MICB port represents an ACD agent that uses up a DN and a TN from the total system resources. A maximum of 20 DNs (CDNs) are required for each MICB. These resources must be decremented from the overall system resources.

These resources must be subtracted from the overall system resources and cannot be used for any other application as long as they are assigned for MICB use. Refer to "Engineering multiple simultaneous conferences", on the next page, for the system resource allocation.

Required software packages

In addition to the standard X11 release software, the system must be equipped with the following software packages to allow the MICB card to operate as intended:

— ACD basic package (45)

— ACD advanced features (41)

— Enhanced ACD routing (214)

— Digital set (88)

— End-to-end signaling (10) - required if chairperson calls locally within the same switch

Engineering multiple simultaneous conferences

The MICB card can be configured to provide a maximum of 12, 16, 24, or 32 ports. To activate the selected number of maximum ports, a keycode consisting of 24 digits is required. Refer to the *MICB administration* chapter of this document for details.

For the list of MICB features and functions, refer to "MICB functional characteristics" on page 7.

To provide multiple simultaneous conferences on one MICB card, the following system resources must be specified:

1 Activate the maximum number of MICB ports required for your site. If the current number of active ports is sufficient to meet the requirements or if all 32 ports are enabled, skip this step.

2 Assign one ACD DN (automatic call distribution directory number including its queue and data block). One ACD DN is required for each MICB card.

3 Specify CDNs (control directory numbers) and their data blocks. All CDNs should be accessible by DID trunks. To determine the number of CDNs:

- Determine the maximum number of simultaneous conferences on the MICB card.
- Multiply the number of conferences by 2 to determine the number of CDNs required (each conference requires 2 CDNs - one for the chairperson and one that conferees call to access the conference). Example: 10 simultaneous conferences require 20 CDNs.

4 Assign DNs (directory numbers) and corresponding digital set data blocks. Each configured MICB port appears as a digital set of an ACD agent. The number of DNs is equal to the maximum number of ports provided by the MICB card. For an MICB with 32 ports active, you require 32 telephone set (agent) DNs and the corresponding 32 TNs.

Environmental and power requirements

The environmental requirements for the MICB must meet or exceed the overal Meridian 1 system requirements. The power provided for each card slot in the IPE module exceeds the power requirements for an MICB.

Environmental requirements

Table 3 shows the operating and storage environmental specifications. Ideally the system should operate in a stable environment at 22° C (72° F). However, the system is designed to operate in the temperature and humidity ranges specified in Table 3.

Table 3
Environmental requirements

Condition	Environmental specifications
Operating	
Temperature	0° to 50° C (32° to 122° F)
Relative humidity	5% to 95% noncondensing
Altitude	3,048 meters (10,000 feet) max
Storage	
Temperature	–50° to 70° C (–58° to 158° F)
Relative humidity	5% to 95% noncondensing

Power requirements

Power to the MICB is provided by the IPE module power supply (AC or DC). Refer to Table 4 for a display of the MICB power requirements and also to the *Meridian 1 power engineering* (553-3001-152).

Table 4
MICB power requirements

Voltage	Source	Current
+5 V	Backplane	3.0 A
+15 V	Backplane	0.25 A
Total maximum power		18.75 W

The maximum IPE module per slot power budget is 30 Watts, with an effective limitation of 20 Watts for thermal compensation. The MICB card does not exceed the power allocated for each card slot in the IPE module.

Table 5 lists the transmit and receive analog signal levels as measured at the transmitter output and receiver input in the MICB card.

Table 5
Voice signal level specifications

Signal Direction	Minimum Power	Maximum Power
Transmit signal	-55 dBm0	0 dBm0
Receive signal	-55 dBm0	0 dBm0
Note: For other signal characteristics, refer to *Summary of transmission parameters* (553-2201-182)		

External equipment

To perform OA&M sessions you must connect a terminal or a PC emulating a terminal to the MICB card.

VT100 type terminal

A VT100 terminal or a personal computer emulating a terminal is used to perform MICB administration, configuration, and maintenance and diagnostics.

The terminal must be connected to the MICB RS-232 interface. The terminal can be connected as follows:

Direct connections:

— directly to the IPE module I/O panel or Option 11 C/E 50-pin connector

— directly to the DB-9 connector on the NT5D52 Ethernet Adapter card installed on the I/O panel

Remote connections:

— to the IPE module I/O panel or Option 11 C/E 50-pin connector through a modem connection

— to the RJ45 jack on the NT5D52 Ethernet Adapter card to the Ethernet for remote multi-terminal access to the MICB

Terminal interface must be set at 9600 baud, 8 data bits, 1 stop bit, and no parity. The flow control is hard wired (never use XON/XOFF flow control).

Ethernet application

Ethernet implementation over the MICB has the following characteristics:

— The MICB Ethernet connection is separated from the external LAN traffic by a firewall.

— The Ethernet Adapter options for MICB are:

- NT5D52AA for the IPE module application
- NT5D52BA for the Option 11E/11C application

— The Ethernet provider assigns the IP address for the MICB. The IP address is entered over the MMI terminal.

— To access the MICB over the Ethernet, the terminal or a PC must emulate a VT100 terminal.

MICB administration

Introduction

The MICB OA&M access is provided through the RS-232 port on an MICB card, which is connected directly to a VT-100 type terminal or to a PC running a terminal emulation program. You can also perform OA&M access over Ethernet. The following system and conference administration functions are accessible through the MICB administration terminal:

— Scheduling the MICB conferences and bridges

— Editing attributes of previously defined conferences and bridges and currently active conferences

— Configuring system parameters and global conference attributes

— Displaying conference status and log files contents

— Entering the keycode

— Displaying conference statistics

— Performing system maintenance

— Performing MICB functional and software upgrades

Before you can use the terminal, you must configure its interface parameters as described in the *Installation and configuration* chapter.

Logon screen

The logon screen appears when you press the Enter key after you connect a terminal to the MICB RS-232 port. This is the initial screen that displays the general status of the MICB card and conferences in progress. This includes:

— Start and duration of each scheduled conference

— Control DNs for the conference and the chairperson

— Number of ports occupied and, in parenthesis, the maximum number of ports reserved for that conference

— Status of each conference (*bridge* is permanent, *expanded* is using more ports than have been reserved, *active* is conference in progress, and *next* is conference scheduled to start shortly)

— Locked indicates if a conference is accessible or not accessible by a conferee that has not yet joined the conference

— Chairpersons names and name for each conference

Note: When you first install the MICB, the initial screen (Table 6) may display dummy conference scheduling left over from factory testing or lab testing. Make sure that you delete all dummy information displayed in the initial screen using the appropriate menus, such as Bridge Allocator, Conference Reservation, and Meeting Terminate menus in this chapter, before you start scheduling conferences.

Table 6
Initial screen showing the current MICB configuration status

Meridian Integrated Conference Bridge

Card name: first_card **10005666**

Start	Duration	CDN	Ch-CDN	# Ports	Status	Locked	Chair-person	Title
00:00	forever	3080	3081	0(6)	bridge	yes	-	bridge 3080
09:15	2:45	3020	3021	7(5)	expand	no	Bob	Y Report
10:30	1:30	3010	3011	4(6)	active	yes	Barry	X Gate 2
11:10	2:00	3000	3001	0(3)	active	no	Dale	ZGate 3
13:15	2:00	3030	3031	0(8)	next	-	Jim	ZSales

Total ports in use: 11(20) Last refreshed: April 15, 1997 11:30

Login:

User login

A user may login as an **operator** or as an **administrator**. The operator may access MICB conference functions and the administrator may access system administration functions. The operator deals with conference administration and maintenance. The administrator deals with system administration and maintenance as well as the conference administration and maintenance.

The default passwords are as follows:

— **oper** is the operator default password

— **admin** is the administrator default password

The default passwords may be changed by the administrator. If you cannot remember the password, you type **rst** and enter the MICB card ID. If an incorrect card ID is entered, an error message is displayed and the login prompt is presented again.

If the card ID is authenticated, both passwords are reset to their default values i.e. **oper** and **admin**. Example:

Login: **rst**

Enter card ID: < current card ID>

Passwords have been reset. Please login again.

Login: **admin**

The administrator can then assign new passwords by accessing the *Protected Administration* menu.

General administration procedures

General administration procedures are conventions or rules you have to adhere to when modifying default or existing parameters that define the MICB system and conference operation. These apply when using:

— General administration commands

— Object modify procedure

— Collection modify procedure

— Custom recording procedure

General administration commands

When you have to modify system administration parameters, you can use one or more of the following commands:

— **M**odify - Enter **M** to indicate that you wish to modify one or more parameters

— **S**ave - Enter **S** to save modified parameters

— **C**ancel - Enter **C** to cancel the modification and allow the parameter to retain its previous value

After the session is completed, the screen displays again the *Modify, Save, or Cancel*: command line for additional modification of parameters, if required.

To navigate from menus to other menus or to display help, use the following terminal keys:

— ***** - Returns you to the previous menu

— **/** - Returns you to the top menu level

— **?** - help; that assists you with commands in the current menu

Object modify procedure

To modify a value or attribute of an object, the program responds with a sequence of prompts, one prompt for each attribute of the object. The prompt specifies the name and the current value of the attribute as follows:

attribute_a (current_value_a): **new_value_a**

attribute_b (current_value_b): .

For each prompt user may respond in three ways:

— **<cr>** - accepts the current value by pressing the Enter key

— **value** - changes the attribute by entering a new value

— **.** - terminates the session by entering "**.**" (dot)

In some cases the system may display the current value and a list of available values to select. Example:

attribute_c (current_c, (1-aaaa, 2-bbbb, 3-cccc)): 2
(where the value of attribute_c has been changed to bbbb)

After the session is completed the new set of values is displayed and you are prompted to *Modify, Save, or Cancel* the modification.

Collection modify procedure

This procedure modifies, deletes, or adds an entry to a collection of items of the same type, such as for example, a list of DNs.

You can move through the list of items by entering **<cr>** to skip the item, enter a **command** to modify the item, or enter **.** (dot) to exit the list. The **command** can be:

— **m** - to modify the item in the list using object modify procedure

— **d** - to delete a selected item in the list

— **i** - to insert a list of items above the currently selected item

— **a** - to append a list of items below the currently selected item

For insert and append commands, you are prompted to add a new item. This sequence is terminated by entering the . (dot). When the command(s) are executed, the program gives you the option to Modify, Save, or Cancel the changes. Only when you enter **S**ave will the new changes be accepted.

When the end of the list is reached, the new list is displayed or printed and you are prompted again to *Modify* or *Exit* the list.

Brand line greeting

Brand line greeting file is automatically named BRANDLIN.WAV when created over the telephone set. You have to record a brand line greeting in each language separately for the A-law and the μ-law.

Brand line greeting is used during the conference to provide customized greeting in one of the five available languages that specifically identifies the conference or the company holding the conference.

Customer greeting files provides:

— customer recording of a brand line greeting in a specific language

— the user can select one of the three greeting options:

- brand line greeting
- no custom greeting
- custom conference greeting

Use the message recording over the telephone set method to record brand line message, such as, for example, “Welcome to Nortel conference bridge”. The brand line message is identified as BRANDLIN.WAV file to distinguish it from other recorded files. For telephone set message recording, refer to “Brand line Audio Recorder” on page 53.

A conference or a bridge has two attributes:

— language - to select one of the five languages for the brand line recording

— custom greeting - **custom greeting (brand line, (1-no, 2- meeting)):**

User can then select one of the three options:

- <cr> - default option, which is the brand line greeting file BRANDLIN.WAV (if the brand line message is not recorded a message will be displayed)
- no custom greeting - this uses the WELCOME.WAV file “Welcome to the meeting”).
- custom meeting greeting

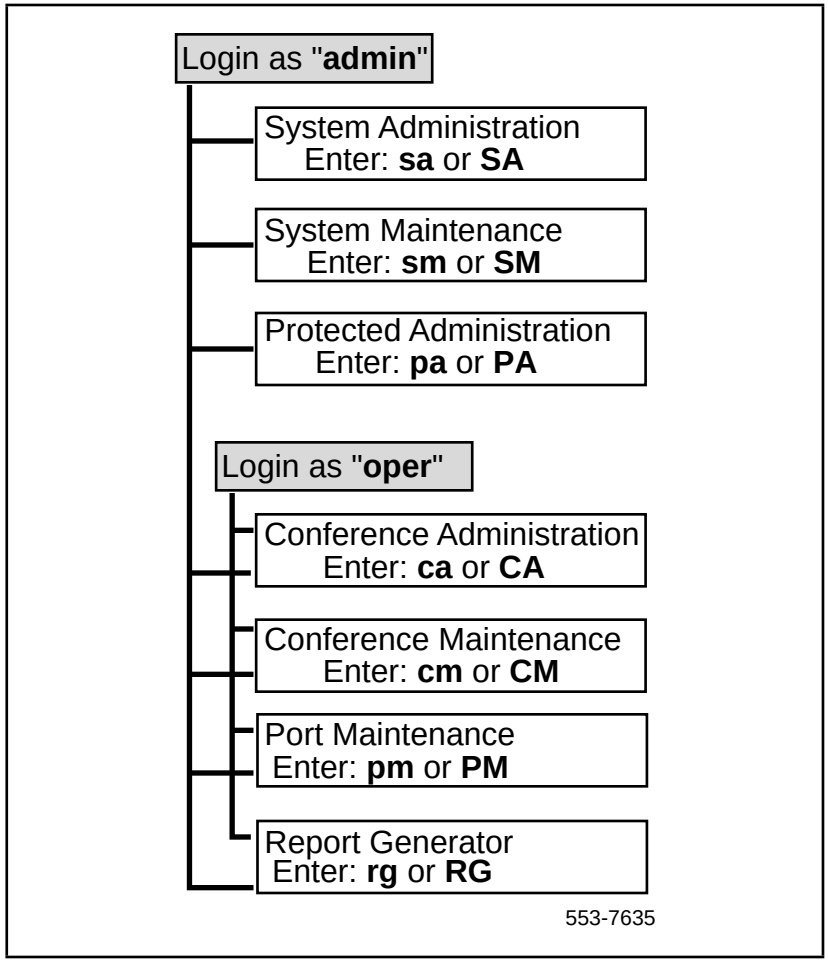
Accessing the Main Menu

The MICB Main Menu consists of administration and configuration menus, where the administrator can access both the system administration and configuration menus and the operator can access only the conference configuration menus.

To access the Main Menu you must have a terminal connected to the MICB RS-232 port with properly configured interface parameters. You should also login by entering the appropriate password.

Figure 6 shows the Main Menu and its menus that can be accessed by the administrator by typing the default password **admin** and those that can be accessed by the operator by typing the default password **oper**. The administrator may change the passwords as required by security. The administrator can access all menus, however, the operator can access only the conference related menus as shown in the figure.

Figure 6
Main Menu

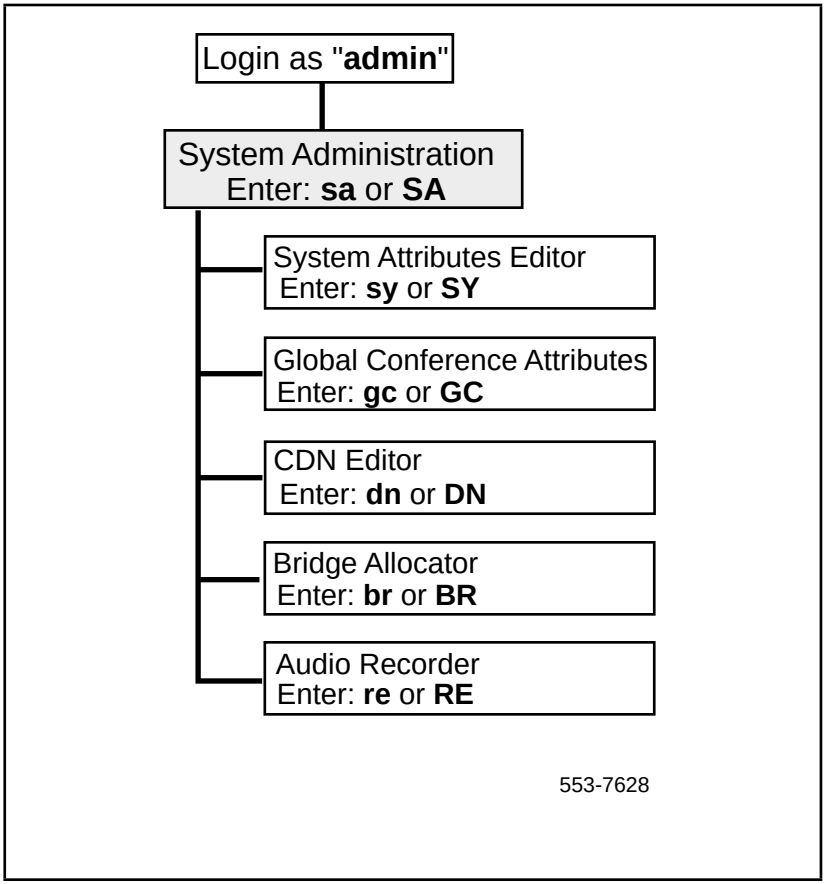


After you are logged in as an administrator or an operator you can access various menus, however, you have to follow general administration procedures.

