

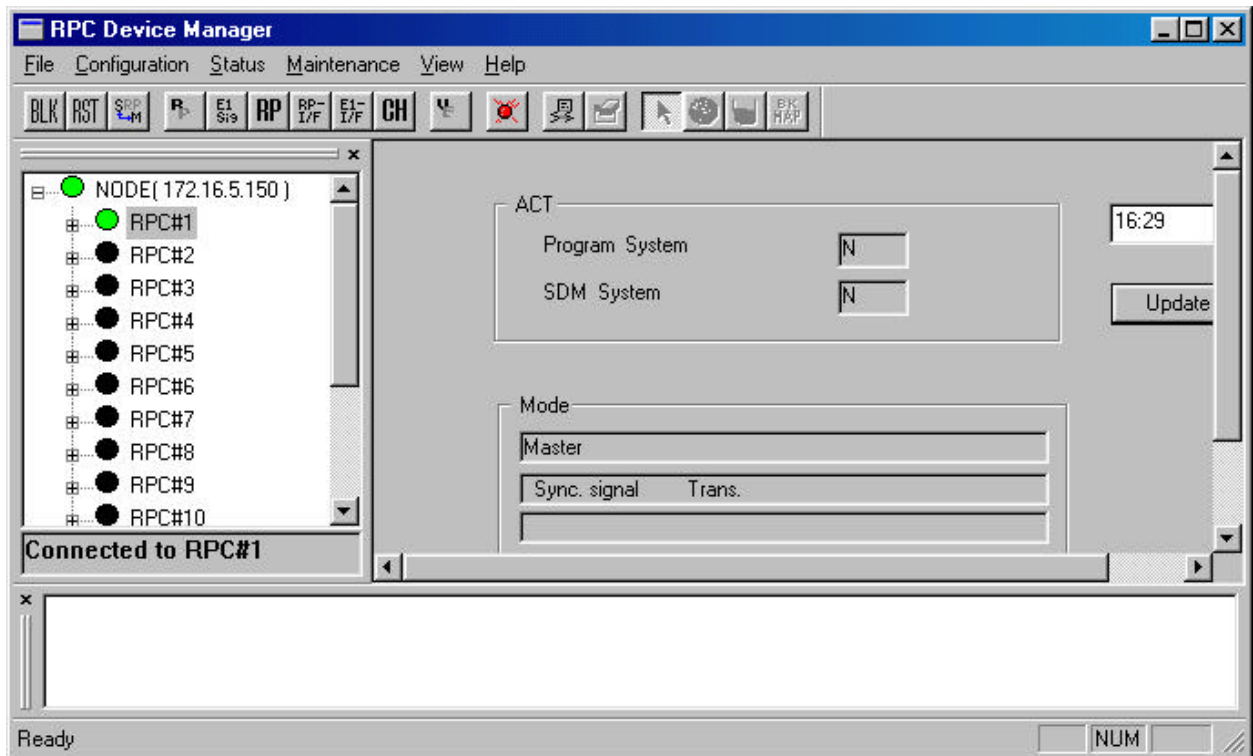


Figure 4-13: RPC Window

4.2.1 Set Time

To set the system time, follow the procedures below:

1. Click the **Set Time** option on the **Configuration** pull-down menu. The **Set Time** window appears, as shown in the figure below.

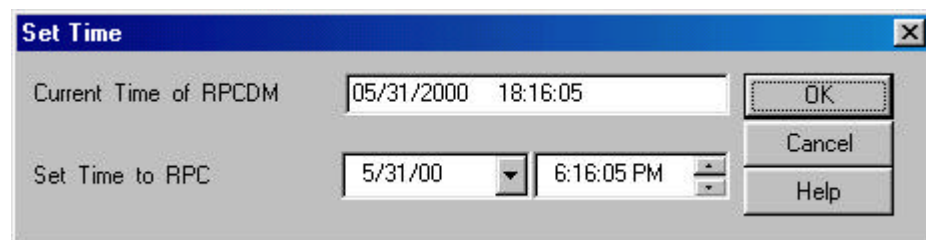


Figure 4-14: Set Time Window

2. By default the RPC time is set to the current time of the PC. Set new date and time to RPC if necessary. Make necessary adjustment using the **Arrow**

buttons in the fields. Click **OK** to accept the setting or **Cancel** to stop the transaction.

4.2.2 RPC Change

Sometimes the operation data for an RPC may not be compatible to the hosting RPC. Use this function to make changes to the SDM (System Data Memory) so that it can accommodate the hosting RPC. Before making any change, the RPC device manager will disconnect from the RPC.

1. From the **Configuration** main menu, select **RPC Change**. This opens the **RPC Assignment** window, as illustrated in the figure below.

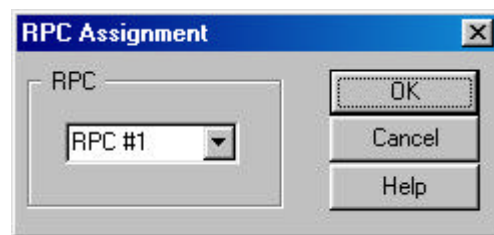


Figure 4-15: RPC Assignment Window

2. Select the target RPC and click **OK**. This will change the SDM to fit the target RPC.
3. If this command doesn't work, exit the current Netman session and restart.

4.2.3 Unit Control

The **Unit Control** option can be accessed through the **Maintenance** pull-down menu. It has the following functions:

- Blockade: block or unblock RPIF, E1IF, RPCs, RPs
- TimeSlot Layout: configure the RP control channel time slot
- Maintenance: set or cancel system maintenance
- Master RP: change Master RP
- RPC Sync: RPC Synchronization
- Online Trace: retrieve the information of the active RP

4.2.3.1 Blockade/Unblockade

The **Blockade** option is used to block or unblock RP interface, E1 interface, RPs, or the entire RPC. Use this function to block traffic from a malfunctioning device. It is also used when units are replaced. Netman 2000 must be connected to the WLL/V5WLL in order to perform this function. Another important usage of this option is to regain the synchronization of the slave RPCs upon the recovery of the master RPC.

1. From the **Maintenance** main menu, select **Unit Control** and then **Blockade**. This opens the **Blockade/Unblockade** window, as displayed in the figure below.

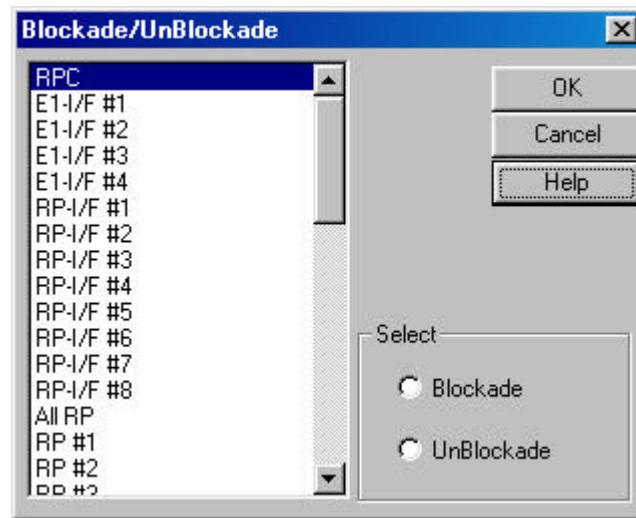


Figure 4-16: Blockade/Unblockade Window

Field Name	Description
RPC	The entire RPC, including all the units under its control
E1-I/F #...	E1 interface. Each RPC uses 4 E1 interfaces to communicate with WLL/V5WLL.
RP-I/F #...	RP interface. RPC uses 8 RP interfaces to control RPs. Each RP interface is connected to 4 RPs.
All RP	All the 32 RPs
RP #...	Individual RP. There are altogether 32 RPs under each RPC.
Blockade	If this radio button is selected, the selected unit is blocked.
UnBlockade	If this radio button is selected, the selected unit is unblocked.

Table 4-1: Blockade/Unblockade Window Field Description

2. Select the target E1 interface, RP interface, RP, or RPC, and then select **Blockade** or **Unblockade**. Click **OK**. Selecting RPC will block or unblock all

the units controlled by the RPC. No new calls will be accepted and all the calls in progress are allowed to complete and then dropped.

- When the action is implemented, the system displays a message in the **Self Message** window, and the **Status View** window will also show the Blockade result, as illustrated in the figure below. Use the window to verify the result.

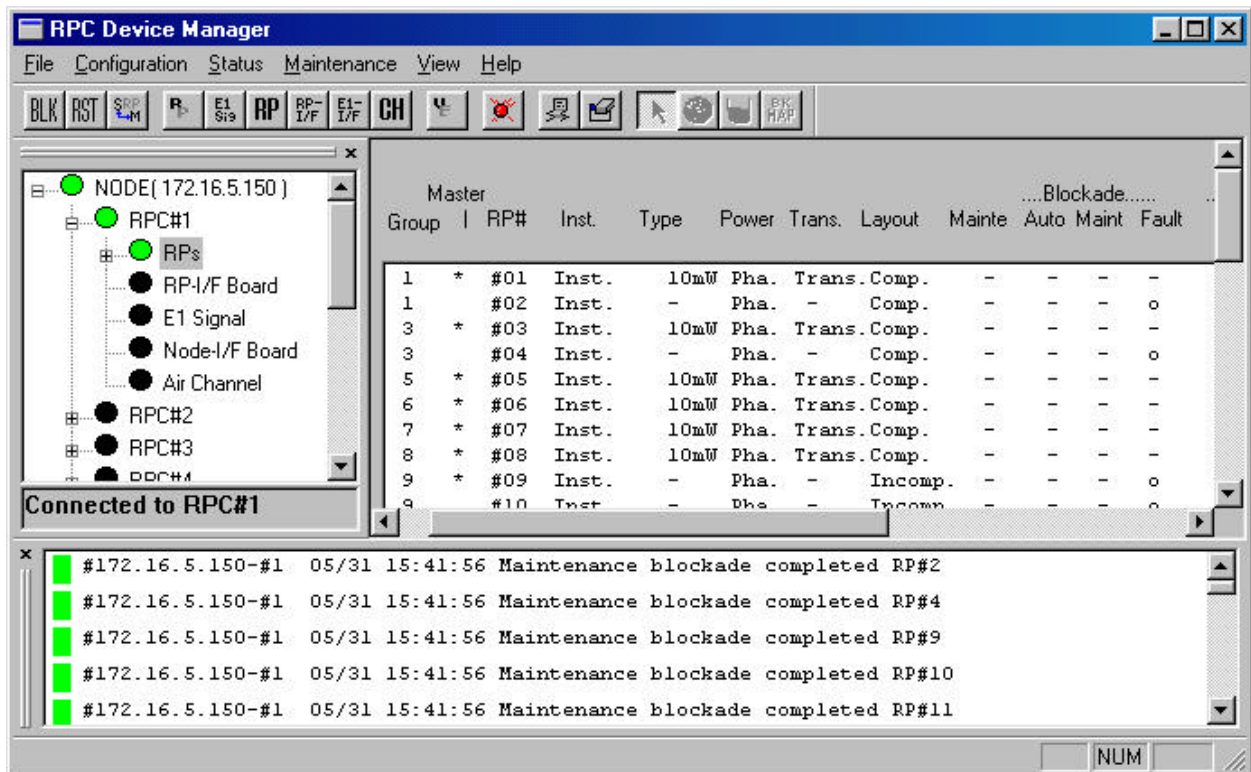


Figure 4-17: Self Message and Status View window for Blockade



NOTE: If an RPC or all RPs are blocked, calls cannot be made.

- Zero "o" in the Blockade Maint column means the unit is blocked, and dash "-" means the unit is unblocked. The **Status** and the **Self Messages** windows both indicate that RP#1 and RP#2 are blocked.
- There are two ways to access the **Status View** window. One is to click **Status** and then the relevant options: **RPC**, **RPs**, **RP-I/F Board**, **E1 Signal**, **Node-I/F Board**, **Air Channel**, or **TimeSlot Status**. The other is to click the target item on the left frame of the **RPC** window. In either case the **Status View** window opens on the right frame. Of course, one can always access the window by clicking the relevant toolbar.

4.2.3.2 TimeSlot Layout



WARNING: Users are *NOT* recommended to make changes to the settings of the Time Slot. Use with caution!

When connected to an RPC, use this function to reconfigure the RP control channel time slot. This function is used to complete the RP configuration and make it usable. This function applies to both RPCs and RPs.

1. Before configuring the time slot, use the **Blockade** function to block the target RPC or PC.
2. From the **Maintenance** main menu, select **Unit Control** and then **TimeSlot Layout**. This opens the **Time Slot Layout** window, as shown in the figure below.

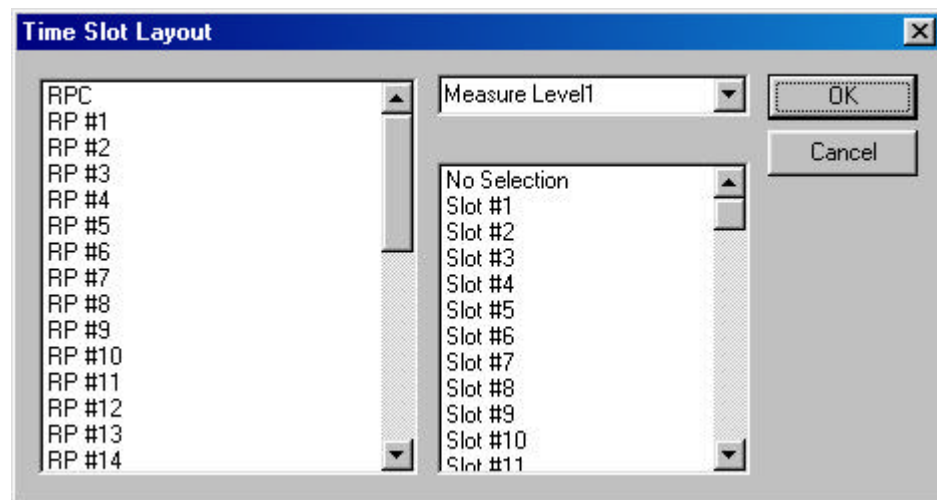


Figure 4-18: Time Slot Layout Window

3. Select the target **RPC** or **RP**.
4. Select **Measure Level1**. If separation is not completed, try another one from **Measure Level2** through **Measure Level4**. Selecting **No Selection** may accelerate separation.
5. Select **No Selection**. If selection must be made, select one from **Slot #1** through **Slot #80**.
6. Click **OK** to close the window.

7. Unblock the RPC or RP.



NOTE: The **Time Slot Layout** window is for configuration purpose only. Actual separation is done when the target RPC or RP is unblocked.

4.2.3.3 Maintenance

Use this function to set RPC maintenance status, test RPs, and do other configuration. Eligible units are fully installed RPCs and installed RPs.



NOTE: General PSs can not use RP when maintenance is under way.

1. From the **Maintenance** main menu, click **Unit Control**, and then **Maintenance**. The **Set/Cancel Maintenance** window opens, as displayed in the figure below.

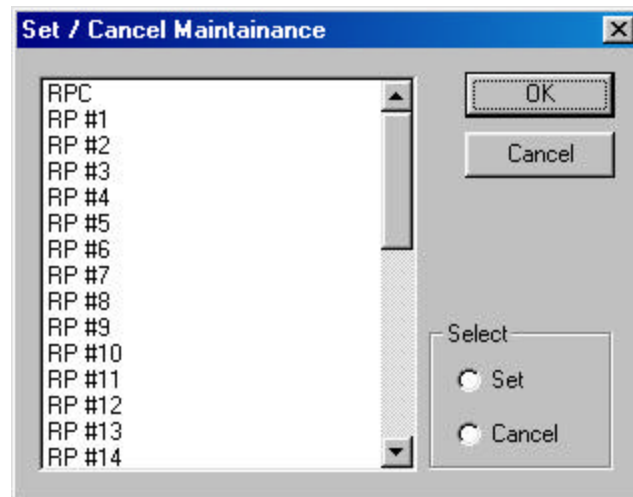


Figure 4-19: Set / Cancel Maintenance Window

2. Select the target RPC or RP, and click **Set** to set the maintenance status or **Cancel** to remove the status.
3. Click **OK** to accept the selection and close the window.

4.2.3.4 Change Master RP

For the operation in a group control mode, it sometimes becomes necessary to switch a master RP to a slave RP, because the master RP is faulty or because the NMS operation requires the switch. Use this feature to switch the function.

1. Select **Unit Control**, and then **Master RP** from the **Maintenance** pull-down menu. The **Master RP** window appears as shown in the figure below. Another way to access the window is to click the **Change Master RP** toolbar.

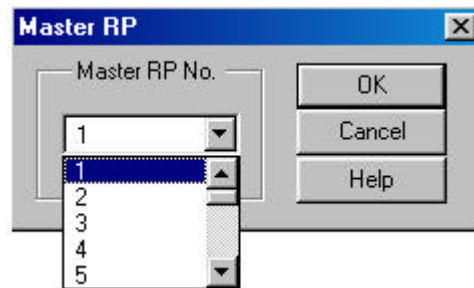


Figure 4-20: Master RP Window

2. Click the **Arrow** button in the **Master RP No.** field to get a list of all the 32 RP numbers. Select the RP to be the new master and click **OK**. That RP becomes the new master RP. The **Self Message** window displays a message, indicating the change has been made. The change can also be verified by viewing the RP status.



NOTE: Each group can have a maximum of 8 RPs.

