Network Management System and ICB Management System Software for T1 User's Guide

CONTENTS PAGE

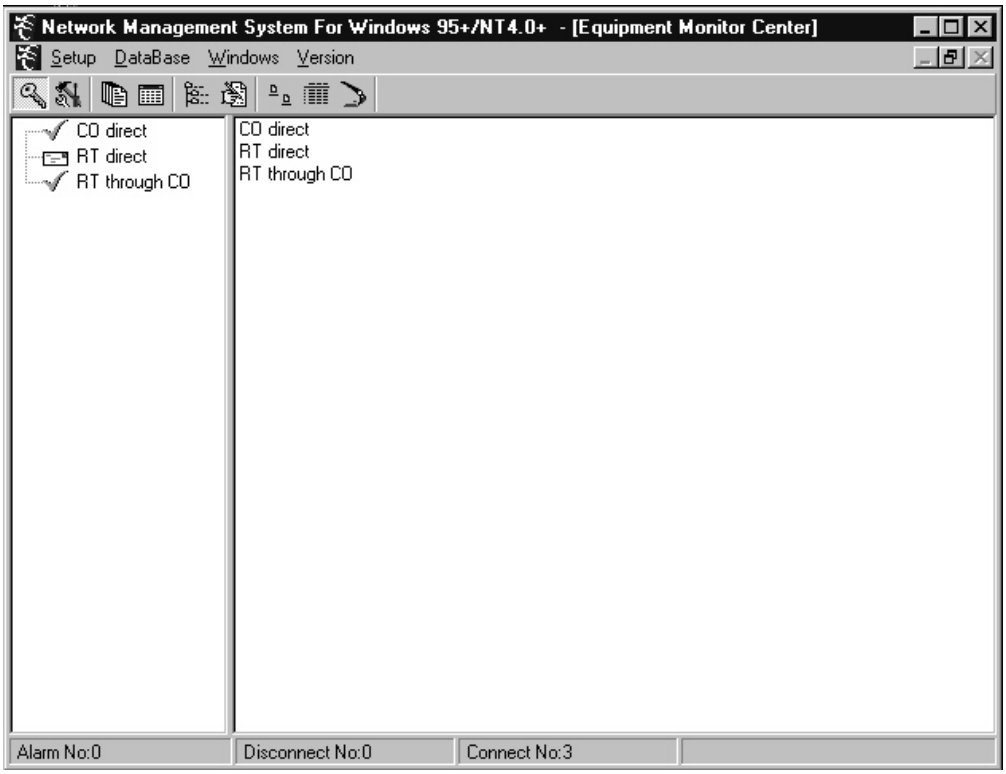


Figure 1. Network Management Software Main Screen

1. GENERAL

1.1 Document Purpose

This document describes how to install and use the Intelligent Channel Bank (ICB) Network Management software (NMS).

Note: Before this software will communicate with an Intelligent Channel Bank (ICB), the ICB must have been provisioned with an IP address using the craft terminal interface. See the ICB Craft Terminal User's Guide for more information.

1.2 Software Function

Use this software to manage the Charles ICB. The NMS system consists of PC software which provides a graphical user interface (GUI) used to provision, control, and monitor multiple 360-80 ICBs.

The PC communicates through an Ethernet interface. To communicate with remote locations, the NMS system can use the Embedded Operations Channel (EOC) over the T1 if the T1 is using extended superframe (ESF) format. If EOC is not being used, a channel within the T1 for NMS communication must be defined (see *Appendix A—Applications*).

When using the secondary T1 card in a normal mode for a Drop and Reinsert application, the NMS can communicate with up to 7 remote ICBs for every locally managed ICB. A locally managed ICB is connected directly to the same LAN as the NMS Manager PC.

1.3 Software Location

This software should be installed on a PC running Windows 95/98, NT, 2000 or XP and connected to a Charles 360-80 ICB.

1.4 Software Features

- Graphical user interface (GUI) to configure, test, and monitor operation of the system
- Provision all cards in the system through on-screen menus
- Real-time display of system status and alarms
- Continuous update of historical reports
- Performance monitoring data and testing capabilities

1.5 Reference Documents

- 3603−81 T1 Controller with SNMP (LT360−381−201)
- 360−80 ICB Craft Terminal User's Guide (LT360−381−C01)
- 3608−80 Secondary T1 Unit (LT360−880−201)

2. GETTING STARTED

2.1 System Requirements

- IBM-compatible PC running Windows 95/98, NT, 2000 or XP
- 50 MB of memory available on the hard drive
- 8 MB of RAM
- VGA display
- TCP/IP
- Ethernet Port

2.2 Installing the Software

Use the following steps to install the software:

Step	Action
1.	Insert the CD containing the NMS software into your CD drive.
2.	From the Windows start menu, select **Run** and type in **X:\SETUP** (where X is your CD drive letter).
3.	Follow the prompts to continue installation.

2.3 Connecting the PC to the ICB

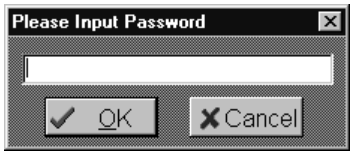
Use the following steps connect the PC to the ICB:

Step	Action
1.	Using the craft interface, set the ICB's IP address. To allow remote access outside the ICB's LAN, the gateway address should be set to the IP address of the LAN's router. See the Craft Interface documentation for additional information.
2.	Connect the ICB to the PC/LAN using an Ethernet cable to the J2 rear panel network management port.

Note: To connect multiple ICBs see the procedure in the T1 Controller with SNMP (3603-81) documentation.

2.4 Starting the Software

Use the following steps to start the software and log in to the system:

Step	Action	System Response
1.	Select **Start Menu ▶ Programs ▶ Charles ▶ NMSmgr**	Opens the NMS main screen (see Figure 1).
2.	Select **Setup ▶ Supervisor Log In**	Opens the following dialog box: 
3.	Enter the default password 123 to log in.	You are logged in as a supervisor, and have access to all menu options.

Note: The Supervisor password should be changed as soon as possible. See the section in this manual on Configuring the System.

3. EQUIPMENT STATUS

Once the software is started, it searches for the status of any ICB previously added to the NMS equipment database. The information is displayed on the Equipment Status screen as shown in Figure 2.

If no ICBs have been added yet, nothing will be displayed in the Equipment Status screen. Go to *Equipment Management*, page 8, to add ICBs to the system.

On the left-hand side of the NMS main screen, the equipment added to the NMS is displayed with a status icon next to it. These icons are shown and described in Figure 2 and Table 1. The screen will display all ICBs described in the equipment database.

On the right-hand side of the NMS main screen, the system displays a list of ICB equipment which is communicating properly with the software.

If no activity occurs on the system you will be automatically logged out, and will need to log back in to continue.

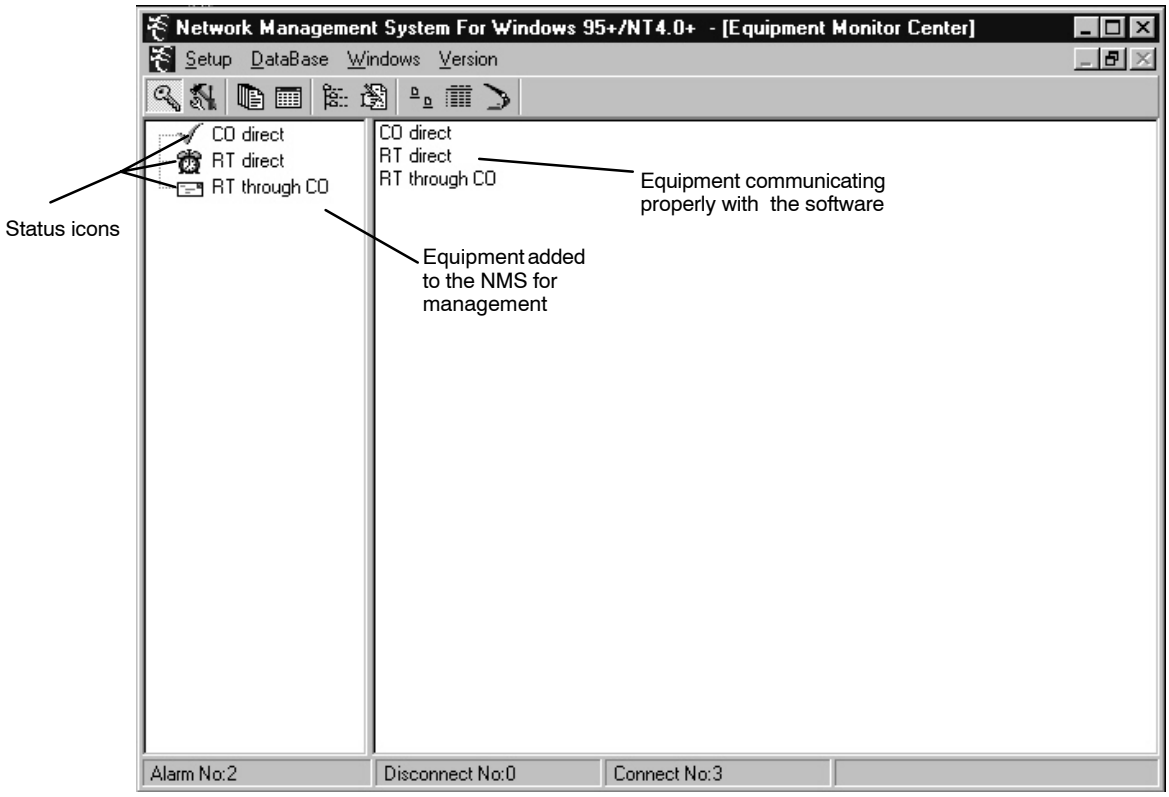
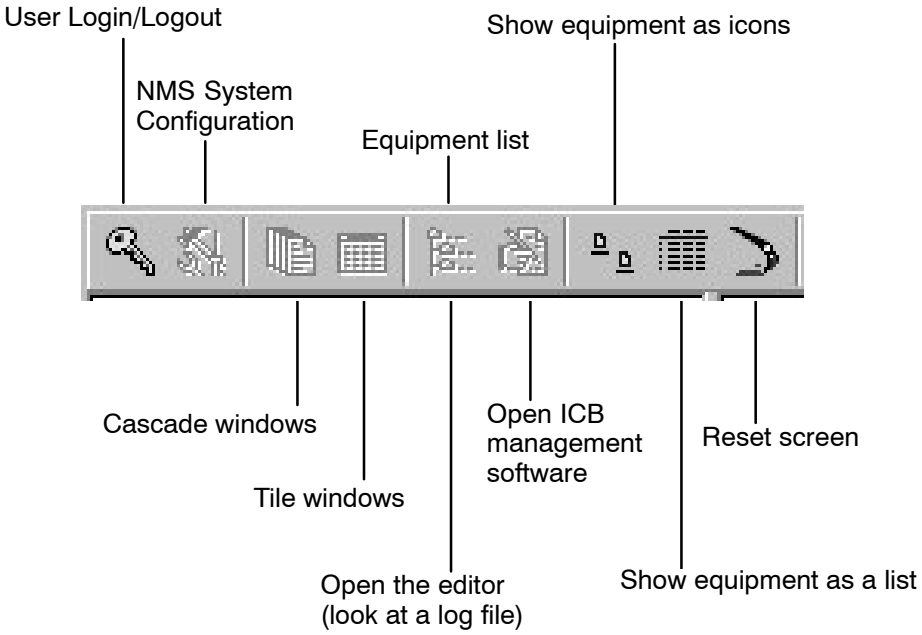


Figure 2. NMS Main Screen

Table 1. Description of Status Icons

Icon	Meaning
✓	Normal Operation
✗	Communication failure with NMS
	Major alarm alerted
	Minor alarm alerted
	Detecting the status of the equipment

3.1 NMS Manager Tool Bar



The following table describes the NMS Manager tool bar buttons.

Button	Description
	Allows a General User to log in to the system /log out the current user.
	Allows the Supervisor to set up the Network Management System, method of the equipment communication and necessary parameters.
	Cascade the current sub-screens.
	Tile the current sub-screens.
	Displays the list of the equipment.
	Opens the text editor. Use the text editor to read system log files.
	Displays the active equipment in the right window as icons.
	Displays the active equipment in the right window as a list.
	Refreshes the active equipment display (right window).

3.2 Configuring the System

Use this selection to change the supervisor password, and select the equipment communication parameters.

