4 7390 LT software overview

4.1 General information

The purpose of this chapter is to **present** the different **screens** of the 7390 LT software supplied with the Base Station. The following chapters will make reference to this presentation each time the user needs to access the software for a particular action (commissioning, maintenance or evolution of the configuration). The same screen may apply for several types of action.

4.1.1 Functionalities

The 7390 LT software enables:

- supervision of both the system assembly as a whole (the NE (Network Element)), and of its sub-assemblies (BS, NT);
- configuration of the sub-assemblies (DBS, RBS, etc.) (used when Commissioning, *Chapter 5 Commissioning the Base Station (7390BS)*);
- setting up services (E1 leased lines, T1 and X21, ISDN, IP cross-connection including VoIP, circuit emulation), (used when Commissioning, *Chapter 6 Operation and maintenance*);
- downloading, NE configuration back-up and restoration (used in Maintenance, *Chapter 6 Operation and maintenance*);
- display of the system redundancy state;
- management of external points.
- radio performances.

Note: *the 7390 LT software exchanges no information with the radio part of the terminal station (7390 RT). These generate no alarms, and therefore require no other configuration apart from the installation configuration.*

4.1.2 Principles of the Man-Machine Interface (MMI) of the 7390 LT

The user of the 7390 LT software is expected to be familiar with the operation of software in the Windows NT^{MT} environment. There follows a description of some of the basic principles of the Windows NT^{MT} MMI along with others, more specific to the 7390 LT.

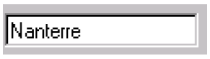
4.1.2.1 Opening, closing and resizing a window

Here is a reminder of how the boxes at the top right of an active window are used:

Click on...	To.....
	...**minimize** the active window to place the application on the taskbar. Click on the taskbar icon to restore the window.
	...**maximize** the window to full-screen size.
	...**restore** a window which was in full-screen size to its original size.
	...**close** the active window.

4.1.2.2 Entry fields

The **grayed out** fields are for **consultation only**: their content cannot be modified.



The **fields on a white background** can be **modified**: left-click to make the cursor appear inside the field, then enter the character string required.

According to the same principle, the buttons, icons and items in the pull-down menus become **grayed out** when they are **inactive**.

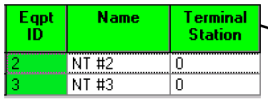
4.1.2.3 Confirmation, closing a window, canceling an entry

In the lower part of the windows there may be **buttons** (which may or may not be active; cf. § *4.1.2.2 Entry fields*), the principle of which is as follows:

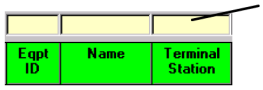
Click on...	To.....
	...**confirm** the data entry, while keeping the window open.
	...**close** the active window, thereby cancelling any unconfirmed data entries.
	...**cancel** the data entry, while keeping the window open.

4.1.2.4 Sorting and searching in a list

Some screens contain lists which may contain many lines; a sort and/or search tool is therefore available via the MMI, in order to facilitate data management:



Left–click once on any column **title** in order to **sort** the alphanumeric entries in **increasing order of magnitude**; click **a second time** to sort in the **opposite order** (and so on).



When the lists have **empty boxes above the titles**, it is possible to carry out a search to display the line required:

click on the box above the title under which to be searched, then enter the **first characters** of the sequence in question: the first line to correspond is selected.

4.1.2.5 Selecting lines on a list

To select **a line**, click on it and it is highlighted in blue.

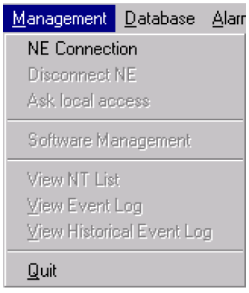
To select quickly **a zone**, click on the first line then select and hold down the 'Shift' key, then click on the last line of the desired zone. The zone becomes highlighted in blue.

To select **several non consecutive lines**, hold down the 'Ctrl' key then select line by line the desired elements.