4.2.3.5 RPC Synchronization

The ECNT board on the RPC generates the synchronous clock and the air frame synchronization signal by extracting clock from the E1 interface signal on the E1-IF boards, and delivers them to RPs through the RP-IF boards. As a result, all the RPs that are controlled by the same RPC are operating synchronously. The following figure illustrates the process of clock synchronization and air frame synchronization for one RPC.

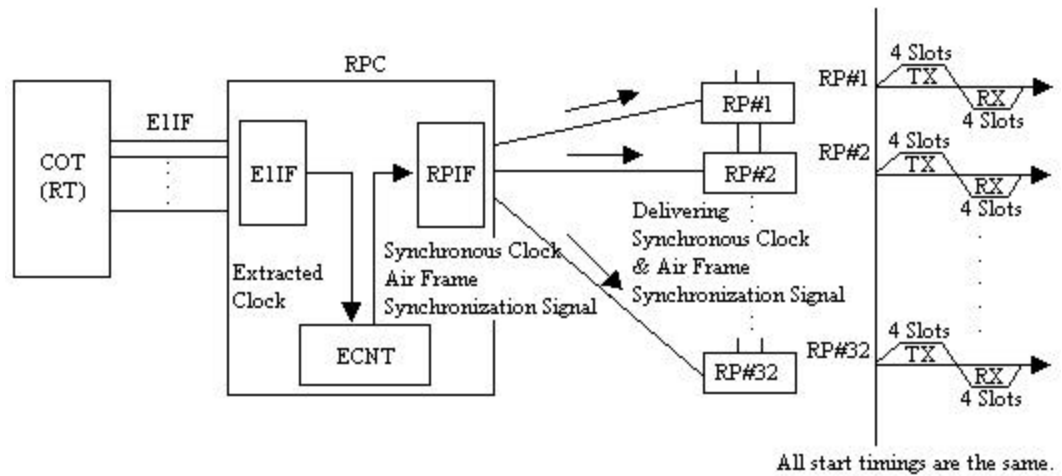


Figure 4-21: Clock Synchronization and Frame Synchronization in One RPC

However, RPs that belong to different RPCs do not automatically operate with air frame synchronization. This causes the inefficient air channel usage. To redress the problem, the synchronization group is created which includes as many as 8 RPCs. Those RPCs are connected by cables as open daisy chain, through which the air frame synchronization signal is transmitted. The signal is shared by the RPCs, so that the air frames of the RPs among the RPCs are synchronized. The RPC which generates the air frame synchronization signal is named “Master”. The RPCs which receive the signal are called “Slave”. The following figure displays such a synchronization model.

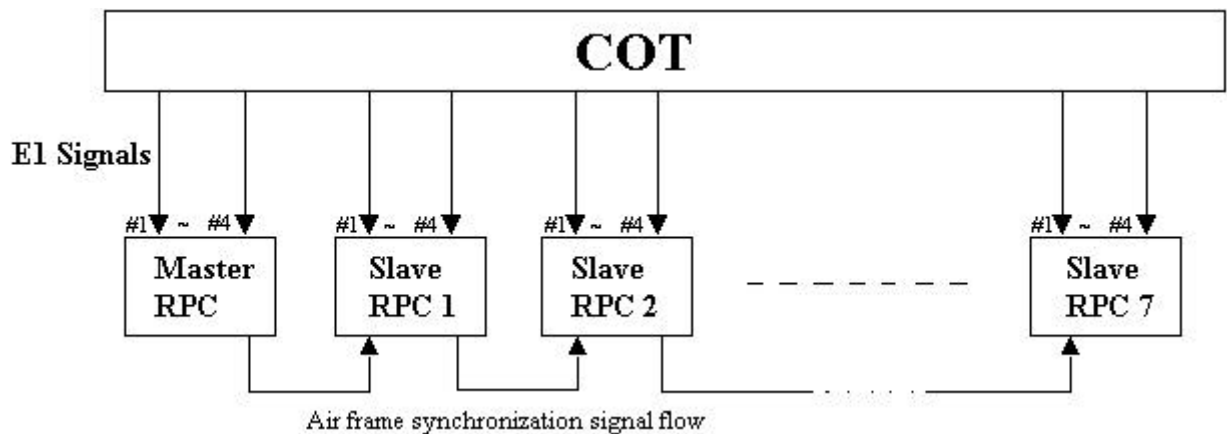


Figure 4-22: Wired Air Frame Synchronization Group Model

The master or slave mode is set using the rotary switches on the front of the ECNT board. When the master RPC fails during the operation, the first slave RPC in the synchronization signal flow becomes the provisional master RPC.

Upon the restoration and restart of the failed master RPC, the first slave RPC needs to be blocked and re-synchronized in order to regain synchronization. This process is implemented through Netman.

1. From the **Maintenance** pull-down menu, select **Unit Control**, and then **RPC Sync**. The **RPC Synchronization** window opens, as shown in the figure below.

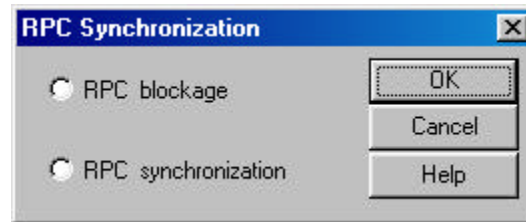


Figure 4-23: RPC Synchronization Window

2. Click the **RPC blockage** radio button to block the slave RPCs. Click **OK** to execute the command. Verify the blockage by checking the **RPC Status** window and the **Self Message** window.
3. Return to the **RPC Synchronization** window and click the **RPC synchronization** radio button. Click **OK** to synchronize the slave RPCs. After the command is implemented, the slave RPCs become synchronous in operation to the upstream RPCs.

4.2.3.6 Online Trace

The **Online Trace** feature is used to check the time slot status of the RPs.

1. From the **Configuration** main menu, select **Unit Control**, and then **Online Trace**. This opens the **Select Online Trace** window, as illustrated in the figure below.

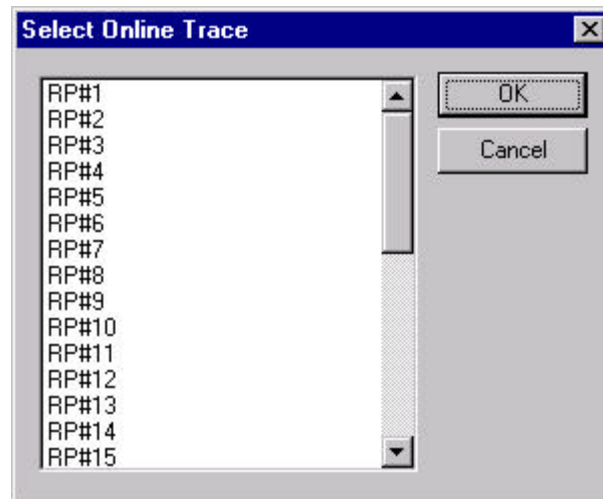


Figure 4-24: Select Online Trace Window

2. Click to highlight the target RP# and click **OK**. This opens the **Online Trace** window, as shown below.

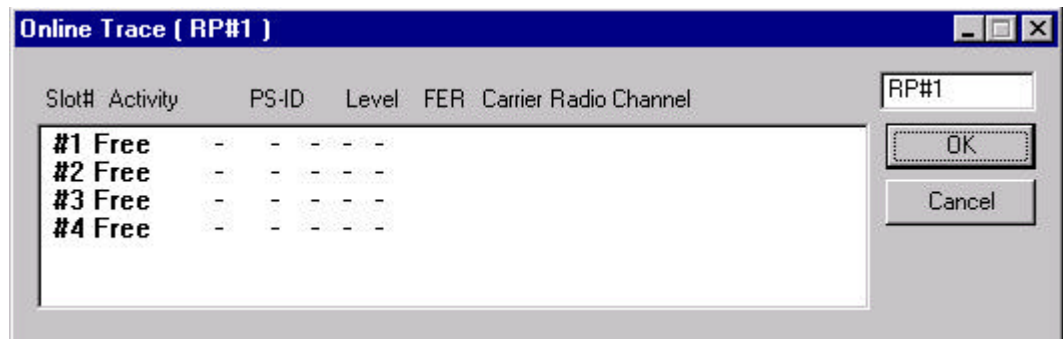


Figure 4-25: Online Trace Window

3. This window displays the relevant Time Slot status information about the target RP.

4.2.4 Function Status

The **Status** option windows can be accessed through the **Status** pull-down menu. The following functions are available from the **Status** option:

- Collect and display the status for:
 - RPC

- RPs
 - RP-I/F Board
 - E1 Signal
 - Node-I/F Board
 - Air Channel
 - TimeSlot Status
- Collect hourly traffic data for RPCs and RPs
 - View configuration data for each RP control channel
 - Verify configuration results

4.2.4.1 RPC Status

1. To view the status of the current RPC, click **RPC** from the **Status** option. Another way to open the **RPC Status** window is to click the **RPC Status** button. The RPC status is displayed on the **Status View window**, as shown in the figure below.



NOTE: The following figure is cut out from the **RPC** window. The other **Status View** windows in Section 4.2.4 are also cropped from the overall **RPC** window.

Figure 4-26: RPC Status Window

Field Name	Description
ACT	The active SDM or PDM system for RPC running
Program System	PDM system. There are two plane memory areas for the program data: N and E. Any one can be active or standby.
SDM System	SDM system. There are two plane memory areas for the operation data: N and E. Any one can be active or standby.
Update	Retrieve the latest mode information and display the time when the mode information is updated.
Mode	Display mode information for the current RPC, such as, master/slave status, synchronization status, transmission status, etc. The following rows describe various mode displays.
Mode Display	Description
Master	Master RPC - the RPC that generates the air frame synchronization signal.
Slave	Slave RPC - the RPC that receives the air frame synchronization signal.
Sync. signal Trans.	The RPC transmits the synchronization signal to the slave RPC or the next slave RPC.
Sync. signal Stop	The RPC doesn't transmit the synchronization signal to the slave RPC or the next slave RPC.
Sync. between RPC Sync.	The slave RPC synchronizes to the upstream RPC.
Sync. between RPC Async.	The slave RPC doesn't synchronize to the upstream RPC.

Table 4-2: RPC Status Window Field Description

2. This window is for view only. In this instance, there is no special meaning for **N** or **E**. It simply displays which system is active. Refer to *Section 4.3* for the description of the N and E systems.

4.2.4.2 RP Status

Use the **RP Status** option to monitor the operation status of individual RPs and to verify any change made to the RP configuration and setting.

1. To access the **RP Status** window, click **Status**, then **Status**, and then **RPs**. Another way to display the window is to click the **RP Status** button. The RP status is displayed on the **Status View** window, as shown in the figure below.

Master							--- Blockade ---				----- Warning -----			
Group	I	RP#	Inst.	Power	Trans	Layout	Mainte	Auto	Maint	Fault	RP	Trans	Syn	I/F
1	*	#01	Inst.	Pha.	Trans.	Comp.	-	-	-	-	-	-	-	-
1		#02	Inst.	Pha.	-	Comp.	-	-	-	-	-	-	-	-
1		#03	Inst.	Pha.	-	Comp.	-	-	-	-	-	-	-	-
1		#04	Inst.	Pha.	-	Comp.	-	-	-	-	-	-	-	-
1		#05	Inst.	Pha.	-	Comp.	-	-	-	o	-	-	-	-
1		#06	Inst.	Pha.	-	Comp.	-	-	-	o	-	-	-	-
1		#07	Inst.	Pha.	-	Comp.	-	-	-	o	-	-	-	-
1		#08	Inst.	Pha.	-	Comp.	-	-	-	o	-	-	-	-
9	*	#09	Inst.	Pha.	Trans.	Comp.	-	-	-	-	-	-	-	-
9		#10	Inst.	Pha.	-	Comp.	-	-	-	-	-	-	-	-
9		#11	Inst.	Pha.	-	Comp.	-	-	-	-	-	-	-	-
9		#12	Inst.	Pha.	-	Comp.	-	-	-	-	-	-	-	-

Figure 4-27: RPs Operation Status View window

Field Name	Description
Group	The ID number of the group to which the RP belongs
Master	The sign * indicates the master RP.
RP#	Radio port ID number
Inst.	Installation status. "Inst." Indicates that the RP has been installed.
Power	The voltage of power. Usually it is 10mW. There are two power supply state: Pha. - supplied from RPC (Phantom) Loc. - supplied from RP power unit (Local)
Trans.	Transmission state for control channel. Group control maximizes the number of channels available for traffic by allowing one control channel to control up to 8 RPs.
Layout	Configuration of the control channel: completed/incompleted.
Mainte	Maintenance state: o indicates the maintenance is configured. - indicates the maintenance is not configured.
Blockade	Blockage state: o indicates the unit is blocked. - indicates the unit is not blocked.
Auto	Automatically blocked by automatic reconfiguration processing
Maint	Blocked manually by HOST or Netman
Fault	Cut off from operation system due to unit trouble
Warning	Warning state: o indicates the existence of a warning. - indicates no warning exists.
RP	RP interface detects RP suspension.
Trans.	RP transmission power is incorrect.
Syn	RP synchronization is lost.
I/F	RP interface detects cut-off from RP.

Table 4-3: RP Status Window Field Description

- This window displays the operational status for all the RPs controlled by the target RPC. Click the **Update** button to retrieve the current RP status. The

time will be displayed in the box above the button, indicating the time when the data are updated.

3. With this window you can verify RP installation status, monitor alarms, power supply status, and transmission information, and identify areas of trouble.
4. If you want to view the status for an individual RP, you may access such a window by clicking the “+” sign to the left of **RPs** on the **Unit View window**. This displays all the RPs under the RPC. Click the target RP and the **Status View window** opens for that RP, as illustrated in Figure 4-28. With this window you may view or enter the following information about that RP:
 - Node Address
 - RP Number
 - RPC Number
 - RP Location
 - RP Information
 - RP-RPC Line Information
 - RP Antenna Parameters



NOTE: This is an optional information window. The information is stored on Netman 2000 and will be used in network management, network optimization, and value-added services, such as location services. The information entered does not affect the operation of the RP.

Node Address :	172.16.11.204			Save Information
RP Number :	1			
RPC Number :	1			

RP LOCATION			
RP Street :		RP Address (City) :	
Province / State :		Zip / Postal Code :	
Latitude (degree):	N	Longitude (degree):	E

RP INFORMATION			
Master RP ID :		Mode :	
Power Type :		Power Rating :	
# of Antennas :		Fixture Type :	
Survey ID :		Serial Number :	
Bureau ID :		RP Type :	
Memo :			
			☐ Installed

RP-RPC LINE INFORMATION			
Impedance :		Trunk :	
Box :		MDF Out :	
MDF In :			

RP ANTENNA PARAMETERS				
	Antenna 1	Antenna 2	Antenna 3	Antenna 4
Latitude :				
Longitude :				
Height :				
RF Cable Length :				
Elevation :	0	0	0	0
Azimuth :	0	0	0	0
Down Tilt :				
Type Name :				

	Select Image...	View Image ...
----------------------	--	---

Figure 4-28: Status View window for One Individual RP

Field Name	Description
Node Address	The IP address of the node to which the RP is associated
RP Number	The ID number of the RP
RPC Number	The ID number of the RPC which controls the RP
RP Location	The physical location of the RP
RP Street	The street name of the location
Province/State	The province/state name of the location. Select from the drop-down list.
RP Address (City)	The city name of the location. Select from the drop-down list.
Zip/Postal Code	Zip/Postal Code of the location
Latitude (degree)	Latitude degree of the RP location.
Longitude (degree)	Longitude degree of the RP location
RP information	Information about the RP operation status
Master RP ID	The ID number of the Master RP
Power Type	There are two power supply patterns: Local - the power is supplied from the RP power unit. Remo - the power is supplied from the RPC. Select from the drop-down list.
# of Antennas	The number of the antennas the RP has. The indoor or outdoor 10mW RP has 2 antennas, and the outdoor 200mW RP has 4 antennas. Select from the drop-down list.
Survey ID	The ID number of the survey
Bureau ID	The ID number of the bureau
Memo	Short note
Mode	Master RP or slave RP. Select from the drop-down list.
Power Rating	Power: 10mW or 200mW. Select from the drop-down list.
Fixture Type	The way the RP is mounted. Select from the drop-down list.
Serial Number	The serial number of the RP
RP Type	Indoor or outdoor type. Select from the drop-down list.
Installed	If the RP is installed, check the box.
RP-RPC Line Information	Information about the communication cable connecting the RP and the controlling RPC
Impedance	The resistance of the communication cable
Box	The specification of the switch box. For instance, a 200mW RP can have the following specification: Power Voltage – 220V AC Dimension – 217mm x 258.5mm x 98mm Weight – about 4.1 kg
MDF In	Main Distribution Frame. The wiring arrangement which connects the cable coming in from outside
MDF Out	Main Distribution Frame. The wiring arrangement which connects the cable going out from inside
Trunk	The communication line between the RP and the RPC
RP Antenna Parameters	The specification of the RP antennas
Latitude	Latitude of the antenna location (string) (WGS94)
Longitude	Longitude of the antenna location
Height	Height of the antenna
RF Cable Length	Radio Frequency cable length
Elevation	Height above the ground
Azimuth	The horizontal angle which the radiating lobe of an antenna makes in angular degrees, in a clockwise direction, from a north-south line in the northern hemisphere. In the southern hemisphere, the reference is the south-north line.
Down Tilt	The extent with which the antenna mechanically slopes downward
Type Name	Name of the antenna type, for instance, OMNI antenna (Co-Liner antenna)
Select Image	Select an image file in .bmp format which presents the mounted RP.
View Image	Use the Image Viewer to view the selected image file.

Table 4-4: RP Status Window Field Description

5. The window in the above window may not display all the information in one screen. Use the horizontal and vertical scroll bars to see all the information.