Step	Action	System Response
1.	Select the Editor button on the Tool Bar	Opens an empty text editor window.

From the Main Menu bar, select **Setup ▶ NMS System Configure**.

OR

Click

Option	Use to...
Login Time Out	Set the amount of time the system will wait before logging the user out automatically.
Change Supervisor Password	Change the supervisor password. The Default password is **123**. Maximum password length is 6 characters.
Log file store date	Select the number of days to keep the log file. The system will automatically delete the log file after the specified number of days.

3.3 Log Files

The log files record the operation status of the system, such as logins/logouts, the state of the connection between the equipment and the NMS, etc. These files are standard text files which may be read using a text editor, or using the Editor button on the tool bar.

Up to three log files are generated automatically, once a day, based on system activity and saved in the `\Charles\NMSMgr` directory. The file is named according to the file type and generation date with the suffix "**.log** ". For example, file name **el1018.log** is a log file for Oct. 18. See Table 2 for file types.

Table 2. Log File Types

File Name	Stores
ELXXXX.log	ICB equipment status changes, user logins and logouts.
IADXXXX.log	Alarms and loopback changes
LUXXXX.log	NMS user logins and logouts

Use the following steps to read a system log file:

Step	Action	System Response
1.	Select the Editor buttor  on the Tool Bar	Opens an empty text editor window.
2.	Select the Open buttor  on the tool bar	Opens a list of available log files.
3.	Select the log file you want to see and click Open	Opens the log file.

4. DATABASE TASKS

The Database item of the Main Menu Bar is grouped into two categories. Only the supervisor has access to these items.

Category	Use to...
User Management	Add, delete or edit user information.
Equipment Management	Add, delete or update equipment information.

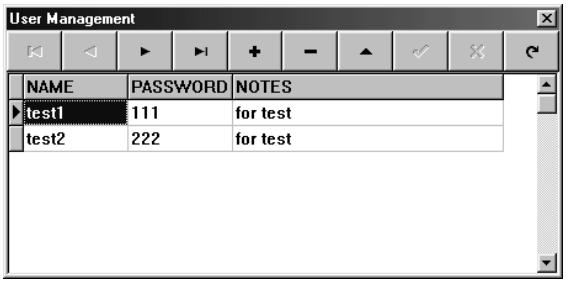
IMPORTANT NOTE

User management tasks performed in this menu apply ONLY to the Network Management software; ICB software user management tasks are performed from the ICB Administration menu (see page 37).

4.1 User Management

Use this dialog box to add and delete users, and to set passwords.

From the Main Menu bar, select **Database ▶ User Management**.



Field	Description
NAME	Shows the user name.
PASSWORD	Shows the user login password.
NOTES	Memo field (any text).

4.1.1. Adding/Deleting a User

Use the following steps to add or delete a user. NMS user names and passwords should be limited to ten characters.

Step	Action
1.	To insert a user, press **<Insert>** or select + from the tool bar.
2.	To delete a user, press **<Ctrl> <Del>** or select – from the tool bar.

4.1.2. Changing User Information

Use the following steps to change the user information.

Step	Action	System Response
1.	Move the cursor to the required position.	
2.	Modify the data	An "**I**" is displayed on the first column to indicate the user data has been modified.
3.	To save the modified data, click ✓ on the tool bar.	The sign on the first column changes to a triangle when the data has been saved.

4.2 Equipment Management

Because the NMS may be used to manage several ICBs, the equipment addressing must be assigned through this dialog box. The equipment is accessed through a combination of the NMS address and the IP address. Both must be correct for the equipment to be managed through the management software.

From the Main Menu bar, select **Database ▶ Equipment Management**.

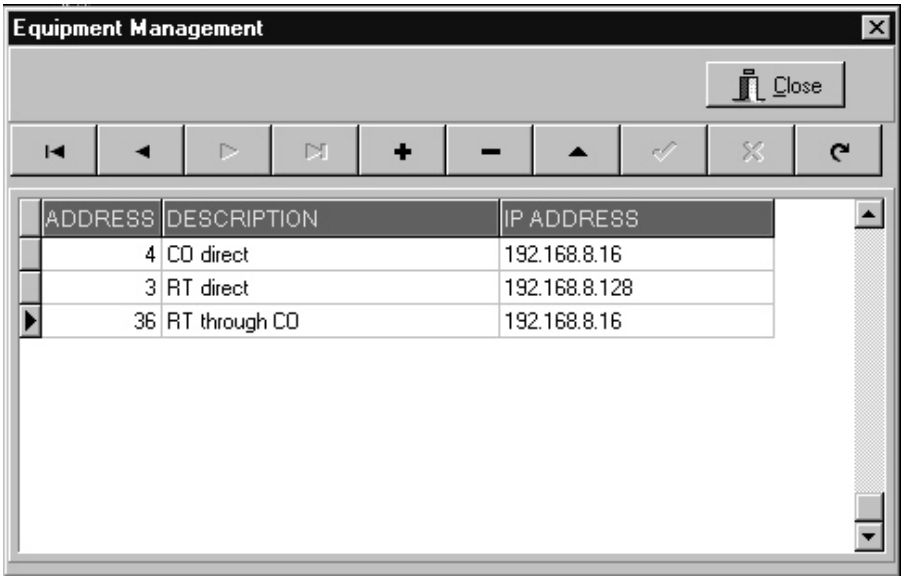
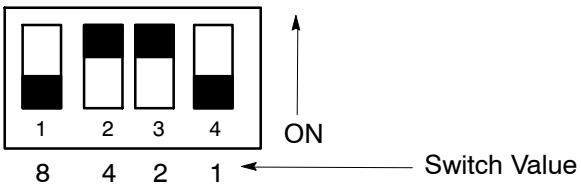


Figure 3. Equipment Management Dialog Box

Use the following steps to insert new ICB equipment:

Step	Action
1.	To add equipment within an existing list: Move to the line just below where the new equipment should be added and select the + from the toolbar. To add equipment to the end of a list: Move past the last item in the list and a blank line will be added.
2.	**IAD with Local Connection** Local connection is connected to the same LAN as the management PC. Enter the NMS address of the ICB. The NMS address of the ICB is determined by the ADDRESS ID switch setting of the T1 card in the ICB according to the following: For a unit that is directly connected to the PC/LAN, the address will be the ADDRESS ID switch setting of the T1 card plus 1. So, the following would be true: ADDRESS ID switch setting + 1 = NMS address of the ICB Mathematically, this statement is represented as follows: 4 + 1 = 5 (If the ADDRESS ID switch was set to 4) **IAD with Remote Connection** Remote connection is connected via a T1 to a local connected ICB. For a remote ICB managed through a local ICB, the NMS address will be the NMS address of the local ICB, plus the ADDRESS ID switch setting of the remote unit times16. The equation would be: Local ICB NMS address + (Remote ADDRESS ID switch setting X 16) = NMS address of the remote ICB For example, if the local NMS ICB address is 5 and the ADDRESS ID of the remote switch setting is 2, 37 would be the NMS address of the ICB. Mathematically, this statement is represented as follows: 5 + (2 X 16) = 37. *Note: The remote ICB ADDRESS ID switch setting must be greater than 0 and less than 8.* Each remote ICB connected to the local ICB in a drop/reinsert configuration must have different ADDRESS ID switch settings.
3.	Enter a description for the new device (see Table 3). Descriptions must be unique for each ICB.
5.	Enter the IP address of the ICB connected to the LAN. For remote units that are managed through a local ICB, enter the IP address of the local ICB. If an ICB is connected directly to a LAN it can be managed as a local unit regardless of it's physical location.

The ADDRESS ID switch on the front panel of the T1 card is used to set an ICB NMS address for identification of this ICB in a network of ICBs. The ADDRESS ID switch consists of 4 switches binary coded and used to set a unique ICB NMS address. The following figure shows the value of each switch:



An ADDRESS ID is created by moving a switch (or switches) to the ON position. The figure shows an ADDRESS ID switch setting of 6 (4+2). The range of ADDRESS ID switch settings is from 0 (when all switches are OFF), to 15 (when all switches are ON).

Table 3. Remote NMS Address Lookup Table

Local NMS Address	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Local ADDRESS ID switch setting	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Remote ADDRESS ID Switch Setting																
1	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
2	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
3	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
4	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
5	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
6	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112
7	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128

5. ICB MANAGEMENT SOFTWARE

Use the ICB Management software to configure and monitor the cards used in the ICB system. Menus are available to set up all parameters of the T1 controller and circuit cards.

Use the following steps to open the ICB Management Software:

Step	Action	System Response
1.	Double-click the **ICB** equipment icon on the connected equipment list box (right window) of the NMS Manager main screen (see Figure 2).	Opens the ICB Management log in dialog box.
2.	Enter an ICB user name and password, or the default user name `piad` (case-sensitive) and default password `1234.` *Note: Change the user name and password as soon as possible. See the Administration section for instructions.*	Opens the main ICB management screen (Figure 4).

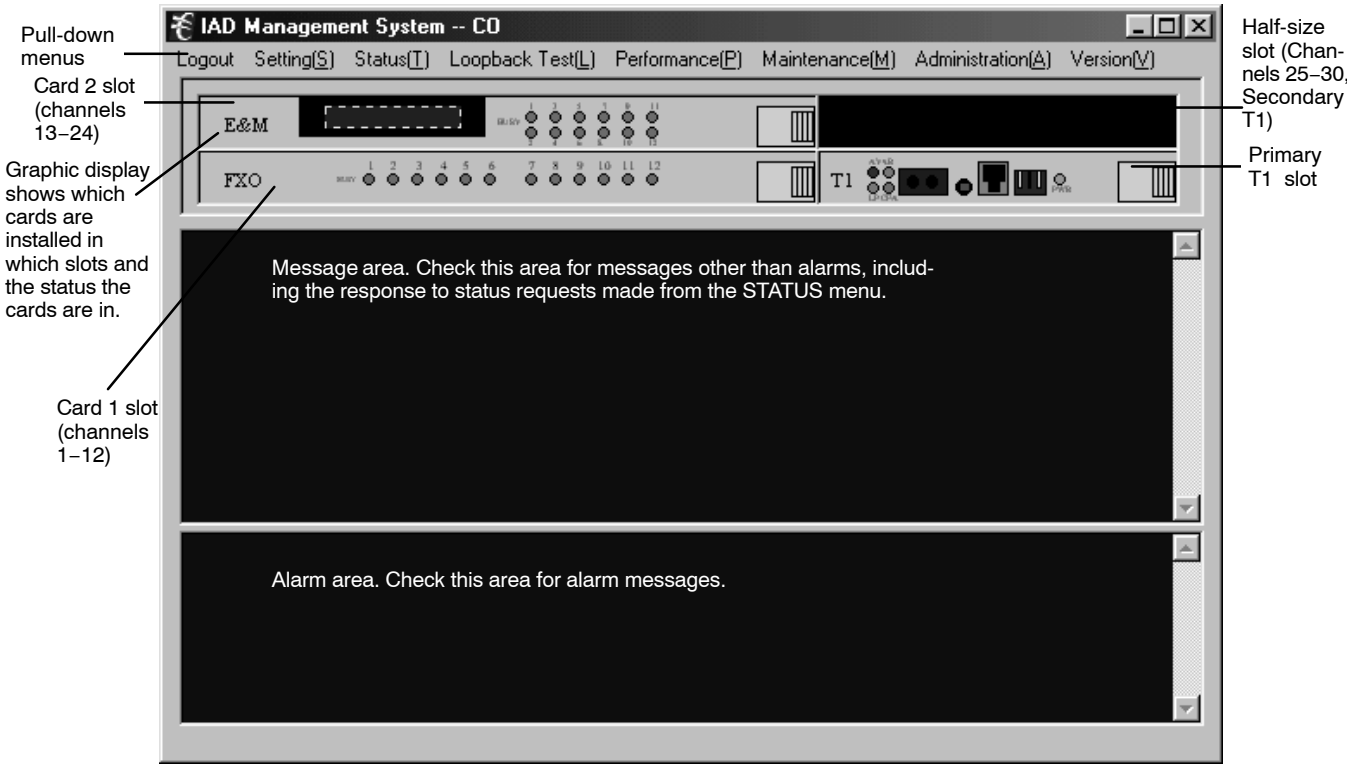


Figure 4. Main Network Management Screen

Once you have started the ICB Management System software, you can set/change parameters for any of the cards in the system.