System Administration menus

The System Administration menus are accessed from the Main Menu after you logged in as an administrator (**admin**) and by entering the **sa** or **SA** or the full command (**SAdmin**). Figure 7 shows the System Administration screen and all the menus accessible from this screen.

Figure 7
System Administration menu



System Attribute Editor

Use this menu to modify system attributes. These are:

— **card name** - a character string with maximum length of 10 characters. The name appears at the top of the Initial Screen, if specified.

— **idle time-out** - the time the terminal is left idle before it automatically logs out and displays the Initial Screen with general system status. The default time-out is 20 minutes and the range is from 20 to 60 minutes.

— **refresh period** - the Initial Screen refresh (update) time when the terminal is not being used. The default is 5 minutes and the range is from 0 to 60 minutes. Enter 0 if you wish to disable system status display.

— **report aging** - the number of days the system will maintain old reservation records. The default is 60 days and the range is from 0 to 120 days. If you select 0, the records are deleted at the end of the day the conference was conducted.

— **short occupancy** - a threshold used to detect very short connection time of an MICB port assigned to a conference. If the connection is less than the threshold it may indicate bad connection or an incorrect CDN dialed. When this condition is detected, the system increments a counter and when counters are checked, those with peg-counts are displayed as potential problems.

— **default language** - a language selected by the administrator to be the default language. This is the first language in the list of defined languages. Languages defined in the system are stored on the PCMCIA in ASCII format.

— **agent ID** - ACD agent ID is a number of up to 4-digits long. The agent ID length is the basis for generating other agent ID numbers. If the agent ID option is not defined in the system, 0 must be entered. Note that the agents IDs must be consecutive numbers within the lower and upper limit of the available numbers, starting with the number assigned to the first agent ID. To find the available block of consecutive numbers, use LD 23 prompts SCB or ADS to print the current status of the assigned numbers.

— **application traffic report** - default is 0 to disable the report, range 1-24 allows you to select the number of reports that will be issued every hour-on-the-hour.

Ethernet defining attributes:

— **subnet mask** - has XXX.XXX.XXX.XXX format, where every XXX is in the range 0-255. Subnet mask in binary presentation of 32 bits has at least the first 8 digits “1” and the last digit is “0”.

— **gatway address** - has XXX.XXX.XXX.XXX format, where every token is in the range 0-255.

— **IP address** - is Ethernet protocol address and it has the same format at the gatway address.

Example:

login: **admin**
Previous admin login: Feb 11, 1997 10:00
SAdmin, SMint, PAdmin, CAdmin, PMaint, CMaint, RGen, LOgout: **sa**
SYstem, GConf, DN, BRidge, EScript, REcorder: **sy**
System Attributes:
card name:
idle time-out minutes: 20
refresh period minutes: 1
report aging days: 60
short occupancy seconds: 10
default language: americam_english
agent id: not defined
application traffic report hours: 0
subnet mask: 255.255.248.0
gatway address: 141.226.199.254
IP address: 141.226.199.50
Modify, **S**ave, **C**ancel: **m**
card name (): **first_card**
idle timeout minutes (20): **25**
refresh period minutes (1):
report aging days (60):
short occupancy seconds (10):
default language (americam_english, (1-french, 2-brasilian_portuguese, 3-LA_spanish, 4- UK_english)):
agent id (not defined):
application traffic report hours (0): 1
subnet mask (255.255.248.0):
gatway address (141.226.199.254):
IP address (141.226.199.50):

New System Attributes:
card name (): first_card
idle timeout minutes: 25
refresh period minutes: 1
report aging days: 60
short occupancy seconds: 10
default language: american_english
agent id: not defined
application traffic report hours: 1
subnet mask: 255.255.248.0
gatway address: 141.226.199.254
IP address:141.226.199.50
Modify, Save, Cancel: **Save**

System Attributes have been updated.
SYstem, GConf, DN, BRidge, EScript, REcorder: ***/***
SAdmin, SMint, PAdmin, CAdmin, PMaint, CMaint, RGen, LOgout: **lo**

This concludes the System Attributes Editor session, returns you to the Main Menu, and logs you out.

Global Conference Attribute Editor

Use this menu to modify global conference attributes. When you login as the administrator, you are prompted to modify the following attributes applicable to all conferences:

— **record limit** - a maximum number of seconds allowed to record the conferee name. The default is 2 seconds and the range is from 1 to 10 seconds.

— **assistance DN** - a number the chairperson can dial for assistance. The chairperson must first dial *0#, where the implied assistance DN, which can be up to 8 digits long, must have been previously defined.

Example:

SYstem, GConf, DN, BRidge, EScript, REcorder: **gc**
Global Conference Attributes:
record limit seconds: 2
assistance DN: 2020
Modify, **S**ave, **C**ancel: **m**
record limit seconds (2): **7**
assistance DN (2020): **<cr>**
New Global Conference Attributes:
record limit seconds: 7
assistance DN: 2020
Modify, Save, Cancel: **Save**
Global Conference Attributes have been updated.
SYstem, GConf, DN, BRidge, EScript, REcorder: **/**
SAdmin, SMint, PAdmin, CAdmin, PMaint, CMaint, RGen, LOgout: **lo**

This concludes the Global Conference Attributes Editor session, returns you to the Main Menu, and logs you out.

CDN Editor

Use this menu to add or modify Control Directory Numbers. One CDN is used by conferees to dial-in and join the conference and the other CDN to call the chairperson of that conference.

Before you start editing CDNs, make sure you adhere to the following rules:

— Maximum length of a CDN is 8 digits.

— Each CDN may appear only once on the list (all CDNs must be unique).

— A CDN may not be deleted if it is assigned to a conference or bridge.

— When a CDN is modified, future conferences that would have used the old CDN will now use the new CDN. Active conferences and bridges are not affected by this change.

— The list of dial-in CDNs must be coordinated with the numbering plan in Meridian 1.

— The maximum number of CDNs defined for an MICB card is 20 (10 conferences each with two CDNs for dial-in and chairperson).

— To delete a conference item use the **d** command the same way you use the **i** (insert) or **m** (modify) commands in the next example.

In the following example, you have to add 2 new CDNs (#2000 and #2002) and change CDN #2002 and #2008.

Example:

SYstem, GConf, DN, BRidge, EScript, REcorder: **dn**
Current CDNs: 2001, 2002, 2003, 2004, 2005, 2006, 2007
Modify, **S**ave, **C**ancel: **m**
CDN (2001): **i**
insert: **2000**
insert**: .**
CDN (2001): **<cr>**
CDN (2002): **m**
modify: 2008
CDN (2008): .
New CDNs: 2000, 2001, 2003, 2004, 2005, 2006, 2007, 2008
Modify, **S**ave, **C**ancel: **Save**
List of CDNs has been updated.
SYstem, GConf, DN, BRidge, EScript, REcorder:

Bridge Allocator

Use this menu if you wish to reserve MICB ports for a permanent conference bridge. The MICB ports permanently tied up by this bridge are not available for on demand conference use. If by mistake a port assigned to the bridge is used for a conference, and error message will be issued and the assignment will be prevented. The same applies if a double assignment is attempted between two bridges.

The Bridge Allocator allows you to modify a bridge in a list of bridges. You can add new entries to the bridge and change existing entries.

The configurable attributes of the bridge are:

— **number of ports** - a number of MICB ports allocated for a bridge. The prompt shows the current number and the maximum ports available for permanent bridges. The specified number of ports must be greater than 0.

— **language** - defines the selected language for prompts and announcements. The list shows all the available languages. Select a new one by entering its number of press <cr> to use the default.

— **title of conference** - name assigned to the conference bridge. Maximum name length is 20 characters.

— **main CDN** - the directory number to dial in to the bridge to join the conference. The prompt shows the current number an a list of available DNs. You can select any of these DNs by entering it on the list.

— **conferee password** - a password code up to 8 digits long is entered to access the bridge. If 0 is specified, the password is not defined. If user enters a number 4-8 digits long, a password is automatically defined, which is used to access the bridge.

— **chairperson CDN** - directory number to access the conference bridge as a chairperson.

— **chairperson password** - password code up to 8 digits long is entered to access the bridge as a chairperson. If 0 is specified, the password is not defined. If user enters a number 4-8 digits long, a password is automatically defined, which is used to access the bridge as a chairperson.

— **name entry** - option to allow the entry of the conferee's. Default is Yes. If Yes, the conferee is prompted to record their name. The allowed recording time is restricted by Global Conference Attribute Editor from 1 to 10 seconds.

— **custom greeting** - option to allow greeting of a conferee. The default is **brandline**. The other options are **no**, and **meeting.** The custom greeting is invoked during conference reservation and during permanent conference bridge allocation.

Example:

Delete bridge no. 3 and modify chairperson_CDN and other attributes of bridge no. 2.

SYstem, GConf, DN, BRidge, EScript, REcorder: **br**
Current bridges:

	CDN	Chair-CDN	#Ports	Name_Entry	Gree-ting	Title
1	2000	2001	3	yes	brandline	Bridge2000
2	2020	2021	4	no	no	Bridge2020
3	2030	2031	3	yes	meeting	Bridge2030

Modify, **I**nsert, **D**elete, **E**xit: **m 2**
main CDN (2020 (1-2096, 2-2098)): **<cr>**
conferee password length (0):
chairperson CDN (2021, (1-2096, 2-2098)): **1**
chairperson password length (0):
number of ports (4(8)**: 6**
language (americam_english, (1-french, 2-brasilian_portuguese, 3-LA_spanish, 4- UK_english))::
name entry (no): **Yes**
custom greeting (no): **Yes**
name of conference (Bridge2020): **<cr>**
New Configurable Attributes of Bridge 2:
main CDN : 2020
conferee password: not defined
chairperson CDN: 2096
chairperson password: not defined
number of ports: 6
language: american_english
name entry: Yes
custom greeting (brandline (1-no, 2-meeting)) : brandline
name of conference: Bridge2020
Modify, **S**ave, **C**ancel: **Save**
configurable attributes of bridge 2 have been updated.

Current bridges:

	CDN	Chair-CDN	#Ports	Name_Entry	Gree-ting	Title
1	2000	2001	3	yes	brandline	Bridge2000
2	2020	2096	6	yes	no	Bridge2020
3	2030	2031	3	yes	meeting	Bridge2030

Modify, **I**nsert, **D**elete, **E**xit: **d 3**
Delete bridge 3 ? (Yes, (No)): **Yes**
Bridge 3 is being closed.
Closing may take up to one minute. Please wait.

Current bridges:

	CDN	Chair-CDN	#Ports	Name_Entry	Gree-ting	Title
1	2000	2001	3	yes	brandline	Bridge2000
2	2020	2096	6	yes	no	Bridge2020

Modify, **I**nsert, **D**elete, **E**xit: **e**
SYstem, GConf, DN, BRidge, EScript, REcorder:

Note: When a parameter such as CDN is changed for an existing bridge, at the time of Save, the bridge will be closed and reopened. Participants on the bridge will be disconnected.
If you try to reduce the number of ports while they are active, an error will be displayed and the system will prompt you to reenter the original number of ports.
Closing a bridge may take up to one minute.

Event Script files

The Audio Script files are associated with conference events. An Audio Script may contain a single file or a set of files that are activated in a specific sequence. These files cannot be changed.

Table 7 shows a list of events that occur during a conference. For each event the system plays one or more audio files to instruct the conferees and the chairperson. These audio files are listed in Table 8 and are numbered in the File column of this table.

Table 7
Voice script files

No.	Situation	Files
With name entry option:		
1.	Greeting to dial-in conferee with name entry	1, 2, 13
2.	Entry of conferee to meeting with prompt name	14, 3
3.	Exit of conferee from meeting with prompt name	15, 4
Without name entry option:		
4.	Greeting to dial-in conferee	1
5.	Entry of conferee to meeting	14
6.	Exit of conferee from meeting	15
General Prompts:		
7.	Announcement to single conferee	5, 6
8.	Chairperson command acknowledge	16
9.	Chairperson command negative acknowledge (lack of resources)	17
10.	Chairperson command error acknowledge (illegal command)	17
11.	Dial-in to non-existent meeting	18
12.	Dial-in to locked meeting	18
13.	Dial-in to fully attended meeting	19
14.	2nd chairperson dial-in attempt	19
15.	Count conferees	27

Table 7
Voice script files

No.	Situation	Files
16.	Meeting termination early warning-10 min till end	15, 7
17.	Meeting termination announcement	15, 8
18.	Record main menu	9
19.	Record invitation	13
20.	Record stopped	16
21.	Record error operation	11,9
22.	Record error operation for new file	11,10
23.	Record main menu for new file	10
24.	Noting to play for new file	12
25.	Password request	21
26.	Repeated password request	22
27.	Incorrect password	23, 22
28.	Exit from the system	24,25,26

Table 8 represents the system script files that can be played for a specific event as shown in Table 7 where, for example event 1 invokes files 1, 2, and 13.

Table 8
Event script files (Part 1 of 5)

No.	Contents
1	*Welcome to the meeting.*
2	*Please enter your name*:
3	*Announcing the arrival of*
4	*Announcing the departure of*

Table 8
Event script files (Part 2 of 5)

No.	Contents
5	*You are the only one in the meeting now.*
6	Music
7	*Meeting terminates in a few minutes*
8	*Meeting terminates now*
9	*Press 2 to play, 5 to record, # to exit*
10	*Press 5 to record, # to exit*
11	*Illegal command*
12	*Nothing to play*
13	tone 6 for 500 ms
14	tones: 3,4,5,6 for: 100ms, 100ms, 100ms, 300ms respectively
15	tones: 6,5,4,3 for: 100ms, 100ms, 100ms, 300ms respectively
16	tone 2 for: 200ms on, 50ms off, 200ms on, off.
17	tone 1: 5 bursts of 80ms on/ 80ms off
18	tone 1: 250ms on/250ms off (Overflow tone) for 10 seconds
19	tone 1: 500ms on/500ms off (busy tone) for 10 seconds
20	tone 3: 200ms off/300ms on
21	*Password*
22	*Please enter your password followed by number sign*
23	*Password incorrect*
24	*You have failed to enter your password*

Table 8
Event script files (Part 3 of 5)

No.	Contents
25	*Please hang-up and call your Meridian Integrated Conference Bridge administrator*
26	*Good-by*
27	*The number of conferees is*
28	*One*
29	*One (for a suffix e.g. twenty one)*
30	*Two*
31	*Two (for a suffix e.g. twenty two)*
32	*Three*
33	*Three (for a suffix e.g. twenty three*)
34	*Four*
35	*Four (for a suffix e.g. twenty four)*
36	*Five*
37	*Five (for a suffix e.g. twenty five*)
38	*Six*
39	*Six (for a suffix e.g. twenty six*)
40	*Seven*
41	*Seven (for a suffix e.g. twenty seven*)
42	*Eigh*t

Table 8
Event script files (Part 4 of 5)

No.	Contents
43	*Eight (for a suffix e.g. twenty eight)*
44	*Nine*
45	*Nine (for a suffix e.g. twenty nine)*
46	*Ten*
47	*Eleven*
48	*Twelve*
49	*Thirteen*
50	*Fourteen*
51	*Fifteen*
52	*Sixteen*
53	*Seventeen*
54	*Eighteen*
55	*Nineteen*
56	*Twenty*
57	*Twenty (for a suffix e.g. twenty one*)
58	*Twenty one*
59	*Twenty two*
60	*Twenty three*

Table 8
Event script files (Part 5 of 5)

No.	Contents
61	*Twenty four*
62	*Twenty five*
63	*Twenty six*
64	*Twenty seven*
65	*Twenty eight*
66	*Twenty nine*
67	*Thirty*
68	*Thirty (for a suffix e.g. thirty two*)
69	*Thirty one*
70	*Thirty two*

Table 9 lists the beep frequencies and their level

Table 9
Tone specification

Index	Frequency (Hz)	Level (dBm/freq)
1	480+620	-24
2	440+660	-17
3	440	-14
4	560	-17
5	660	-17
6	880	-17
Maximum single frequency deviation is +/- 2% Maximum level deviation is +/- 5 dB		

Brand line Audio Recorder

Audio Recorder allows you to create new brand line custom greetings for each individual conference. The brand line custom audio files are used for customized greeting during conference. A user may define up to 5 brand line audio files.