4.2.4.3 RP-I/F Board Status

With the **RP-I/F Board Status View** window you can view or verify such RP interface operational statuses as RP-IF#, installation, or warning.

1. To access the **RP-I/F Status View** window, click **Status**, then the **Status** option, and then the **RP-I/F Board** option. This opens the **RP-IF Status View window** on the **RPC** window, as illustrated in the figure below.

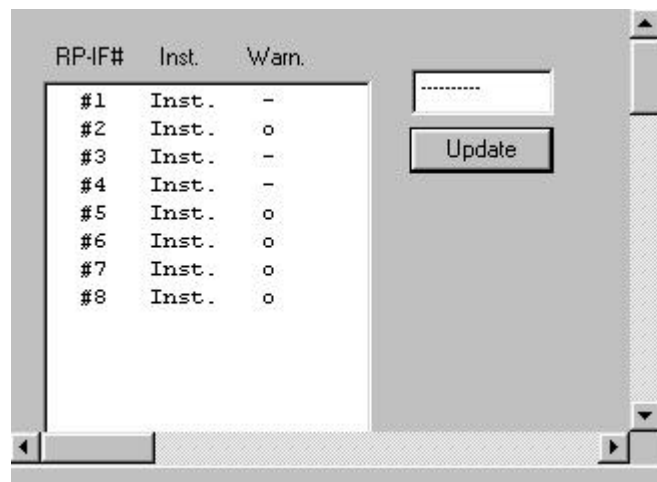


Figure 4-29: RP-IF Status View window

Field Name	Description
RP-IF#	The ID number of the RF-IF#. Each RPC can have 8 RP interface modules, each of which can be connected to 4 RPs.
Inst	The installation status of the RP interface. Inst in the column Indicates that the RP-IF is installed.
Warn	The warning status of the RP interface. o indicates the existence of a warning. - indicates no warning exists.
Update	Retrieve the latest status information.

Table 4-5: RP-IF Status View window Field Description

2. Click **Update** to display the current status.

4.2.4.4 E1 Signal Status

Each RPC can have 4 E1 lines to communicate with the WLL/V5WLL. However, the D-channel can be established on only one E1 line. The E1 line on which the D-channel is established is named the master E1 and the other three E1 lines are named slave E1s. If the master E1 line is down, a slave E1 line will be promoted by the system to become the master E1. The D-channel can be established on this slave E1 line. The selection of the master E1 follows the round-robin order.

Use the **E1 Signal** option to monitor and verify the operational status of the E1 signal, including four E1 interfaces, E1 warning, Layers 1 through 3, and other status information.

1. From the **Status** main menu, select **Status**, and then **E1 Signal**. The **E1 Signal Status** window appears on the right frame of the **RPC** window, as shown in the figure below. Another way to open the window is to click the **E1 Status** button.

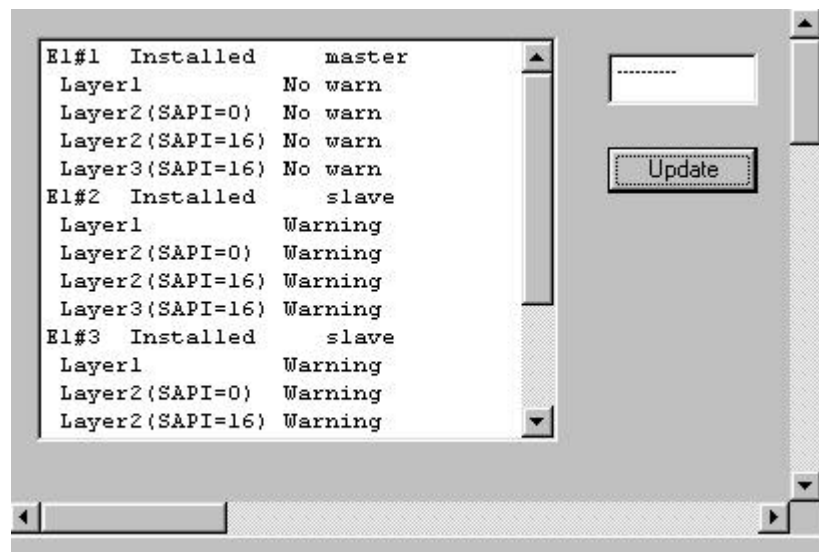


Figure 4-30: E1 Signal Status Window

Field Name	Definition
E1#1	Corresponding to E1-I/F#1, Bch#1 - 30
E1#2	Corresponding to E1-I/F#2, Bch#31 - 60
E1#3	Corresponding to E1-I/F#3, Bch#61 - 90
E1#4	Corresponding to E1-I/F#4, Bch#91 - 120
Layer 1	Physical layer with SAPI=0,16
Layer 2 (SAPI=0)	Data Link layer for call processing
Layer 2 (SAPI=16)	Data Link layer for HOST interface
Layer 3 (SAPI=16)	Network layer for HOST interface
Master	Master E1 on which D-channel is established.
Slave	Slave E1
Warning	There is a warning for the E1.
No warn	There is no warning for the E1.

Table 4-6: Signal Status Field Name Definition

- Click **Update** to display the current status.

4.2.4.5 E1 Interface Status

Each RPC has four E1 interface boards to communicate with the WLL/V5WLL. Use the **E1 Interface** option to verify E1 Interface status, monitor alarms, and identify areas of trouble.

- From the **Status** pull-down menu, click **Status**, and then **Node-I/F Board**. This displays the E1 Interface status on the **Status View** window, as shown in the figure below. Another way to open this window is to click the **E1-Interface Status** button.

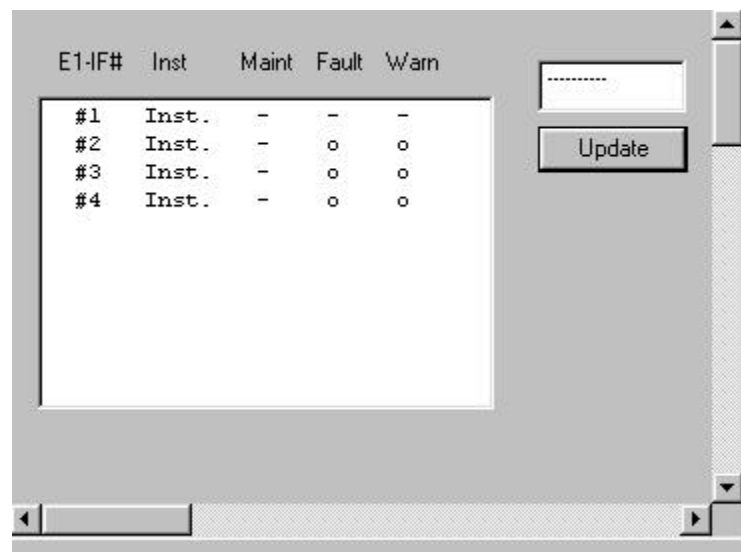


Figure 4-31: E1 Interface Status Window

Field Name	Description
E1-IF#	E1 interface ID number
Inst	Installation state configured by the system operation data. There are two states: Inst/Uninst.
Maint	Blocked manually by HOST or RMT o indicates blockage. - indicates no blockage.
Fault	Cut off from the operation system due to the unit trouble. o indicates the existence of error. - indicates no error exists.
Warn	Warning status: o indicates the existence of warning - indicates no warning exists.

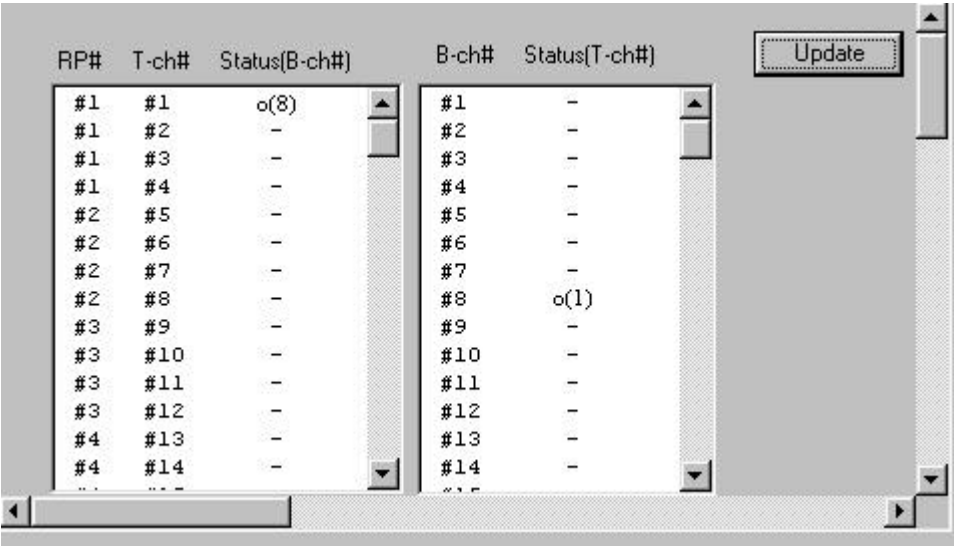
Table 4-7Table 5-23: E1 Interface Status Window Field Description

- Click **Update** to display the current status.

4.2.4.6 Air Channel Status

This function displays the state of wired/wireless channels in use. Use the **Channel Status View window** to determine the availability of the channels.

- To access the **Status View** window, click the **Status** pull-down menu, then **Status**, and then **Air Channel**. The channel status is displayed on the **Status View** window, as shown in the figure below. The table following the figure provides the description for each field on the **Channel Status View** window.



RP#	T-ch#	Status(B-ch#)	B-ch#	Status(T-ch#)
#1	#1	o(8)	#1	-
#1	#2	-	#2	-
#1	#3	-	#3	-
#1	#4	-	#4	-
#2	#5	-	#5	-
#2	#6	-	#6	-
#2	#7	-	#7	-
#2	#8	-	#8	o(1)
#3	#9	-	#9	-
#3	#10	-	#10	-
#3	#11	-	#11	-
#3	#12	-	#12	-
#4	#13	-	#13	-
#4	#14	-	#14	-

Figure 4-32: Channel Status View window

Field Name	Definition
RP#	RP ID number
T-ch#	Traffic Channel ID number
B-ch#	Bearer Channel ID number
Status(B-ch#)	An o indicates the B channel enclosed in the parentheses is in use by the T channel number. In the example above, B channel 8 is in use by T channel 1.
Status(T-ch#)	An o indicates the T channel enclosed in the parentheses is in use by the B channel number. In the example above, T channel 1 is in use by B channel 8.

Table 4-8: Channel Status Field Definitions

- Click the **Update** button to display the current status.

4.2.4.7 Time Slot Status

This function is used to display the configuration state of each RP's control channel.

- From the **Status** main menu, click **Status**, and then **TimeSlot Status**. This opens the **Time Slot Status** window, as shown in the figure below.

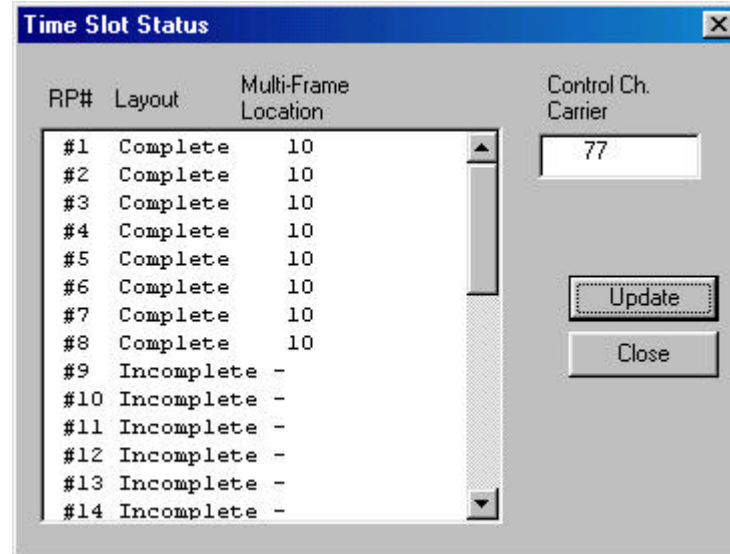


Figure 4-33: Time Slot Status Window

Field Name	Description
RP#	The ID number of the RP which transmits control channel LCCH
Layout	Complete/Incomplete configuration. Complete: RP has found the control channel. Incomplete: RP has not been able to find the control channel (e.g. due to interference).
Multi-Frame Location	Position to which the RP transmits control channel LCCH
Control Ch. Carrier	Channels over which the RP transmits control channel LCCH
Update	Retrieve the latest status information.

Table 4-9: Time Slot Status Window Field Description

2. Click the **Update** button to get the latest status information. Click **Close** to close the window.

4.2.5 Self Messages

Whenever there is a change in configuration or a new warning is received, a message will be displayed in the **Self Message** window, notifying of the situation. The **Self Message View** window is located at the bottom of the **RPC** window. Figure 4-34 illustrates the **Self Message** window with event messages.

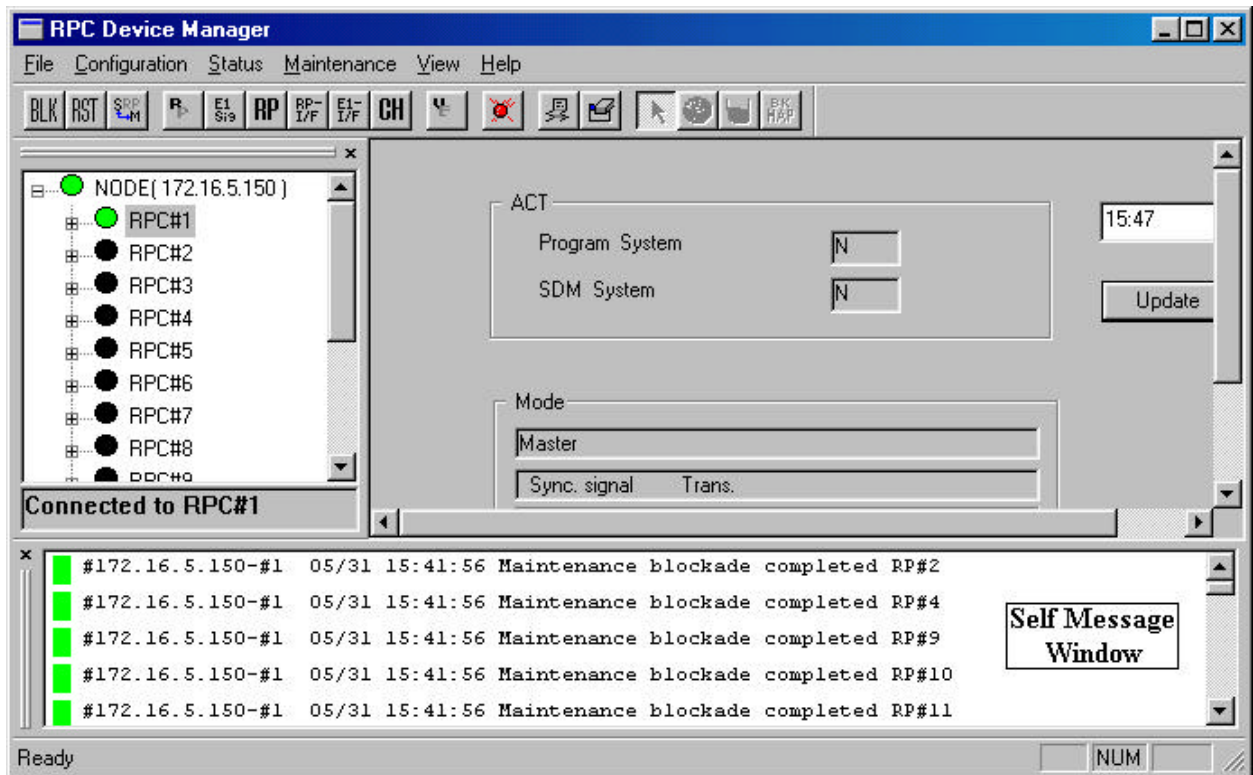


Figure 4-34: Self Message Window

This **Self Message** window displays only the event messages received from the RPCs that are connected to the host RT. In the above example the host RT has the IP address of 172.16.5.150. This RT controls 15 RPCs. The **Self Message** window is updated without the need for special operation action.

4.2.6 Reset RPC

When a system component experiences trouble and the problem cannot be solved, it may be necessary to reset that component. RPC resetting may also be needed after certain provisioning operation.

1. Select **Reset** from the **Maintenance** main menu. The **Reset RPC** window appears as shown in Figure 4-35.

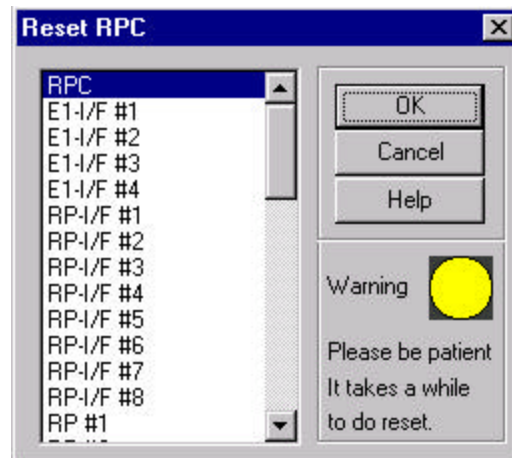


Figure 4-35: Reset RPC Window

2. Before resetting any component, verify that there are no calls active by checking the air channel status. Select the target component and click on **OK**. If an **RPC** is selected to be reset the following window opens.