5.1 Set T1 Parameter

Select **Settings▶Set T1 Parameter** to open the primary T1 card (T1-S) parameter settings.

Once you have finished configuring the card, click **OK** to activate the new settings, and click **Close** to close the dialog box. To cancel changes without saving, click **Close**.

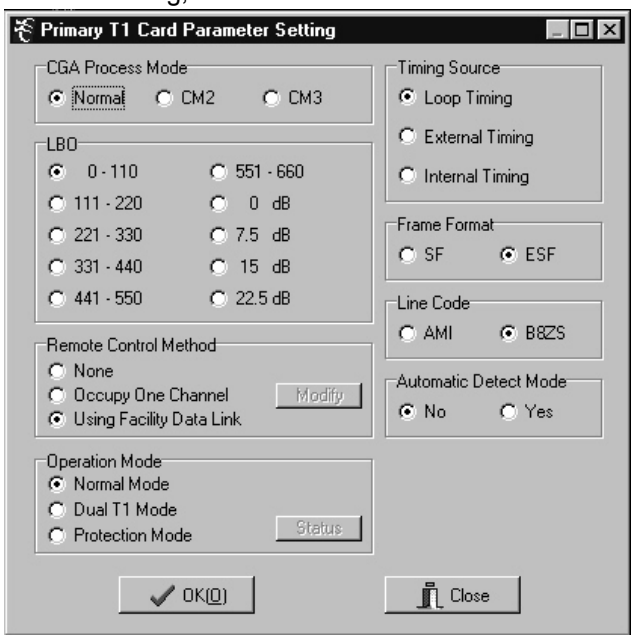


Figure 5. T1 Parameter Settings

Parameter	Possible Choices	Description
CGA Process Mode	Normal	Carrier group alarm response characteristics per Pub 43801.
	CM2	Carrier group alarm mode 2 (see T1 Controller documentation)
	CM3	Carrier group alarm mode 3 (see T1 Controller documentation)
Timing Source	Loop Timing	Internal clock synchronized to incoming T1 signal.
	External Timing	Internal clock synchronized to external clock input terminals on rear panel.
	Internal Timing	Internal clock selected as master clock.
LBO (Line Build-Out)	Short Haul: 0 to 660 ft.	Pre-equalization of signal for line conditions.
	Long Haul: 0, 7.5, 15, or 22.5 dB	Receive gain control for span line attenuation.
Frame Format	SF	Superframe format
	ESF	Extended Superframe format
Line Code	AMI	Alternate mark inversion
	B8ZS	Bit 8 zero suppression
Remote Control Method (to the remote ICB)	None	No communication to remote unit (non-Charles unit)
	Occupy One Channel	One 64K channel is used for communication.
	Using Facility Data Links	Communication to remote over FDL (ESF format only)
Automatic Detect Mode	No	SF/ESF must be manually selected
	Yes	Auto detection of SF/ESF mode, requires loop timing

Parameter	Possible Choices	Description
Operation Mode	Normal Mode	Normal T1, or when used with the secondary T1 card allows for Drop and Insert applications.
	Dual T1 Mode	When used with a secondary T1 card, the two T1s function as two independent T1s
	Protection Mode	When used with a secondary T1 card, allows the secondary T1 to be protection for the primary T1.
	Status	Protection mode only — indicates which T1 is currently in operation.

5.1.1. Error Second Threshold (protection mode only)

Select **Settings ▶ Error Second Threshold** to open the error second threshold dialog box.

Use this dialog box to get or set the threshold that determines when the system will switch from the Primary to the Secondary T1.

Once you have finished, click **Close**.

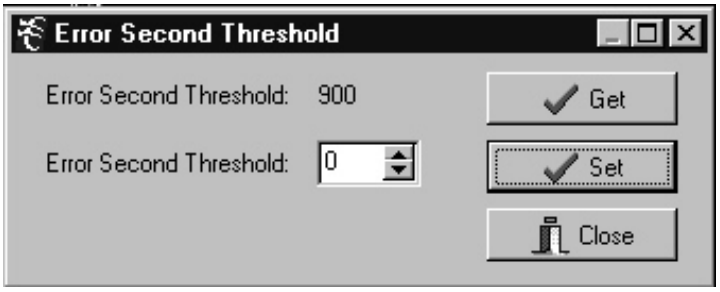


Figure 6. Error Second Threshold

5.2 Set Secondary T1 Parameter

Select **Settings▶Set T1 Parameter** to open the secondary T1 card (ST1U) parameter settings.

Once you have finished configuring the card, click **OK** to activate the new settings, and click **Close** to close the dialog box. To cancel changes without saving, click **Close**.

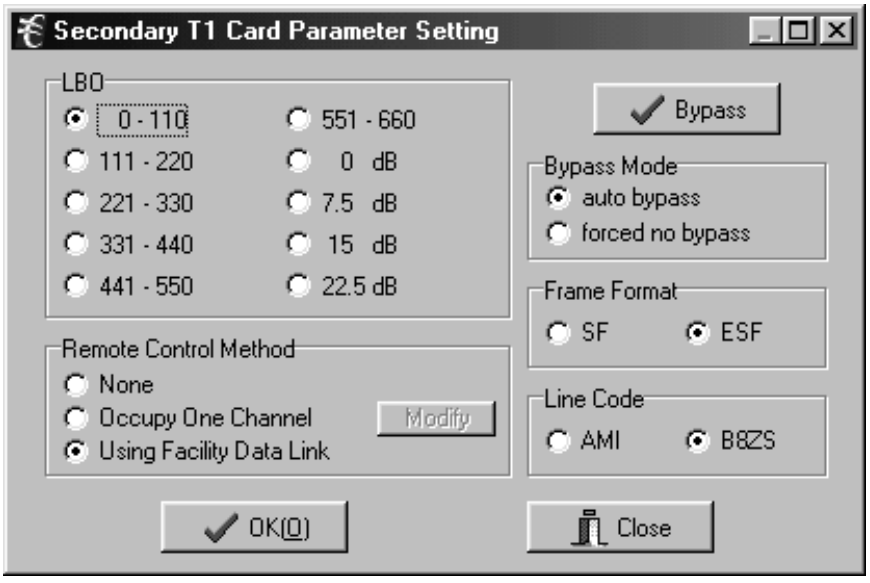


Figure 7. T1 Parameter Settings

Parameter	Possible Choices	Description
LBO (Line Build-Out)	Short Haul: 0 to 660 ft.	Pre-equalization of signal for line conditions.
	Long Haul: 0, 7.5, 15, or 22.5 dB	Receive gain control for span line attenuation.
Bypass Mode	auto bypass	When this option is enabled, the T1 connected to the T1−S is automatically bypassed or connected to the T1 connected to the ST1U span when one of the following conditions occurs: power is lost to the ICB, the T1−S or the ST1U card fails.
	forced no bypass	When this option is enabled, the T1 connected to the T1−S is not bypassed or connected to the T1 connected to the ST1U when power is lost or there is a card failure. The timeslot allocations remain assigned for the ICB but connections on any of the “pass through” timeslot assignments are broken if power is lost or there is a card failure in the ICB.
Bypass button (manual override forcing bypass)	If this function is selected from the NMS or craft interface, the ICB will immediately go into T1 bypass. If the ICB was being managed over a T1, control will be lost and the management screen for that ICB will log out. Re-login is only possible through the craft interface or through a local connection to the ICB’s rear NMS interface. Restoring normal error-free operation will require removing both the T1−S and ST1U cards. The cards must then be reinserted in order, first the T1−S and then the ST1U.	
Remote Control Method (to the remote ICB)	None	No communication to remote unit (non-Charles Industries unit)
	Occupy One Channel	One 64K channel is used for communication.
	Using Facility Data Links	Communication to remote over FDL (ESF mode only)
Frame Format	SF	Superframe format
	ESF	Extended Superframe format
Line Code	AMI	Alternate mark inversion
	B8ZS	Bit 8 zero suppression

5.3 Set Card Parameters

Parameters available on these dialog boxes will depend upon the cards you use.

Once you have finished configuring the card, click **OK** to activate the new settings, and click **Close** to close the dialog box. To cancel changes without saving, click **Close**.

Note: For complete descriptions of the card parameters, refer to documentation for the individual cards you are using.

5.3.1. FXO Parameters (for 3658-80 12 Channel FXO/DPT Unit)

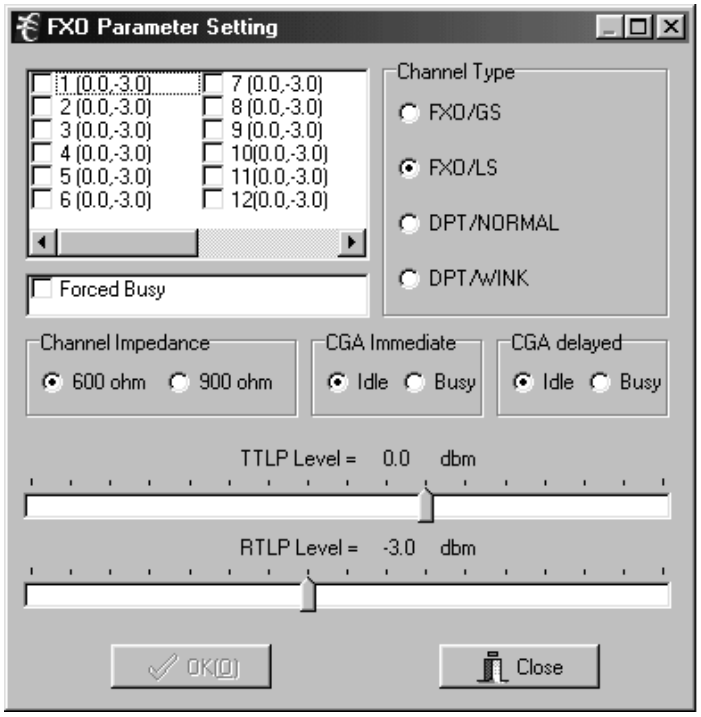


Figure 8. FXO Parameter Settings

Parameter	Possible Choices	Description
Channel Selection	1–12 (if in Card 1 slot)	Select the channel the parameters will be applied to. Each channel can be configured individually.
	13–24 (if in Card 2 slot)	
	25–30 (if in half-size slot)	
Channel Type	FXO/GS	FXO—ground start
	FXO/LS	FXO—loop start
	DPT/NORMAL	DPT—normal
	DPT/WINK	DPT—automatic wink
Forced Busy	ON or OFF	Select ON to force local channel busy
Channel Impedance	600 or 900 Ohms	Loop matching impedance
CGA Immediate	Idle or Busy	CGA—immediate conditioning
CGA Delayed	Idle or Busy	CGA—conditioning after alarm delay
TTLP Level (dBm)	–10.0 to +6.0 dBm	Transmit TLP level
RTLP Level (dBm)	+6.0 to +10.0 dBm	Receive TLP level