4.1.2.6 Title, menu, button and status message bars

The various information and functionalities of the 7390 LT are accessible in several forms of MMI:

Title bars (at the top of the main window): for information only; this is the title of the window.



Menu bar (below the title bar): each menu contains **items**.
To access, open the pull-down menu by left-clicking on the title, then click on the desired item (for execution it must be active, cf. § *4.1.2.2 Entry fields*).

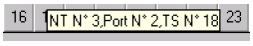
Button bar (below the title bar): certain menu functionalities are also directly accessible by clicking on the buttons displayed at the top of the window.

Message bar (at the bottom of the active window): messages linked to current events are displayed on the fly in certain windows

Status bar (at the bottom of the 7390 LT main window), divided into 2 areas:

- on the left: global user's messages (states of progress, error messages, etc.)
- on the right: Local access: information about write access: cf. § *4.4.2 Local access requests*
- Number of NTs: displays the number of NTs declared in the NE.
- Most critical alarm: displays the color of the most critical alarm (see alarm color codes, § *4.10.1.2 Alarms color code*).

4.1.2.7 Dynamic keys

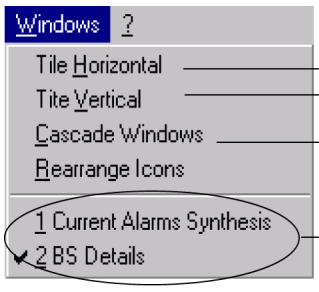


Each time the cursor will stay a few seconds on a button (and on specific field), a textual key on a yellow background defining this button (or field) is displayed.

4.1.3 Rearrangement of active windows

During the use of the 7390 LT software, several windows may be active simultaneously. The MMI allows you to rearrange them to optimize their visibility, in classic Windows fashion.

Access this function by opening the **Windows** pull-down menu:



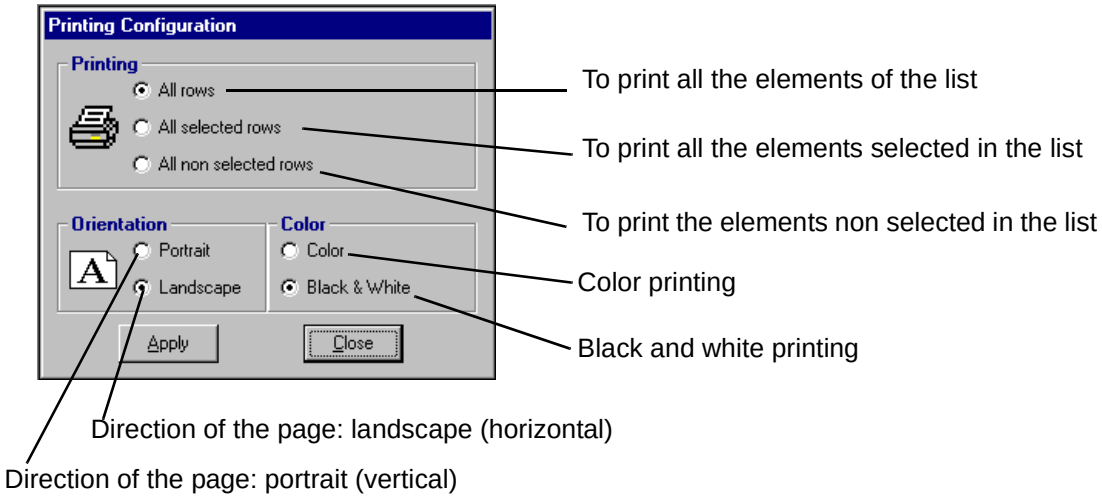
horizontal rearrangement: horizontal display of several windows

vertical rearrangement: vertical juxtaposition of several windows

cascade rearrangement: diagonal alignment of several windows

list of active windows: select the particular one that you wish to display

4.1.4 Printing



Note: *to know how to select lines in lists, see § 4.1.2.5 Selecting lines on a list.*

4.2 Running and quitting the software

4.2.1 Installation of the 7390 LT software

The 7390 LT is either loaded on the PC which came with the BS, or comes on an installation medium (e.g., CD-ROM).