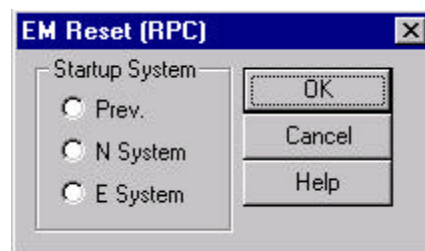


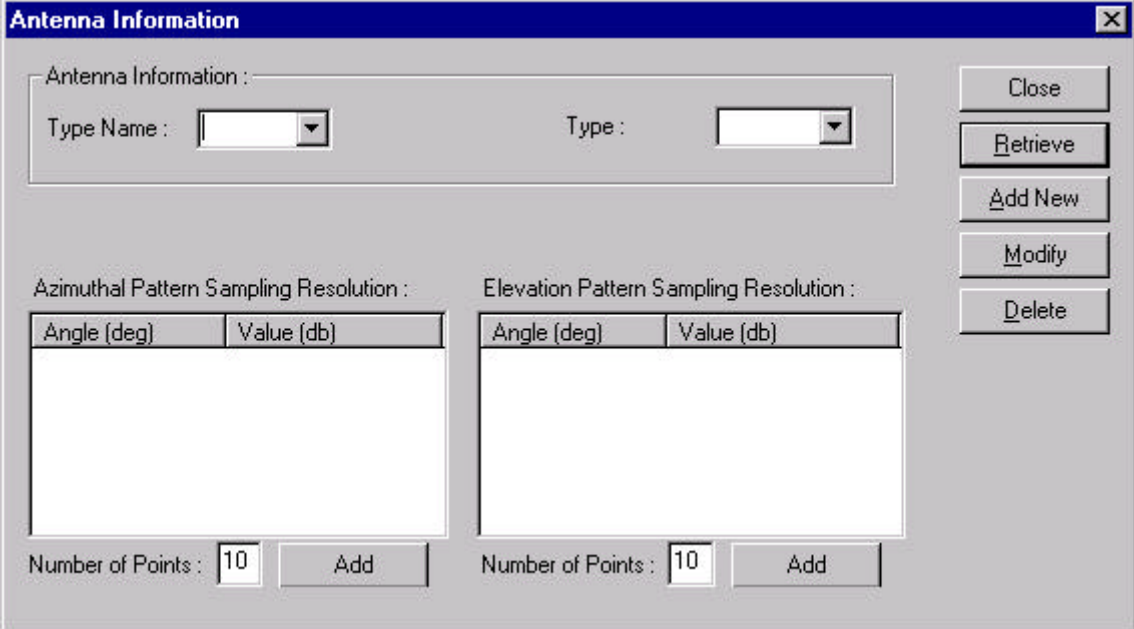
Figure 4-36: EM Reset Window

There are three options for Startup System.

- Prev
 - N system
 - E system
3. Select the system to be reset and click **OK**.
 4. After EM reset is complete, the RPC is disconnected. To resume normal operation, reconnect to the RPC.

4.2.7 Antenna Information

1. Select **Antenna Information** from the **Maintenance** main menu, and the **Antenna Information** window opens as shown in Figure 4-37.



The **Antenna Information** window is a dialog box with a title bar and a close button. It contains the following elements:

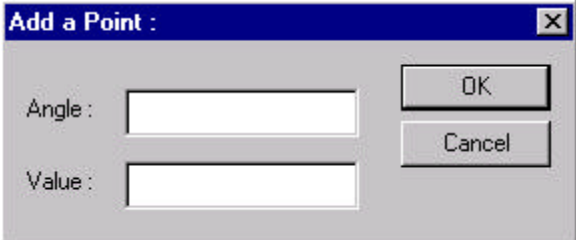
- Antenna Information :** A label above two dropdown menus.
 - Type Name :** A dropdown menu.
 - Type :** A dropdown menu.
- Azimuthal Pattern Sampling Resolution :** A label above a table.

Angle (deg)	Value (db)
-------------	------------
- Elevation Pattern Sampling Resolution :** A label above a table.

Angle (deg)	Value (db)
-------------	------------
- Number of Points :** A text box containing "10" and an **Add** button, repeated for both Azimuthal and Elevation patterns.
- Buttons:** A vertical stack of buttons on the right: **Close**, **Retrieve**, **Add New**, **Modify**, and **Delete**.

Figure 4-37: Antenna Information Window

2. Antenna name and type are read from the database. If new information is added, click the **Add New** button and the new information is saved into the database.
3. If users want to add more pattern resolution, click **Add** and the **Add a Point** window opens as shown in Figure 4-38. Users enter the values and click **OK**. The values are added into the list box of the **Antenna Information** window.



The **Add a Point** window is a small dialog box with a title bar and a close button. It contains the following elements:

- Angle :** A text box.
- Value :** A text box.
- Buttons:** **OK** and **Cancel** buttons.

Figure 4-38: Add a Point Window

4.2.8 RPC Connection

To change the number of RPCs to be connected, select ***RPC Connection*** from the **Configuration** main menu, the Connect RPCs window displays as shown in Figure 4-39. Click the check button of the target RPCs to be connected and click **OK** to connect to the selected RPCs.

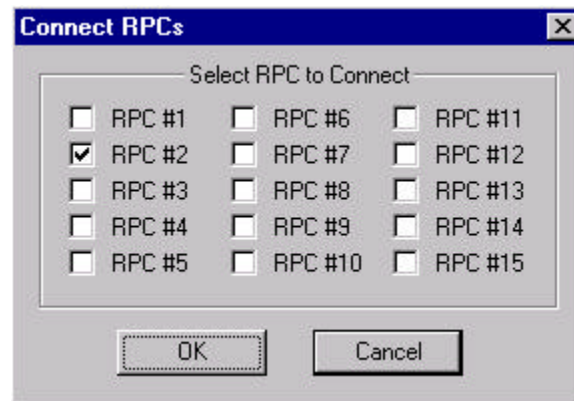


Figure 4-39: Connect RPCs Window

4.2.9 Version Window

1. From the **Configuration** pull-down menu, click the ***Version*** option. This opens the ***Version*** window, as illustrated in the figure below.

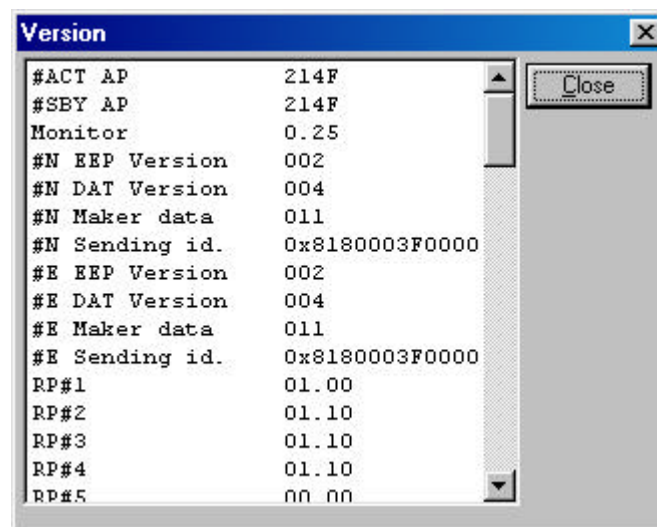


Figure 4-40: Version Window

2. There are two columns in this window. The left column lists the item names. The right column shows the corresponding version. This window displays the version of each item in operation.

4.3 Manage RPC Data

RPC data include program data and operation data. RPCs have two plane memory areas for the program data and two plane memory areas for the operation data. As a result, the RPC data can be categorized into the following types:

1. For the program data
 - PDM (Program Data Memory)-#N
 - PDM (Program Data Memory)-#E
2. For the operation data
 - SDM (System Data Memory)-#N
 - SDM (System Data Memory)-#E

In effect, the RPC continues to run based on 1 SDM and 1 PDM. Therefore, SDM and PDM have two types of operation status:

1. Active (ACT): the SDM and PDM which are used for RPC running.
2. Standby (STY): the SDM and PDM which are not used for RPC running.

Suppose that an RPC ran based on SDM-#N and PDM-#E, the operation status for the RPC data systems would be:

- SDM-#N: ACT
- SDM-#E: SBY
- PDM-#N: SBY
- PDM-#E: ACT

These data systems can be manipulated through the options under the **Configuration** and **Maintenance** main menus. Use the procedure in this section to manage the RPC data.

4.3.1 Program Load

The ***Program Download*** option of the **Maintenance** pull-down menu offers the function of downloading the program data from Netman 2000 to the SBY PDM of

the target RPC and putting it into operation by switching to the new program data at the specified time.



NOTE: It is recommended that program download be done using RMT via WLL/V5WLL.

*During the operation the system prompts you to disconnect the target RPC. Click **OK** to disconnect it. After the operation reconnect the RPC.*

1. Click the **Maintenance** main menu, select the **Program Download** option, and then the **Program Load** option. This opens the **File for Program Download** window, as shown in the figure below.

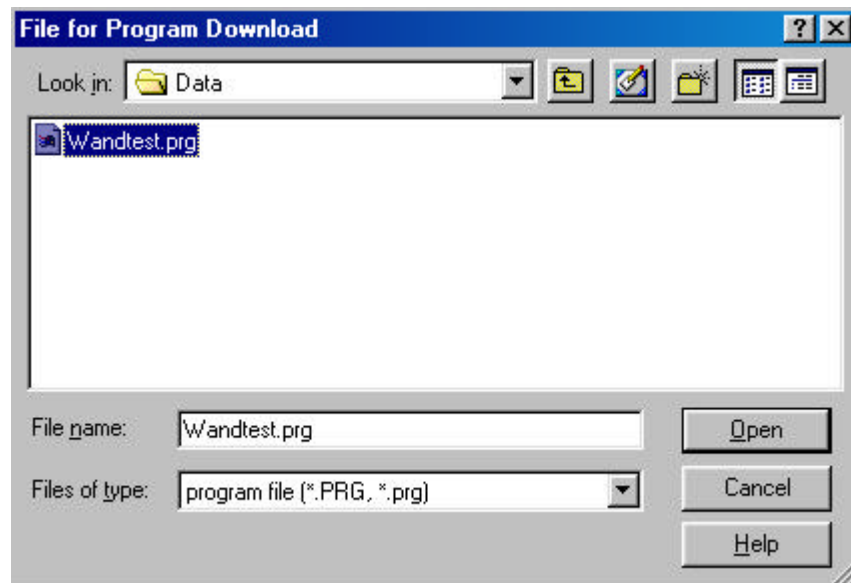


Figure 4-41: File for Program Download Window



NOTE: The program file must be in the Netman directory. The proper path should be: C:\program files\UTStarcom\Netman\data. This rule applies to other data files and data operation.

2. Select the program data file to be downloaded. The program data file must be of the **.prg** or **.PRG** type. When the **Open** button is clicked, a confirmation dialog box opens, as displayed below.

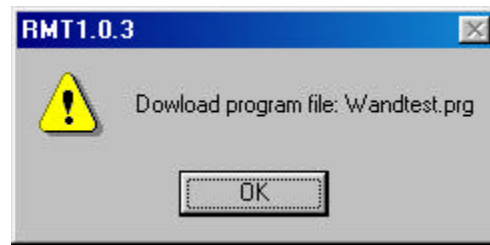


Figure 4-42: Download Confirmation Dialog Box

- Click **OK**, and the **Program Download** window opens, as shown in the figure below.

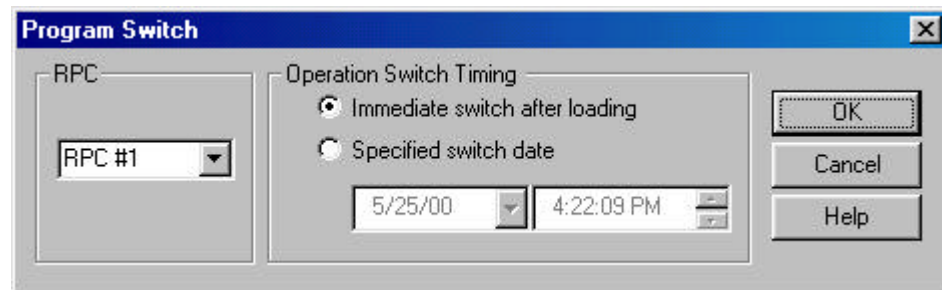


Figure 4-43: Program Download Window

Field Name	Description
RPC	The ID number of the RPC to which the program data are to be downloaded. Click the Arrow button to make a selection.
Immediate switch after loading	If selected, the RPC will switch to the new program data immediately after downloading.
Specified switch date	If selected, the RPC will switch to the new program data at the date and time specified in the two fields provided.

Table 4-10: Program Download Window Field Description

- Select the RPC to which the program data are to be downloaded, and make a selection in the **Operation Switch Timing** block. Click **OK**. The program data are downloaded to the SBY PDM.
- After the data have been downloaded, click **OK**.

4.3.2 Program Switch

Use the **Program Switch** option to switch the operation status of the SBY PDM and the ACT PDM.

1. From the **Maintenance** pull-down menu, select **Program Download**, and then **Program Switch**. The **Program Switch** window appears, as shown in the figure below.

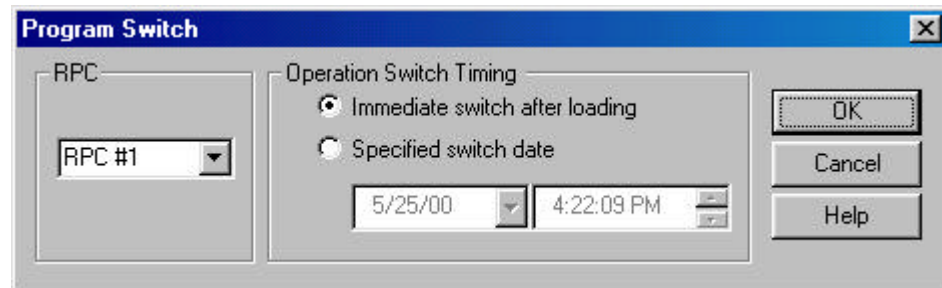


Figure 4-44: Program Switch Window

2. This window is exactly the same as the previous one. Make a selection in the **Operation Switch Timing** block. If you click the **Specified switch date** radio button, specify the date and time for the new program to go into operation. Click **OK** to accept the setting or **Cancel** to stop the transaction. After switching at the specified time, RPC runs based on the SBY PDM and each PDM status is switched.

4.3.3 Data Load

Operation data can be loaded and put into operation by selecting the **Service Data** options. Use the procedure in this section to load the operation data to the SBY SDM and to specify the time to switch to the new data.

1. From the **Configuration** pull-down menu, select **Service Data**, then **Data Download**, and then **Data load**. This opens the **File for Data Download** window, as illustrated in the figure below.

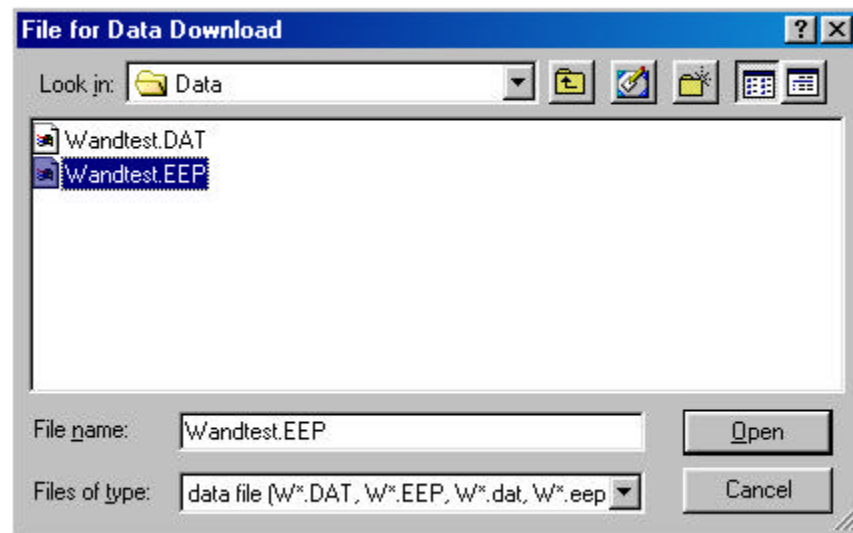


Figure 4-45: File for Data Download Window

2. Select the data file to be downloaded. The data file must be of the **.DAT** or **.EEP** type. When the **Open** button is clicked, a confirmation window opens. Click **OK**. This opens the **Service Data Download** window, as shown in the figure below.

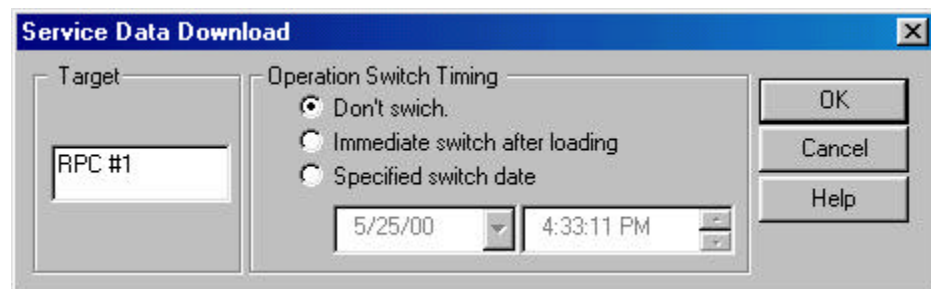


Figure 4-46: Service Data Download Window

3. Select the target RPC to which to download the data. Make a selection in the **Operation Switch Timing** block. If the **Specified switch date** radio button is selected, specify the date and time for the switch operation to be executed. Click **OK**. The operation data is downloaded to the SBY SDM.