5.3.2. FXS Parameters (for 3657-80 12 Channel FXS/DPO Unit)

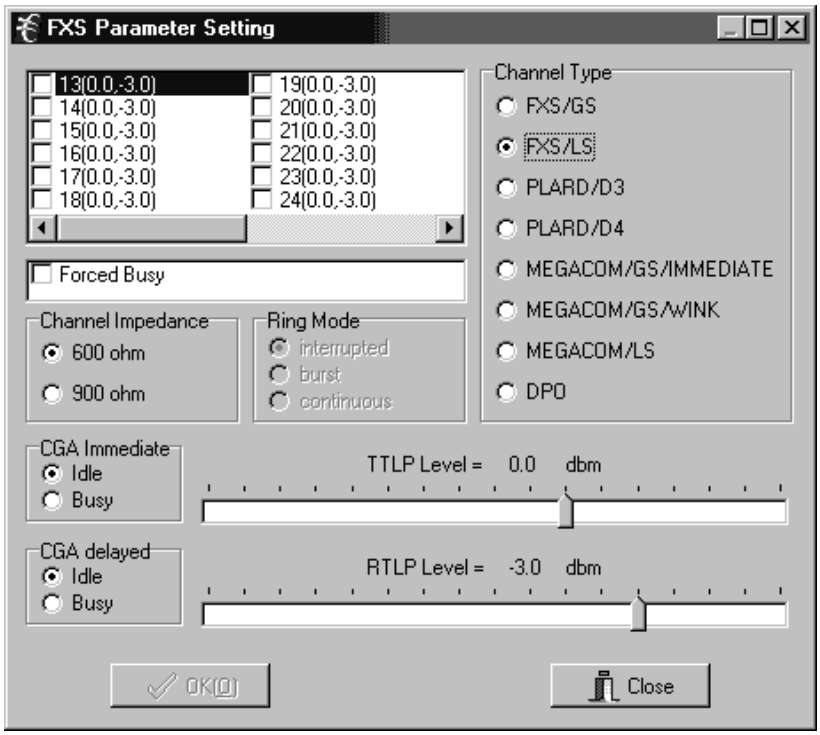


Figure 9. FXS Parameter Settings

Parameter	Possible Choices	Description
Channel Selection	1−12 (if in Card 1 slot)	Select the channel the parameters will be applied to. Each channel can be configured individually.
	13−24 (if in Card 2 slot)	
	25−30 (if in half-size slot)	
Channel Impedance	600 ohms	Loop matching impedance
	900 ohms	
Ring Mode	interrupted, burst or continuous	This option is available only if PLARD D3 or D4 is selected.
Channel Type	FXS/GS	Ground start
	FXS/LS	Loop start
	PLARD/D3	Private line automatic ringdown, D3 signaling format.
	PLARD/D4	Private line automatic ringdown, D4 signaling format.
	MEGACOM/GS/immediate	AT&T Megacom—ground start
	MEGACOM/GS/wink	
	MEGACOM/LS	AT&T Megacom—loop start
	DPO	Dial pulse originate
Forced Busy	ON or OFF	Select ON to force local channel busy
CGA Immediate	Idle or Busy	CGA immediate conditioning
CGA Delayed	Idle or Busy	CGA conditioning after alarm delay
TTLP Level (dBm)	−10.0 to +6.0 dBm	Transmit TLP level
RTLP Level (dBm)	−15.0 to +1.0 dBm	Receive TLP level

5.3.3. E&M Parameters (for 3652-80 12 Channel E&M Unit)

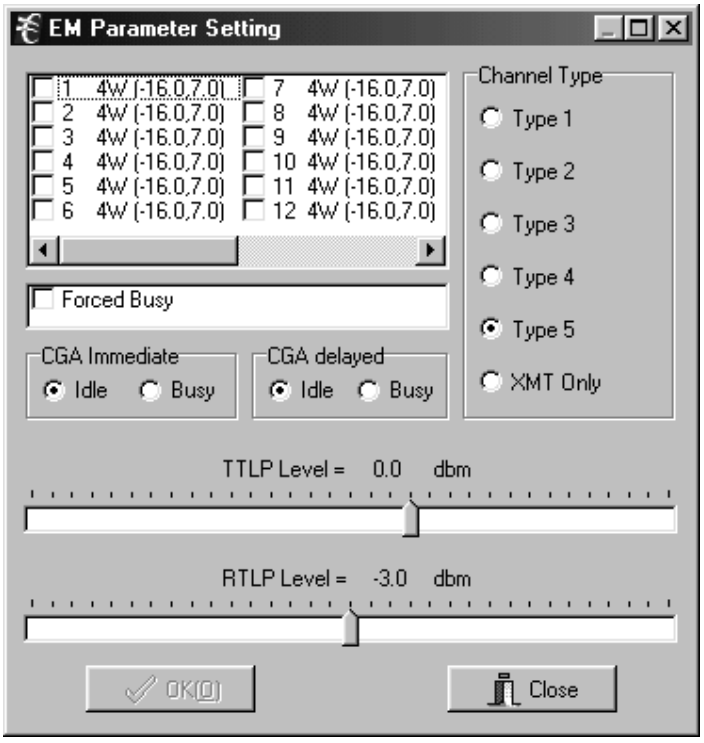


Figure 10. E&M Parameter Settings

Parameter	Possible Choices	Description
Channel Selection	1–12 (if in Card 1 slot)	Select the channel the parameters will be applied to. Each channel can be configured individually.
	13–24 (if in Card 2 slot)	
	25–30 (if in half-size slot)	
Channel Type	Type 1–5	Select E&M signaling lead type
	Transmission Only	No signaling leads used
Forced Busy	ON or OFF	Select ON to force local channel busy
CGA Immediate	Idle or Busy	CGA immediate conditioning
CGA Delayed	Idle or Busy	CGA conditioning after alarm delay
TTLP Level (dBm)	–19.0 to +13.0 dBm –19.0 to +7.0 dBm	Transmit TLP level (4-wire mode) Transmit TLP level (2-wire mode)
RTLP Level (dBm)	–19.0 to +13.0 dBm –19.0 to +7.0 dBm	Receive TLP level (4-wire mode) Receive TLP level (2-wire mode)

5.3.4. OCU-DP Parameters (for 3632-80 12-Channel Office Channel Unit – Data Port)

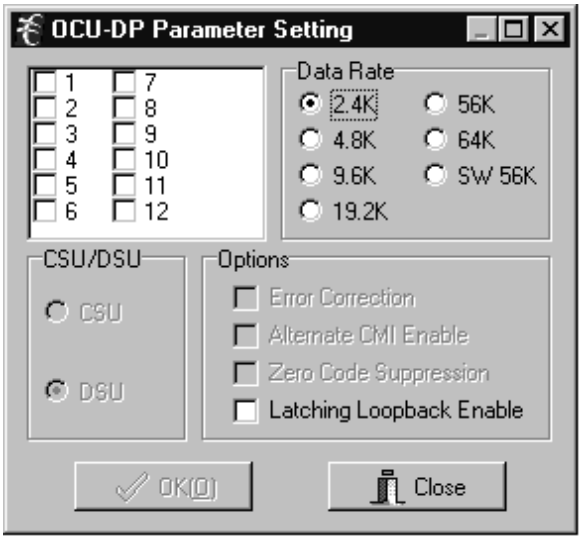


Figure 11. OCU-DP Parameter Settings

Parameter	Possible Choices	Description
Channel Selection	1−12 (if in Card 1 slot)	Select the channel the parameters will be applied to. Each channel can be configured individually.
	13−24 (if in Card 2 slot)	
	25−30 (if in half-size slot)	
Data Rate	2.4K, 4.8K, 9.6K, 19.2K, 56K, 64K, SW 56K	Select the transmission data rate for any/all channel slots.
CSU/DSU *Note: This option is NOT available for the 64K data rate.*	CSU	Convert non-latching DSU loopback codes from the network to CSU loopback codes.
	DSU	Normal operating position. Allows DSU loopback codes to be sent to 4-wire loops.
Options	Error Correction	Enable BCH error correction. Available for 19.2K, 56K and 64K data rates.
	Alternate CMI Available	Enable alternate idle code. Available for SW 56K data rates.
	Zero Code Suppression	Enable suppression of zero codes. Available for 64K and SW 56K data rates.
	Latching Loopback Enable	Enable send and detect latching loopback codes. Available for all data rates.

5.3.5. DSU-DP Parameters (for 3633-80 12 Channel Data Service Unit—Data Port)

Note: Availability of some options depends on the data rate chosen.

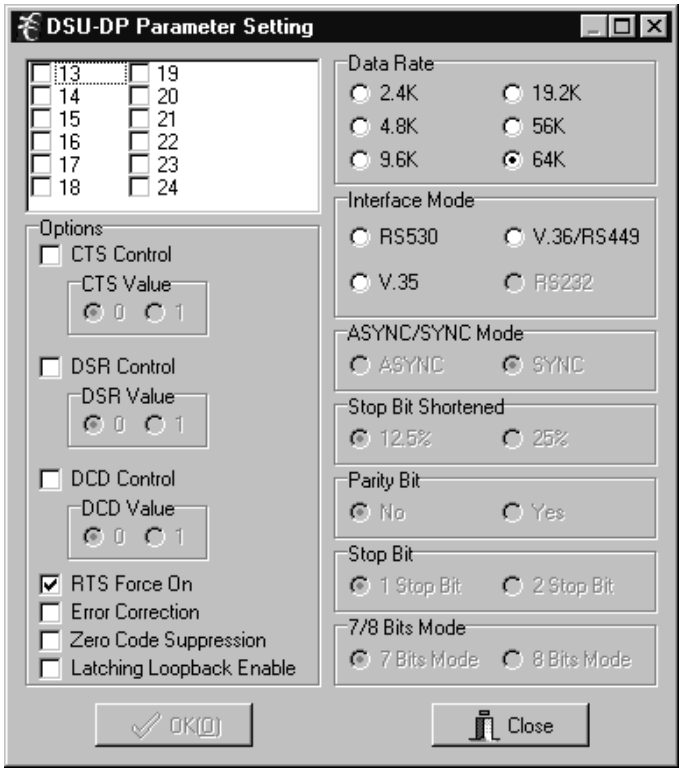


Figure 12. DSU-DP Parameter Settings

Parameter	Selection	Description
Channel Selection	1–12 (in Card 1 slot)	Select the channel(s) the parameters will be applied to. Each channel can be configured individually.
	13–24 (in Card 2 slot)	
	25–30 (in half-size slot)	
CTS Control	Enable/disable	Forces clear-to-send to selected level.
DSR Control	Enable/disable	Forces data-set-ready to selected level.
DCD Control	Enable/disable	Forces data carrier detect to selected level.
RTS Force On	Enable/disable	Forces request-to-send to ON
Error Correction	Enable/disable	BCH error correction.
Zero Code Suppression	Enable/disable	Converts a zero data byte to 18 hex sent to network.
Latching Loopback Enable	Enable/disable	Enables detection of latching loopback codes.
Data Rate (Kilobits)	2.4, 4.8, 9.6, 19.2, 56 or 64	Select the transmission data rate.
Interface Mode	RS530	EIA standard serial interfaces.
	V.36/RS449	EIA standard serial interfaces.
	V.35	ITU standard for high-speed synchronous data exchange.
	RS232	EIA standard serial interface.
ASYNC/SYNC Mode	ASYNC or SYNC	Synchronous or asynchronous data transmission.
Stop Bit Shortened	12.5% or 25%	Async mode 12.5% or 25% shortened stop bits.
Parity Bit	No or Yes	Select parity or no parity for async mode only.

Stop Bit	1 or 2	Select 1 or 2 stop bits for async mode only.
7/8 Bits Mode	7 or 8	Select 7 or 8 data bits for async mode only.

5.3.6. ISDN Parameters (for 3638-80 Quad Circuit ISDN)

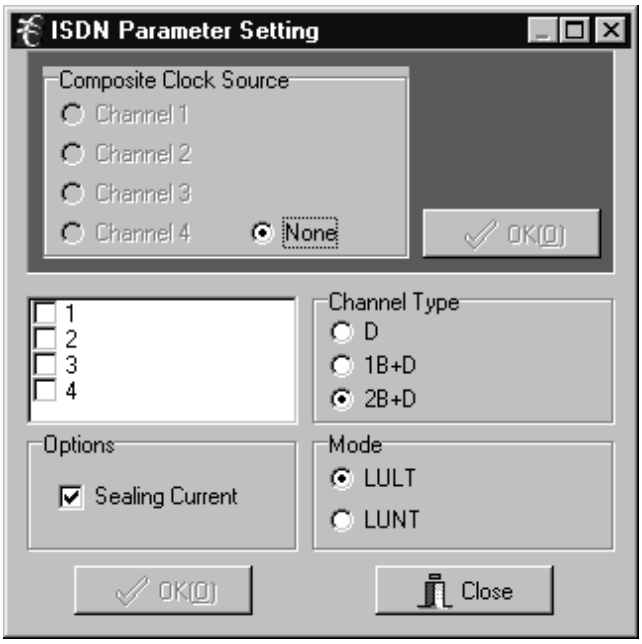


Figure 13. ISDN Parameter Settings

Parameter	Possible Choices	Description
Composite Clock Source	Channels 1−4 (if in card 1 slot) Channels 13−16 (if in card 2 slot) Channels 25−26 (if in half-size slot) None	Select the source of the composite clock output on the rear panel.
Channel Selection	1−4 (if in card 1 slot) 13−16 (if in card 2 slot) 25−26 (if in half-size slot)	Select the channel(s) the parameters will be applied to. Each channel can be configured individually.
Channel Type	D	Overhead channel only.
	1B + D	One data/voice channel plus overhead channel.
	2B + D	Two data/voice channels plus overhead channel.
Options	Sealing Current	ON/OFF (LULT only).
Mode	LULT	RT mode.
	LUNT	COT mode.