When you select Recorder option, you are presented with a list of brand line custom audio files, which can be modified (by entering **m**) or deleted (by entering **d**). You can also inset new brand line files (by entering **i**). The default audio files supplied by the factory may not be modified.

Example:

This is an example of a recording session:

SYstem, GConf, DN, BRidge, EScript, REcorder, ?: **re**
language (americam_english, (1-french, 2-brasilian_portuguese,
3-LA_spanish, 4- UK_english)): <cr>
File Name
1 a:mlaw\user\english\BRANDLIN.WAV: **m**
Dial 2099 to begin recording session.
Follow voice instructions.
Typing “exit” will end the recording session.
After the recording is completed and the phone is off-hook
Upon completion of recording, select one of the following:
Save, **M**odify, **C**ancel: **s**
SYstem, GConf, DN, BRidge, EScript, REcorder, ?:

The newly recorded message will be played only after it is saved. It will be played when a conferee dials the conference or the chairperson CDN.

Help display

When you choose the help command “?”, the system displays commands related to the string of commands in the menu, as follows:

SYstem, GConf, DN, BRidge, EScript, REcorder, ?: **?**

Short command	Full command	Explanation
sy	system	System Attribute Editor
gc	gconf	Global Conference Attribute Editor
dn	dn	CDN Editor
br	bridge	Bridge Allocator
re	recorder	Audio Recorder

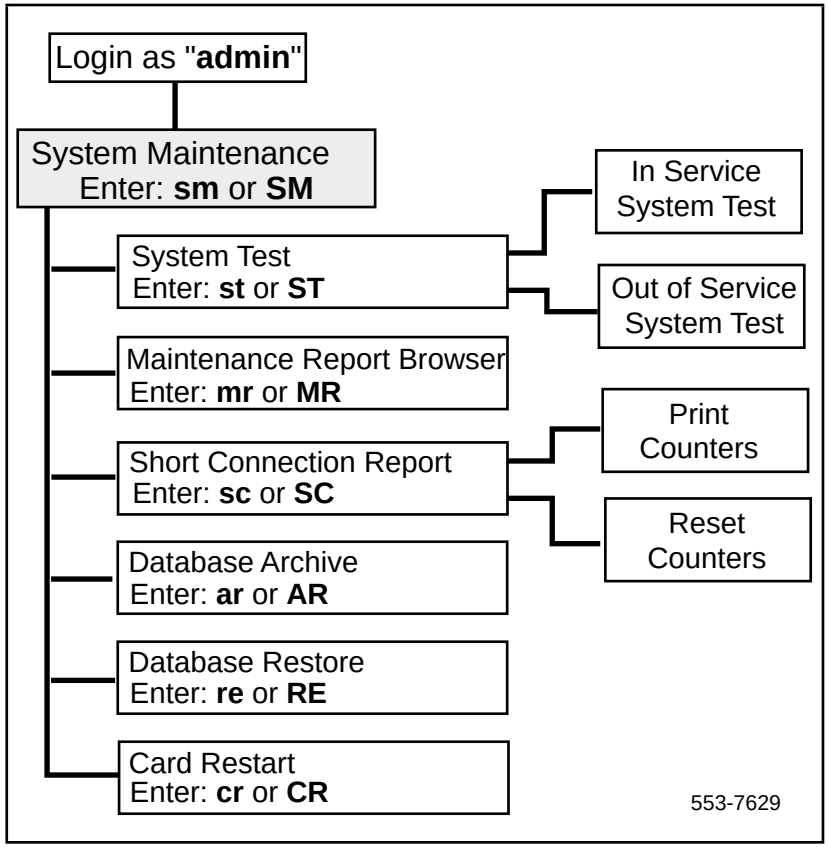
System, GConf, DN, BRidge, EScript, REcorder,?:

System Maintenance menus

The System Maintenance menus are accessed from the Main Menu after you logged in as an administrator (**admin**) and by entering the **sm** or **SM** or the full command (**SMaint**).

Figure 8 shows the System Maintenance menu structure. The System Test and Short Connection Report menus have two sub-menus.

Figure 8
System Maintenance menu



System Tests

Use this menu to perform system component tests.You can perform in-service tests that do not disrupt service and out-of-service tests that disrupt service for the duration of the test. If you select:

— **i** - you will perform in-service tests.

— **o** - you will perform out-of-service tests.

Example

In the following example, perform the service impacting (out-of-service) tests.

STest, MReport, SCon, ARchivdb, REstordb, CRestart, ?: **st**
Inserv, Outserv: **o**
Perform service impacting test ? (Yes, (No)): **Yes**
Performing service impacting test ...Test passed.
Inserv, Outserv: *****
STest, MReport, SCon, ARchivdb, REstordb, CRestart, ?:

Maintenance Report Browser

This menu allows you to display and browse maintenance reports according to date. These reports are used to analyze system problems based on error messages compiled on that specified date.

All reports are time stamped and contain information regarding the cause of the problem. After the data is displayed, the system returns to the *year-month-day* prompt using the last selected date as default.

To exit the report, enter "**.**" (dot), to interrupt the report display, enter "*<cr>" (star and return).

The maintenance reports have the following format:

<serial number>: <MON_REPORT_ID> <channel #> <time> <Applic_Manager_cycle> <Message Body>

Example:

Display the maintenance report for March 15, 1996.

STest, MReport, SCon, ARchivdb, REstordb, CRestart, ?: **mr**
year(1996): **1996**
month (11): **03**
day (22): **15**
1234:timer101 ch01 16:16:18:111 9000 “Num: 100 Timing Stop. 00.”
1235: sig100 ch00 16:17:05:234 9900 “SIG: Q_APP in msg:0000005A”
0001:HW PCMCIA001 ln0077 ch01 16:25:29:836 PCMCIA card inserted in socket 1
year (1996): **.**
STest, MReport, SCon, ARchivdb, REstordb, CRestart, ?:

The selected date must be in the past not future. The old files that exceed the report aging number of days are discarded. If date entered is too old, an error message is displayed. If the date is within the correct date range, but there are no report entries for that day, a message indicating no messages is displayed.

Short Connection Report

The Short Connection Report menu allows you to present or reset the short connection peg-count.

Short port occupancy may indicate fault condition on the particular port or dialing of an incorrect CDN. The short occupancy range is set in the System Administration menu from 1 to 30 seconds (default is 10 seconds). If 0 is selected, the short occupancy count is disabled.

You have an option to print (**p**) or to reset (**r**) the counter. When printing the counters peg-count, all ports with a count are presented in the following format:

port # today’s_count total_count

today’s count - count of short connections that occur today
total count - cumulative count of all short connections since the MICB was last reset or the short connection counters were reset.

If all counters are zero, the header is printed followed by the message:
all counters are zero

When you execute the reset, all counters are set to zero.

Example:

STest, MReport, SCon, ARchivdb, REstordb, CRestart, ?: **sc**
Print, Reset: **p**

Port #	today's_count	total_count
10	2	4
18	1	10
31	5	34

Print, Reset: **r**
Reset all short connection counters? (Yes, (No)) **Yes**
Counters reset.
Print, Reset: ***
STest, MReport, SCon, ARchivdb, REstordb, CRestart, ?:

When help is displayed, you get the following: **?**

Short command	Full command	Explanation
p	print	Present peg-count of short port occupancy.
r	reset	Reset peg-count of short port occupancy.

Database Archive

Database Archive allows you to backup customer database. The system copies a set of database files from the active PCMCIA card in lower slot (drive A): to the backup PCMCIA card in the upper PCMCIA socket (drive B:). Names of files to be backed up are specified in the DB Description file. These files include configuration and reservation databases, as well as user made voice files.

For backup, you can use PCMCIA ATA Flash card and Type II and Type III cards. If the PCMCIA Flash card memory is to small to accept all the archived database information, an error will be displayed indicating that there is not enough memory.

Example:

STest, MReport, SCon, ARchivdb, REstordb, CRestart, ?: **ar**
Backup Database ? (Yes, (No)) **y**
Please wait, performing backup... completed.
STest, MReport, SCon, ARchivdb, REstordb, CRestart, ?:

Database Restore

Database Restore allows you to restore customer database to the system PCMCIA card installed in the lower slot (drive A:). The system copies a set of files from the backup PCMCIA card installed in the upper slot (drive B:) to the active PCMCIA card in the lower slot (drive A:). Names of files to be restored are specified in the DB Description file.

Example:

STest, MReport, SCon, ARchivdb, REstordb, CRestart, ?: **re**
Restore Database ? (Yes, (No)) **y**
Please wait, performing restore... completed.
STest, MReport, SCon, ARchivdb, REstordb, CRestart, ?:

Card Restart

Restarts the MICB card. This initiates the software reload.

STest, MReport, SCon, ARchivdb, REstordb, CRestart, ?: **cr**
Restart MICB card ? (Yes, (No)) **yes**

This action returns the MICB card to the initial screen and you must login again.

Help display

Displays the commands and their explanation at the System Maintenance level.

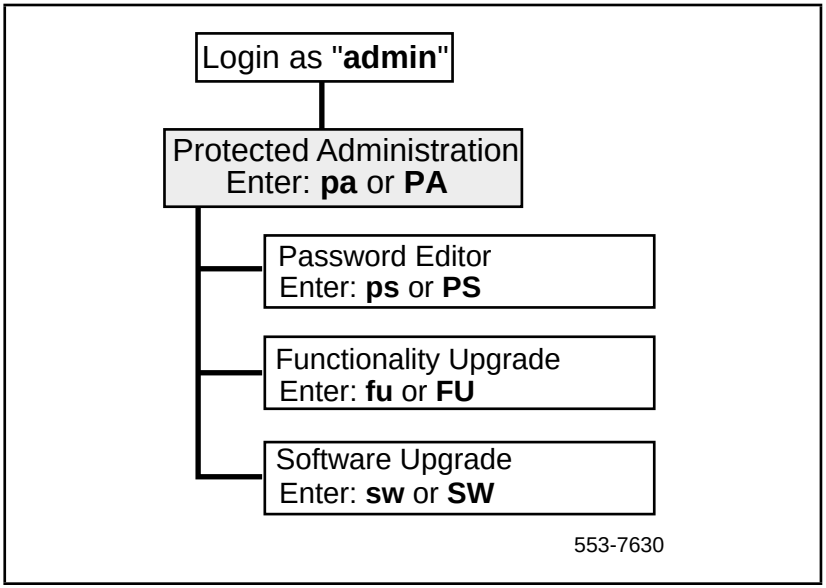
Short command	Full command	Explanation
st	stest	System Test directory
mr	mreport	Browse Maintenance Reports
sc	scon	Short Connection Report directory
ar	archivedb	Back-up customer database
re	restordb	Restore customer database
cr	crestart	Reset MICB card

Protected Administration

The Protected Administration menus are accessed from the Main Menu after you logged in as an administrator (**admin**) and by entering the **pa** or **PA** or the full command (**PAdmin**).

Figure 9 shows Protected Administration menus used for password administration, and port and software upgrade keycode administration.

Figure 9
Protected Administration menu



Password Editor

To change passwords log in as an administrator using the default password **admin** and access the Password Editor menu from the Protected Administration menu.

You can change the default or any other password to a new password. The maximum password length is 10 characters. The operator and the administrator passwords must not be the same.

If you do not remember the password, you can enter the **rst** command and then, you will be prompted to enter the card ID. After the card ID is authenticated, the system resets the passwords to their default (admin, oper) and then you can modify the passwords.

Example:

This example shows how to modify the operator and the administrator passwords:

```
PSweditor, FUpgrade, SWupgrade, ?: ps
Current Passwords:
oper: oper
admin: admin
Modify, Save, Cancel: m
oper (oper): operator
admin: hokeypokey
New passwords:
oper: operator
admin: hokeypokey
Modify, Save, Cancel: Save
Passwords have been updated.
PSweditor, FUpgrade, SWupgrade, ?:
```

Functionality Upgrade

Functionality Upgrade allows you to change the number of available MICB ports/channels. To be able to change the number of ports/channels, you must enter the keycode, which is compared with the one stored in the MICB memory. Following the keycode authentication the currently enabled MICB ports/channels are displayed.

You are allowed three attempts to enter the correct keycode. If you fail to enter the correct keycode, the changes you made will not take effect. If the keycode has been authenticated, the changes you made are stored in the memory and will take effect allowing to use specified number of MICB ports.

The keycode is entered using three prompts key-code1, key-code2 and key-code3, each requires entry of 8 digits.

Example:

This example will expand the number of available MICB ports from 8 to 16:

```
PSweditor, FUpgrade, SWupgrade, ?: fu
max conf_ports: 8
Modify, Save, Cancel: m
max conf_ports (8): 16
Modify, Save, Cancel: Save
Enter key-code1: 12121234
Enter key-code2: 23232345
Enter key-code3: 32222385
Failure on accepting key-code!
Modify, Save, Cancel: Save
Enter key-code1: 121ad234
Enter key-code2: 12128934
Enter key-code3: 32222385
PSweditor, FUpgrade, SWupgrade, ?:
```

Software Upgrade

Software Upgrade menu allows you to upgrade the MPU and the DSP software on an active MICB card. The new software is stored on a PCMCIA card, which should be installed in slot A: on the MICB card before executing the software upgrade command. If the PCMCIA card is not installed, when you try to save the upgrade, the system issues an error message as follows:

```
There is no PCMCIA in socket 1
MPU upgrade failed.
There is no PCMCIA in socket 1
DSP upgrade failed.
```

To upgrade the software:

1. Plug the PCMCIA Flash card into the top PCMCIA slot on the MICB. Make sure that the PCMCIA hard drive card is still installed in the lower PCMCIA slot.
2. Login as the administrator “admin” and proceed as shown in the example below.

Example:

Upgrade the software:

PSweditor, FUpgrade, SWupgrade, ?: **sw**
software release: 03, issue: 07
Modify, Save, Cancel: **m**
Modify software ? (Yes, (No)) **yes**
Modify, Save, Cancel: **Save**
Installation of software in progress...
New s/w will be used following MICB restart.
Restart MICB ? (Yes, (No)) No
PSweditor, FUpgrade, SWupgrade, ?:

3 After the upgrade is completed, you may remove the PCMCIA Flash card from the upper PCMCIA slot.

Help display

The following help information is displayed when help (?) command is chosen at the Protected Administration level.

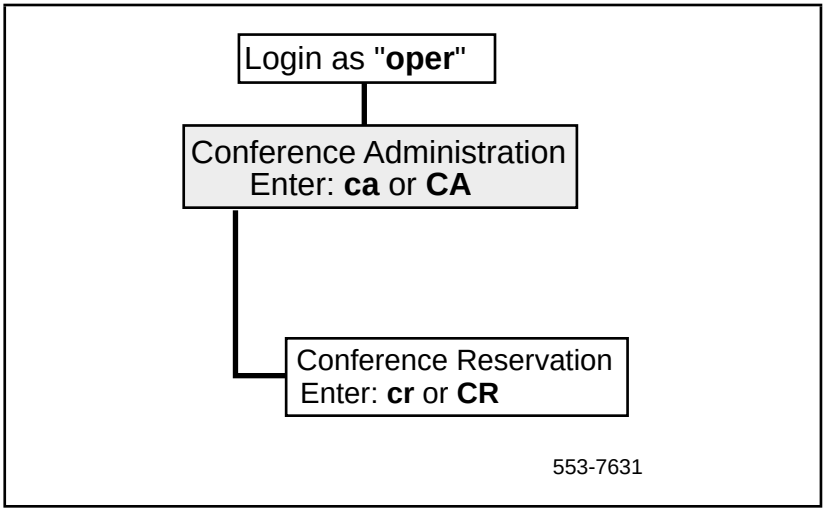
Short command	Full command	Explanation
ps	psweditor	Password Editor
fu	fupgrade	Functionality Upgrade (MICB ports)
sw	swupgrade	Software Upgrade (MPU/DSP s/w)

Conference Administration

The Conference Administration menu is accessed from the Main Menu after you logged in as an administrator (**admin**) or an operator (**oper**) and by entering the **ca** or **CA** or the full command (**CAdmin**).