If you need to install the 7390 LT software, refer to the *Appendix 2 – Installation of 7390LT software*; otherwise, go directly to the next paragraph to run the already installed software.

⚠	**ON THE ETHERNET PORT IT IS RECOMMENDED TO CONFIGURE ONLY ONE IP ADDRESS**

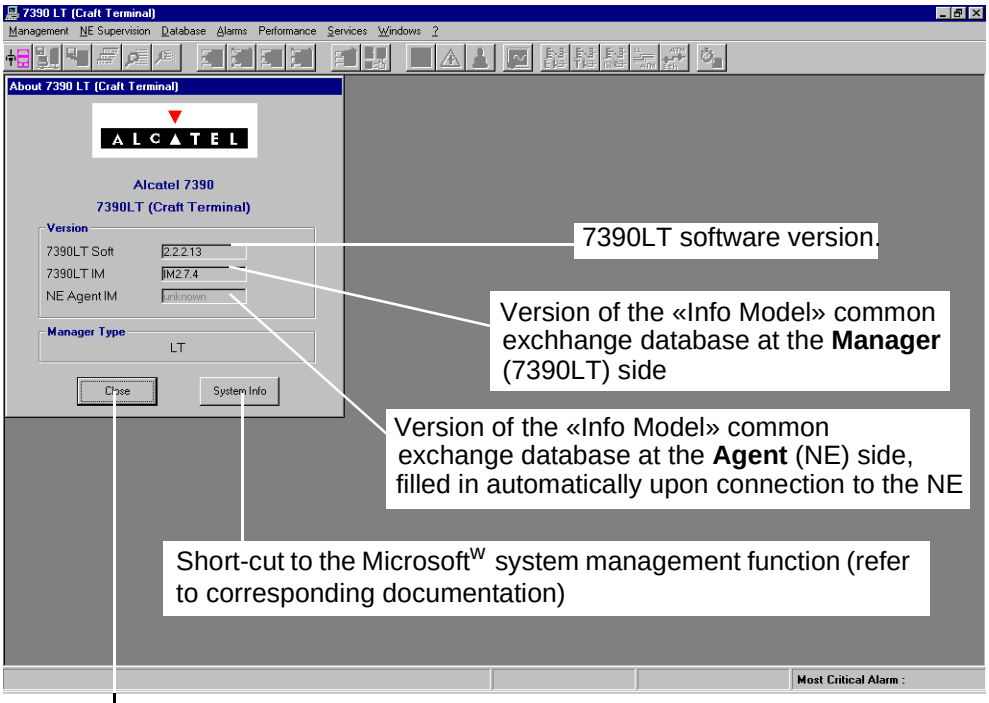
4.2.2 Accessing and running 7390 LT

To run 7390 LT, go to the Windows® taskbar and left-click on the «*Start*» button: the Start menu is displayed. Next, select the Programs menu followed by the line Craft_Terminal.

or:

Click on the icon shown here which is on the Windows desktop.

To run the 7390 LT, the following screen is displayed:



Click here to **close** the *About* window and work on the main window of the 7390 LT. You can access it again by selecting the heading ***About 7390 LT (Craft_Terminal)*** in the ? menu.

Note: After NE connexion (cf. § 4.3.1 NE Connection), the database versions at the Manager and Agent sides must be identical.

If the LT session cannot open, check if there is any other LT open session.