4.3.4 Data Switch

Use the **Data Switch** option to specify the date and time to switch to the SBY SDM.

1. From the **Configuration** pull-down menu, select **Service Data**, then **Data Download**, and then **Data Switch**. The **Service Data Switch** window appears, as shown in the figure below.

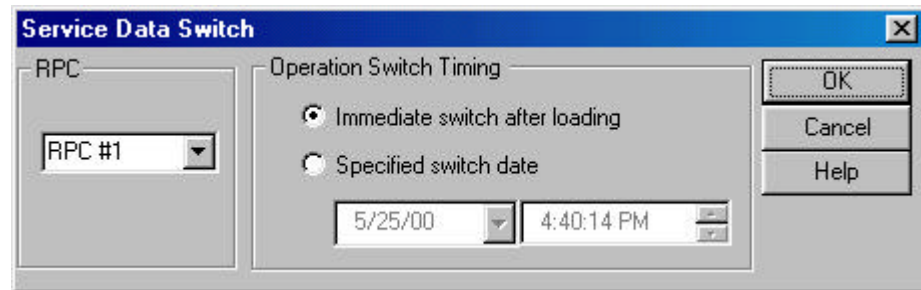


Figure 4-47: Service Data Switch Window

2. Select the target RPC. Make a selection in the **Operation Switch Timing** block. If you click the **Specified switch date** radio button, specify the date and time for the switch operation to be executed. Click **OK** to accept the setting. After switching at the specified time, RPC runs based on the SBY SDM and each SDM status is switched.

4.3.5 Read Data

Use this function to read the operation data from the current RPC to Netman 2000 while the RPC is operating.

1. From the **Configuration** main menu, select **Service Data**, and then **Read Data**. This opens the **Read System Service Data** window, as displayed in the figure below.

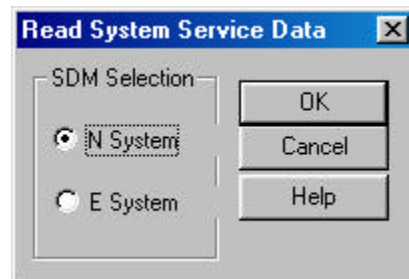


Figure 4-48: Read System Service Data Window

Field Name	Description
SDM Selection	Select one of the two operation data systems: SDM-#N or SDM-#E. Any one can be ACT or SBY.
N System	One of the two operation data systems
E System	One of the two operation data systems

Table 4-11: Read System Service Data Window Field Description

2. Make a selection in the **SDM Selection** block and click **OK**.
3. The following window appears, prompting for the folder and file name in which to save the service data after reading out.

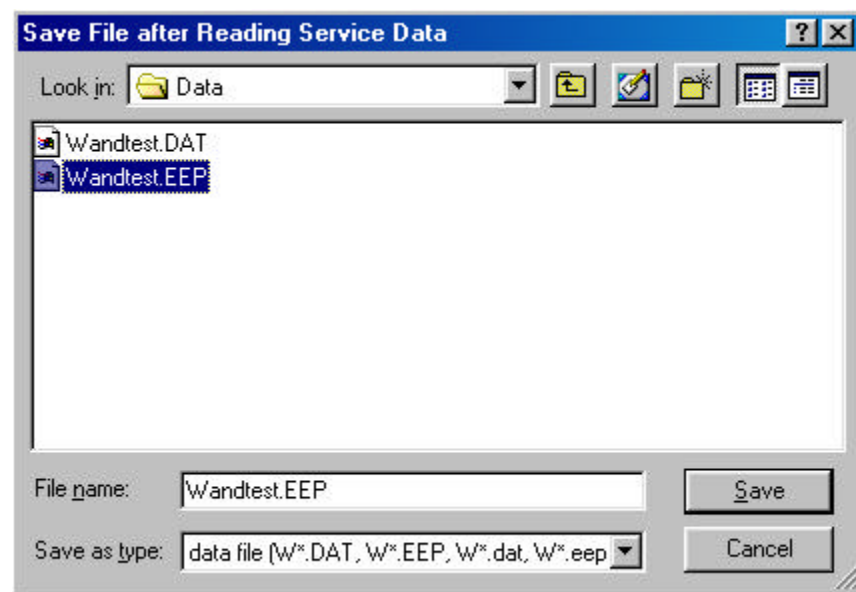


Figure 4-49: Save File after Reading Service Data Window

4. Select a folder and enter a file name. The file name must have the extension of **.dat** or **.eep**. In addition, the file name must start with **W** and have 8 letters. Then click **Save**.
5. A confirmation box appears. Click **Yes** to start the reading of the data.

4.3.6 Write Data

Use the procedure in this section to load the operation data to both the SDMs while the RPC is operating. As for this command, automatic switching is not supported. After the implementation of the command, the RPC still runs based on

the old loaded operation data. For the RPC to run based on the newly loaded operation data, the RPC needs to be reset.

1. From the **Configuration** main menu, click **Service Data**, and then **Write Data**. This opens the **Write System Service Data** window, as shown in the figure below.

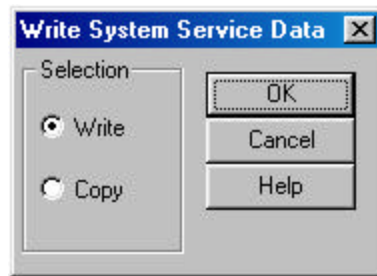


Figure 4-50: Write System Service Data Window

2. Click the **Write** radio button and then click **OK**. The **Select File for Writing Service Data** window appears, as illustrated in the figure below.

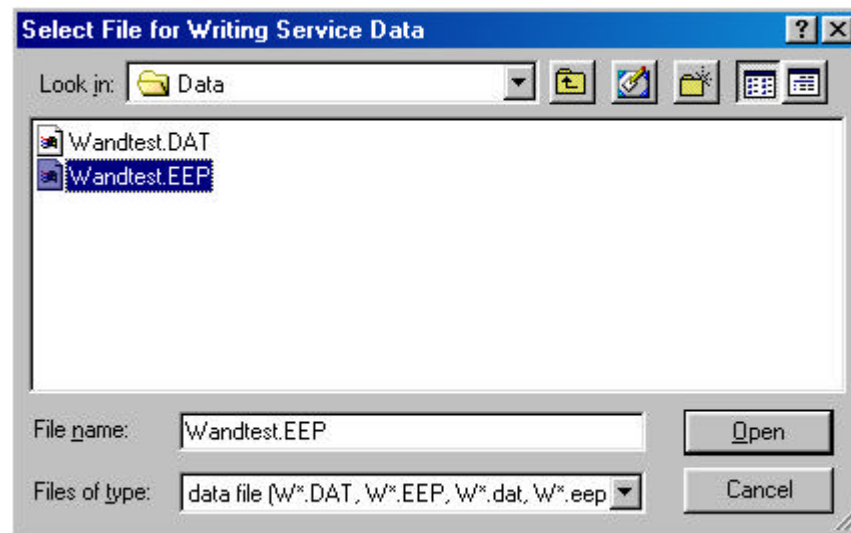


Figure 4-51: Select File for Writing Service Data Window

3. Select the target file with either a **.dat** or a **.eep** extension and click **Open**. The system overwrites the service data on both the SDMs of the RPC.

4.3.7 Copy Data

This function is used to copy the operating data from the ACT SDM to the SBY SDM. The automatic SDM switching is not supported for this function.

1. From the **Configure** main menu, click **Service Data**, and then **Write Data**. This opens the **Write System Service Data** window, as shown in the figure below.

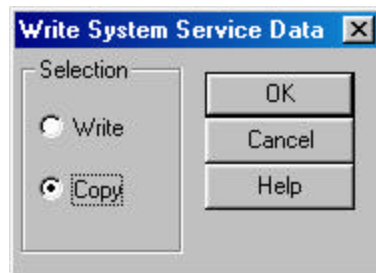


Figure 4-52: Write System Service Data Window

2. Click the **Copy** radio button and then click **OK**. A confirmation dialog box appears, as illustrated in the figure below. Click **OK** to confirm the copying command.

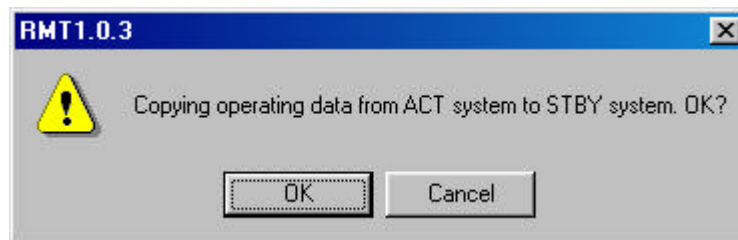


Figure 4-53: Confirmation Dialog Box

4.3.8 Edit Data

RPC operation data contain three categories:

1. Service data 1: RP installation
2. Service data 2: Group control configuration
3. Service data 3: System parameters

Use this function to edit an existing operation data file while the RPC is operating.



NOTE: *Operation data must be edited locally in a file, and then downloaded to the system.*

4.3.8.1 Service Data 1: RP Installation

1. From the **Configuration** main menu, click the **Service Data** option, and then the **Edit Data** option. This brings up the **Specify File for Edit** window, as shown in the figure below.

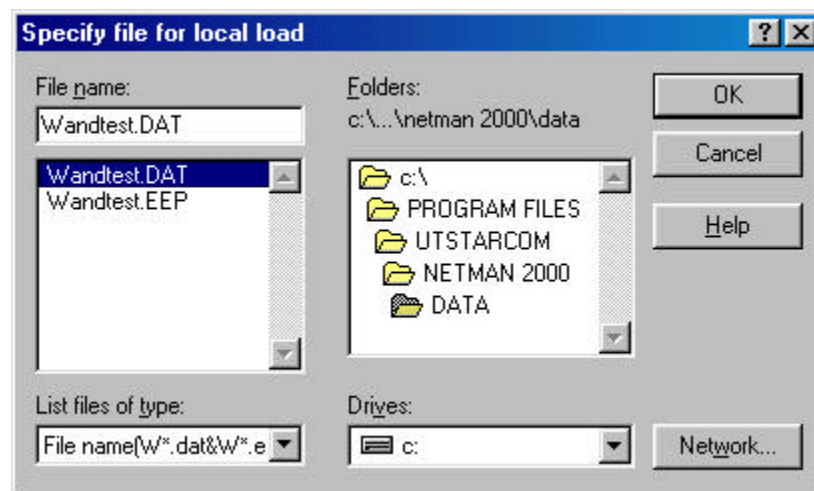


Figure 4-54: Specify file for Edit Window

2. Select the target **.dat** or **.eep** file and click **Open**. The system edits all the files with any one of the two suffixes. The **Edit of Service Data 1** window opens, as shown in the figure below.

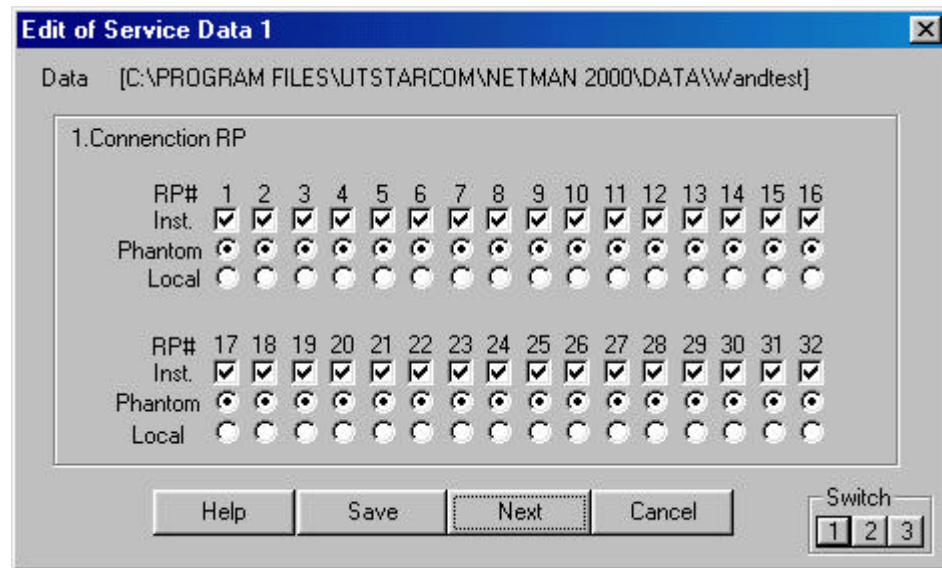


Figure 4-55: Edit of Service Data 1 Window

Field Name	Description
RP#	RP ID number
Inst.	Set "installed" or "not installed" for RPs according to RP installation plan.
Phantom	The power is supplied by the RPC.
Local	The power is supplied by the RP power unit.
Save	Save the setting to a local file.
Next	Switch to the next Service Data window.
Cancel	Cancel the editing.
Switch 1,2,3	Switch to one of the three Service Data windows.

Table 4-12: Edit of Service Data 1 Window Field Description

- For each installed RP, enter a $\checkmark$ in the Inst. row. For each installed RP, specify the power source by clicking on either the **Phantom** button or the **Local** button. For WLL, the power source is **Phantom**. **Local** is for future use when the power is 20 milliwatts or higher.

4.3.8.2 Service Data 2: Group Control Configuration

- To get to the **Edit of Service Data 2** window, click **Next** or **Switch 2**. The **Edit of Service Data 2** window opens, as shown in the figure below.

Figure 4-56: Edit of Service Data 2 Window

Field Name	Description
RP-I/F	RP interface ID number
Group #	Group ID number
RP#	RP ID number
Master	Master/Slave status of the RPs
Save	Save the Service Data to a file.
Next	Switch to the next window

Table 4-13: Edit of Service Data 2 Window Field Description



NOTE: RP ID numbers are defined according to the connected physical port numbers on the RP interface boards, as listed below:

RP-IF#1 port 1 ----- RP#1
 RP-IF#1 port 2 ----- RP#2
 RP-IF#1 port 3 ----- RP#3
 RP-IF#1 port 4 ----- RP#4
 RP-IF#2 port 1 ----- RP#5

 RP-IF#3 port 1 ----- RP#9

 RP-IF#8 port 1 ----- RP#29
 RP-IF#8 port 2 ----- RP#30
 RP-IF#8 port 3 ----- RP#31
 RP-IF#8 port 4 ----- RP#32

2. This window is for the configuration of Group Control. Group Control maximizes the number of channels available for traffic by allowing one control channel to control up to 8 RPs (up to 31 traffic channels). A group can be set up only within two adjacent RP interface boards. Group members must be within the two RP Interface boards. For each RP, enter the group number and designate the master. In the above window, 7 RPs on RP Interface card 5 and 6 are in group 17 with the master RP designated as RP number 17. The master RP must be the RP with the lowest RP number in the group. The RPs that are not in group control must be designated as their own masters and have their own group numbers, as is the case for RP# 21 in the above figure.

4.3.8.3 Service Data 3: System Parameters

The third **Edit of Service Data** window contains system parameters. It is not necessary to administer the parameters, as they are set at the factory. Users can only change the relevant values for the parameters. Click on **Next** or **Switch 3** to open the **Edit of Service Data 3** window, as shown in the figure below.

No.	value	Item
1	81	Calling discrimination code (1) (Departure identification sig
2	80	Calling discrimination code (2) (Departure identification sig
3	01	Calling discrimination code (3) (Departure identification sig
4	16	Calling discrimination code (4) (Departure identification sig
5	00	Calling discrimination code (5) (Departure identification sig
6	00	Calling discrimination code (6) (Departure identification sig
7	0D	E1 interface install setting (1)
8	00	E1 interface install setting (2)

Figure 4-57: Edit of Service Data 3 Window

Field Name	Definition
No.	Item sequence numbers, starting from 1
Value	Specified value for the item. The value can be selected from the arrow drop-down list.
Item	Item name and value description
Basic	Basic value
Unit	Item value unit
Min	The minimum value which can be specified for the item
Max	The maximum value which can be specified for the item
HEX val.	Switch between the hexadecimal and the decimal value
Button Name	Description
Target	Select the target PRC ID number to display its system parameters.
Item	Only item names are displayed on the right column.
Basic	Basic value, unit value, and item names are displayed on the right column.
Range	Maximum value, minimum value, unit value, and item names are displayed on the right column.
<	Scroll the window downward one line at a time.
>	Scroll the window upward one line at a time.
<<	Scroll the window downward one page at a time.
>>	Scroll the window upward one page at a time.
Save	Save the value setting.
Top	Go to Service Data 1 window.

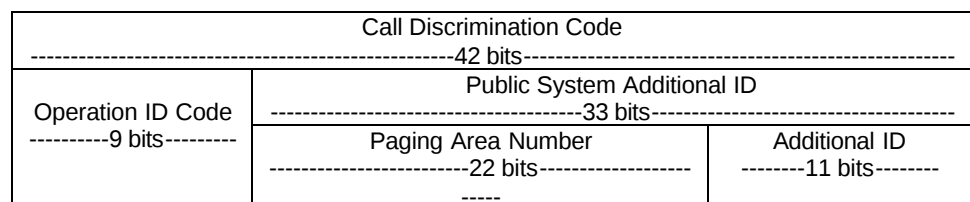
Table 4-14: Edit of Service Data 3 Window Field Definition

There are three different windows for this function: **Item**, **Basic**, and **Range**. Use the **View** Block to switch to different windows. Edit the data as necessary and click **Save**. A confirmation box appears, prompting: "Current file will be replaced by this contents. OK?" Click **Yes** to confirm or **No** to stop the transaction.