Figure 10 shows the Conference Administration menu used for conference reservation. You can login as an administrator or an operator.

Figure 10
Conference Administration menu



Conference Reservation

This menu allows you to schedule a conference, delete, or modify an already scheduled conference.

> ***Note:*** This menu is effective only for new and already scheduled conferences that are not active, but will be active in the future in the time span from a minimum of 10 minutes to a maximum of 6 months from now. For a conference that is already active or will start in 3 minutes or less, you have to use the Conference Maintenance menu to make any changes.The maximum length of a conference is 12 hours.

It is advisable to include into the greeting the request that conferees enter their names.

Upon selecting the Conference Reservation menu, you are prompted to enter a date you wish to add, delete, or modify a conference. The system displays all scheduled conferences for that date.

A conference can be modified by selecting its number in the displayed list and enter the modify command (**m**), or a new conference can be added to the list by entering the insert command (**i**). You can also delete a conference by selecting the number of the conference in the list of conferences and entering the delete command (**d**).

During conference modification, the system presents the number of ports currently available for the specified time slot and the available CDNs. If either ports or CDNs are not available, an error message is displayed, the modification is aborted, and the scheduling menu is displayed again. A maximum of 256 conferences can be scheduled for one day.

When you are modifying a conference, if you change start time and duration, the CDNs and number of ports are cleared to avoid conflict with already scheduled conferences.

The following are configurable attributes of each conference:

— **start** - the specified conference starting time (HH:MM), rounded to the nearest 5 minutes. A conference may start and end 2 minutes before the requested time. If start time and/or duration are modified, CDNs and number of ports are cleared to avoid conflict with other scheduled conferences. A message indicates that.

— **duration** - the duration of a conference in (HH:MM) rounded to the nearest 5 minutes. Minimum duration is 15 minutes and maximum is 12 hours. A conference may cross a single day boundary by bridging the 12:00 pm (midnight). The second day entry has a star (*) appended.

— **main CDN** - the directory number dialed by a conferee to access a specific conference. This prompt displays the current CDN (if any) and a list of available CDNs. You can select a CDN by entering its serial number.

- **conferee password** - a password code up to 8 digits long is entered to access the bridge.If 0 is specified, the password is not defined. If user enters a number 4-8 digits long, a password is automatically defined, which is used to access the bridge.
- **chairperson CDN** - the CDN that the chairperson dials to access the conference
- **chairperson password** - password code up to 8 digits long is entered to access the bridge as a chairperson.If 0 is specified, the password is not defined. If user enters a number 4-8 digits long, a password is automatically defined, which is used to access the bridge as a chairperson.
- **number of ports** - the number of ports reserved for this conference. The prompt displays the current number of ports and the maximum number of ports available in the requested time range. The number must be greater than 0.
- **language** - defines the selected language for prompts and announcements. The list shows all the available languages. Select a new one by entering its number or press <cr> to use the default.
- **name entry** - (Yes) or No. The default is Yes. If Yes, the conferee is required to state their name when joining the conference. The length of recording is set between 1 and 10 seconds using System Attributes Editor.
- **expansion** - Yes or (No). The default is No. If Yes, the conference is allowed to use available unassigned ports beyond the reserved number of ports.
- **custom greeting** - (brandline), no, meeting). The default is brandline. If no, the greeting is not issued. If the entry is meeting a generic customer greeting is issued such as “Wellcome to the conference”, it is advisable to include in the greeting the request that the callers enter their names.
- **name of chairperson** - Default is no name. Otherwise, the maximum name size is 20 characters.
- **name of conference** - the name or title of the conference. Default is no name. Otherwise, the maximum name size is 20 characters. Once defined, the name cannot be deleted. However, it can be changed to <BLANK> and no name will be displayed.

Example:

Define a new conference:

CRes: cr
years (1997): <cr>
month (03): <cr>
day (12): 20
Current conferences for 20/03/1997:

	Start	Duration	CDN	Char CDN	No of Ports	Name Entry	Expan-sion	Gree ting	Chair person	Title
1	08:00	04:00	2000	2001	3	yes	no	brandlin	Bob	Tech Xfer
2	12:00	03:00	2020	2021	4	no	no	no	Barry	PLM Rev
3	21:00	02:00	2030	2031	3	yes	yes	meeting	Tri	Conf

If there are no conferences scheduled for the specified day, the table would not appear and a message would indicate ”There are no conferences scheduled for this day.”

Modify, Insert, Delete, Exit: i
start (00:00):
duration (00:00): **02:00**
main CDN (1-2006, 2-2007, 3-2008): **2**
conferee password length (0)**: <cr>**
chairperson CDN (1-2006, 2-2008)):**1**
chairperson password length (0): **6**
number of ports (0 (4)): **4**
language(americam_english, (1-french, 2-brasilian_portuguese, 3-LA_spanish, 4- UK_english)): **1**
name entry (no): **yes**
expansion (no): **yes**
customer greeting (brandline): **No** (*if **brandline** you get a message to record*)
name of chairperson (): **Dale**
name of conference(““): **Meeting**
Attributes of New Conference are:
start: 10:30
duration: 2:00
main CDN: 2007
conferee password: not defined
chairperson CDN: 2006
chairperson password: not defined

number of ports: 4
language: french
name entry: yes
expansion: yes
customer greeting: No (*if Yes you get a message to record*)
name of chairperson: Dale
name of conference: Meeting
Modify, Save, Cancel: **Save**
New conference has been defined.
Current conferences for 20/11/1996:

	Start	Duration	CDN	Char CDN	No of Ports	Name Entry	Expan-sion	Gree ting	Chair person	Title
1	08:00	04:00	2000	2001	3	yes	no	brand	Bob	Tech Xfer
2	10:30	02:00	2007	2006	4	yes	yes	no	Dale	Meeting
3	12:00	03:00	2020	2021	4	no	no	no	Barry	PLM Rev
4	21:00	02:00	2030	2031	3	yes	yes	meeting	Tri	Conf

Modify, Insert, Delete, Exit: **e**
CRes:

Help display

The following help information is displayed when help (?) command is chosen at the Conference Administration level.

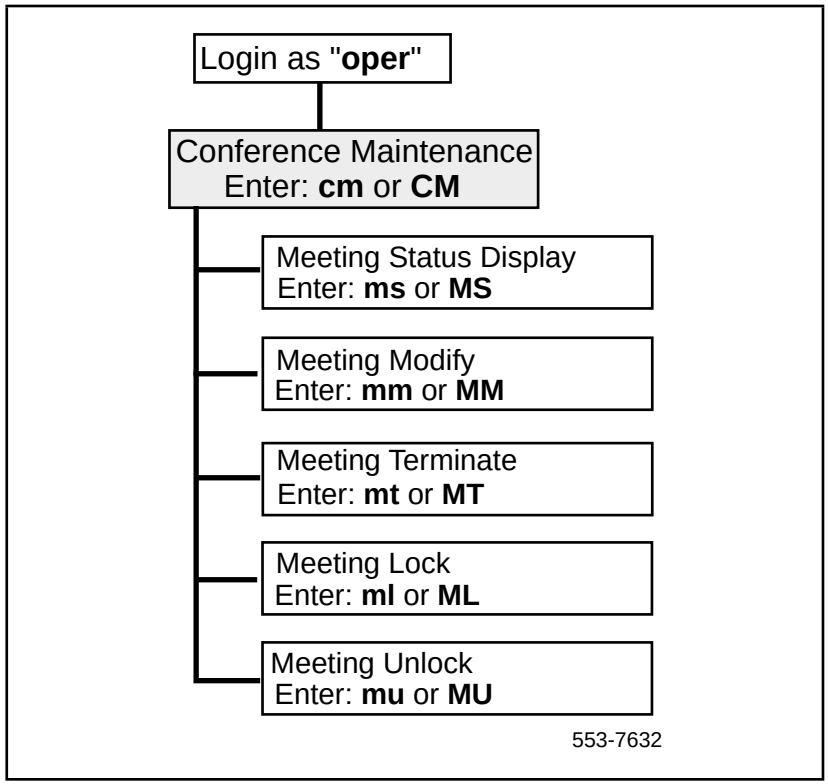
Short command	Full command	Explanation
cr	cresr	Reserve conference for specific time.

Conference Maintenance

The Conference Maintenance menu is accessed from the Main Menu after you logged in as an administrator (**admin**) or an operator (**oper**) and by entering the **cm** or **CM** or the full command (**CMaint**).

Figure 11 shows the Conference Maintenance menu and its sub-menus. These sub-menus modify active conferences, i. e. conferences that are in progress or conferences that will start within 3 minutes.

Figure 11
Conference Maintenance administration menu



Note: This menu cannot operate on conferences scheduled for future activation. It operates only on conferences in progress or those that will start within 3 minutes.

When you select Conference Maintenance menu, the system displays a list of currently active conferences, as follows:

	Start	Duration	CDN	Char CDN	No of Ports	Status	Locked	Chairperson	Title
1	00:00	forever	2000	2001	3(3)	bridge	no		Bridge 2000
2	10:30	02:00	2007	2006	5(4)	expand	yes	Dale	Meeting
3	12:00	03:00	2020	2021	1(4)	active	no	Barry	PLM Rev
4	21:00	02:00	2030	2031	0(3)	next	no	Tri	Conf

To operate on a conference or bridge, you must select its number in the left most column of the display. The conference with the status “next” cannot be modified with this menu, you must use the Conference Administration menu.

The possible conference status may be: bridge, active, expanded, ending, failed, or next.

Meeting Status Display

This menu displays detailed information about a selected conference and its ports. Refer to Port Status Display in the Port Maintenance menu.

Example:

MStatus, MModify, MTerminate, MLock, MUnlock, ?: **ms 2**
Attributes of conference 2:
start: 10:30
duration: 02:00
main CDN: 2007
conferee password: 509873
chairperson CDN: 2006
chairperson password: 565509
number of ports: 3(4)
language: american_english
name entry: yes
expansion: yes
customer greeting: No
status: active
locked: yes
name of chairperson: Dale
name of conference: Meeting
ports:

Port_ID	Status
2	dial_in
10	chairperson
29	dial_out

	Start	Duration	CDN	char CDN	No. of Ports	Status	Locked	Chairper-son	Title
1	00:00	forever	2000	2001	3(3)	bridge	no		Bridge 2000
2	10:30	02:00	2007	2006	5(4)	expand	yes	Dale	Meeting
3	12:00	03:00	2020	2021	1(4)	active	no	Barry	PLM Rev
4	21:00	02:00	2030	2031	0(3)	next	no	Tri	Conf

MStatus, MModify, MTerminate, MLock, MUnlock, ?:

Meeting Modify

This menu can be used to modify a conference that is already active or will start within 3 minutes. It changes the number of conference ports, duration, and expansion of the conference. If you reduce the number of ports below the currently active number of ports or if you reduce the conference duration below three minutes after the current time, the system will display an error. Also, if a conference original termination is within next 3 minutes, the change cannot be made.

If an error is displayed, the system will prompt you to correct the error. If the change made the conference end within 3 minutes, the change is discarded. If the number of ports previously defined is too large, the number of ports is reduced to the maximum available during the requested time span.

Changes are in effect after executing the Save command. This command cannot be used for bridges.

Example:

MStatus, MModify, MTerminate, MLock, MUnlock, ?: **mm 2**
conference 2:
duration (02:00): **02:30**
number of ports (4 (5)): **5**
expansion (yes): **<cr>**
New attributes of conference 2 are:
duration: 2:30
number of ports: 5
expansion: yes
Modify, Save, Cancel: **Save**
Attributes of conference 2 have been updated.

	Start	Duration	CDN	char CDN	No. of Ports	Status	Locked	Chair person	Title
1	00:00	forever	2000	2001	3(3)	bridge	no		Bridge 2000
2	10:30	02:30	2007	2006	5(5)	active	no	Dale	Meeting
3	12:00	03:00	2020	2021	1(4)	active	no	Barry	PLM Rev
4	21:00	02:00	2030	2031	0(3)	next	no	Tri	Conf

MStatus, MModify, MTerminate, MLock, MUnlock, ?:

Meeting Terminate

This menu terminates a scheduled and currently active conference. All the conference participants are disconnected and ports assigned to this conference become un-assigned. This menu does not terminate a bridge. A conference that is scheduled to terminate within 3 minutes cannot be terminated using this menu.

When a conference is terminated, its duration is shortened in the reservation database to avoid reopening it in case the MICB card is reset.

Example:

MStatus, MModify, MTerminate, MLock, MUnlock, ?: **mt 3**
Terminate conference 3 ? (Yes, (No)) **Yes**
Conference 3 is being closed.

	Start	Duration	CDN	char CDN	No. of Ports	Status	Locked	Chair person	Title
1	00:00	forever	2000	2001	3(3)	bridge	no		Bridge 2000
2	10:30	02:30	2007	2006	5(5)	active	no	Barry	Meeting
3	21:00	02:00	2030	2031	0(3)	next	no	Yuval	Conf

MStatus, MModify, MTerminate, MLock, MUnlock, ?:

Meeting Lock

This menu locks a currently active conference so that potential conferees trying to access the conference are not allowed to join.

Example:

MStatus, MModify, MTerminate, MLock, MUnlock, ?: **ml 2**
Lock conference 2 ? (Yes, (No)) **Yes**
Conference 2 is being locked.

	Start	Duration	CDN	char CDN	No. of Ports	Status	Locked	Chair person	Title
1	00:00	forever	2000	2001	3(3)	bridge	no		Bridge 2000
2	10:30	02:30	2007	2006	5(5)	active	yes	Barry	Meeting
3	21:00	02:00	2030	2031	0(3)	next	no	Yuvali	Conf

MStatus, MModify, MTerminate, MLock, MUnlock, ?:

Meeting Unlock

This menu unlocks a currently active conference so that potential conferees trying to access the conference are allowed to join.

Example:

MStatus, MModify, MTerminate, MLock, MUnlock, ?: **mu 2**
Unlock conference 2 ? (Yes, (No)) **Yes**

Conference 2 is being unlocked.

	Start	Duration	CDN	char CDN	No. of Ports	Status	Locked	Chair person	Title
1	00:00	forever	2000	2001	3(3)	bridge	no		Bridge 2000
2	10:30	02:30	2007	2006	5(5)	active	no	Barry	Meeting
3	21:00	02:00	2030	2031	0(3)	next	no	Yuval	Conf

MStatus, MModify, MTerminate, MLock, MUnlock, ?:

Help display

The following help information is displayed when help (?) command is chosen at the Conference Maintenance level.

Short command	Full command	Explanation
ms	mstatus	Meeting Status Display
mm	mmodify	Meeting Modify
mt	mterminate	Meeting Terminate
ml	mlock	Meeting Lock
mu	munlock	Meeting Unlock

Chairperson commands

The chairperson can execute commands using the telephone set to manage the features configured in the Conference Reservation menu. The chairperson becomes the person that first dials the chairperson CDN. The conference may be conducted without a chairperson. These chairperson commands can be executed only during conference.

Note: When chairperson dials out to an other MICB conference, two ports are being used, the dial out port of this MICB and the dial in port of the other conference MICB. These two ports are not automatically disconnected, therefore the chairperson must disconnect the dial out port before leaving the conference.