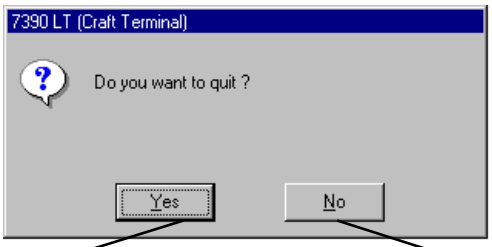
On the screen displayed, only **one** icon is **active**: the choice of language and the NE connection icon:

...click on this icon to access the **NE connection** (cf. comments in § *4.3.1 NE Connection*)

4.2.3 Quitting the 7390 LT

To quit the 7390LT, open the **Management** pull-down menu and click on» *Quit*»

A confirmation dialog box is displayed:



Click here to **confirm** quitting the 7390LT

Click here to **cancel** the request to quit the 7390LT and return to the previous window

This operation includes the **NE disconnection** (cf. § *4.3.2 Disconnecting the NE assembly*).

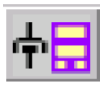
4.3 Connection and Disconnection

4.3.1 NE Connection

The NE connection process consists partly in the NE "Agent" identifying the "Manager" and partly in the retrieval of data for the NE assembly on the 7390 LT software by manual request: this involves the **updating of site information**.

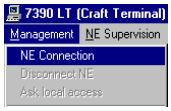
	**ONLY ONE LT SESSION IS OPERATIONAL ON ONE NE. FOR EXAMPLE, A LOCAL LT CONNECTION AND A REMOTE LT CONNECTION AT THE SAME TIME ON THE SAME BS IS NOT POSSIBLE.**

There are two possible ways of accessing the **NE Connection**:



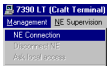
– click on the first button (provided that it is active; cf. § *4.1.2.2 Entry fields*) of the main menu button bar,

or else,



– open the Management pull-down menu and select the first item: ***NE Connection***.

The following screen is displayed:

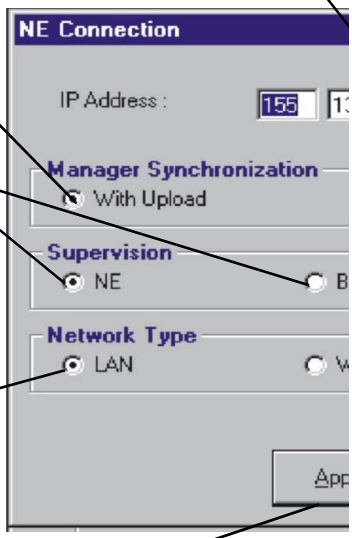


IP Address of the **NE** to be connected: click in a byte field value (local IP default address value must be: 192.168.99.1

Connection type: with data upload (default selection)

Subject of supervision: NE system or BS

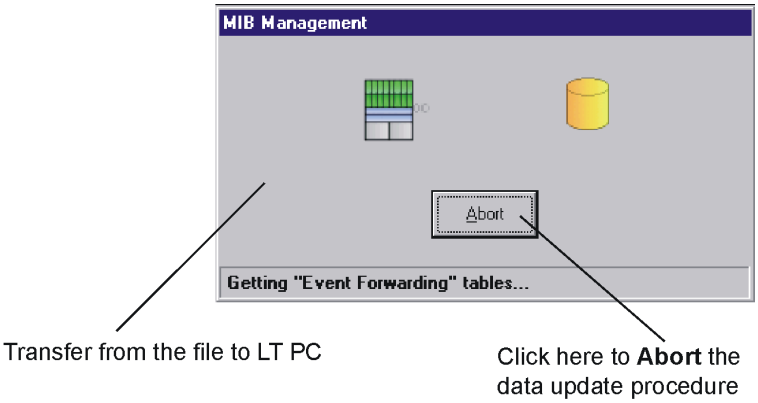
Network Type: there are two types of network: **local** (LAN) or **remote** (WAN): check the button for the type of network corresponding to the system configuration