The operation data in the **Item** block contain many system parameters. They are for view only. Users should use the **Arrow** drop-down list in the **Value** field to make any necessary change to the setting. Each of the system parameters in the Item block is described as follows:

Call discrimination code

The length of the Call Discrimination Code data field is 48 bits, but the last 6 bits are not used. So the remaining 42 bits are used for call discrimination code. The value determines the RP-ID (CS-ID). And it needs to be unique among all RPCs. The following diagram describes how the 42 bits are split into several divisions.



Operator ID Code: MSB is always set to "1". The remaining 8 bits are used for Operator ID. The Operator ID's of all RPs that connect to the same RPC take the same value, and the value is equal to the setting value of this data field.

Paging Area Number refers to the area where the call is broadcast for the FSU or PS that has location registration for that area. In effect, PS doesn't need to request location registration while it stays inside the area, even if it switches RPs. The Paging Area Number of all RPs that connect to the same RPC takes the same value, and the value is equal to the setting value of this data field.

Additional ID (11bits) of this data field is set from "00000000000" to "11111100000". The upper 6 bits of the Additional ID of the RPs that connect to the same RPC take the same value, and the value is equal to the setting value of this data field.

The first 37 bits of this Call Discrimination Code correspond to the RP-ID (CS-ID) of each RP that connects to the same RPC, and the value of the 37 bits is the same for all the RPs which connect to the same RPC. The last 5 bits are unique for each RP under the same RPC, as illustrated below:

RP #	RP #1	RP #2	RP #3	RP #4		RP #32
Last 5 bits	00000	00001	00010	00011		11111

For instance, when the field data (48bits) of the Call Discrimination Code are 9E 00 00 00 03 80 (HEX), the RP-ID (42 bits) of RP#4 is as follows:

1001 1110 0000 0000 0000 0000 0000 0000 0011 11 (Binary)

Operator ID: 1001 1110 0 (Binary)

Paging area: 000 0000 0000 0000 0000 000 (Binary)

Additional ID: 0 0000 0011 11 (Binary)



NOTE: The RP-ID that is described in this section is used between RP/RPC and FSU/PS. The RP-ID is also defined between WLL/V5WLL and RPC but the length is 48 bits. This RP-ID is generated by the RP-ID of the air interface but is not the same as the RP-ID of the air interface. RPC can translate between the RP-ID of the WLL/V5WLL/RPC and the RP-ID of the air interface..

E1 interface install setting

This item is used to configure E1 interface install setting (1), as described below:

	MSB					LSB		
Bit	8	7	6	5	4	3	2	1
	0	0	0	0	X	X	X	X

Bit 1 corresponds to the installation status of E1-IF#1

Bit 2 corresponds to the installation status of E1-IF#2

Bit 3 corresponds to the installation status of E1-IF#3

Bit 4 corresponds to the installation status of E1-IF#4

Installation status: Installed → 1
 Not installed → 0

Set "installed" or "not installed" for each E1-IF according to the E1-IF installation plan. Set "installed" for all E1-IF's for future expansion.

E1 interface install setting (2) is reserved for system expansion.

LCCH frequency (Control carrier frequency)

This item is used to set LCCH frequency of the system. The system can use one carrier from No. 1 to No. 77. This value is assigned by the operator or Government. For instance, if LCCH frequency is No.71, the setting value is 71 (HEX: 4D). In one-service area LCCH frequency and Operator ID must be the same for all RPs and RPCs.

Channel frequency use control (1-8), (9-16) (73-77)

The item is used to set the availability of Traffic channels. Every channel frequency (carrier number 1 through 77) can be set "available" or "unavailable". For Channel frequency use control (1-8) the values are set as follows:

	MSB					LSB		
Bit	8	7	6	5	4	3	2	1
	X	X	X	X	X	X	X	X

Bit 1 corresponds to Channel frequency No.1 (carrier No.1)

Bit 2 corresponds to Channel frequency No.2 (carrier No.2)

.....

Bit 7 corresponds to Channel frequency No. 7 (carrier No.7)

Bit 8 corresponds to Channel frequency No. 8 (carrier No.8)

Setting value: Available → 1
 Unavailable → 0

For instance, if Channel frequency No. 1, 3, 5 are available and Channel frequency No. 2, 4, 6, 7, 8 are unavailable, the values are set as follows:

Channel frequency use control (1-8): 0001 0101(Binary) (HEX: 15)

Channel frequency use control (9-16) (73-77) are set in the same way. The previous and the next Channel frequency of LCCH frequency must be set "Unavailable" for traffic channel to avoid the interference.

Loudness control value (input loudness value)

This item is used to set the RPC input loudness control value, as described below:

	MSB				LSB			
Bit	8	7	6	5	4	3	2	1
	0	0	0	y	x	x	x	x

Bit 1-4 (xxxx) are the value of loudness, as listed below:

Real level		Bit 4	3	2	1
0 dB	→	0	0	0	0
2 dB	→	0	0	0	1
4 dB	→	0	0	1	0
6 dB	→	0	0	1	1
.....					

Bit 5 is the value of sign.

Sign	Bit 5
	→ 1
	→ 0
.....	

For instance, if the input loudness of RPC needs to be set to + 8 dB, the setting value is as follows:

0001 0100 (Binary)

This value is determined in accordance with the system level plan.

Loudness control value (output loudness value)

This item is used to set the RPC output loudness control value, as described below:

	MSB					LSB			
Bit	8	7	6	5	4	3	2	1	
	0	0	0	y	x	x	x	x	

Bit 1-4 (xxxx) are the value of loudness, as listed below:

Real level		Bit	4	3	2	1
0 dB	→		0	0	0	0
2 dB	→		0	0	0	1
4 dB	→		0	0	1	0
6 dB	→		0	0	1	1
.....						

Bit 5 is the value of sign.

Sign	Bit	5
	→	1
	→	0
.....		

For instance, if the output loudness of RPC needs to be set to + 8 dB, the setting value is as follows:

0001 0100 (Binary)

This value is determined in accordance with the system level plan.

Loudness control value (DTMF signal loudness value)

In the case of PS origination, dialing information is transferred as a message from the PS to the RPC. The RPC generates the DTMF signal tone according to the received message. This item used for the setting of output DTMF signal loudness, as described below:

	MSB					LSB			
Bit	8	7	6	5	4	3	2	1	
	0	0	0	y	x	x	x	x	

Bit 1-4 (xxxx) are the value of loudness, as listed below:

Real level		Bit 4	3	2	1
0 dB	→	0	0	0	0
2 dB	→	0	0	0	1
4 dB	→	0	0	1	0
6 dB	→	0	0	1	1
.....					

Bit 5 is the value of sign.

Sign		Bit 5
	→	1
	→	0
.....		

For instance, if the output loudness of RPC needs to be set to + 8 dB, the setting value is as follows:

0001 0100 (Binary)

This value is determined in accordance with the system level plan.

DTMF sound sending interval value

In the case of PS origination, dialing information is transferred as a message from the PS to the RPC. The RPC generates the DTMF signal tone according to the received message. This item is used for the setting of DTMF minimum pause of the DTMF signal. The value (unit: msec) is directly set in the value field.

For instance, if the sending interval time needs to be set to 80 msec, the setting value is "50" (HEX).

DTMF sound sending time value

In the case of PS origination, dialing information is transferred as a message from the PS to the RPC. The RPC generates the DTMF signal tone according to the received message. This item is used for the setting of DTMF sending time of the DTMF signal. The value (unit: msec) is directly set in the value field.

For instance, if the sending time needs to be set to 80 msec, the setting value is "50" (HEX).

Country number 1, 2

This item is used for the setting of Country Code. The Country code is used to represent the country which assigns the RP identification code.

System type

This item is used for the setting of system type. This system is applicable for the system. The system type is 3. The coding is "0000 0100" (Binary).

Standby zone selection level

This item is used for the setting of air-interface.

Standby zone hold level

This item is used for the setting of air-interface.

Recalling-type handover process level

This item is used for the setting of air-interface.

Recalling-type handover destination zone selection level

This item is used for the setting of air-interface.

Channel switching FER threshold value

This item is used for the setting of air-interface.

Reservation/Area information report status number

This item is used for the setting of air-interface.

TCH switching-type handover process level

This item is used for the setting of air-interface.

FSU mobility limitation

This item is used for the control of FSU mobility limitation. Depending on the setting value, one mode might be that RPC reports RP-ID to WLL/V5WLL for mobility, the other mode might be that RPC doesn't report RP-ID to WLL/V5WLL for mobility. In the case that RPC reports RP-ID to WLL/V5WLL, WLL/V5WLL controls FSU mobility in accordance with the subscriber setting. In the case that RPC doesn't report RP-ID, FSU mobility isn't limited regardless of the subscriber setting. The way of setting is as follows,

Bit	8	7	6	5	4	3	2	1	
	0	0	0	0	0	0	0	0	→ The mode that RPC doesn't report RP-ID
	0	0	0	0	0	0	0	1	→ The mode that RPC reports RP-ID

4.3.9 Change Data (RP Installation)

Use the procedure in this section to change the operation data for the selected RPC. The diagrams displayed in this section are very similar to those in the previous section. The only difference is that there are two configuration windows instead of three.

1. To change the operation data for an RPC, click the **Configuration** main menu and select the **Service Data** option, then the **Change Data** option, and then the **RP Installation** option. This opens the **RP Installation (Group Composition 1)** window, as displayed in the figure below.



NOTE: Before making any changes to the operation data, be sure to block the E1/IF and RP/IF. After the setting is modified, the RP/IF will restart itself.

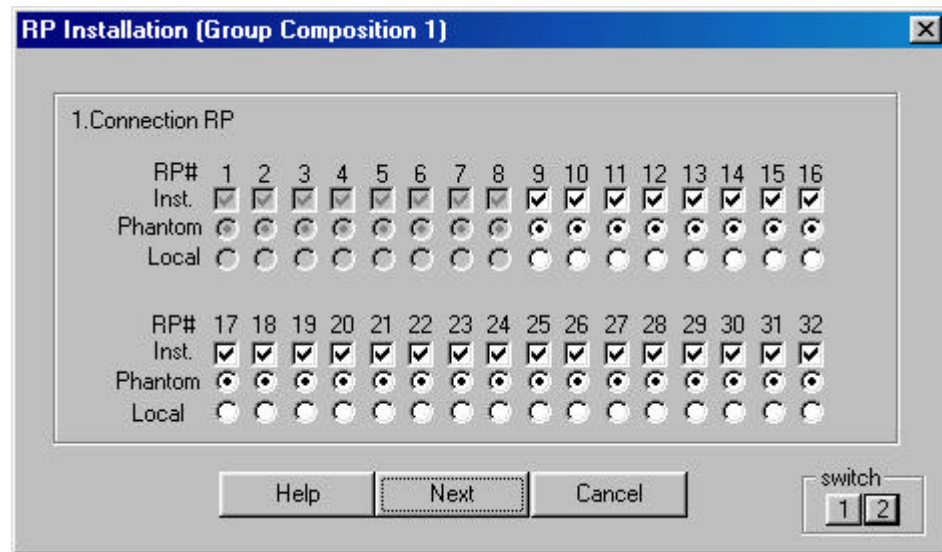


Figure 4-58: RP Installation (Group Composition 1) Window

- This window is used to configure RP connection. For each installed RP, enter a ✓ in the Inst. row. For each installed RP, specify the power source by clicking on either the **Phantom** button or the **Local** button. Phantom means the power is supplied by the RPC. For WLL, the power source is Phantom.
- To get to the **RP Installation (Group Composition 2)** window, click **Next** or **Switch 2**. The **RP Installation (Group Composition 2)** window is shown in the figure below.

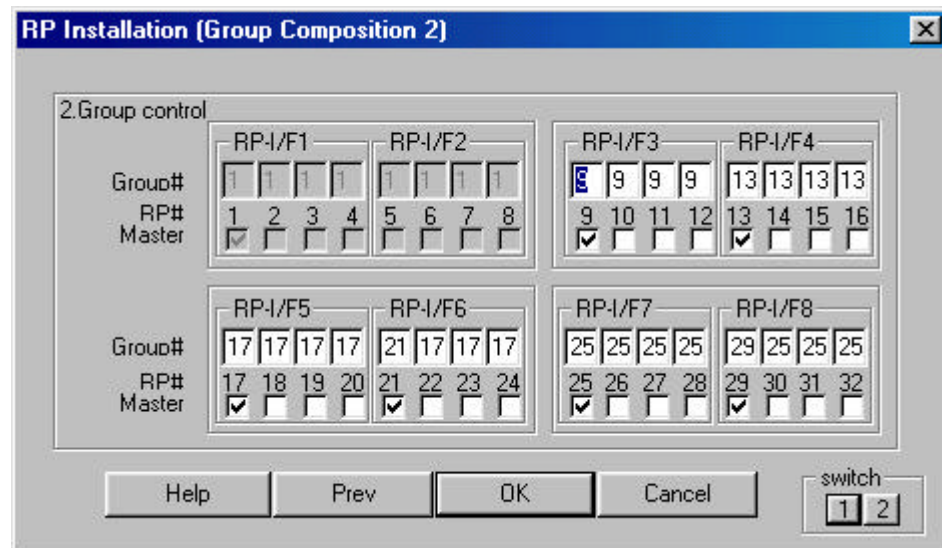


Figure 4-59: RP Installation (Group Composition 2) Window

4. This window is for the configuration of Group Control. Group Control maximizes the number of channels available for traffic by allowing one control channel to control up to 8 RPs (up to 31 traffic channels). Each group contains two RP Interface boards. Group members must be within the two RP Interface boards. For each RP, enter the group number and designate the master. In the above window, 7 RPs on RP Interface boards 5 and 6 are in group 17 with the master RP designated as RP number 17. The master RP must be the RP with the lowest RP number in the group. The RPs that are not in group control must be designated as their own masters and have their own group numbers, as is the case for RP# 21 in the above figure.
5. After editing the operation data click **OK**. A dialog box opens for confirmation, as shown in the figure below.

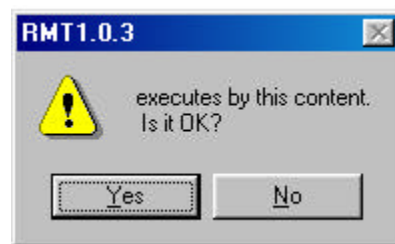


Figure 4-60: Confirmation Dialog Box

6. Click **Yes** to confirm, or **No** to stop the transaction. If the **Version Confirmation** window opens when **Yes** button is clicked, verify that the version is correct and then click **OK**.

4.3.10 Change Data (E1-IF Board Installation)

Each RPC can have 4 E1 interface boards to communicate with WLL/V5WLL. Use the steps in this section to select the target E1 interfaces to be installed or uninstalled.

1. First use the **Blockade** option under **Unit Control** to block the target E1 interfaces.
2. From the **Configuration** pull-down menu, select **Service Data**, then **Change Data**, and then **E1-I/F Board Installation**. This opens the **E1-I/F Board Installation** window, as shown in the figure below.

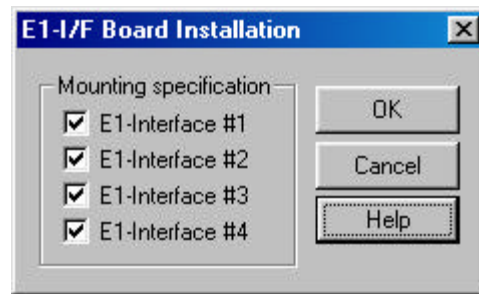


Figure 4-61: E1-IF Board Installation

3. Check or uncheck the boxes in front of the target E1 interfaces to be installed or uninstalled, and click **OK**.

4.3.11 Change Data (Data Value)

Use this function to change the operation data value.



NOTE: *This feature is not recommended. Use with care.*

1. From the **Configuration** main menu, click **Service Data**, then **Change Data**, and then **Data Value**. The **Data Value Change** window opens, as illustrated in the figure below.

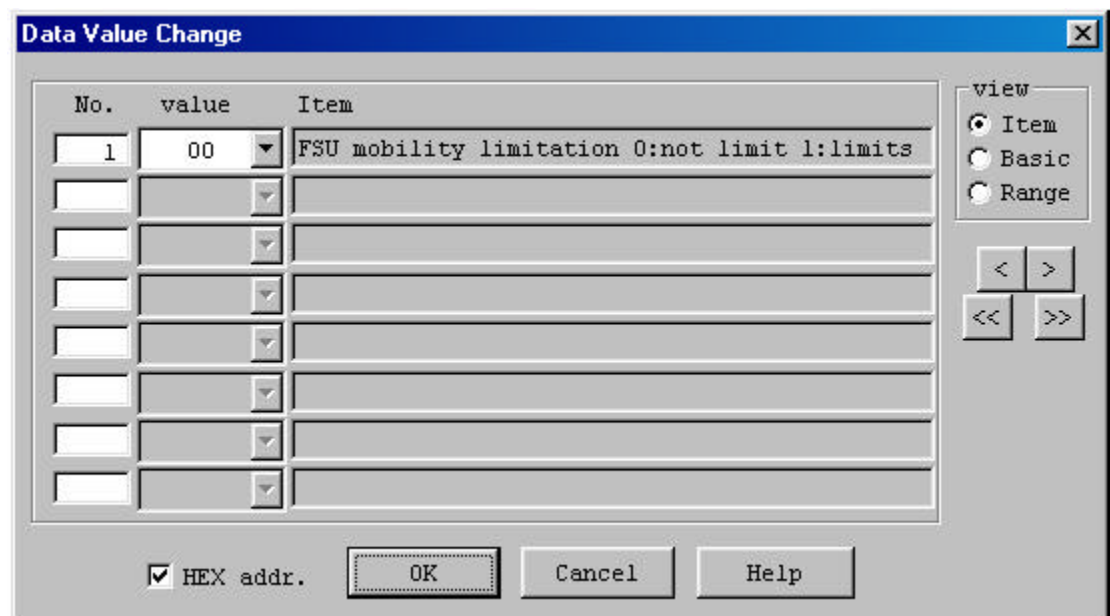


Figure 4-62: Data Value Change Window

Field Name	Definition
No.	Item sequence numbers, starting from 1
Value	Specified value for the item. The valid values are displayed in the Item block and can be selected from the arrow drop-down list.
Item	Item name and value description
Basic	Basic value
Unit	Item value unit
Min	The minimum value which can be specified for the item
Max	The maximum value which can be specified for the item
HEX addr.	Switch between hexadecimal and decimal value
Button Name	Description
Item	Only item names are displayed on the right column.
Basic	Basic value, unit value, and item names are displayed on the right column.
Range	Maximum value, minimum value, unit value, and item names are displayed on the right column.
<	Scroll the window downward one line at a time.
>	Scroll the window upward one line at a time.
<<	Scroll the window downward one page at a time.
>>	Scroll the window upward one page at a time.
OK	Implement the command.