The chairperson's and conferee commands are listed in the Table 10 below:

Table 10
Conference commands

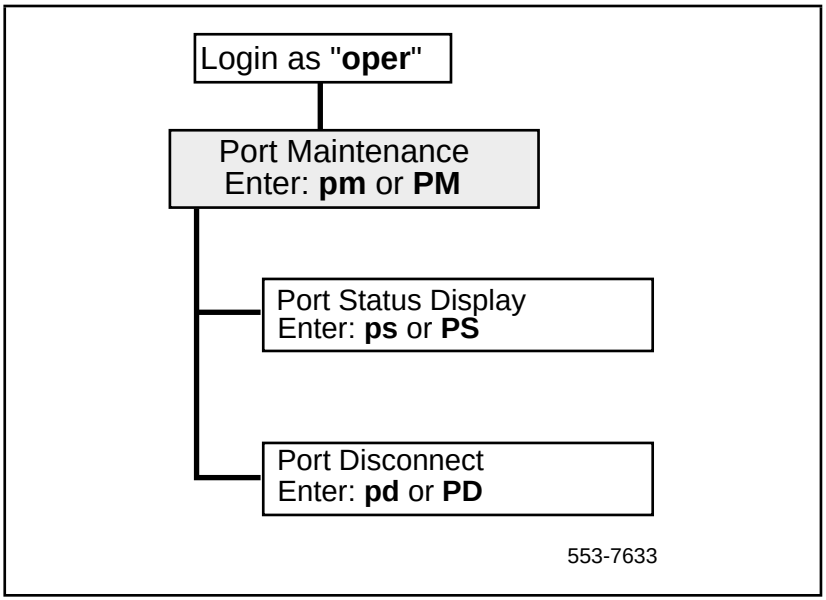
Chairperson Command	Description
✻0<DN>#	Dials out to a DN (called party directory number, which may or may not be a conference participant)
✻0#	Dials out to the assistant DN
✻#	Redials last dialed DN
✻1	Not used
✻2	Returns to the conference with dialed party
✻3	Returns to the conference without dialed party
✻4	Locks the conference
✻5	Unlocks the conference
✻6	Counts conferees
✻90	Drops all ports except the chairperson's port
✻91	Drops the last dialed-out port
✻92	Drops the last dialed-in port
✻99	The chairperson, if the first to join the conference, can dial *99 and stop conference music, and by dialing *99 again, the music starts again.
Conferee Command	**Description**
✻	First conferee that joins the conference can stop the initial conference music by dialing *, by dialing * again the music starts again.

Port Maintenance

The Port Maintenance menu is accessed from the Main Menu after you logged in as an administrator (**admin**) or an operator (**oper**) and by entering the **pm** or **PM** or the full command (**PMaint**).

Figure 12 shows the Port Maintenance menu and its sub-menus. The sub-menus display the status of the MICB ports and disconnects a specific MICB port.

Figure 12
Port Maintenance menu



Port Status Display

This menu displays the status of all MICB ports regardless of their allocation. A possible status for a port may be: Idle, Dialing_out, Ringing, Talking, and Disable.

Example:

PStatus, PDisconnect, ?: ps

Port_ID	Port_Status	Port_ID	Port_Status
0	DISABLE	16	IDLE
1	DISABLE	17	IDLE
2	IDLE	18	DIALING_OUT
3	TALKING	19	DIALING_OUT
4	TALKING	20	RINGING
5	TALKING	21	RINGING
6	IDLE	22	IDLE
7	RINGING (Note)	23	DIALING_OUT (Note)
8	TALKING	24	TALKING
9	TALKING	25	IDLE
10	TALKING	26	TALKING
11	TALKING	27	TALKING
12	IDLE	28	IDLE
13	RINGING	29	DIALING_OUT
14	TALKING	30	IDLE
15	IDLE	31	RINGING

Note: Dialing out and ringing are very short events.

PStatus, PDisconnect, ?: ***** *(to exit)*

Port Disconnect

Allows you to disconnect a specific MICB port from the conference.

Example:

PStatus, PDisconnect, ?: pd 13
Disconnect port 13 ? (Yes, (No)) **yes**
Port 13 has been disconnected.
PStatus, PDisconnect, ?:

Help display

The following help information is displayed when help (?) command is chosen at the Port Maintenance level.

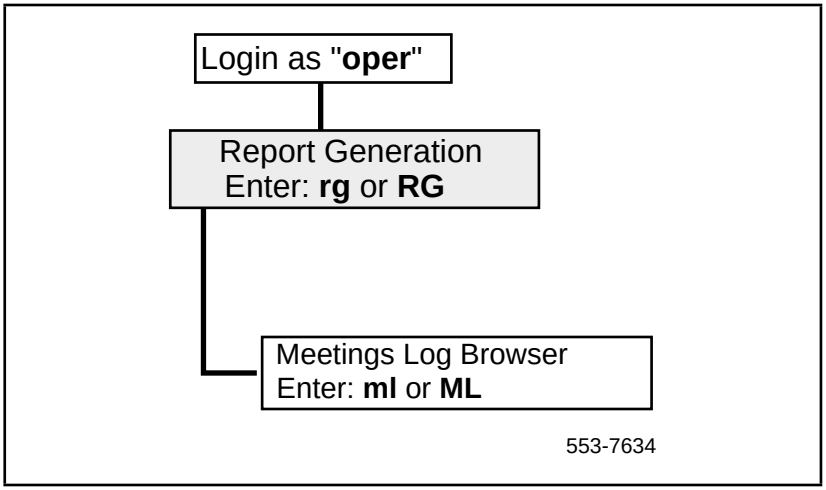
Short command	Full command	Explanation
ps	pstatus	Display Status of all Ports
pd	pdisconnect	Disconnect specified port

Report Generation

The Report Generation menu is accessed from the Main Menu after you logged in as an administrator (**admin**) or an operator (**oper**) and by entering the **rg** or **RG** or the full command (**RGen**).

Figure 13 shows the Report Generation menu used to present log of conference events for a particular date.

Figure 13
Report Generation menu



Meeting Log Browser

This menu displays a log of conference events for a specified date. After the data is displayed, the system returns to the *year-month-day* prompt using the last selected date as default. To exit the log, enter the "." (dot) at the prompt. If you wish to exit the log before the entire log is displayed, enter "* <cr>" (star and return).

Each event report starts with the time stamp and the main CDN in the following format

hours:minutes:seconds (CDN) <description of event>

Example:

MLog: ml
year (1996): 1995
month (02): 03
day (20): 15
14:55:06 (2230) opened:

CDN	chair-CDN	# Ports	Name_entry	Expansion	Assist_DN
2230	2001	3	yes	no	1000

15:00:45 (2220) expanded
15:01:00 (2220) entry: 24 //*Conferee entered conference on port 24*//
15:03:23 (2230) ch_entry: 4 //*Chairperson joined conference on port 4*//
15:03:56 (2220) exit: 14 //*Conferee left conference from port 14*//
16:35:09 (2230) mmi_op lock //*Conference locked*//
16:44:15 (2220) mmi_op unlock //*Conference unlocked*//
16:45:00 (2220) closed
16:56:02 (2230) ch_com dial_out: 395945 //*Chairperson dials out DN*//
16:57:00 (2230) ch_com return //*Chair. returns without called party*//
16:58:20 (2230) ch_com redial: 395945 //*Chair redialed last dialed DN*//
16:59:16 (2230) ch_com ret with_party //*Chr return with called party*//
16:58:45 (2230) ch_com count //*Chirperson counts confereesl*//
17:00:54 (2230) mmi_op num_of_ports: 2 //*New number of ports is 2*//
17:01:44 (2230) mmi_op duration: 4:00 //*New duration is 4 hours*//
17:02:54 (2230) mmi_op expansion: yes //*Port expansion is allowed*//
17:03:45 (2230) ch_com lock //*Chairperson locks conference*//
17:05:45 (2230) ch_com unlock //*Chairperson unlocks conference*//
17:08:26 (2230) ch_com drop last d_in //*Drop last dial in confereel*//
17:08:56 (2230) ch_com drop last d_out //*Drop last dial out confereel*//
17:09:16 (2230) ch_com drop all //*Drop all confereesl*//

The date you select to display the conference log should be in the passed not future.

Old log files are deleted after the predefined report aging time is exceeded. If there are no log files for the specified date, the system will indicate this fact.

Help display

The following help information is displayed when help (?) command is chosen at the Report Generation level.

Short command	Full command	Explanation
ml	mlog	Meeting Log Browser

Installation and configuration

This chapter describes the installation of the Meridian Integrated Conference Bridge (MICB) card. It describes how to install the MICB and how to connect it to a terminal for OA&M access. It also describes the basic MICB card configuration procedures.

Quick reference to MICB installation and configuration

If you are familiar with the MICB operation and general Meridian 1 installation practices, follow the steps below to speed up the installation of the MICB and its external connections:

1 Take inventory of the MICB equipment by comparing the received equipment against the shipping documents.

2 Identify the card slot(s) in the IPE module or Option 11C or 11E cabinet where to install the MICB card(s).

3 If you are planning to utilize an Ethernet interface, install the NT5D52AA Ethernet Adapter card onto the IPE module I/O panel or the NT5D52BA into Option 11C/11E tip/ring connector cutout. Refer to "Installing the Ethernet Adapter card" on page 85.

4 Install the MICB card(s) in the designated card slot(s). For available card slot locations, refer to Table 2 "MICB installation card slots in different PE modules" on page 25.

5 Connect the maintenance terminal to the MICB.

- Refer to "Connecting the terminal to an MICB card in the IPE module" on page 86 and select the appropriate connection option based on your requirements.
- Refer to "Connecting the terminal to Option 11E or 11C cabinet" on page 92 and select the appropriate connection option.

6 Configure the MMI terminal interface parameters. Refer to "Configuring the MMI terminal for OA&M access" on page 100.

7 Configure the MICB card(s) using the system TTY. Refer to "MICB configuration" on page 96.

8 Login as an administrator and enter the keycode, if not already entered.

- Refer to "User login" on page 33 and
- Refer to "Functionality Upgrade" on page 61 for keycode entry.

9 Verify that the PCMCIA hard drive is installed and properly seated.

10 Clear the initial screen from any dummy conference scheduling that might have been left in from MICB factory or lab testing. To do this:

- Refer to "Bridge Allocator" on page 43 to delete bridge data.
- Refer to "Conference Reservation" on page 64 to delete a conference scheduled for the future, or
- Refer to "Meeting Terminate" on page 73 to delete a currently active conference.

11 Specify CDNs to be used by the MICB for conference scheduling. Refer to:

- Specify system DNs as CDNs using the system TTY and overlay LD 23 as described in "Defining CDN data blocks" on page 98.
- Assign these CDNs to conference using the "CDN Editor" on page 42.

12 If you are using ACD scheduled data blocks, then the agent IDs must be defined in the MICB system attributes menu as described in "System Attribute Editor" on page 39. Note that the agents IDs must be consecutive numbers within the lower and upper limit starting with the number assigned to the first agent ID.

13 If you are connected to the Ethernet, obtain the IP address for the MICB from the network provider and enter the IP address using the "System Attribute Editor" on page 39.

14 Proceed with the Main Menu in the MICB administration chapter to schedule conferences, establish bridges, and perform administration tasks.

Installation overview

The MICB service can be added to existing Meridian 1 system options 21E, 51, 51C, 61, 61C, 71, 81, and 81C as well as Option 11E/11C and SL-1 systems that supports IPE cards, originally installed and operating without MICB, or it can be an integral part of a newly installed Meridian 1 system.

The MICB can be installed into:

— A previously installed Meridian 1 system upgraded to run on generic software X11 release 22 or higher to be able to support all 32 MICB ports, or X11 release 19 to 21 that support a maximum of only 16 MICB ports

— A newly installed system using the latest generic X11 software

To install a new Meridian 1 system or expand an existing one, refer to *Meridian 1 system installation procedures* (553-3001-210). It provides the information on how to install, verify, and maintain the Meridian 1 system.

To complete the installation of an MICB card, you should follow the general procedures listed below.

These procedures include:

— Preparing the site

— Unpacking, inspecting, and taking inventory of the equipment

— Installing the MICB card in the selected IPE card slot, if not already installed

— Installing the cables between the maintenance terminal and the IPE module I/O panel connector at the rear of the module

Installation preparation

The preparation consists of unpacking and inspecting components, taking inventory, and locating the IPE card slots where the MICB will be installed.

Unpacking and inspection

Unpack and inspect the equipment for damage. When unpacking, follow general precautions recommended by computer and telephone equipment manufacturers:

— Remove items that generate static charge from the installation site.

— Use antistatic spray if the site is carpeted.

— Ground yourself before handling any equipment.

— Remove equipment carefully from its packaging.

— Visually inspect the equipment for obvious faults or damage. Any damaged component must be reported to your sales representative and the carrier who delivered the equipment.

Taking inventory

After the equipment has been unpacked and visually inspected, verify that all the equipment is at the site before the installation begins. Equipment received must be checked against the shipping documents. Any shortages must be noted and reported to your sales representative.

MICB equipment installation

The installation of the MICB card and the external equipment connections associated with the MICB should start after:

— verifying that the preinstallation preparation has been completed (this includes verifying that all the equipment has been received undamaged)

— planning you MICB equipment, port configuration, and external equipment connection configuration using *Engineering guidelines* in the *Description* section of this document

Installing the Ethernet Adapter card

You do not have to install the Ethernet Adapter card unless you wish to connect the MICB to the Ethernet for multi-terminal access to the MICB.

To install the Ethernet Adapter card on to Option 11C/11E tip/ring connector:

1 Identify the 50-pin tip/ring connector at the bottom of the cabinet, which corresponds to the card slot position where the MICB will be installed.

2 Plug the 50-pin connector on the NT5D52BA Ethernet Adapter card into the 50-pin tip/ring connector on the Option 11C/11E cabinet.

3 Secure the Ethernet Adapter to the cabinet.

To install the Ethernet Adapter card on the IPE module I/O panel:

1 Remove the cover plate from the I/O panel at the rear of the IPE module.

2 Lift the I/O panel from the module by removing all the retaining screws.

3 Disconnect the backplane cable 50-pin connector from the I/O panel filter connector.

4 Remove the existing filter connector from the I/O panel and save the retainting screws. This filter connector corresponds to the card slot designated for the MICB card installation.

5 Install the NT5D52AA Ethernet Adapter card into the designated I/O panel connector cutout using the saved retaining screws.

6 Secure the I/O panel onto the module using the retaining screws previously removed. Replace the module's cover plate.

Installing MICB cards

When installing MICB cards, follow the steps bellow:

1 Identify the IPE card slots selected for MICB card(s). Refer to Table 2 "MICB installation card slots in different PE modules" on page 25.

2 Pull the top and bottom extractors away from the MICB faceplate.

3 Insert the MICB card into the card guides and gently push it until it makes contact with the backplane connector.

4 Push the top and the bottom extractors firmly towards the faceplate to insert the MICB card into the faceplate connector and to lock it firmly in place.

5 Ensure that the PCMCIA hard drive card is properly seated in the lower faceplate PCMCIA slot.

6 Observe the red LED at the top of the faceplate (the card LED). This LED should blink three times after the self-test is successfully completed and then stay ON until the MICB is software enabled.

7 Repeat steps 1 through 6 for each additional MICB card.

Connecting the terminal to an MICB card in the IPE module

The MICB terminal may be connected locally using a direct cable connection or remotely using a modem connection to provide OA&M access to the MICB card. The terminal can be connected to the MICB as a:

— local and direct connection from the I/O panel 50-pin connector using a cable and a nullmodem

— remote connection from the I/O panel 50-pin connector using a cable and a modem for remote access to the MICB

— local connection through the Ethernet Adapter card DB-9 connector using a cable and a nullmodem

— remote connection through the Ethernet Adapter card DB-9 connector using a cable and a modem for remote access

— remote multi-terminal access through the Ethernet Adapter card RJ-45 jack and a RJ45 modular cable to the Ethernet hub

Local and direct terminal connection

This connection is established from the I/O panel 50-pin connector through a cable and a nullmodem to the terminal. Refer to Figure 14 for details.

1 Position the terminal on a desk near the system.

2 Plug the NT5D19AA cable 50-pin female connector into the 50-pin tip/ring connector on the I/O panel at the rear of the IPE module, which corresponds to the MICB card slot.

3 Plug the NT5D19AA cable DB-25 male connector into the DB-25 female connector of the A0601396 DB-25F/DB-25M nullmodem adapter. (If you require a female-to-female nullmodem, use A0601397 nullmodem).