5.3.7. 56/64xN Parameters (for 3634-80 6-Circuit 56/64xN Data Service Unit—Data Port)

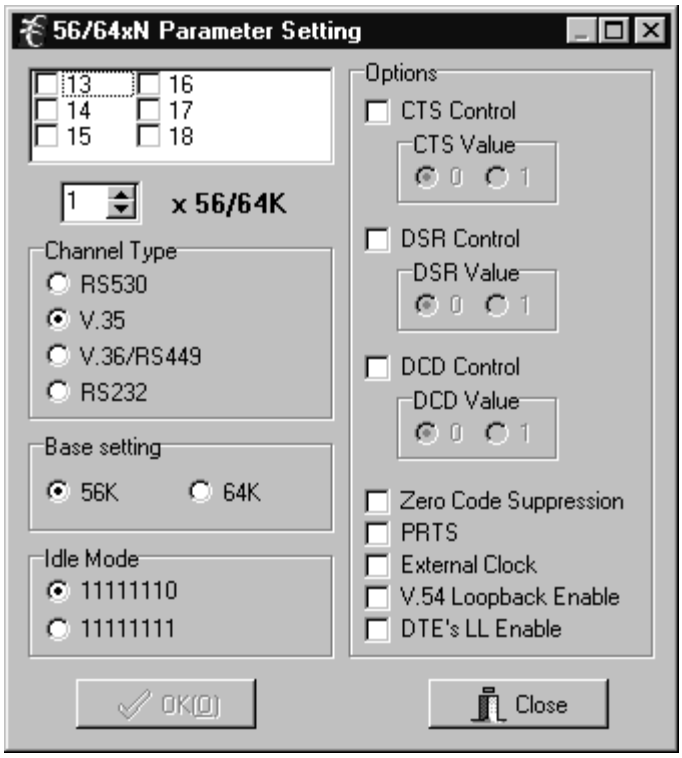


Figure 14. 56/64xN DSU-DP Parameter Settings

Parameter	Selection	Description
Channel Selection	1–6 (if in card 1 slot)	Select the channel(s) the parameters will be applied to. Each channel can be selected individually.
	13–18 (if in card 2 slot)	
	25–27 (if in half-size slot)	
Number of Timeslots	1–24	Depends on desired bandwidth and timeslots allocated.
Channel Type	RS530	Select serial interface connection type.
	V.35	
	V.36/RS449	
	RS232	
Base Setting	56K or 64K	Data rate.
Idle Mode	11111110 or 11111111	Select idle mode data pattern.
CTS Control	Enable/disable	Forces clear-to-send to selected level.
DSR Control	Enable/disable	Forces data-set-ready to selected level.
DCD Control	Enable/disable	Forces data carrier detect to selected level.
Zero Code Suppression	Enable/disable	Converts a zero data byte to 18 hex sent to the network.
PRTS	Enable/disable	Permanent request-to-send forces request-to-send active and to continuously send data.
External Clock	Enable/disable	Select external input as a clock source.
V.54 Loopback Enable	Enable/disable	Allow transmission and detection of loopback codes.
DTE's LL Enable	Enable/disable	Allow local loop to be enabled by DTE interface.

5.3.8. Ethernet Router Parameters (for 3641-80 and 3648-80)

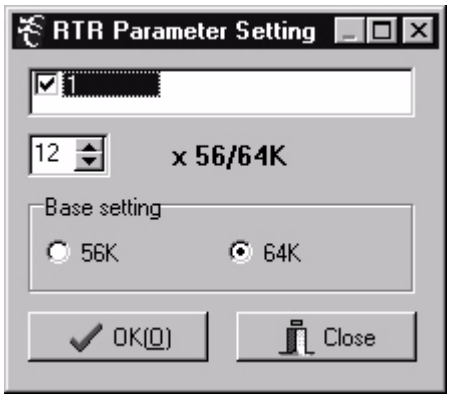


Figure 15. Ethernet Router Parameter Settings

Parameter	Possible Choices	Description
Number of Timeslots	1–24	Depends on desired bandwidth and timeslots allocated.
Base Setting	56K or 64K	Data rate.

5.4 Time Slot Allocation

Use this dialog box to change the location of a channel within the T1 signal time slots. This dialog box is also used for drop and insert applications.

Select **Settings▶Time Slot Allocation**

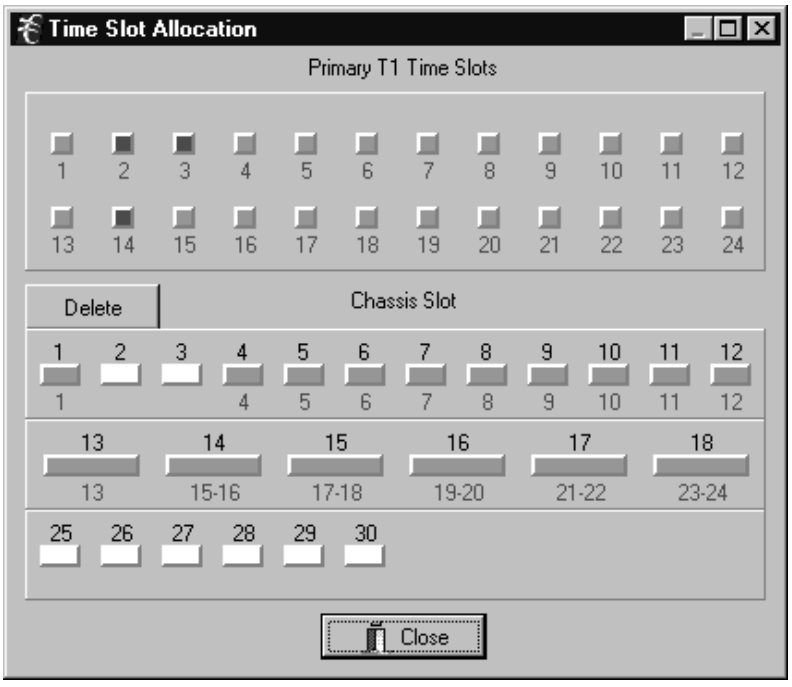


Figure 16. Setting the Time Slot Allocation

Use the following steps to change time slot allocation. Time slots and chassis slots must be unallocated before they can be allocated. The first three steps are followed to unallocate chassis slots (channels) from time slots. the last two steps are followed to allocate chassis slots (channels) to time slots.

Step	Action	System Response
1.	Click **Delete**.	
2.	Click on the chassis slot that you want to change and respond **Yes** when asked to confirm.	The chassis slot will turn white, and its corresponding T1 time slot(s) will darken.
3.	Repeat steps 1 and 2 for any other chassis slots you want to unallocate.	
4.	Click on the unallocated chassis slot you want to allocate.	The selected chassis slot will turn yellow.
5.	Click on the T1 time slot you want to allocate the chassis slot to. *Note: For chassis slots that use multiple time slots, click on the first T1 timeslot to be used.*	The selected chassis slot and time slot(s) will turn light green.

Note: If a chassis slot does not have a card plugged in, the chassis slot channels will not be displayed.

5.5 Time Slot Mode (only with Secondary T1 Unit Installed)

Use this dialog box to change data that will be sent to a T1 time slot that is not allocated on the other T1. Changing the time slot mode provisioning does not affect the operation of the channel bank unless the T1 is set to normal (drop & re-insert) mode.

Note: Time slots that are not dropped must be set to broadcast on both the Primary and Secondary T1 time slots to pass data from one T1 to the other T1. Time slots to be blocked between T1s should have the time slot mode set to idle on both Primary and Secondary T1 time slots.

Select **Settings▶Set Time Slot Mode**

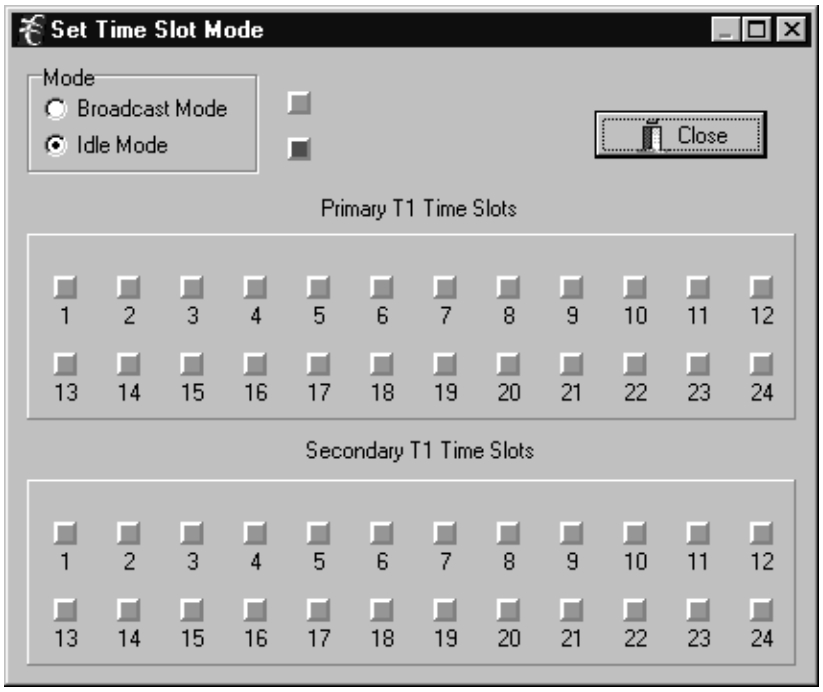


Figure 17. Setting the Time Slot Mode

Use the following steps to change the time slot mode:

Step	Action	System Response
1.	Select the mode you want the time slot set to.	
2.	Select the time slot you want to edit.	Changes the slot information to the corresponding color.
3.	Repeat steps 1 and 2 for any other slots you want to change.	
4.	Click **Close** to save changes and close the dialog box.	

6. STATUS MENU

Use the following sections to check the system status. Once retrieved, system status will be displayed in the main screen as shown in Figure 18.

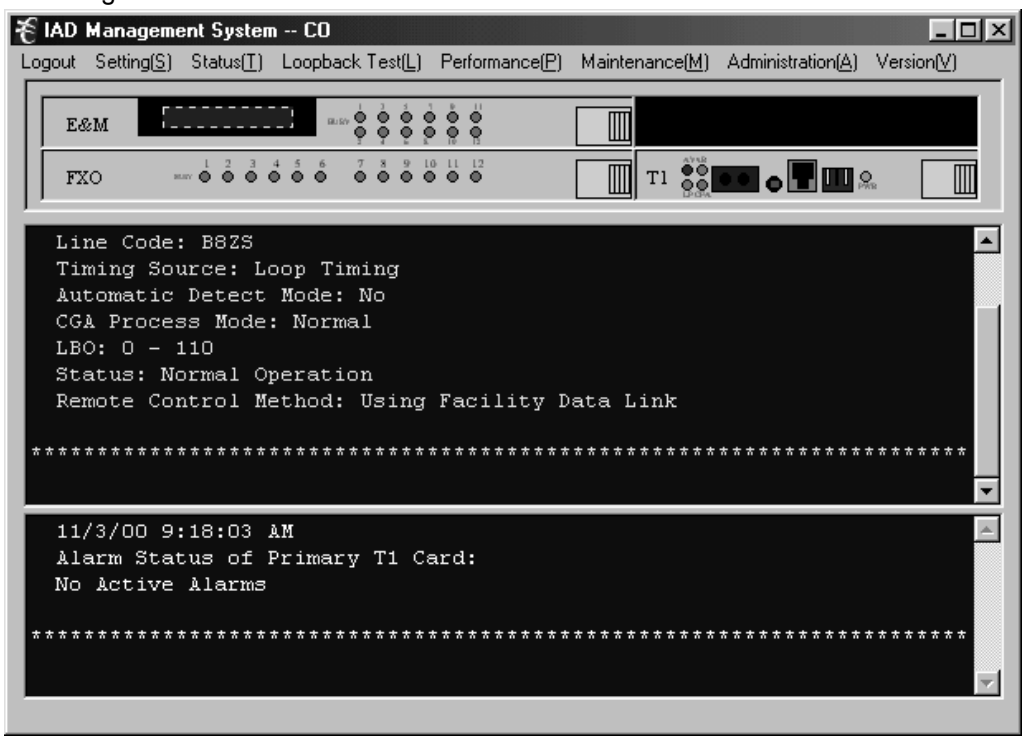


Figure 18. Screen showing retrieved status in the Message area and the Alarm area

6.1 Retrieve T1 Parameter

Select **Status▶Retrieve T1 Parameter**. Retrieves the parameters of the T1 card and displays them in the Message area of the main screen.