Table 4-15: Data Value Change Window Field Description

- There are three different windows for this function: **Item**, **Basic**, and **Range**. Use the **View** block to switch between different windows. Refer to *Section 4.3.8.3* for the detailed description for the **Value** field and the **Item** block.
- Make necessary changes and click **OK** to close the window.

4.4 Manage RPC Alarms

This section discusses several aspects concerning the RPC warning and alarm history. Through the RPC device manager, we can update and clear the alarm, or save the alarm history to files for further analysis.

The warning messages are also displayed in the **Status View** windows for RPCs, RPs, and interfaces, as described in *Section 4.2.4*.

4.4.1 Warning Status

The RPC device manager can display currently occurring warnings about the RPC, RP, E1 interface, and RP interface.

- On the **Main View** window, click the RPC R2.4 node. Get connected to the target RPC.

2. To view the RPC warnings, click the **Status** main menu, and select the **Warning** option. The **Warning** window appears, as displayed in the figure below. Another way to open the window is to click the **Warning** button.

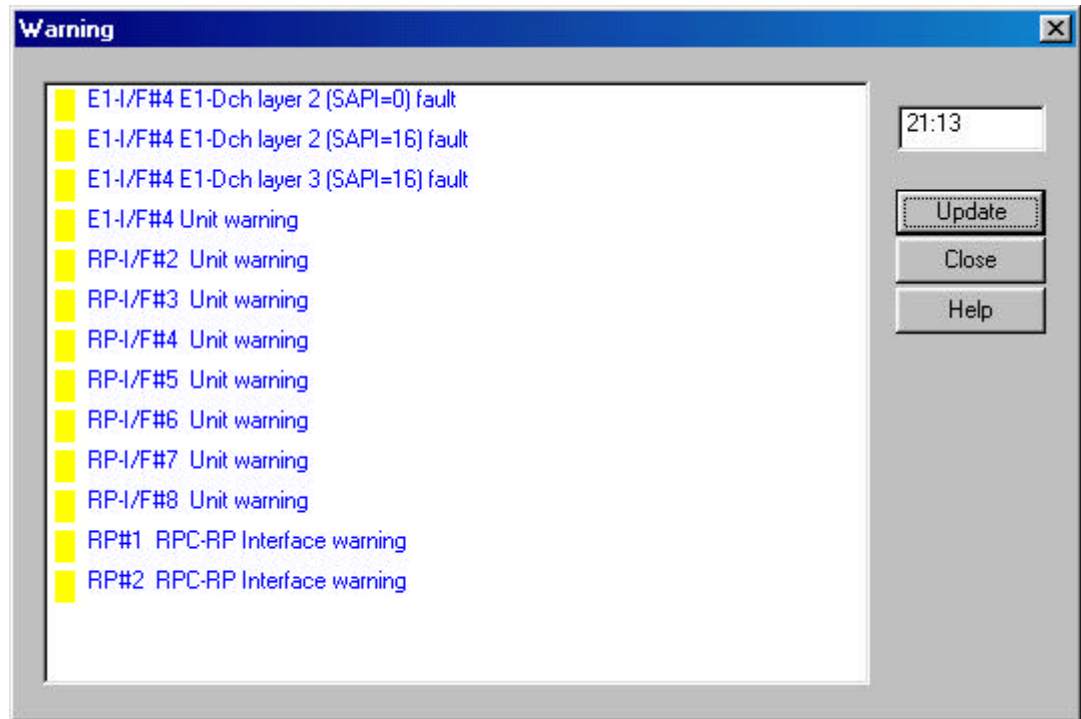


Figure 4-63: Warning Window

3. Click the **Update** button to retrieve the latest information. The color of the small rectangle in front of each warning message indicates the alarm's severity.
 - Red - Major Alarm
 - Yellow - Minor Alarm
 - Green - No Alarm
4. After viewing the warning, click **Close** to close the window.

4.4.2 Alarm History

The Alarm History option provides access to a chronological log of all the RPC, RP, interfaces, and synchronization warnings. This log may contain information useful in diagnosing equipment malfunctions.

1. To view the log of the Alarm History, select the **Alarm History** option from the **Status** main menu. The **Alarm History** window appears as shown in the figure below. Another way to open the window is to click the **Fault History** button.

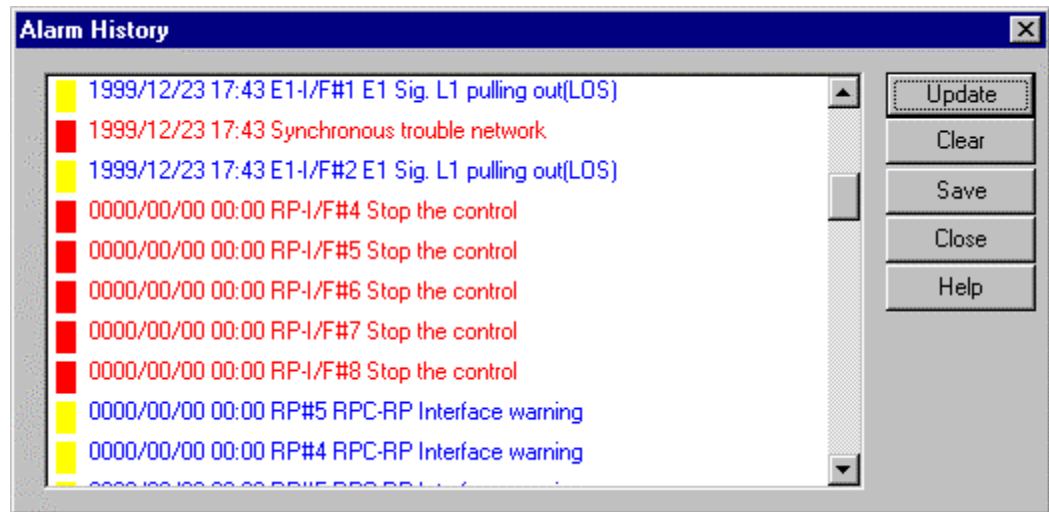


Figure 4-64: Alarm History Window



NOTE: This log has a capacity of storing 127 messages. When this limit is reached, the oldest message is deleted when the newest one is added.

2. Click **Update** to display the historical information. To clear the present alarm history, click **Clear**. The contents of this window can be saved to a file for further analysis. Click the **Save** button and specify a file name.
3. Click **Close** to close this window.

4.5 Reset RPC

When an RPC or its other components experience trouble and the problem cannot be solved, it may be necessary to reset the component. Use the following procedures to reset an E1 interface, an RP interface, an RP, or an RPC.



WARNING: Do not directly reset a unit in operation since this will cause active subscriber calls to be dropped. Before resetting a unit, block the unit temporarily by resorting to the **Configuration** → **Unit Control** → **Blockade** option. Check the **Channel Status** to verify that there are no active calls. Click the **Channel**

button or click **Air Channel** on the **Unit View window** of the **RPC** window to open the **Channel Status View window**. After resetting, unblock the unit.

1. On the **Main View** window, click the target RPC-DM node and connect to the RPC. This opens the **RPC** window.
2. Select the **Reset** option from the **Maintenance** pull-down menu or click the **Reset** button. The **Reset** window appears, as shown in the figure below.

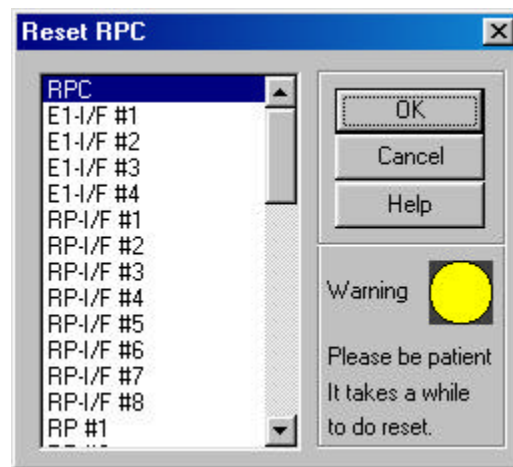


Figure 4-65: Reset RPC Window

3. Select either an RP, an E1 interface, an RP interface, or the entire RPC. Click **OK**. The system resets the unit, returns it to operation, and sends a message to the **Self Messages** window. Suppose that the RP#1 of the RPC#2 were reset, the window would be like the figure below.

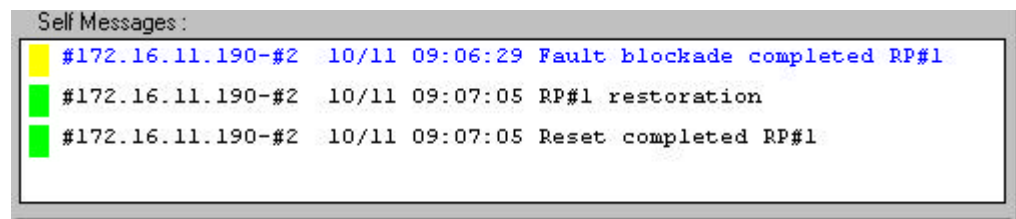


Figure 4-66: Self Messages Window for Reset

4. If an RPC needs to be reset, select the **RPC** and click **OK**. This brings up the **EM Reset (RPC)** window as shown in the figure below.

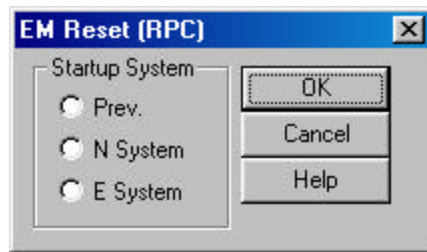


Figure 4-67: EM Reset (RPC) Window

Field Name	Description
Startup System	Determine which SDM to use for operating RPC after resetting.
Prev.	Previous ACT SDM. After resetting, RPC starts up and runs based on the previous ACT SDM.
N System	SDM-#N. After resetting, RPC starts up and runs based on SDM-#N.
E System	SDM-#E. After resetting, RPC starts up and runs based on SDM-#E.

Table 4-16: EM Reset (RPC) Window Field Description



NOTE: Refer to Section 4.3 for detailed description of the N and E systems.

5. There are three options in the **Startup System** block. Select the system to start with and click **OK**.
6. A confirmation window appears, as displayed in the figure below. Click **OK** to reset the RPC or **Cancel** to stop the transaction.

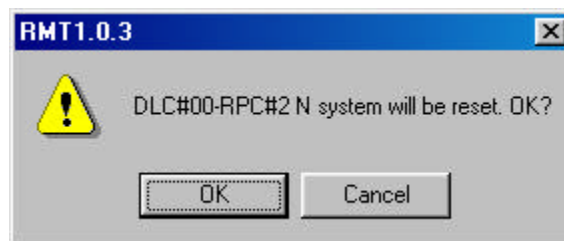


Figure 4-68: Reset Confirmation Window

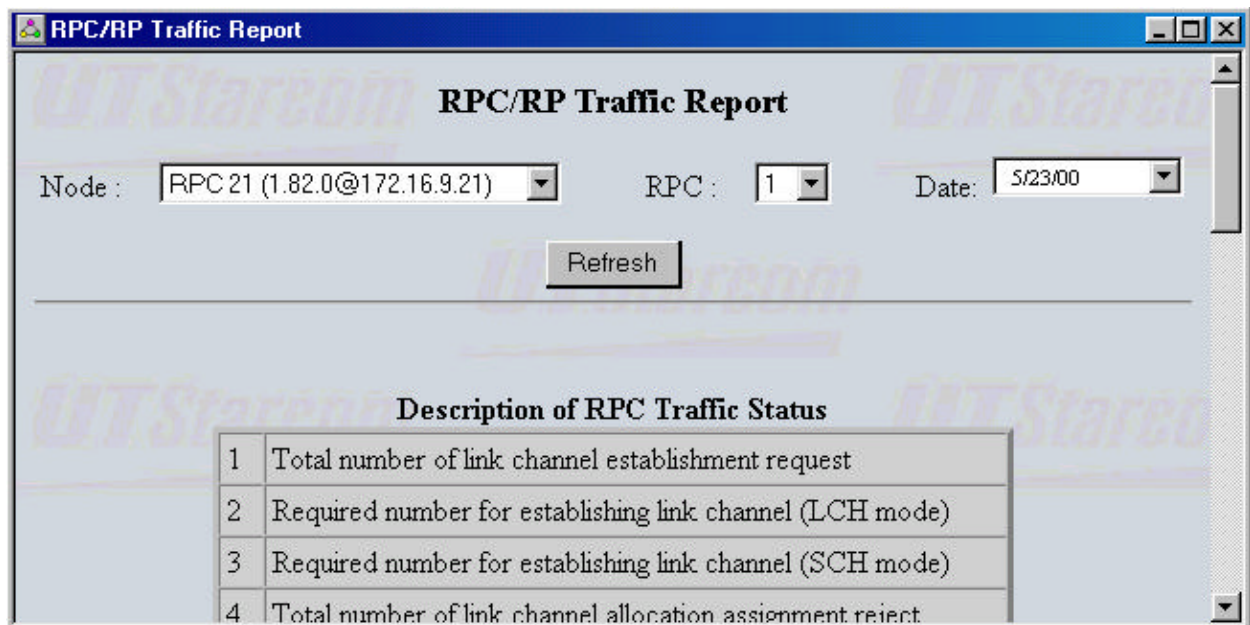
7. After EM reset is complete, the PC will disconnect from the RPC. To resume normal operations, reconnect to the RPC.
8. Click the **RPC Status** button to open the **RPC Status View** window to verify that the component is in operation.

4.6 RPC Statistics

The function of RPC statistics can generate an RPC traffic report that displays the traffic status for either the entire period and all the RPCs and RPs, or the specific period and an individual RPC or RP. This is a useful feature for analyzing the RPC traffic. In addition, the RPC statistics can also create the RP status report.

4.6.1 RPC Traffic Report

1. To generate the RPC/RP traffic report, click the **Statistics** main menu on the **Client View** window and select ***RPC Statistics Report***. The criteria setting window opens, as shown in the figure below.



Description of RPC Traffic Status	
1	Total number of link channel establishment request
2	Required number for establishing link channel (LCH mode)
3	Required number for establishing link channel (SCH mode)
4	Total number of link channel allocation assignment reject

Figure 4-69: Criteria Setting Window

2. Select the criteria for the RPC traffic data to be retrieved and click the ***Refresh*** button. After a few seconds the ***RPC/RP Traffic Report*** appears on the screen, as illustrated in the figure below.

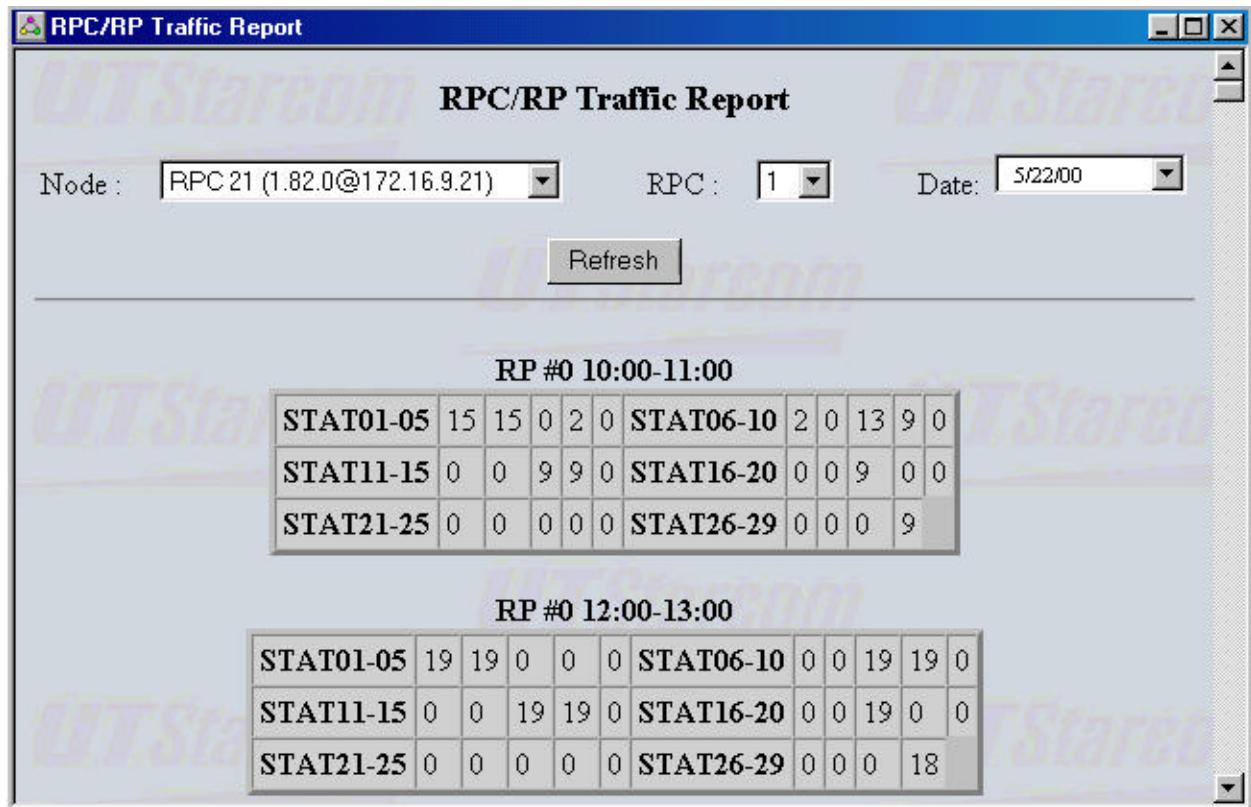


Figure 4-70: RPC/RP Traffic Report Window



NOTE: Sometimes nothing happens after the **Refresh** button is clicked. The reason is that the RPC board may have been reset by RTs and there is no synchronization between the RPC device manager and the RPC board. In that case go to the **RPC System View** window, click open the **Configure** main menu, and select **Set Time**. The **Set Time** window opens. Click **OK** to synchronize the RPC device manager with the RPC board. After the traffic data pile up in the board the RPC device manager can retrieve the traffic report. This rule also applies to the **RP Status Report** operation, as described in Section 4.6.3.