4 Plug the DB-25 male connector of the A0601396 DB-25F/DB-25M nullmodem adapter into the terminal RS-232 connector. (If you require a female-to-female nullmodem, use A0601397 nullmodem).

Note: Refer to Connector pin assignments in Appendix A for details about the NT5D19AA cable pin assignments.

Remote terminal connection using a modem

Remote connection from the I/O panel 50-pin connector using a cable and a modem allows you to access to the MICB remotely. Refer to Figure 14 for details.

1 Plug the NT5D19AA cable 50-pin female connector into the 50-pin tip/ring connector on the I/O panel at the rear of the IPE module, which corresponds to the MICB card slot.

2 Plug the NT5D19AA cable DB-25 male connector into the DB-25 female connector on the modem.

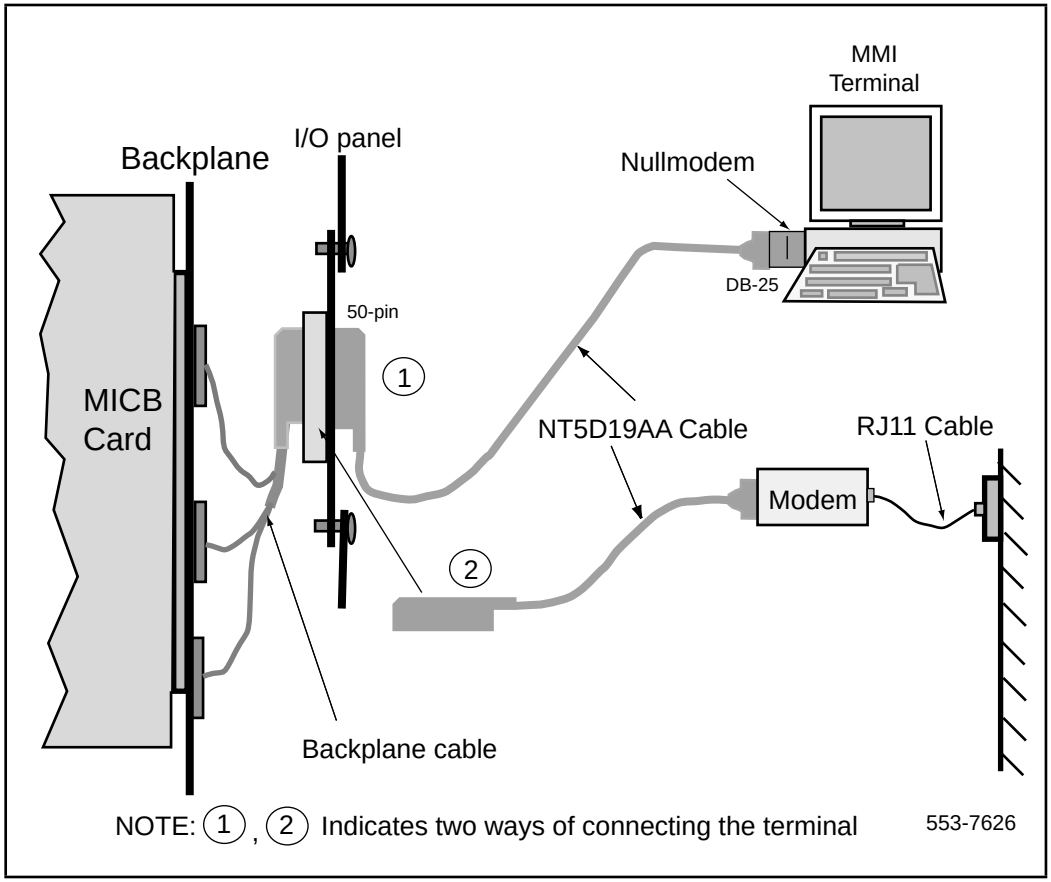
3 Plug the modular modem cable RJ11 plug into the RJ11 jack on the modem.

4 Plug the other end of the modular modem cable RJ11 plug into the RJ11 jack on the wall.

Note: Refer to Connector pin assignments in Appendix A for details about the NT5D19AA cable pin assignments.

Figure 14 illustrates two ways of connecting the MICB terminal. These are, the local direct connection or the modem connection to the 50-pin connector on the I/O panel.

Figure 14
Terminal connection to the IPE module I/O panel 50-pin connector



Direct terminal connection through Ethernet Adapter

To connect a local terminal through the NT5D52AA Ethernet Adapter card, connect the Ethernet Adapter DB-9 connector to the terminal using a direct cable. Refer to Figure 15 for the connection illustration.

1. Position the terminal on a desk near the system.
2. Verify that the Ethernet Adapter card has been installed onto the I/O panel as described in "Installing the Ethernet Adapter card" on page 85.
3. Plug the A0601464 terminal cable DB-9 female connector into the DB-9 male connector on the Ethernet Adapter card on the I/O panel.
4. Plug the DB-25 male connector at the other end of the A0601464 terminal cable, into the RS-232 connector on the terminal. (No nullmodem is required). If a gender changer is required, you may be able to obtain it at your local electronics store.

Remote terminal connection using Ethernet Adapter and modem

Remote terminal connection can be established by connecting the DB-9 Ethernet Adapter connector through a modem to a distant terminal. Refer to Figure 15 for the connection illustration.

1. Verify that the Ethernet Adapter card has been installed onto the I/O panel as described in "Installing the Ethernet Adapter card" on page 85.
2. Plug the A0601464 terminal cable DB-9 female connector into the DB-9 male connector on the Ethernet Adapter card on the I/O panel.
3. Plug the DB-25 male connector at the other end of the A0601464 terminal cable into the DB-25 female connector of the A0601396 DB-25F/DB-25M nullmodem adapter. (If you require a female-to-female nullmodem, use A0601397 nullmodem).
4. Plug the DB-25 male connector of the nullmodem adapter A0601396 DB-25F/DB-25M into the DB-25 female connector on the modem. (If you require a female-to-female nullmodem, use A0601397 nullmodem).
5. Plug the modular modem cable RJ11 plug into the RJ11 jack on the modem.
6. Plug the other end of the modular modem cable RJ11 plug into the RJ11 jack on the wall.

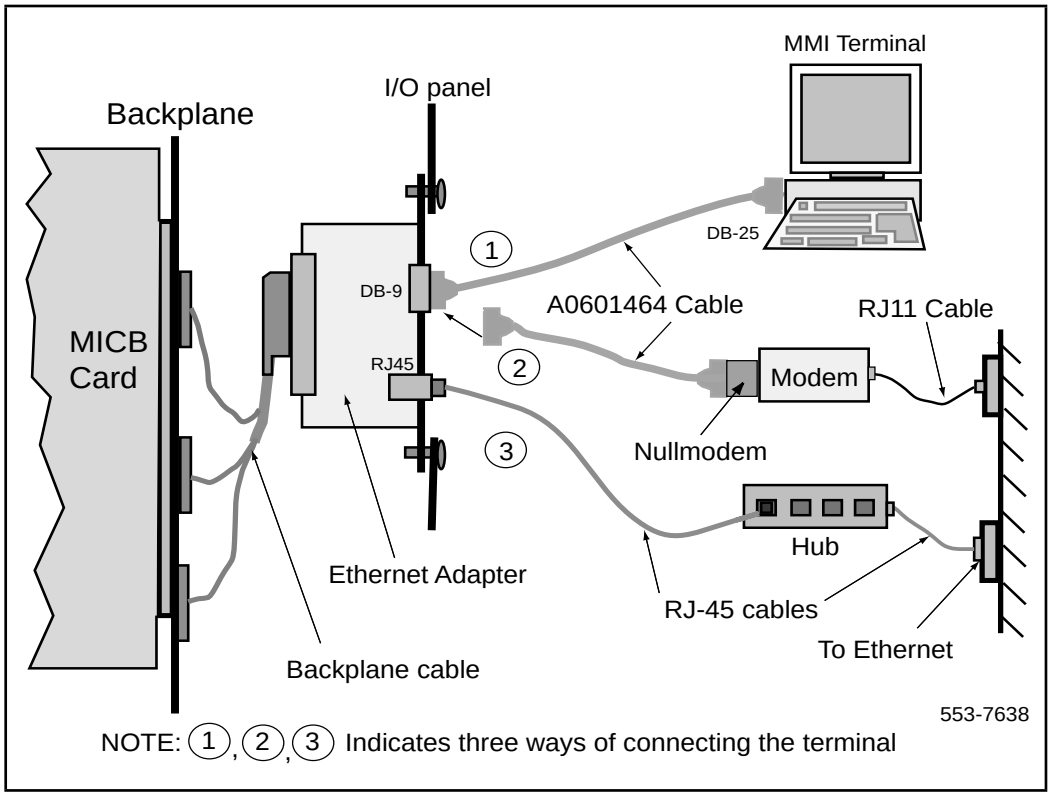
Remote multi-terminal connection through Ethernet

The MICB card can be accessed from one or more terminals from the Ethernet, if the MICB card is connected to the Ethernet through the NT5D52AA Ethernet Adapter card. Figure 15 for the connection illustration.

1. Verify that the Ethernet Adapter card has been installed onto the I/O panel as described in "Installing the Ethernet Adapter card" on page 85.
2. Plug the modular cable RJ-45 plug into the RJ-45 jack on the NT5D52AA Ethernet Adapter card.
3. Plug the RJ-45 plug at the other end of the modular cable, into the Ethernet hub.
4. Make the rest of the Ethernet connections as required using standard Ethernet connection rules.

Figure 15 illustrates the I/O connector bracket connection to the MICB, the terminal, and the Ethernet.

Figure 15
Terminal connection through the Ethernet Adapter



Connecting the terminal to Option 11E or 11C cabinet

The MICB terminal may be connected locally using a direct cable connection or remotely using a modem connection to provide OA&M access to the MICB card. The terminal can be connected to the MICB as a:

— local and direct connection from the tip/ring 50-pin connector using a cable and a nullmodem

— remote connection from the tip/ring 50-pin connector using a cable and a modem for remote access to the MICB

— local connection through the Ethernet Adapter card DB-9 connector using a cable and a nullmodem

— remote connection through the Ethernet Adapter card DB-9 connector using a cable and a modem for remote access

— remote multi-terminal access through the Ethernet Adapter card RJ-45 jack and a RJ45 modular cable to the Ethernet hub

Local and direct terminal connection

This connection is established from the tip/ring 50-pin connector through a cable and a nullmodem to the terminal. Refer to Figure 14 for details.

1 Position the terminal on a desk near the system.

2 Plug the NT5D19AA cable 50-pin female connector into the 50-pin tip/ring connector on the Option 11C or 11E, which corresponds to the MICB card slot.

3 Plug the NT5D19AA cable DB-25 male connector into the DB-25 female connector of the A0601396 DB-25F/DB-25M nullmodem adapter.

4 Plug the DB-25 male connector of the A0601396 DB-25F/DB-25M nullmodem adapter into the terminal RS-232 connector. If a gender changer or a different nullmodem adapter is required, you may be able to obtain it in your local electronics store.

Note: Refer to Connector pin assignments in Appendix A for details about the NT5D19AA cable pin assignments.

Remote terminal connection using a modem

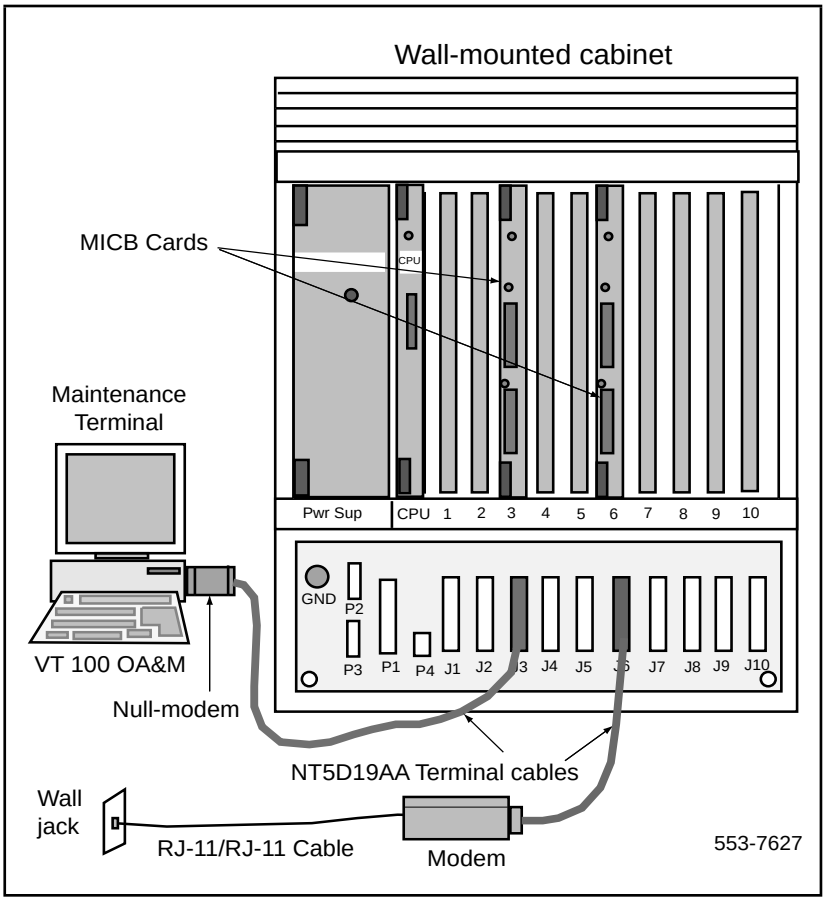
Remote connection from the tip/ring 50-pin connector using a cable and a modem allows you to access to the MICB remotely. Refer to Figure 14 for details.

1. Plug the NT5D19AA cable 50-pin female connector into the 50-pin tip/ring connector on the Option 11C or 11E, which corresponds to the MICB card slot.
2. Plug the NT5D19AA cable DB-25 male connector into the DB-25 female connector on the modem.
3. Plug the modular modem cable RJ11 plug into the RJ11 jack on the modem.
4. Plug the other end of the modular modem cable RJ11 plug into the RJ11 jack on the wall.

   Note: Refer to Connector pin assignments in Appendix A for details about the NT5D19AA cable pin assignments.

Figure 16 shows the wall-mounted cabinet and the terminal connected to the 50-pin tip/ring connector at the bottom of the cabinet.

Figure 16
Maintenance terminal connection to the wall-mounted cabinet



Direct terminal connection through Ethernet Adapter

To connect a local terminal through the NT5D52BA Ethernet Adapter card on the Option 11C or 11E, connect the Ethernet Adapter DB-9 connector to the terminal using a direct cable. Refer to Figure 15 “Terminal connection through the Ethernet Adapter” on page 91 for the connection illustration.

1 Position the terminal on a desk near the system.

2 Verify that the NT5D52BA Ethernet Adapter card has been installed onto the Option 11C or 11E.

3 Plug the A0601464 terminal cable DB-9 female connector into the DB-9 male connector on the Ethernet Adapter card on the I/O panel.

4 Plug the DB-25 male connector at the other end of the A0601464 terminal cable, into the RS-232 connector on the terminal. (No nullmodem is required). If a gender changer is required, you may be able to obtain it at your local electronics store.

Remote terminal connection using Ethernet Adapter and modem

Remote terminal connection to the Option 11C or 11E can be established by connecting the DB-9 Ethernet Adapter connector through a modem to a distant terminal. Refer to Figure 15 “Terminal connection through the Ethernet Adapter” on page 91 for the connection illustration.

1 Verify that the NT5D52BA Ethernet Adapter card has been installed onto the Option 11C or 11E system.

2 Plug the A0601464 terminal cable DB-9 female connector into the DB-9 male connector on the Ethernet Adapter card on the I/O panel.

3 Plug the DB-25 male connector at the other end of the A0601464 terminal cable into the DB-25 female connector of the A0601396 DB-25F/DB-25M nullmodem adapter. (If you require a female-to-female nullmodem, use A0601397 nullmodem).

4 Plug the DB-25 male connector of the nullmodem adapter A0601396 DB-25F/DB-25M into the DB-25 female connector on the modem. (If you require a female-to-female nullmodem, use A0601397 nullmodem).