6.2 Retrieve T1 Alarm Status

Select **Status▶Retrieve T1 Alarm Status**. Retrieves any current alarms on the T1 card and displays them in the Alarms area of the main screen.

6.3 Retrieve Inventory Data

Retrieves basic data about any card in the system.

Use the following steps to retrieve inventory data.

Step	Action	System Response
1.	Select **Status▶Retrieve Inventory Data**.	Opens a dialog box asking you to select the card you want to retrieve data for.
2.	Select the card that you want to retrieve inventory data for. Only cards which are actually installed in the system will be displayed.	
3.	Click **OK.**	Displays the card firmware version in the message area of the ICB manager screen.

6.4 Retrieve Channel Status

Retrieves a list of all the configurable parameters for all channel cards and displays them in the message area of the ICB manager screen.

Use the following steps to retrieve the channel status.

Step	Action	System Response
1.	Select **Status▶Retrieve Channel Status**.	Displays the channel status of all installed cards in the message area of the ICB manager screen. Channels are displayed in numerical order. See Figure 19.

Note: The scroll bar can be positioned to view each channel.

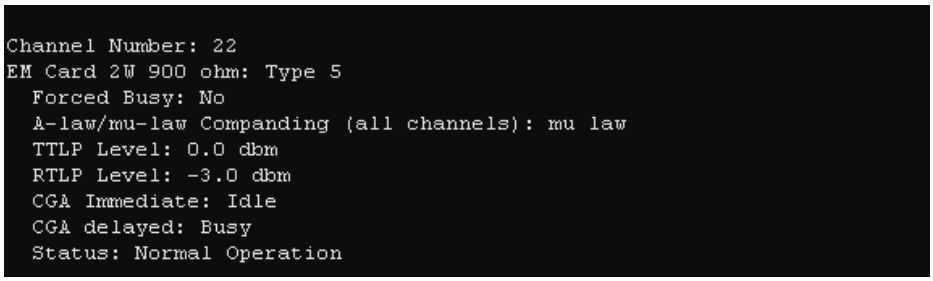


Figure 19. Retrieved channel card information

6.5 Retrieve Alarm History

Select **Status▶Alarm History**. Opens the current alarm log file.

6.6 Retrieve Event Log

Select **Status▶Event Log**. Opens the current event log file.

7. TESTING

7.1 Loopback Test

Use the Loopback tests to troubleshoot problems when an alarm is reported on the card.

7.1.1. Loopback of T1 Card

Use the following steps to perform the T1 card loopback.

Note: Loopback tests will affect the service being provided. Loopback tests will not function if there is an alarm present on the ICB.

Step	Action	System Response
1.	Select **Loopback Test ▶ Loopback of T1 Card**	Opens the Primary T1 Card Loopback dialog box (see Figure 20).
2.	Select the type of loopback you want to perform (Line or Payload)	
3.	Select the loopback location (near end or far end)	
4.	Select **Loopback**	Initiates the loopback. Results will be displayed in the alarm status area of the main screen (see Figure 18).

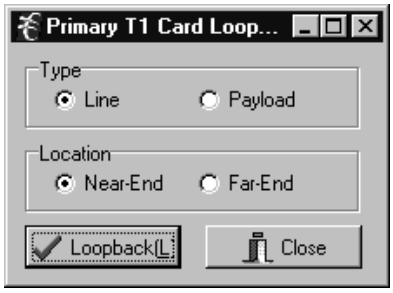


Figure 20. T1 Card Loopback

Parameter	Possible Choices	Use to...
Type	Line	Loop T1 (24 DS0s and overhead).
	Payload	Not available for Near End. Loop T1 ICB to itself (available in ESF mode only) (24 DS0s only).
Location	Near End	Loop local T1. This option is not available when payload loopback is selected.
	Far End	Loop T1 at remote ICB.

Note: Far end line loopbacks will block far end ICB Remote Management.

7.1.2. Loopback of E&M Card

Use the following steps to perform the E&M card loopback (this is a bidirectional network/local loopback).

Step	Action	System Response
1.	Select **Loopback Test ▶ Loopback of EM Card**	Opens the EM Loopback/Release dialog box (see Figure 21).
2.	Select the Loopback or Release tab.	

Step	Action	System Response
3.	Check the box beside the channel number(s) you are using.	
4.	Select **OK**	Initiates the loopback or release. Results will be displayed in the alarm status area of the main screen (see Figure 18).

Note: A loopback channel can be "forced busy". However, a loopback test cannot be performed on a channel that is busy.

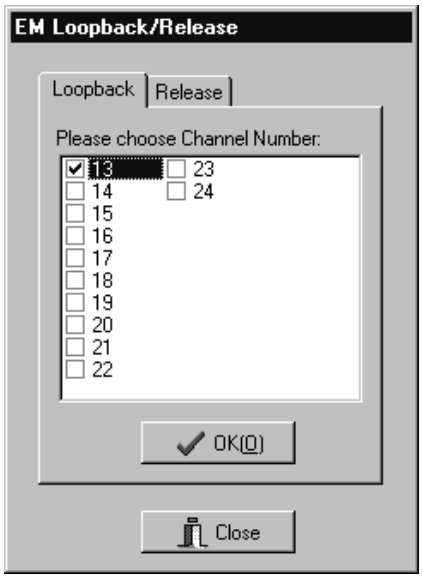


Figure 21. E&M Card Loopback

7.1.3. Loopback of FXO/FXS Card

Use the following steps to perform the FXO/FXS card loopback (this is a network loopback).

Step	Action	System Response
1.	Select **Loopback Test ▶ Loopback of FXO/FXS Card**	Opens the FXO/FXS Loopback/Release dialog box (see Figure 22).
2.	Select the Loopback or Release tab.	
3.	Check the box beside the channel number(s) you are testing.	
4.	Select **OK**	Initiates the loopback or release.

Note: A loopback channel can be "forced busy". However, a loopback test cannot be performed on a channel that is busy.

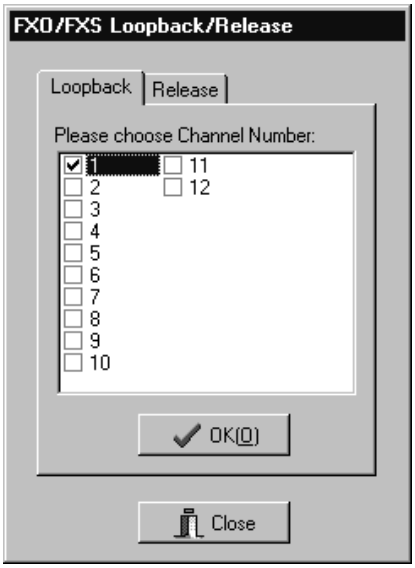


Figure 22. FXO/FXS Card Loopback

7.1.4. Loopback of OCU-DP Card

Use the following steps to perform the OCU-DP card loopback.

Step	Action	System Response
1.	Select **Loopback Test ▶ Loopback of OCU-DP Card**	Opens the OCU-DP Loopback/Release dialog box (see Figure 23).
2.	Select the the channel you want the loopback test run on.	
3.	Select the loopback type.	
4.	Select the loopback location (near- or far-end).	
5.	Set the test time. This defines the duration of the test.	
6.	Select 2047 Pattern enable or disable.	If enabled, generates a 2047 pattern to be looped back for analysis.
7.	Select **Loopback**	Initiates the loopback or release. If no time slot is assigned to the chassis slot, loopback cannot be enabled.

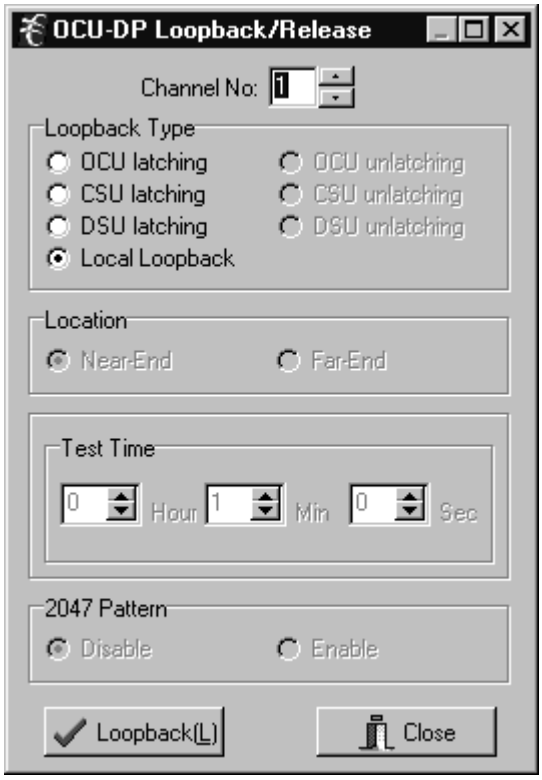


Figure 23. OCU-DP Card Loopback

Note: OCU-DP far and near end loopback generators do not operate when the ICB is equipped with a Secondary T1 module in Protect mode.

7.1.5. Loopback of DSU-DP Card

Use the following steps to perform the DSU-DP card loopback.

Step	Action	System Response
1.	Select **Loopback Test ▶ Loopback of DSU-DP Card**	Opens the DSU Loopback/Release dialog box (see Figure 24).
2.	Select the the channel you want the loopback test run on.	
3.	Select the loopback type.	
4.	Select the loopback location (near- or far-end).	
5.	Set the test time. This defines the duration of the test.	
6.	Select 2047 Pattern enable or disable.	If enabled, generates a 2047 pattern to be looped back for analysis.
7.	Select **Loopback**	Initiates the loopback or release. If no time slot is assigned to the chassis slot, loopback cannot be enabled.

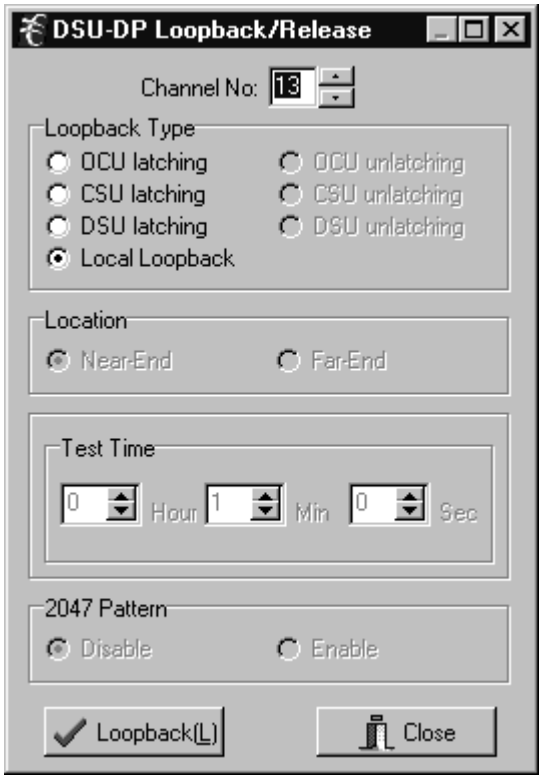


Figure 24. DSU-DP Card Loopback

Note: DSU-DP far and near end loopback generators do not operate when the ICB is equipped with a Secondary T1 module in Protect mode.

7.1.6. Loopback of ISDN Card

Use the following steps to perform the ISDN card loopback.

Note: Loopback is only available for ISDN cards set to LUNT mode.

Step	Action	System Response
1.	Select **Loopback Test ▶ Loopback of ISDN Card**	Opens the ISDN Loopback/Release dialog box (see Figure 25).
2.	Select the the channel you want the loopback test run on.	
3.	Select the loopback type.	
4.	Select **OK**	Initiates the loopback or release.