- Figure 4-70 presents the traffic report for each of the 32 associated RPs. The report is organized in such a way that each block displays all the 29 traffic statistics elements for an RP for the period of one hour. Refer to the following figure for the description of each of the 29 statistics elements.

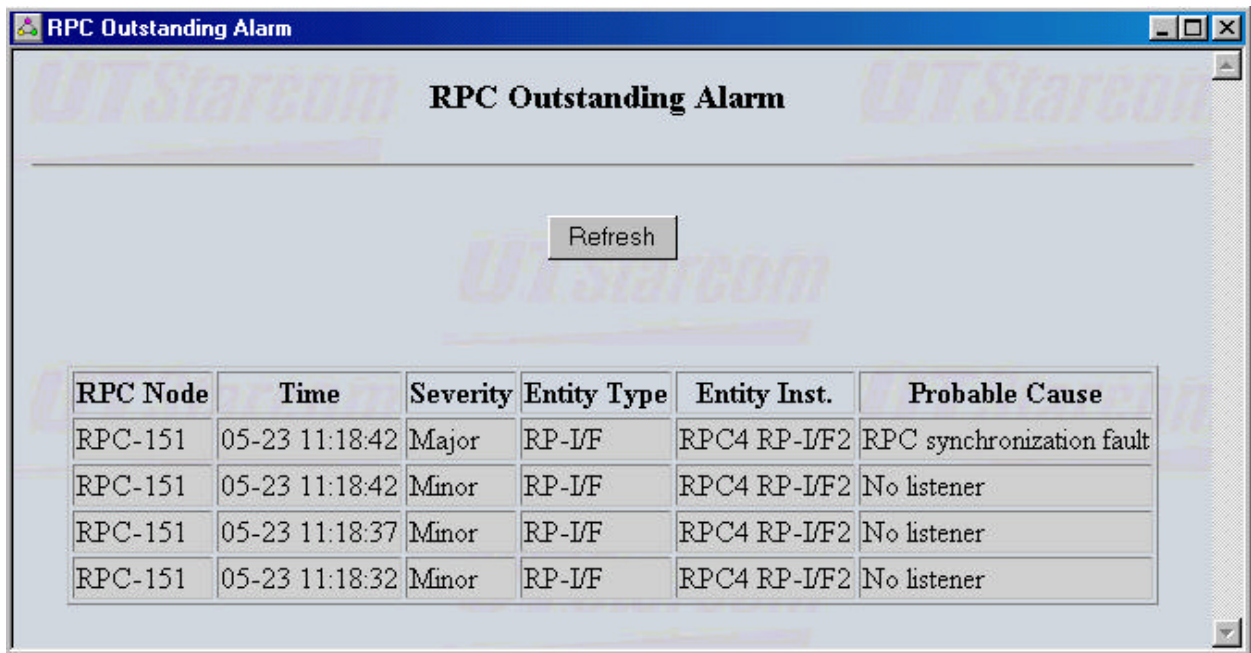
1	Total number of link channel establishment request
2	Required number for establishing link channel (LCH mode)
3	Required number for establishing link channel (SCH mode)
4	Total number of link channel allocation assignment reject
5	Number of rejecting link channel allocation (No time slot)
6	Number of rejecting link channel allocation (No empty channel)
7	Number of rejecting link channel allocation (others)
8	Total number of link channel assignment
9	Total calling number from the station
10	General sending calling number
11	Sending calling number
12	Handing over calling number
13	Total calling number required for location registration
14	Total complete calling number from the station
15	General calling number of total complete sending
16	Calling number of sending complete
17	Calling number of complete handing over
18	Total complete calling number required for position regist
19	Total incomplete calling number from the station
20	Total calling number of RPC arrival
21	Total calling number of RPC arrival complete
22	Total calling number of RPC arrival incomplete
23	Required number for TCH switching (initiated by PS)
24	Required number for TCH switching (initiated by RP)
25	Number of TCH switching complete (initiated by PS)
26	Number of TCH switching complete (initiated by RP)
27	Number of TCH switching instruction (reaccess by PS)
28	Number of TCH switching instruction (reaccess by RP)
29	Circuit holding time

Figure 4-71: Description of RPC Traffic Status

4.6.2 RPC Outstanding Alarms

RPC Outstanding Alarms list all the alarms for each RPC which haven't been fixed.

1. To display the RPC outstanding alarms, click the **Statistics** main menu on the **Client View** window and select the **RPC Outstanding Alarms** option. This brings up the **RPC Outstanding Alarm** window, as shown in Figure 4-72.



RPC Node	Time	Severity	Entity Type	Entity Inst.	Probable Cause
RPC-151	05-23 11:18:42	Major	RP-L/F	RPC4 RP-L/F2	RPC synchronization fault
RPC-151	05-23 11:18:42	Minor	RP-L/F	RPC4 RP-L/F2	No listener
RPC-151	05-23 11:18:37	Minor	RP-L/F	RPC4 RP-L/F2	No listener
RPC-151	05-23 11:18:32	Minor	RP-L/F	RPC4 RP-L/F2	No listener

Figure 4-72: RPC Outstanding Alarm Window

2. Click the **Refresh** button to retrieve the current outstanding alarms.

4.6.3 RP Status Report

This feature displays the blockade and warning statuses for all the 32 RPs of the selected RPC.

1. To view the report, click the **Statistics** main menu and select the **RP Status Report** option on the **Client View** window. The **RP Status Report** page opens on the **Main View** window, as shown below.

RPC-51									
TIME	RPC	RP	Blockade			Warning			
			Auto	Maint.	Fault	RP	Tx. Output	Synthesizer	I/F
13:41:51	1	1			X				X
13:41:51	1	2			X				X
13:41:51	1	3			X				X
13:41:51	1	4			X				X

Figure 4-73: RP Status Report Page

2. Select the target RPC on the left frame to bring up the status report for the associated RPs.

Specifications

A

A.1 RPC Specifications

Item	Specifications
Functions	Control and power feeding to RPs Concentration of speech path Conversion of protocol
Capacity	
Max. number of controlled subscribers	960
Max. number of controlled RPs	32
Max. number of COT interfaces	4
Max. speech paths	120
COT Interface	
Physical Interface	E1 interface (30B+D) 2.048 Mbit/s (B: 64 kbit/s D: 64 kbit/s) TE mode ITU-T Rec. G.703, G.704
Speech coding rule	A-law
Logical Interface	Non-facility associated signaling Q.931
RP Interface	
Physical Interface	Proprietary (4B+D+K) 192 kbit/s (B: 32 kbit/s D: 16 kbit/s K: 8 kbit/s)
Speech coding rule	ADPCM
Line power feeding voltage	112-116 V DC
Logical Interface	Layer 2: TTC Rec. JT-Q921-b Layer 3: Proprietary
Power Condition	
Input voltage	42-58 V DC
Max. input current	Approx. 7.5 A
Operational Environment	
Temperature	-10° - +50° C
Humidity	Less than 95% (non-condensing)
Dimensions	640mm (H) x 494mm (W) x 210mm (D)

Table A-1: RPC Specifications

A.1.1 Champ Connector Pin Assignments

Assignment	Pin #	Pin #	Assignment	Remarks
RP # 1 (L1)	1	26	RP # 1 (L2)	RPIF Card #1
RP # 2 (L1)	2	27	RP # 2 (L2)	
RP # 3 (L1)	3	28	RP # 3 (L2)	
RP # 4 (L1)	4	29	RP # 4 (L2)	
RP # 5 (L1)	5	30	RP # 5 (L2)	RPIF Card #2
RP # 6 (L1)	6	31	RP # 6 (L2)	
RP # 7 (L1)	7	32	RP # 7 (L2)	
RP # 8 (L1)	8	33	RP # 8 (L2)	
RP # 9 (L1)	9	34	RP # 9 (L2)	RPIF Card #3
RP# 10 (L1)	10	35	RP # 10 (L2)	
RP# 11 (L1)	11	36	RP # 11 (L2)	
RP# 12 (L1)	12	37	RP # 12 (L2)	
RP# 13 (L1)	13	38	RP # 13 (L2)	RPIF Card #4
RP# 14 (L1)	14	39	RP # 14 (L2)	
RP# 15 (L1)	15	40	RP # 15 (L2)	
RP# 16 (L1)	16	41	RP # 16 (L2)	
Not in use	17	42	Not in use	No need to attach
Not in use	18	43	Not in use	
Not in use	19	44	Not in use	
Not in use	20	45	Not in use	
Not in use	21	46	Not in use	
Not in use	22	47	Not in use	
Not in use	23	48	Not in use	
Not in use	24	49	Not in use	
Not in use	25	50	Not in use	

Table A-2: Champ Connector 1-Pin Assignments

The Pin numbers are marked on the Champ connector. This chart applies to J16 on the motherboard in the RPC. RP has no polarity.

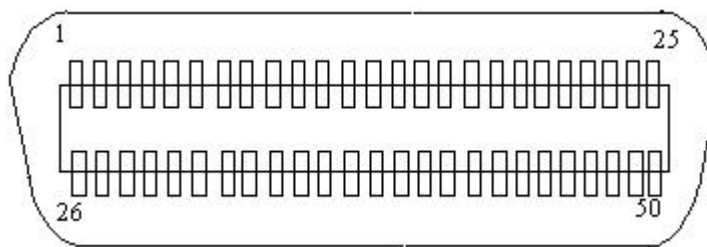


Figure A-1: Champ Connector Contact Face View

Assignment	Pin #	Pin #	Assignment	Remarks
RP # 17 (L1)	1	26	RP # 17 (L2)	RPIF Card #5
RP # 18 (L1)	2	27	RP # 18 (L2)	
RP # 19(L1)	3	28	RP # 19 (L2)	
RP # 20(L1)	4	29	RP # 20 (L2)	
RP # 21(L1)	5	30	RP # 21 (L2)	RPIF Card #6
RP # 22(L1)	6	31	RP # 22 (L2)	
RP # 23(L1)	7	32	RP # 23 (L2)	
RP # 24(L1)	8	33	RP # 24 (L2)	
RP # 25(L1)	9	34	RP # 25 (L2)	RPIF Card #7
RP# 26 (L1)	10	35	RP # 26 (L2)	
RP# 27(L1)	11	36	RP # 27 (L2)	
RP# 28(L1)	12	37	RP # 28 (L2)	
RP# 29(L1)	13	38	RP # 29 (L2)	RPIF Card #8
RP# 30(L1)	14	39	RP # 30 (L2)	
RP# 31(L1)	15	40	RP # 31 (L2)	
RP# 32(L1)	16	41	RP # 32 (L2)	
Not in use	17	42	Not in use	No need to attach
Not in use	18	43	Not in use	
Not in use	19	44	Not in use	
Not in use	20	45	Not in use	
Not in use	21	46	Not in use	
Not in use	22	47	Not in use	
Not in use	23	48	Not in use	
Not in use	24	49	Not in use	
Not in use	25	50	Not in use	

Table A-3: Champ Connector 2 - Pin Assignment

Pin numbers are marked on the Champ connector. This chart applies to J17 on the motherboard in the RPC. RP has no polarity.

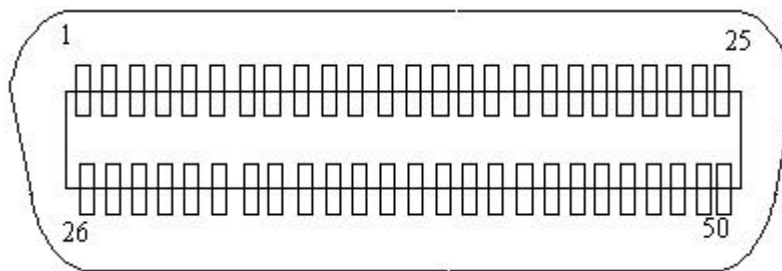


Figure A-2: Champ Connector Contact Face View

A.2 RP Specifications

A.2.1 Radio Features

Item	Contents
Radio frequency	For private use: 1,895-1,906.1 MHz For public use: 1,895-1,910 MHz
Carrier spacing	300 KHz
Output power	10 mW
Radio access	TDMA-TDD
Number of TDMA slots	4 (for full rate CODEC)
Modulation	$\pi/4$ shift QPSK (roll-off factor = 0.5)
Transmission bit rate	384 kbps
Speech coding	32 kbps ADPCM

Table A-4: Radio Features

A.2.2 Outdoor Type RP

Item	Specifications
RF output power average (Peak)	10 mW (80 mW)
Sensitivity (Static BER = 1%)	14 dB μ V
Antenna (Diversity)	2 external antennae (2 branch)
Diversity	
RX (uplink)	Antenna selection diversity (frame by frame)
TX (downlink)	Transmitter antenna selection diversity (2 branch)
Air interface	Based on RCR STD-28 ver.2
RPC interface	Proprietary BRI equivalent (4B+D+K) x 1
Speech coding rate	32 kbps (ADPCM) x 3 or 4
Maximum wire line length ($\Leftrightarrow$ RPC)	3.5 km (ϕ 0.4) 5.0 km (ϕ 0.5)
Maximum power consumption	Approx. 3 W
Power source	Line power feeding (phantom) from RPC 56 - 116 V DC
Operational Environment	
Temperature	-10° to + 50°C
Humidity	Less than 95 % (non-condensing)
Size	260 x 215 x 100 mm
Weight	Approx. 2 kg
Line connection	Screw less terminal
Antenna connection	TNC connector
Battery backup	None

Table A-5: Outdoor RP Specifications

A.2.2.1 Antenna

The recommended antenna specifications for the outdoor type RP are shown in Table A-6.

Items:	Recommended Specifications
Type	Co-Liner antenna (Omni-directional) 2 branch
Gain	7dBi
Impedance	50Ω
VSWR	less than 1.5
Cable	Length: within 1m Attenuation: 0.5dB/m

Table A-6: Antenna Specifications - Outdoor Type RP

A.2.3 Indoor Type RP

Item	Specifications
RF output power average (Peak)	10 mW (80 mW)
Sensitivity (Static BER = 1%)	14 dB μ V
Antenna (Diversity)	Built-in antenna (2 branch 2.4 dBi)
Diversity	
RX (uplink)	Antenna selection diversity (frame by frame)
TX (downlink)	Transmitter antenna selection diversity (2 branch)
Air interface	Based on RCR STD-28 ver.2
RPC interface	Proprietary BRI equivalent (4B+D+K) x 1
Speech coding rate	32 kbps (ADPCM) x 3 or 4
Maximum wire line length ($\Leftrightarrow$ RPC)	km (ϕ 0.4) 5.0 km (ϕ 0.5)
Maximum power consumption	Approx. 3 W
Power source	Line power feeding (phantom) from RPC 56 - 116 V DC
Operational Environment	
Temperature	0° C to +50° C
Humidity	Less than 95 % (non-condensing)
Size	154(H) x 142(W) x 47(D) mm
Weight	Approx. 0.6 kg
Line connection	Modular connector
Battery backup	None

Table A-7: Indoor RP Specifications

Glossary

B

ADPCM	Adaptive Differential Pulse Code Modulation
BRI	Basic Rate Interface
CNT	Control Module
COT	Central Office Terminal
CPU	Central Processing Unit
CRC	Cyclic Redundancy Check
E1IF	E1 Interface
ECNT	Enhanced Control Module
FIFO	First In - First Out
HDLC	High speed Digital Loop Carrier
HDSL	High speed Digital Subscriber Loop
ISDN	Integrated Services Digital Network
ITU	International Telecommunications Union
LE	Local Exchange
LED	Light Emitting Diode
LIF	Line Interface
OA&M	Operations, Administration and Maintenance
PC	Personal Computer

PCM	Pulse Code Modulation
PHS	Personal Handyphone System
RAM	Random Access Memory
ROM	Read Only Memory
RP	Radio Port
RPC	Radio Port Controller
RPIF	Radio Port Interface
TIF	Trunk Interface

Editor's Note

C

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