5 Plug the modular cable RJ11 plug into the RJ11 jack on the modem.

6 Plug the other end of the modular modem cable RJ11 plug into the RJ11 jack on the wall.

Remote multi-terminal connection through Ethernet

The MICB card on the Option 11C or 11E can be accessed from one or more terminals from the Ethernet, if the MICB card is connected to the Ethernet through the NT5D52AA Ethernet Adapter card. Refer to Figure 15 “Terminal connection through the Ethernet Adapter” on page 91 for the connection illustration.

1. Verify that the NT5D52BA Ethernet Adapter card has been installed into the Option 11C or 11E.
2. Plug the modular cable RJ-45 plug into the RJ-45 jack on the Ethernet Adapter card.
3. Plug the RJ-45 plug at the other end of the modular cable, into the Ethernet hub.
4. Make the rest of the Ethernet connections as required using standard Ethernet connection rules.

MICB configuration

Now that you installed the MICB card(s) and connected the terminal, you can proceed with MICB card configuration.

Configuring MICB using the system TTY

To configure an MICB card:

1. Define CDN blocks, respecting the above restrictions. The default ACD DN in all CDN blocks of an MICB card should be the ACD DN defined in the ACD block.
2. Define each MICB port as a digital telephone set M2616. MICB ports are defined as ACD agents in the ACD data block. The digital set keys should be defined as follows:
   - Key 0 - ACD
   - Key 1 - Single Call Ringing (SCR) with a dedicated DN
   - Key 2 - Not Ready (NRD)
   - Key 3 - Make Set Busy (MSB)

Agent IDs must be defined in the MICB system attributes menu as consecutive numbers within the lower and upper limit. Refer to “System Attribute Editor” on page 39.

Defining the ACD data block

To configure the ACD data block, load LD 23 using the system TTY and enter the appropriate responses to the prompts as listed in Table 11.

Table 11
Defines an ACD data block

Prompt	Response	Description
REQ	NEW	New control data block
TYPE	SBC or ADS	To print ACD report scheduling data block To print auxiliary data system data block (This allows you to select an available block of number to be used as agent IDs within the upper and lower limit of the numbers block.)
TYPE	ACD	ACD data block
CUST	0-99	Customer number
ACDN	<ACDDN>	ACD directory number
MAXP	32	Maximum number of ACD agent positions

Defining CDN data blocks

This defines the control DN assigned to each conference and each chairperson associated with each conference.

Table 12 shows the CDN data block configuration using the Automatic Call Distribution (ACD) program LD 23.

Table 12
Configuring the MICB Control DNs using LD 23

Prompt	Response	Description
REQ	NEW	New control data block
TYPE	CDN	Control DN data block
CUST	0-99	Customer number
CDN	<CDN#>	Control directory number
DFDN	<ACDDN>	Local ACD DN

Note: Repeat commands in this table for each CDN you wish to configure, up to the required number of CDNs.

Note: The number of CDNs defined for each MICB card depends on the number of conferences and bridges specified on the card. A maximum of 10 conferences can be configured requiring 20 CDNs; two for each conference. One CDN is used by the conferees to call in and one CDN is for the conference chairperson.

Defining MICB ports as digital sets

Each MICB port represents an ACD agent with the digital set 2616. Table 13 shows how to use Multi-line Telephone Administration program LD 11 to configure these features.

Table 13
Configuring MICB ports as digital sets using LD 11

Prompt	Response	Description
REQ	NEW	Add a new data port
TYPE	2616	Digital telephone set M2616
TN	l s c u	Terminal number
CUST	0-99	Customer number
CLS	FLXA, VCE, WTA	ACD agent (FLXA can be used with X11 rel 22 and up for ports 16 through 31) **Note**
KEY	0 ACD <ACDDN> 0-99 <pos ID> (any DN)	ACD DN plus position ID
KEY	1 SCR <DN>	Line key
KEY	2 NRD	Not ready key
KEY	3 MSB	Make set busy key

Note: The administrator should consider chairperson dial-out restrictions through the MICB ports to prevent international dial-out.

Note: Number of virtual ACD agents of the ACD queue is equal to the number of MICB ports. Example; if 12 ports are enabled, you must define 12 ACD agents. If the TN for the MICB is specified as 28 0 6, then TNs for the 12 agents are specified as 28 0 6 0 through 28 0 6 11.

Enabling the MICB card

To enable the MICB, load the Network and PE Diagnostic program LD 32 into the system memory using the system TTY to execute the **ENLC l s c** command, where **l** is the loop, **s** is the module or shelf, and **c** is the card to be enabled.

Configuring MICB using the MMI terminal

After the configuration of the MICB parameters, using the system TTY, you can proceed with the MICB administration by using the MICB MMI terminal. Before you can proceed with conference administration, you have to:

1 Configure the terminal.

2 Enter the keycode, if not already entered.

3 Login as an administrator.

4 Define a group of CDNs that will be used by the MICB (specify CDNs that already exist in Meridian 1).

5 Using the terminal, you can proceed with conference scheduling and MICB administration.

Note: The *MICB Administration* chapter describes the use of the terminal in configuring and administering of all MICB conference functions.

Configuring the MMI terminal for OA&M access

To access the administration and configuration menus you have to use a terminal. Specify the VT-100 type terminal interface characteristics to ensure compatibility with the MICB RS-232 interface.

Set the interface parameters as follows:

— Transmission speed; 9600 bps

— Data bits: 8

— Stop bit: 1

— Parity: No

— Flow control: none

Note: Do not use XON/XFF flow control.

MICB password security

To protect functional and software upgrades, the MICB provides *Protected Administration* menu accessible on the administration terminal. This menu allows you to edit passwords and perform functional and software upgrades.

For details of how to upgrade the MICB functions and software, go to the *MICB Administration* chapter of this document and access the *Protected Administration* menu.

Chairperson tasks

Each conference has a chairperson who is in charge of the conference events. If you dial in as a chairperson, you can perform several functions using your telephone set keys. To become a chairperson, you must be the first to dial the chairperson CDN. The chairperson CDN is defined in *Conference Reservation* in the *Conference Administration* menu using the MICB terminal.

Commands a chairperson can execute during a conference are listed in Table 14 below.

> ***Note:*** When chairperson dials out to an other MICB conference, two ports are being used, the dial out port of this MICB and the dial in port of the other conference MICB. These two ports are not automatically disconnected, therefore the chairperson must disconnect the dial out port before leaving the conference.

Table 14 lists conference commands that are executed on the telephone set while the conference is in progress.

Table 14
Conference commands

Chairperson Command	Description
✻0<DN>#	Dials out to a DN (called party directory number, which is not a conference participant)
✻0#	Dials out to the assistant DN
✻#	Redials last dialed DN
✻1	Not used
✻2	Returns to the conference with dialed party
✻3	Returns to the conference without dialed party
✻4	Locks the conference
✻5	Unlocks the conference
✻6	Counts conferees
✻90	Drops all ports except the chairperson's port
✻91	Drops the last dialed-out port
✻92	Drops the last dialed-in port
✻99	To stop or start the initial conference music by the chairperson. This is possible only when the chairperson is the first person joining the conference. First entry stops it, the second entry starts it.
Conferee command	**Description**
✻	To stop or start the initial conference music by the first conferee that joins the conference.

Maintenance

This chapter describes Meridian Integrated Conference Bridge (MICB) maintenance tools and procedures to guide you in identifying the MICB faults, locating defective equipment, correcting problems by fixing or replacing defective equipment, and verifying the operation of the MICB after corrections or replacements have been made.

Maintenance overview

The problem identification should be approached systematically. A problem may have more than one cause. To isolate the cause, a knowledge of MICB operation is required. Once the cause is identified, the problem can be corrected by replacing the defective card, connecting accidentally disconnected cables, or correcting the software security problem.

The system and the MICB provide built-in self-diagnostic indicators and software and hardware tools. These diagnostic facilities simplify system troubleshooting and reduce mean-time-to-repair (MTTR).

This document focuses on the maintenance of the MICB equipment. It requires that system operates correctly before you start diagnosing the MICB problems. The system installation and maintenance guide documents: *Meridian 1 general maintenance information* (553-3001-500), *Meridian 1 fault clearing* (553-3001-510), and *Meridian 1 hardware replacement* (553-3001-520) describe how to maintain the entire system. This chapter describes how to maintain the MICB as an integral part of the system.

Diagnostic tools

Diagnostic tools are used to troubleshoot problems in the system including problems with the MICB. When diagnosing MICB problems, you may have to use more than one of these tools.

System diagnostic tools consist of:

— LED indicators

— display codes

— card self-tests

— sanity monitoring

— overlay commands

— history files

MICB status LED indicator

The MICB has a card LED indicator at the top of the faceplate. The card LED is a red LED that indicates the status of the card. If the LED is ON, the card may be faulty or disabled. When the card is powered up, it blinks 3 times during self-test and then is stays ON if functioning correctly, otherwise it turns ON without blinking and stays ON. The LED turns OFF when the card is software enabled.

Self-test

A self-test is automatically performed by each MICB card when you insert it into an operating system module or when you power up or reset the system. You can also perform a self-test on a card using software commands or menus.

The self-test checks general MICB functions and determines if they are operating correctly. It is very useful when you first install the cards because, upon insertion, the card automatically starts the self-test and gives you an immediate indication of its operating status.

Self-test performs a detail test and analysis of the installed hardware both to determine the integrity of the hardware and to establish the configuration of MICB card by checking the processor, the RAM capacity, the Flash memory, the DSP and etc.

Table 15
MICB self-test sequence

Item tested	Description of action
Processor/Coprocessor	Read and store processor ID. Run processor self-test.
DRAM	Check the amount of DRAM installed. Perform R/W test.
PCI Chipset	Perform R/W test on selected registers.
System I/O Controller	Perform R/W test on selected registers.
PCMCIA Controller	Perform R/W test on selected registers.
DS-30X Interface	Test shared memory and perform loopback test over SD-30 LCA.
CE-MUX Interface	Test shared memory and perform loopback test over CE-MUX LCA
PCMCIA DSP card(s)	Check the presence of DSP cards and initiate diagnostic tests on DSP cards, if present.
PCMCIA hard drive	Checks the presence of the hard drive and checks the configuration information.
PCMCIA Flash card	Check the presence of Flash memory and the MICB check configuration information.

Sanity monitoring

Sanity monitoring is a background routine that checks the operation of system

resources such as CPU activity memory allocation etc. This background routine attempts to restore normal system operation if the system performance has degraded to an unacceptable level. If all else fails, this routine will restart the system to try to restore it to normal operation. If the soft reset is not effective, a full board level reset is initiated. If reset is not successful, the maintenance LED would stay ON.

Overlay commands

Diagnostics are performed for every card as part of the daily routines, or may be invoked from a maintenance TTY or the SMP (when equipped). See the NTP titled *Meridian 1 system maintenance* (553-3001-520).

The MICB card appears as an Extended Digital Line card to a system in which it is installed. All relevant system maintenance commands for a Extended Digital Line card can therefore be used with MICB. Enabling and disabling of ACD digital telephone set M2616 is done in Overlay LD 32.

Table 16 lists some of the commands used to control the MICB status and functions.

Table 16
Commands to enable/disable MICB channels

LD 32 Commands	Operation performed
DISC / ENLC	Disable / Enable specified card
DISU / ENLU	Disable / Enable specified channel
LOOP	Performs a network memory test, continuity test, and signaling test on the specified loop.
STAT	Get status of specified card /channel
LD 30 Command	**Operation performed**
UNTT	Performs self-test on the MICB.

All the above commands are handled by the MICB card exactly as they are by the Extended Digital Line card, transparently to the system.

History file

Information on any fault conditions are stored on the MICB card to provide a history file for the craftsperson. The file is in the form of a cyclical buffer, which is overwritten from the top when it runs out of space. It is configured to use memory resources efficiently.

MICB fault isolation and correction

Fault clearing procedures for the MICB are the same as for other IPE cards; refer to *Meridian 1 fault clearing* (553-3001-510) for more information.

Table 17 deals specifically with MICB service problems. To diagnose these problems, the table refers you to the test procedures in this manual that will most likely be able to resolve these problems based on the symptoms these problems are exhibiting.

Table 17
MICB equipment problems

Symptoms	Diagnosis	Solution
Red card LED on the MICB is permanently on.	Card is disabled or faulty.	Go to *Procedure 1*, in this chapter to check the card status and perform self-test.
Display on the controller card shows fault codes.	Card faulty, failed self-test or problem communicating with peripheral equipment.	Go to *Procedures 1* and *2* to check self-test and self-test on reset. Also refer to *X11 input/output guide* (553-3001-400) for a list of codes.
Error messages printed on the terminal or the Meridian 1 TTY.	Hardware or software problems with the MICB.	Note various error messages. Refer to *X11 input/output guide* (553-3001-400) for a list of these messages and their description. Based on the code's description, take the appropriate action to resolve the problem.

If you cannot resolve the problem after exhausting all available diagnostic tools and test procedures, make a list of all the symptoms you observed and contact your field service representative.

Procedure 1

MICB self-test steps

1 The card will self-test upon insertion.

2 Card LAN will poll the card.

3 If self-test passed, the card will send back “powered-up occurred” message.

4 Card LAN will request configuration data.

5 The card will return configuration data (card type, X12 signaling type, and TN mapping type 2).

6 Card LAN will enable the DS-30X signaling channel.

7 The MICB card will wait until it receives configuration data (trunk type, signaling type, balance impedance, etc.)via the DX-30X, but it will then discard this data.

8 The card will go into its main program loop.

Procedure 2
Reset MICB card command

1 Software will send a reset message to the card if no channels are busy.

2 The card will set all appropriate resources to disabled state and turn on the faceplate LED.

3 The MICB card will reset and self-test. Self-test results will be stored in case a later query is performed by the Meridian 1.

4 Card LAN will poll the card.

5 If self-test passes, the card will send back a message: “power-up occurred”.

6 Card LAN will request configuration data.

7 The card will return configuration data (card type, X12 signaling type, and TN mapping type 2) and enable DS-30X link.

8 Card LAN will enable the DS-30X signaling channel

9 The card will wait until it receives download configuration data (trunk type, signaling type, balance impedance, etc.)via the DS-30X, but it will then discard this data.

10 The card will go to its main program loop.

Card replacement

The MICB is based on PCMCIA technology. This allows you to remove the MICB from the IPE shelf indefinitely without loosing the configuration data.

To replace the MICB card:

1. Disable the MICB card by loading the LD 32 overlay and executing the **DISC l s c** command, where **l**= loop, **s**= shelf or module, **c**= card in the module.
2. Remove the card from its card slot in the IPE module.
3. Remove all PCMCIA cards from the faulty MICB card.
4. Transfer all PCMCIA cards to the new MICB card.

   Note: This procedure moves all software, configuration, and records to the replacement MICB card.

5. Transfer the Security Device from the faulty MICB to the replacement.
6. The keycode is reused. It is still installed on the PCMCIA card, which was removed from the faulty MICB.
7. Enable the new card by executing the **ENLC l s c** command.
8. Configure the newly installed MICB card.
9. Package the faulty MICB card and ship it to the repair center.

Appendix A: MMI error messages and connector pin assignments

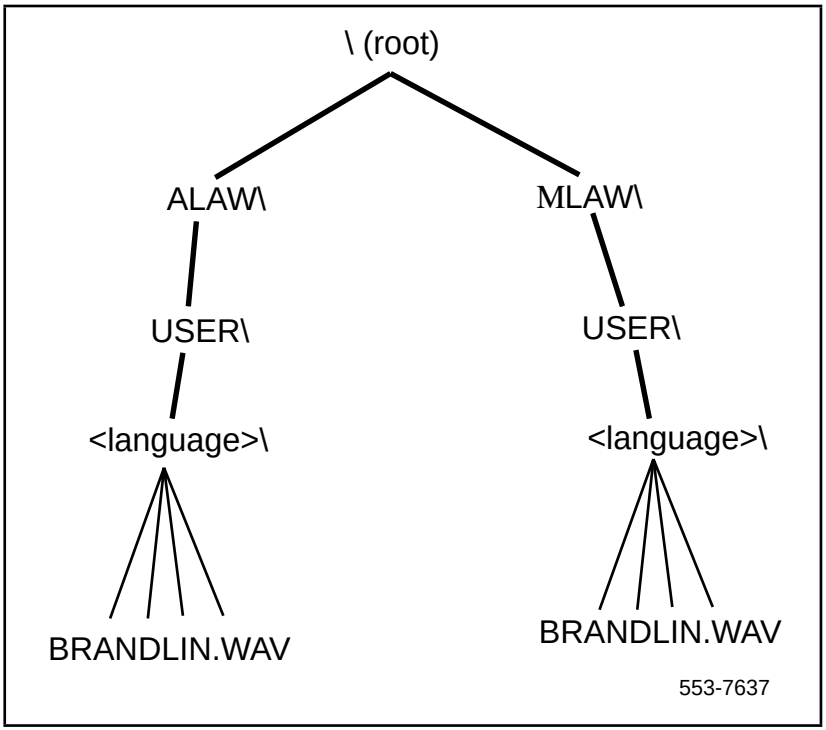
Appendix A contains the information the maintenance terminal pin assignments and the MMI error messages.