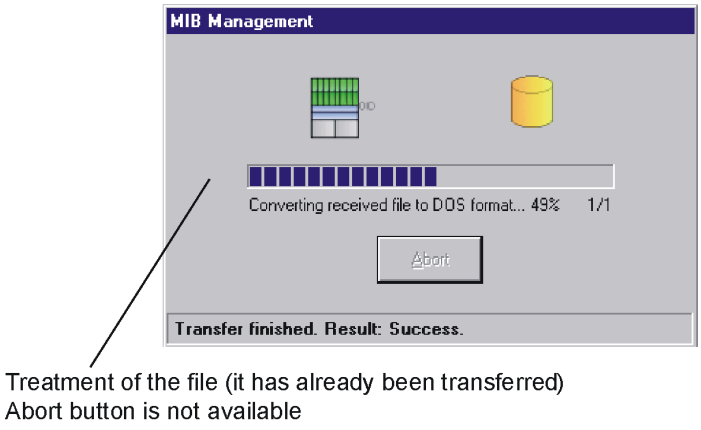


Click here to **run** the data update procedure

In case several interface boards are installed in the PC, the window offers you a choice of boards.

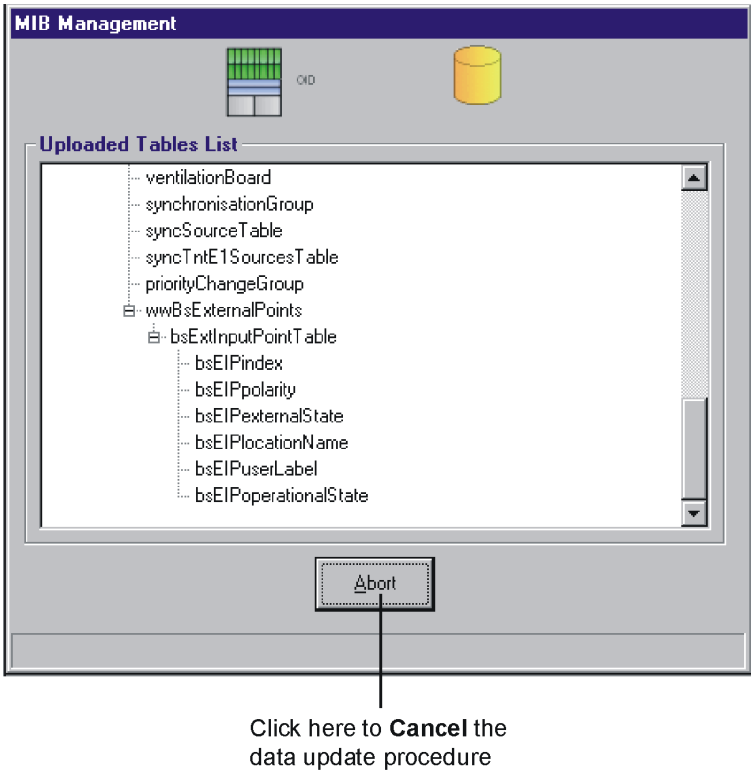
By default, the update is done via FTP. The next screens will be displayed:





Note: *In order to start the FTP process, there must not be any other FTP service or application running in the PC. Windows NT includes a FTP service that is, by default, desactivated; if it were activated, the operator must stop it from the* ***Services*** *window through the Control Panel.*

If there were any problem with the FTP process, the craft.ini file must be opened. Change the **UploadThruFTP** value, it must be: UploadThruFTP=No. Throughout the update, an animated display indicates to the user that data transmission is underway, with on-screen indication of the progress of the processed files. In this case, the next screen would be displayed:



Note: *While updating, if the database versions at the Manager and Agent sides are not identical, the animation stops and an error message is displayed to notify it. (cf. corrective actions in appendix Appendix 6 – Error messages and corrective actions).*

Once the update is completed, two new windows are displayed:

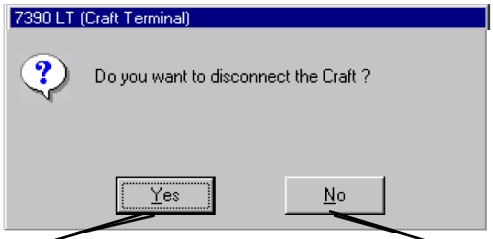
- one screen providing a global view of the **base station** (cf. § *4.5 Base Station Supervision*);
- and one screen summarising the **current alarms** (cf. § *4.10.1 Alarms*).