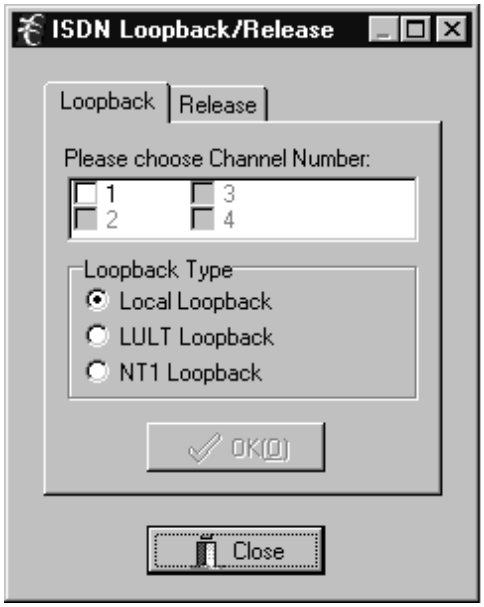


Figure 25. ISDN Card Loopback

7.1.7. Loopback of 56/64xN Card

Use the following steps to perform the 56/64xN card loopback.

Step	Action	System Response
1.	Select **Loopback Test ▶ Loopback of 56/64xN Card**	Opens the 56/64xN Loopback/Release dialog box (see Figure 26).
2.	Select the the channel you want the loopback test run on.	
3.	Select the loopback type.	
4.	Select **Activate**	Initiates the loopback or release.

Note: V.54 loopback must be engaged on 64xN settings for loopback to work.

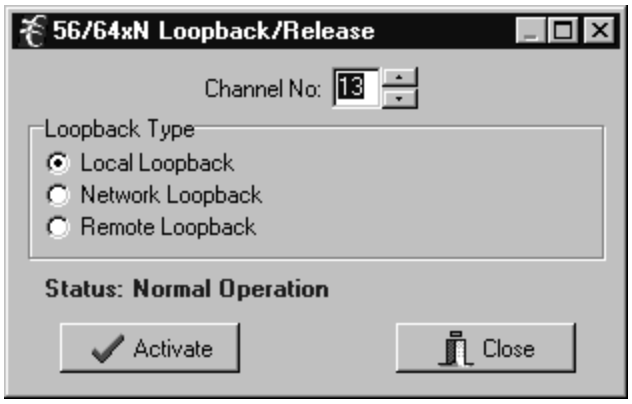


Figure 26. 56/64xN Card Loopback

7.1.8. Tone Test

Use the following steps to perform the tone test.

Note: Tone Test is only available on Voice cards and sends a short tone onto the T1 in the selected channel..

Step	Action	System Response
1.	Select **Loopback Test ▶ Tone Test**	Opens the Tone Test dialog box (see Figure 27).
2.	Select the channel number.	
3.	Select **OK**	Initiates the test. Results will be displayed on a Tone Test Results pop-up screen.

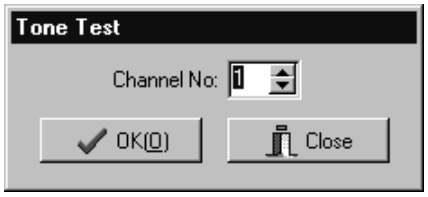


Figure 27. Tone Test

7.1.9. 1 kHz 0dbm0 Test Tone

During this test a continuous tone is present until released. Use the following steps to perform the test.

Step	Action	System Response
1.	Select **Loopback Test ▶ 1KHz 0dbm0 Test Tone**	If multiple voice cards are installed, asks you to select which one you want to test. Go to step 2. Otherwise, opens the 1 KHz 0dbm0 Test Tone dialog box (see Figure 28). Go to step 3.
2.	Select the card you want to test and click **OK**	Opens the 1 KHz 0dbm0 Test Tone dialog box (see Figure 28).
3.	Select the Operation or Release tab.	
4.	Check the box beside the channel number you are testing.	
5.	Select the direction (XMT or RCV). *Note: XMT is toward the T1.*	
6.	Select **OK**	Initiates the test or release.

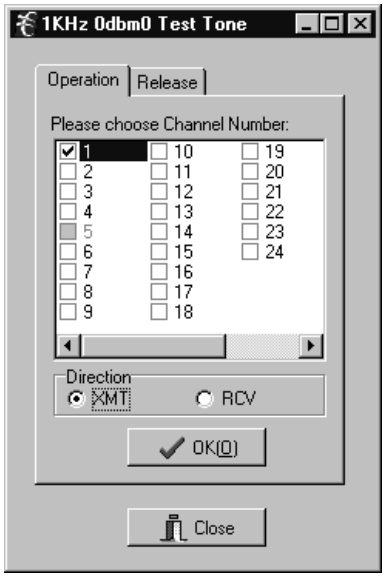


Figure 28. 1KHz 0dbm0 Test Tone

7.2 Performance

The performance monitor gathers and displays the performance history of the system over a 30-day period. Errored seconds (ES), severely-errored seconds (SES), and failed seconds (FS) are displayed graphically in 15-minute or 1-day intervals.

7.2.1. One Day PM Data

Use the following steps to look at one day of PM data:

Step	Action	System Response
1.	Select **Performance ▶ One Day PM Data**	Opens the One-Day PM data screen with no data displayed.
2.	Select whether you want to check today's data or a previous day's data.	

Step	Action	System Response
3.	Click **Retrieve**.	Displays the data in a graph (see Figure 29).
4.	Click **Close** when you are done looking at the data.	

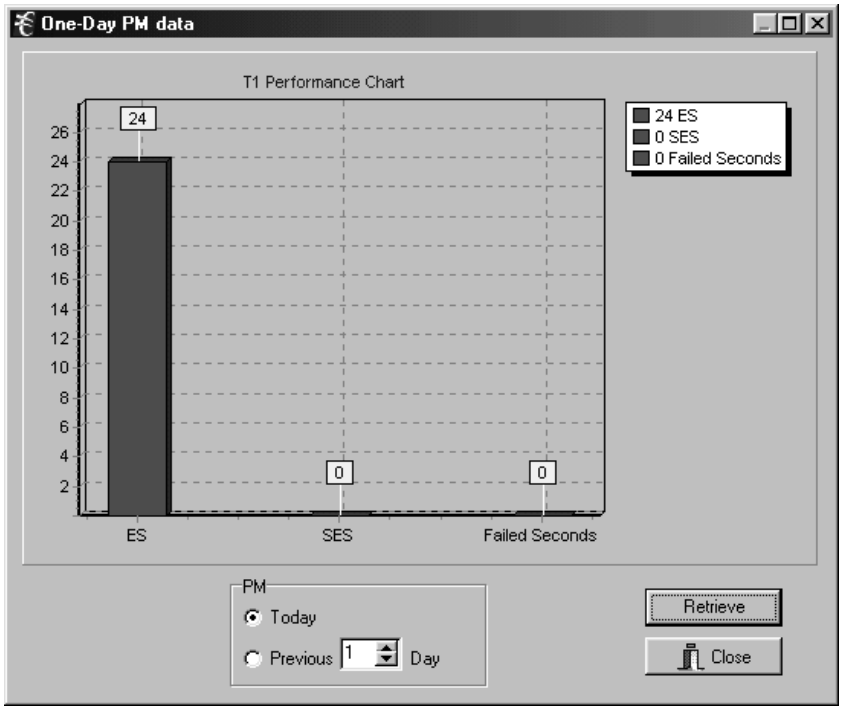


Figure 29. One Day PM Data

7.2.2. 15-Minute PM Data

Use the following steps to look at 15 minutes of of PM data:

Step	Action	System Response
5.	Select **Performance ▶ 15-Minute PM Data**	Opens the 15-minute PM data screen with no data displayed.
6.	Select whether you want to check the current 15 minutes of data or a previous 15 minutes of data.	
7.	Click **Retrieve**.	Displays the data in a graph (see Figure 30).
8.	Click **Close** when you are done looking at the data.	

7.2.3. Reset Today PM Counter

Select **Performance ▶ Reset Today PM Counter.** Reset the daily performance monitor counter.

7.2.4. Reset Current Quarter PM Counter

Select **Performance ▶ Reset Current Quarter PM Counter.** Reset the 15-minute performance monitor counter.

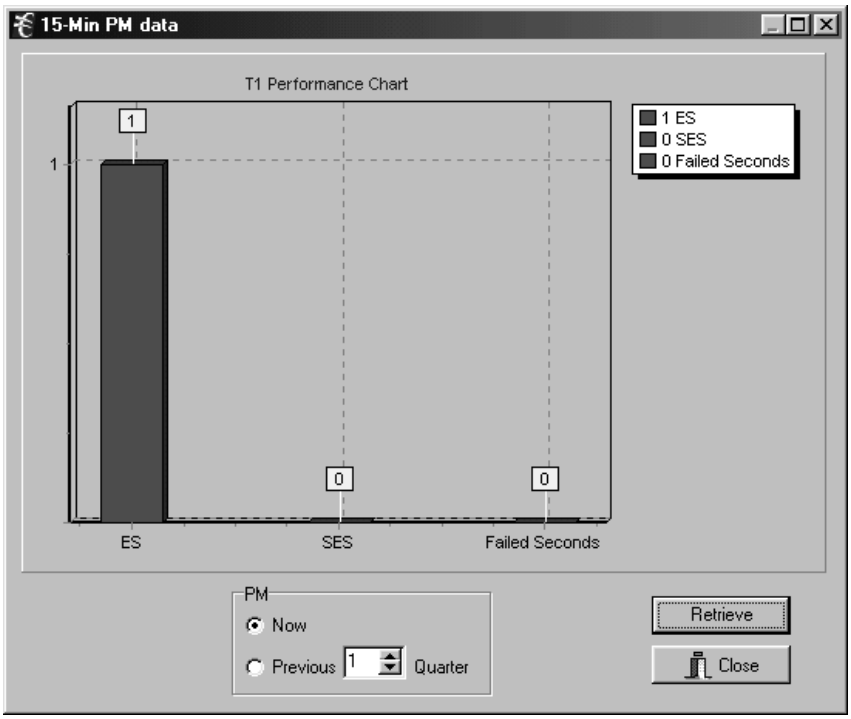


Figure 30. 15-minute PM Data

8. MAINTENANCE

Use the Maintenance menu to perform some basic, full-system functions.

8.1 Audible Cut Off (ACO)

Select **Maintenance▶Audible Cut Off (ACO)**. Turn audible alarm off. A new alarm will turn audible alarm on.

8.2 System Reset

8.2.1. Reset to Stored Values

Performs a system reset using the T1 and card parameter values set up for the current application.

8.2.2. Reset to Factory Default Values

Perform a system reset using the factory default T1 and card parameters. Refer to the documentation for default values.

Note: A system reset will clear all configuration information in the Community table and the Trap IP table.

8.3 Set System Real-Time Clock

Select **Maintenance▶Set System Real-Time Clock**. Set date and time for the system.

Figure 31. Clock Settings

8.4 Firmware Download

This selection is for factory use only.

8.5 Config Update

Config update is a function that allows ICB provisioning to be saved and reloaded. This function may also be used to copy provisioning to multiple ICBs.

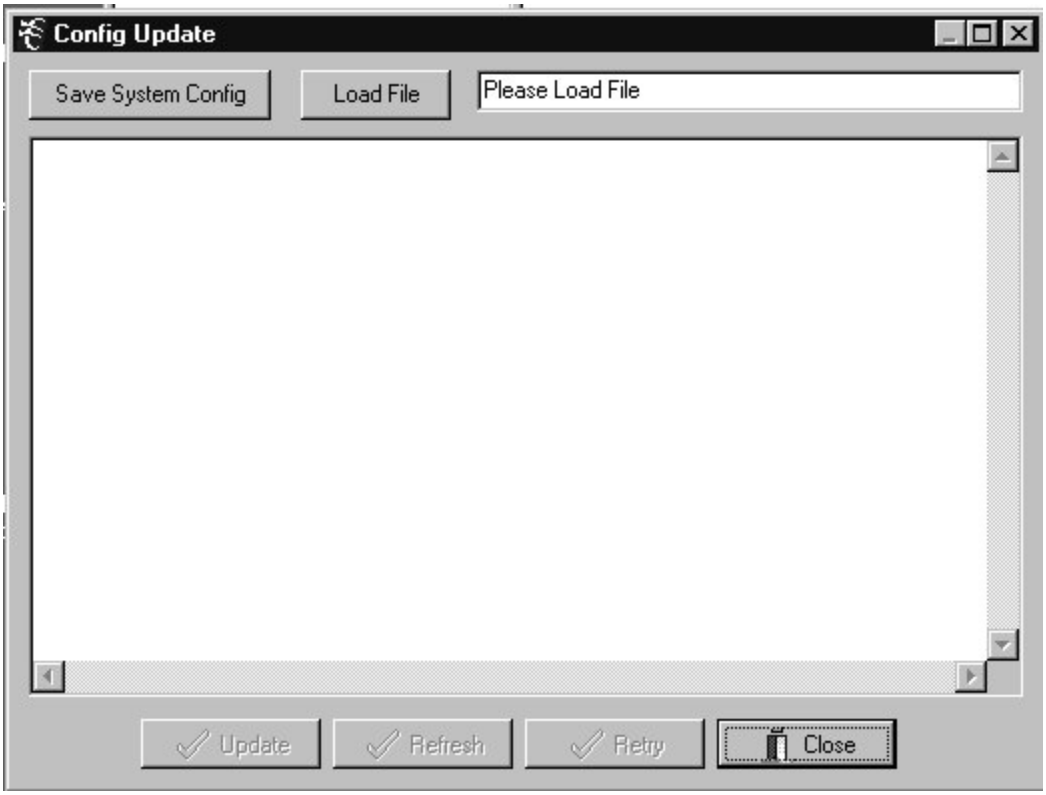


Figure 32. Config Update

8.5.1. Save Provisioning

To save provisioning select **Maintenance ▶ Config Update** from the menu and use the following steps.