Brand line file

A BRANDLIN.WAV file is copied to the PCMCIA disk to partition A: - the voice partition. Since voice files in the database are uncompressed, they have to be converted to the desired coding law before copying to the target PCMCIA disk. Partition A: is divided into 2 directories - A-law and μ-law, to which the converted voice files are copied.

You must record a brand line greeting for each language separately and copy it to the PCMCIA disk following the directory structure shown in Figure 17.

Figure 17
PCMCIA disk audio file structure



Maintenance terminal cable pin assignments

Table 18 lists the pin assignments for the maintenance terminal cable that connects from the IPE module I/O panel connector to the nullmodem for direct terminal connection, or to a modem for a remote maintenance terminal connection.

Table 18
A0660348 Maintenance cable (Part 1 of 2)

J2 Pin Number (DB-25 pin connector)	J1 Pin Number (50-pin I/O panel connector)	Description
1	25	Reserved
2	22	RS-232 Tx
3	20	RS-232 Rx
4	18	Reserved
5	10	Reserved
6	16	Reserved
7	21	GND
8	17	Reserved
9	11	Reserved
10	24	LAN_Tx+
11	49	LAN_Tx-
12	12	Reserved
13	23	LAN_Rx+
14	48	LAN_Rx-
15	13	Reserved
16	14	Reserved
17	15	Reserved

Table 18
A0660348 Maintenance cable (Part 2 of 2)

J2 Pin Number (DB-25 pin connector)	J1 Pin Number (50-pin I/O panel connector)	Description
18	36	Reserved
19	37	Reserved
20	19	Reserved
21	38	Reserved
22	39	Reserved
23	40	Reserved
24	41	Reserved
25	N.C.	Not Connected

MMI Error Messages

These error messages are displayed on the maintenance terminal during conference events.

Table 19
MMI error messages (Part 1 of 4)

Error message text	Comments
Failure on accepting key code	Check the keycode.
Incorrect login	Enter the correct password.
Incorrect card ID entered	Check the card ID.
Wrong input type	Check the input type.
Input out of range	Specify the input within the rage.
Enter: yes, no, y or n.	Spell out yes or no.
Enter yes or no.	Enter the appropriate response.

Table 19
MMI error messages (Part 2 of 4)

Error message text	Comments
Entered string too long	Check the string length.
Wrong number of input parameters	Check input parameters.
Input should be in HH:MM format	Use the correct time format.
Invalid command for this directory	Check the directory/command.
Command not valid at this point	Check the command.
Audio recording in process, input ignored	Wait until recording is completed.
There are no reports for this date	The specified date has no reports.
Date entered must not be in the future	The date for conference maintenance must be present date.
Date entered is too far in the past	Files are deleted once their age reaches “conf log aging”
Date entered is too far in the future	Reservations can be made only 6 months in advance.
Command must be followed by a valid number.	Choose entry number according to the table presented
Voice file specified does not exist	When defining files per event
Voice file specified already exists	When recording new file
Event must have at least one associated file	Check the event and check the file table for that event.
Start time must be later than current time + 3	For a new conference scheduling.
Number of ports cannot be reduced below number of active ports. Current number of active ports: X	Number of active ports can be reduced only after they are dropped.

Table 19
MMI error messages (Part 3 of 4)

Error message text	Comments
Maximum available ports X exceeded	Used when bridges collide or when more than the maximum number of ports is defined for a conference
Number of ports requested for bridge collides with reserved conferences at the following times.	Followed by a list of colliding conferences.
A day in the past can not be modified	Check the specified date.
Maximum duration is 12 hours	Reduce the conference duration.
Meeting is active or about to open. Use Meeting Modify option for active meeting.	Modify option in Conference Reservation command.
Meeting is in the past or about to end and can not be modified.	Modify option in Conference Reservation command.
Cannot delete a meeting which started in the past or is about to start.	Delete option in Conference Reservation command.
Command is not relevant for meeting which has not yet begun.	In Conference Maintenance directory.
Command must be followed by a valid meeting number.	In Conference Maintenance directory.
This command may not be used for a bridge.	In Conference Maintenance directory.
Meeting may not be scheduled to end within 3 minutes.	In Meeting Modify command.
Meeting ended or was originally scheduled to end within 3 minutes. Duration can not be changed.	In Meeting Modify command.

Table 19
MMI error messages (Part 4 of 4)

Error message text	Comments
Conference scheduled to close within 3 min. may not be terminated.	In Meeting Terminate command, before user confirmation.
Conference closed or scheduled to close within 3 minutes. It may not be terminated.	In Meeting Terminate command, after user confirmation.
This conference begins on the previous day and can be modified only there.	A conference may be chosen for modification from the list of conferences when it begins on the day being displayed.
CDN X already appears in the list.	This Control DN is already assigned.
CDNs reserved for conferences cannot be deleted.	You would have to un-reserve the CDNs you wish to delete.
CDN entered is too long	Check the CDN.
Maximum number of CDNs is already reached	Un-assign CDNs that are not active if you wish to re-assign them.
Error occurred while recording.	You may have to re-record.
CDN provided for recording is available for 2 more minutes!	This is a warming.
Recording session terminated	End of recording is announced.
Invalid port number	Use the correct port number.

Appendix B: Product integrity

This chapter presents information about Meridian Integrated Conference Bridge (MICB) reliability, environmental specifications, and electrical regulatory standards.

Reliability

Reliability is measured by the Mean Time Between Failures (MTBF).

Mean time between failures (MTBF)

The MICB card Mean Time Between Failure (MTBF) is better than 88 years.

Environment specifications

Measurements of performance under the temperature, shock. and vibration given in the following tables were made under test conditions as described.

Temperature-related conditions

Refer to Table 20 for a display of acceptable temperature and humidity ranges for the MICB.

Table 20
MICB environmental specifications

Specification	Minimum	Maximum
Normal Operation		
Recommended	15° C	30° C
Relative humidity	20%	30% (non-condensing)
Absolute	10 ° C	45° C
Relative humidity	20% to	80% (non-condensing)
Rate of change	Less than 1° C per 3 minutes	
Storage		
Long Term	–20° C	60° C
Relative Humidity	5%	95% (non-condensing
	-40° C to 70° C, non-condensing	
Short Term (less than 72 hr)	–40° C	70° C
Temperature Shock		
In 3 minutes	-40° C	25° C
In 3 minutes	70° C	25° C
	-40° to 70° C, non-condensing	

Electrical regulatory standards

The following three tables list the safety and electro-magnetic compatibility regulatory standards for the MICB, listed by geographic region. Specifications for the MICB meet or exceed the standards listed in these regulations.

Safety

Table 21 provides a list of safety regulations met by the MICB, along with the type of regulation and the country/region covered by each regulation.

Table 21
Safety regulations

Regulation Identifier	Regulatory Agency
UL 1459	Safety, United States, CALA
CSA 22.2 225	Safety, Canada
EN 41003	Safety, International Telecom
EN 70950/IEC 950	Safety, International
BAKOM SR 784.103.12/4.1/1	EMC/Safety (Switzerland)
AS3260, TS001 - TS004, TS006	Safety/Network (Australia)
JATE	Safety/Network (Japan)

Electro-magnetic compatibility (EMC)

Table 22 lists electro-magnetic emissions regulations met by the MICB card, along with the country's standard that lists each regulation.

Table 22
Electro-Magnetic Emissions

Regulation Identifier	Regulatory Agency
FCC part 15 Class A	United States Radiated Emissions
CSA C108.8	Canada Radiated Emissions
EN50081-1	European Community Generic Emission Standard
EN55022/CISPR 22 CLASS B	Radiated Emissions (Basic Std.)
BAKOM SR 784.103.12/4.1/1	EMC/Safety (Switzerland)
SS-447-20-22	Sweden EMC standard
AS/NZS 3548	EMC (Australia/New Zealand)
NFC 98020	France EMC standard

Table 23 lists electro-magnetic immunity regulations met by the MICB card, along with the country's standard that lists each regulation.

Table 23
Electro-Magnetic Immunity

Regulation Identifier	Regulatory Agency
CISPR 22 Sec. 20 Class B	I/O conducted noise
IEC 801-2 (level 4)	ESD (Basic Standard)
IEC 801-3 (level 2)	Radiated Immunity (Basic Standard)
IEC 801-4 (level 3)	Fast transient/Burst Immunity (Basic Standard)
IEC 801-5 (level 4, preliminary)	Surge Immunity (Basic Standard)
IEC 801-6 (preliminary)	Conducted Disturbances (Basic Standard)
BAKOM SR 784.103.12/4.1/1	EMC/Safety (Switzerland)
SS-447-20-22	Sweden EMC standard
AS/NZS 3548l	EMC (Australia/New Zealand)
NFC 98020	France EMC standard

List of Terms

ACD

Automatic Call Distribution.

ACD DN

Automatic Call Distribution Directory Number (pilot DN of an ACD queue).

ASIC

Application-Specific Integrated Circuit. A microprocessor chip designed to do specific tasks; providing graphics capability is one such task.

BIOS

Basic Input/Output System. A set of permanently stored program outlines in buffers that allow software to interact with hardware components (e.g., keyboard) in a device-independent manner.

CDN

Control DN for conference and chairperson access.

CE

Common Equipment.

CE-MUX

Common Equipment bus with MUltipleXed address and data.

CO

Central Office.

CCITT

The International Telegraph and Telephone Consultative Committee.

CPE

Customer Premise Equipment. Equipment that resides on a customer's presmises and is controlled by the customer as opposed to the Central Office

CPU

Central Processing Unit. A chip that performs logic, control, and arithmetic functions. The part of the switch that performs these functions and any others needed to carry out call processing.

CRT

Terminal.

CSA

Canadian Standards Association.

dB

Decibel.

dBm

Decibel with reference to Miliwatt.

DID

Direct Inward Dial trunk.

DMA

Direct Memory Access.

DN

Directory Number.

DIN

A German manufacturer of electronic devices for interconnection and other purposes.

DS-30X

Parallel serial transmission from a superloop (XNET) card to a Controller Card in an IPE shelf.

DRAM

Dynamic Random Access Memory. A type of semi-conductor memory that is characterized by its high density (smaller packages for a given amount of memory). It typically has slower access time as compared with SRAM and requires external memory refresh circuitry.

DSP

Digital Signal Processing. A specialized computer chip that performs speedy and complex operations on digitized waveforms. Useful in processing sound and video.

DTMF

Dual Tone Multi-Frequency. A term describing push-button or touch-tone dialing.

EAR

Enhanced ACD Routing.

EEPROM

Electrically Erasable Programmable Read Only Memory device.

EMC

Electro-Magnetic Compatibility. Refers to equipment units that are collectively performing each of their functions without causing or suffering unacceptable degradation due to electromagnetic interference from other equipment/systems in the same environment.

EMI

(ElectroMagnetic Interference) - Unwanted electromagnetic coupling, such as a ham radio heard on an electric organ or church music heard in hearing aids. Also known as "static".

EPLD

Erasable Programmable Logic Device. An electronic device for performing logical operations that can easily be erased and reprogrammed.

ESD

Electro-Static Discharge.

ESS

Environmental Stress Screening

EST

Environmental Stress Testing.

EXUT

Enhanced Universal Trunk card.

Field programmable

A program to which changes can be made while it is installed.

FCC

Federal Communication Commission.

Firmware

Hardwired logic, software, data, and programming instructions such as that stored by threading wires through ferrite cores. May also refer to software programmed in the factory or burnt in in the field, and is semipermanently stored within ROM.

Flash memory

Electrically erasable memory that is non-volatile (not affected by power disruptions).

FPGA

Field Programmable Gate Array.

HI

Host Interface- DSP to MPU

ID

Identification.

IDE

Integrated Drive Electronics. A low-cost hard disk drive interface.

IPE

Intelligent Peripheral Equipment - A range of cards that contain micro-processors that provide off-loading of the CPU function and the flexibility to make changes to the system's parameters without revising the hardware.

IVR

Interactive Voice Response. An application that allows telephone callers to interact with a host computer via pre-recorded messages and prompts.

Kernel

That part of a computer's operating system that performs basic functions like switching between tasks.

LED

Light Emitting Diode.

Loader

A device that moves a program or data from a floppy or hard disk and stores it into a computer's RAM memory.

MINT

Message INTerrupt. This occurs when a message being transmitted receives an interrupt signal from an outside device, which must process a task of its own. Then the transmission of the original message can resume, or be resent.

M1

Meridian 1 switch.

MMail

Meridian Mail. Nortel’s proprietary voice processing platform.

MMI

Man-Machine Interface.

MPU

Microprocessor Unit in the MICB card.

MTBF

Mean Time Between Failure. A measure of reliability: the time that a user may reasonably expect a device or system to work before an incapacitating fault occurs. Also, the average number of hours between one random failure and the next under stated conditions.

MTTR

Mean Time To Repair. The average time required for corrective maintenance.

MWI

Message Waiting Indicator; a lamp or other visual display on a telephone set that informs the user that one or more messages have been left in the user's voice box.

NTP

Northern Telecom Publications; customer documentation. Each NTP is identified by a unique ten-digit publication number.

OA&M

Operations, Administration, and Maintenance.

OEM

Original Equipment Manufacturers

OTP

One-Time Programmable. Name given to a type of PCMCIA card.

PAS

Product Administration System.

PBX

Private Branch eXchange. A telephony switch that is privately owned.

PCB

Printed Circuit Board.

PCM

Pulse Code Modulation. A method for encoding an analog voice signal into a digital bit stream.

PCMCIA

Personal Computer Memory Card International Association. This organization has defined a credit card sized plug-in board for use in PCs. These cards are the only way to get to a laptop bus without using a docding station. In addition, application software can be stored on the card into system address space so that the software can run directly from the car, resulting in a faster start and less memory required from the host computer.

PRS

Problem Reporting System. A procedure followed by Nortel when customers (internal or external) find an error and file a Problem Report form with a committee that manages the PR System. The committee determines who should receive the report, and then this individual or team must "clear the PR" by describing or demonstrating how the problem was addressed.

RTC

Real Time Clock. System clocking influenced/determined by connection to a time process external to processing by the system.

SBC

Sub-Band Coding. Algorithm used by Meridian Mail and NGen for compressing speech data down to just over a quarter of its original size.

Scalable architecture

A way of designing a system that allows it to be resized with relative ease; the cost required to increase its size in proportion to the new size.

SCSA

Signal Computing System Architecture. A generalized open-system architecture describing the components and specifying the interfaces for a signal processing system for PC-based voice processing, call processing, and telecom switching.

SCSI

Small Computaer System Interface. A device that enables computers to cable-connect to networks or external tape units/hard drives.

SDI

Serial Data Interface. For some Meridian switches, provides ports between the CPU and external devices like a teletype or maintenance telephone. More generally, an SDI is a mechanism for changing the parallel arrangement of data within computers to the serial form used on transmission lines, and vice versa.

SL-1

Generic term given to Nortel digital switches. Meridian 1 refers specifically to the current series of Nortel PBX's

SMP

System Management Project/Product. An OA&M GUI interface to Nortel switches now being developed.

STA

Single Terminal Access.

VGA

Video Graphics Adapter. A computer adapter that provides high resolution graphics and 256 colors.

UART

Universal Asynchronous Receiver/Transmitter.

UI

User Interface.

.WAV

File format used for storing voice files created under Microsoft Windows.

Meridian 1

Meridian Integrated Conference Bridge

Description, installation, administration, and maintenance

P0857603

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