4.3.2 Disconnecting the NE assembly

The NE disconnection process consists in closing the current session relating to a given NE in order to connect to another NE of the system.

To access the NE disconnection function, open the ***Management*** pull-down menu then select the item: ***Disconnect NE***.

A confirmation screen is displayed:



Click here to **confirm** the disconnection

Click here to **cancel** the request to disconnect and return to the previous window

4.4 Supervision Principles

The 7390 LT can be used for **supervising** the whole A7390 Network Element (NE) system.

The **NE** comprises of:

- a **Base Station** (**7390BS**) which mainly includes a Radio unit (**RBS**) and a MODEM rack (**DBS**),
- one or more **Terminal Stations** (**7390TS**) which mainly include a Radio unit (**RT**) and a User connection unit (**NT**). Nevertheless the 7390 LT software does not manage RT units.

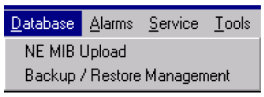
The display allows system **control**; alarms are activated in particular to signify any intervention.

The **supervision** items themselves are,by definition, **grayed out** and therefore unmodifiable, whereas those reserved for **configuration** can be configured by the user: they will be used in the following chapters concerning commissioning (*Chapter 5 Commissioning the Base Station (7390BS)*), maintenance (*Chapter 6 Operation and maintenance*) and configuration evolution (*Chapter 7 Changes of configuration*). For the **modifications** to be taken into account, **writing** should be **enabled**: see § *4.4.2 Local access requests*.

4.4.1 Data retrieval

According to the same principle as for starting up the 7390 LT (automatic data retrieval following connection), this update can be carried either for whole NE, or for each equipment: BS or NT.

To reach the **Data retrieval** function, two ways are possible:



- open the ***Database*** pull-down menu and choose the first item: ***NE MIB Upload***,
- or click on one of the buttons in the screen of the equipment in question:

Click on.....	To.....
 or  or 	...**activate** the data recovery function for the NE, BS, and NT **respectively**.

Note: *These operations may take quite a long time (in particular for the NE) since they depend on the connection between NE and manager and on the round trip delay and the NE composition.*

4.4.2 Local access requests

The general status bar (cf. § *4.1.2.6 Title, menu, button and status message bars*) displays in its central part the messages concerning write access rights on the NT configuration: "***Local Access : Denied / granted***". Where there are different system managers, these access rights are allocated by the OS manager, write access is authorized for the 7390 LT (local access set to granted) when no OS manager is connected to the NE (local access set to granted) when no OS manager is connected to the NE.

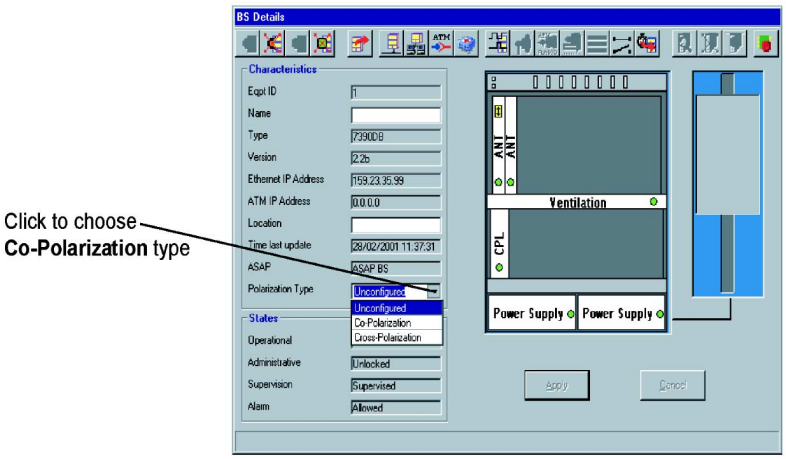
4.4.3 Administrative statuses

Locking the administrative status of sub-assemblies allows the maintenance operator to disable the sub-assembly manifesting an anomaly without disturbing the system.
Unlocking sub-assembly administrative status frees service use for the end user.