Step	Action	System Response
1.	Select **Save System Config**	A new screen will appear.
2.	Choose a directory where the file is to be saved	The default directory is: C:\Program Files\Charles\NMS Manager

Step	Action	System Response
3.	Enter a file name	The file name appears with the extension .dat
4.	Select **Save**	The file is saved.

8.5.2. Retrieve Provisioning

To retrieve provisioning from a previously saved file select **Maintenance ▶ Config Update** from the menu and use the following steps.

Step	Action	System Response
1.	Select **Load File**	A new screen will appear.
2.	Choose the directory where the file is saved	The default directory is: C:\Program Files\Charles\NMS Manager
3.	Select a file	File is highlighted.
4.	Select **Open**	
5.	Select **Update**	File is loaded into the ICB.

9. ADMINISTRATION

Use the Administration menu to add and delete users and to see which users have system access. This menu refers ONLY to the ICB software; you cannot use this menu to add users to the Network Management system.

9.1 Create a New User

Use the following steps to create a new user on the system.

Note: Spaces are not allowed in the user name or password. A user name and password should not exceed eight characters.

Step	Action	System Response
1.	Select **Administration ▶ Create New User**	Opens the Create New User dialog box (see Figure 33).
2.	Enter the new user's name.	
3.	Enter a password for the new user.	
4.	Select the new user's security level.	Guest= Allows access to status and performance data. User= Full system access except for user maintenance. Supervisor= Full system access.
5.	Select **OK**	Enters the new user into the system, confirms the password and closes the dialog box.

Figure 33. Create New User

9.2 Delete User

Use the following steps to remove a user from the system:

Step	Action	System Response
1.	Select **Administration ▶ Delete User**	Opens the Delete User dialog box (see Figure 34).
2.	Select the user's name from the pull-down menu.	
3.	Select **Delete** and respond **Yes** to the confirmation screen.	Deletes the user from the system and closes the dialog box.

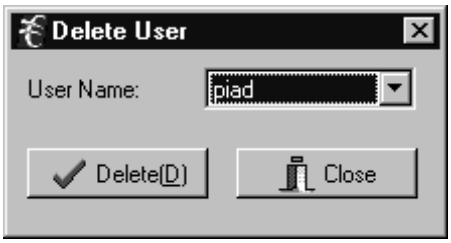


Figure 34. Delete User

9.3 Editing User Information

There is no provision for editing user information directly. If you want to change a user's password or access level, you must delete the user and then add the user to the system again with the changes.

9.4 List Users

Use the following steps to list the current users in the system:

Step	Action	System Response
1.	Select **Administration ▶ List Users**	Retrieves and displays a list of the current users in the Message area of the main screen (see Figure 35).

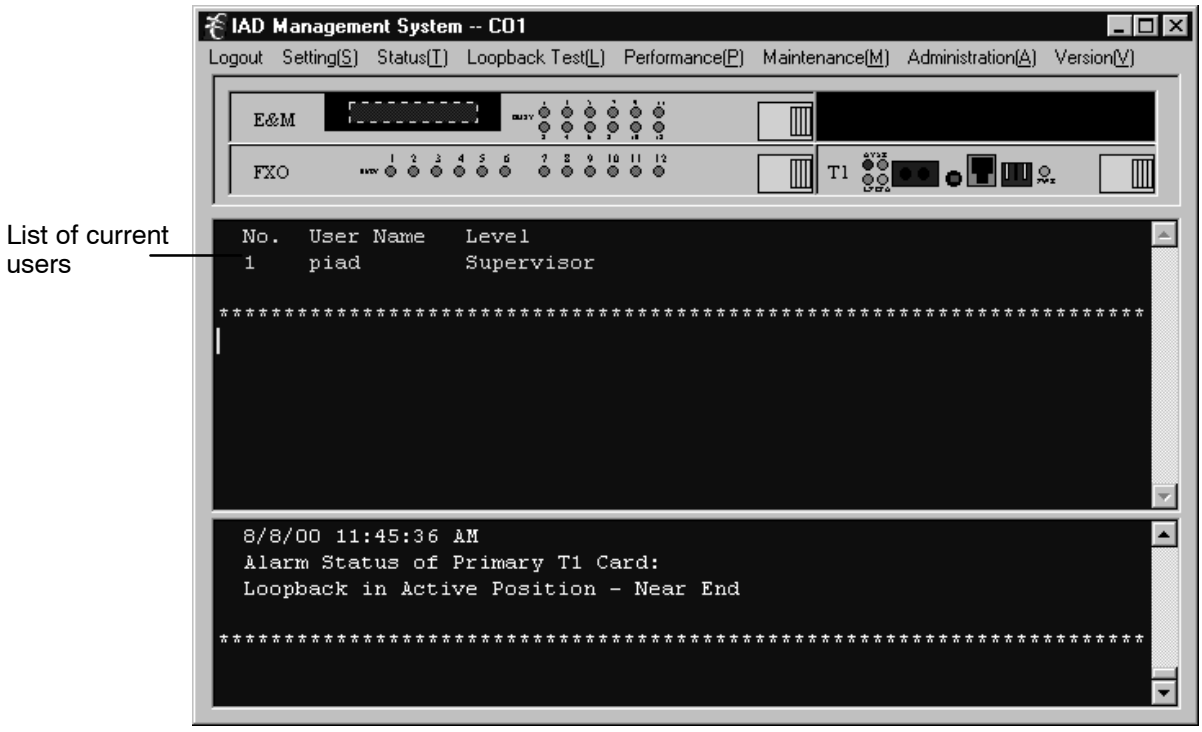


Figure 35. Main screen showing a list of current users

9.5 Channel Memo

Use the channel memo dialog box to store information about individual channels. Information that may be stored includes channel name, location, and installation date.

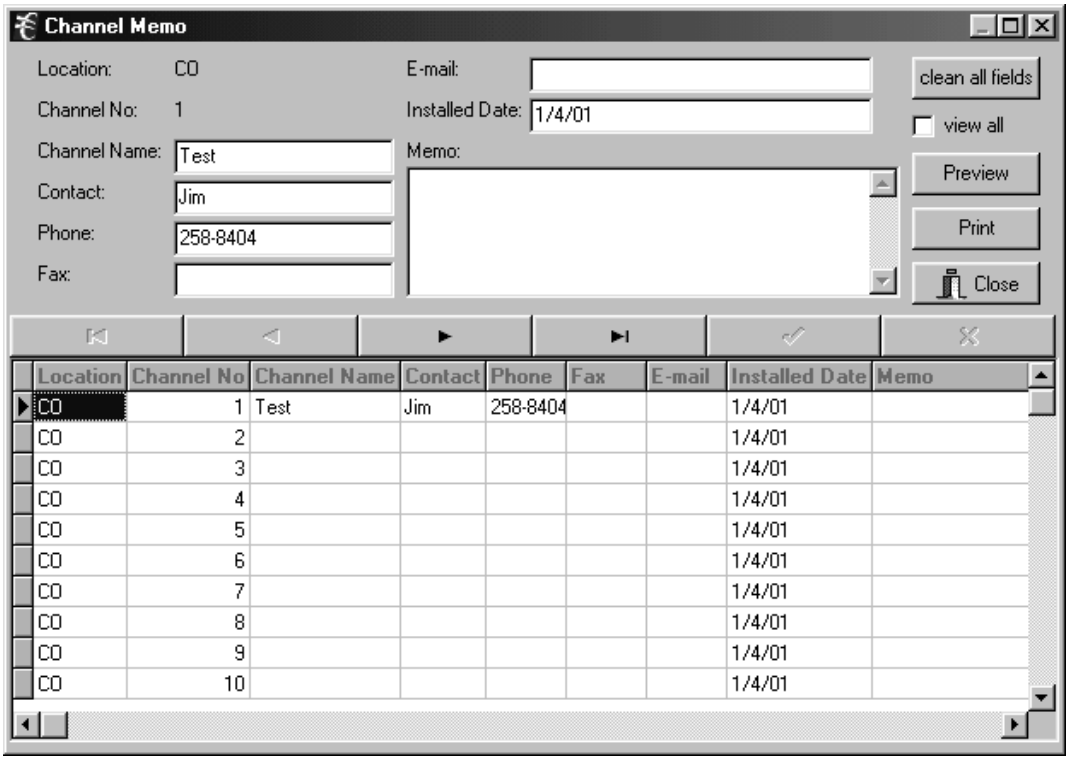


Figure 36. Channel Memo dialog box

10. VERSION

Select to see the version of ICB software installed.

11. TECHNICAL ASSISTANCE

If technical assistance is required, contact Charles Industries' Technical Services Center at:

847-806-8500
847-806-8556 (FAX)
800-607-8500
techserv@charlesindustries.com (e-mail)

12. APPENDIX A—APPLICATIONS

This section describes procedures which require settings to be made at more than one dialog box in the software.

12.1 Local ICB to Remote ICB Communication in SF Mode

The following procedure sets up a single channel for the NMS to communicate with remote 360-80 ICBs. This procedure is only necessary when ESF framing is NOT being used. Perform this procedure from the local ICB over the T1 line.

12.1.1. Switching from ESF to SF Framing

To establish communication from the local ICB to the remote ICB when using SF framing, one of the T1 time slots must be allocated for communication from the local ICB to the remote ICB.

12.1.1.1 *Verify a Time Slot that is not Allocated*

Step	Action
1.	Open the ICB software for the local ICB.
2.	Select **Settings ▶ Time Slot Allocation**.
3.	Verify that an open time slot exists (time slot box not green). If all time slot boxes are green, select **Delete** and then select a chassis slot to disconnect from the time slot (both the **Chassis Slot** box and the **Time Slot** box will be dark).
4.	Close the dialog box.
5.	Open the ICB software for the remote ICB.
6.	Perform steps 2−4 above, selecting the same time slot you selected for the local ICB.

12.1.1.2 *Configure for "Occupy One Channel" in SF Format*

Step	Action
1.	Open the ICB software for the remote ICB.
2.	Select **Settings ▶ Set T1 Parameter** to open the primary T1 card parameters.
3.	Under **Remote Control Method**, select **Occupy One Channel**.
4.	Select the **Modify**, and select the channel to use for communication. The channel must not be in use.
5.	Under **Frame Format**, select **SF**.
6.	Under **Automatic Detect Mode**, select **NO**.
7.	Click **OK** to close the **T1 Parameter** dialog box. Both the local ICB and the remote ICBs will display AR (alarm).

8.	Open the local ICB software.
9.	Perform steps 2–7 above. All alarms should clear, and communication will be established.

12.2 Configure for “Using Facility Data Link” in ESF Format

Step	Action
1.	Open the ICB software for the remote ICB.
2.	Select **Settings ▶ Set T1 Parameter** to open the primary T1 card parameters.
3.	Under **Automatic Detect Mode**, verify that **NO** is selected.
4.	Under **Frame Format**, select **ESF**.
5.	Under **Remote Control Method**, select **Using Facility Data Link**.
6.	Click **OK** to close the **T1 Parameter** dialog box. Both the local and the remote ICBs will display AR (alarm).
7.	Open the local ICB software.
8.	Perform steps 2–6 above. All alarms should clear, and communication will be established.