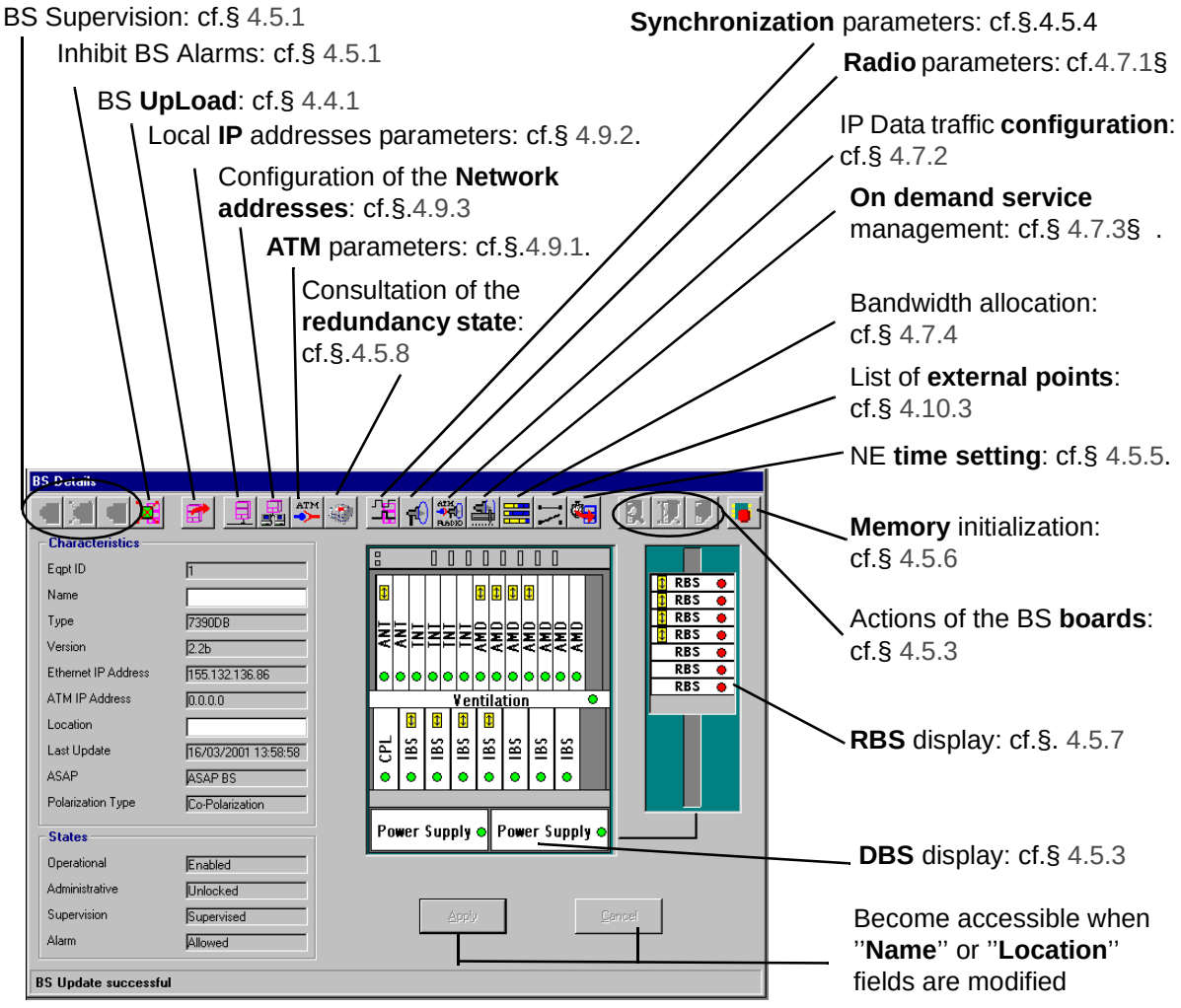
Operator is not able to modify the administrative state assembly. He can only change the ports and cross-connections.

4.5 Base Station Supervision

When the LT is started up for the first time, the Manager has to define the type of polarization used, in this «**Co-polarization**» type must be selected



	**AFTER CLICKING ON THE «APPLY» BUTTON, A WARNING WINDOW WILL APPEAR SINCE THIS PROGRESS IS IRREVERSIBLE, EXCEPT THROUGH AN ANT RAM-REINITIALIZATION. ONCE ACCEPTED, THE 7390LT STARTS TO RECEIVE EVENTS FROM THE SYSTEM**



4.5.1 Base Station Supervision

To **Start or Stop the supervision** of the Base Station:

Click on the icon to **start** the supervision of the Base Station.

Click on the icon to **stop** the supervision of the Base Station.

BS supervised means that the agent sends to the manager all the events related to the Base station.

When the **BS is supervised** the «*Start BS Supervision*» button is disabled.

When the **BS is not supervised** the «*Stop BS Supervision*» button is disabled and a red message in the status bar indicates to the operator that the equipment is not supervised. Besides, not supervised status implies that no action can be performed on the BS from the LT manager. Therefore, if the BS is not supervised then no alarm is sent to the BS element. So, not supervision state implies alarms not allowed (the «*Allow BS Alarms*» button is disabled).

To **Allow or Inhibit the alarms** of the Base Station:

Click on this icon to **allow** receiving the alarms of the Base Station.

Click on this icon to **inhibit** receiving the alarms of the Base Station.

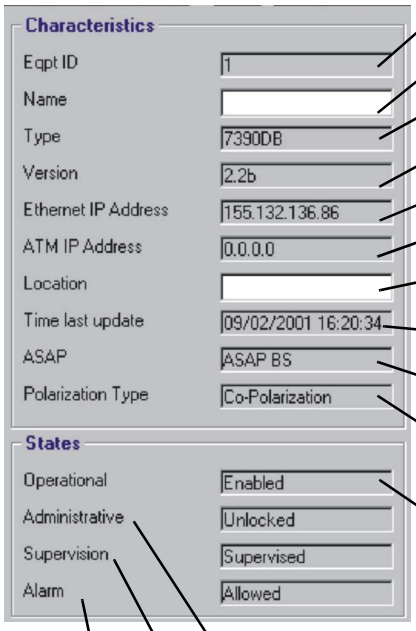
BS Alarms allowed means that all the alarms present in the BS equipment will be reported to the LT manager.

When the **BS alarms are allowed,** the «*Allow BS Alarms*» button is disabled.

When the **BS alarms are inhibited,** the «I*nhibit BS alarms*» button is disabled. Moreover, all the status led boards in the BS appears in grey colour to indicate that it is unknown if the boards have or do not have alarms present.

4.5.2 General parameters

The left side of the ***BS Details*** screen shows the **characteristics** and associated **states**:



Identification No.: 1 for the BS

BS name: click to enter the BS name: it will appear in the title bar

BS **manufacturer** No.

BS **version** No.

IP address of BS access via 10 BT Eth port

IP address of BS access via ATM port

BS Location: click to enter the town or geographical sector where the BS is located

Last BS time setting (cf.§ 4.5.5) (by default date displayed is 01/01/1970 at 00:00:00)

Name of the alarms **correspondence base**: cf.§ 4.10.2

BS **Polarization type**

Operational state (enabled/disabled): indicates the technical availability status of the equipment with respect to service provision

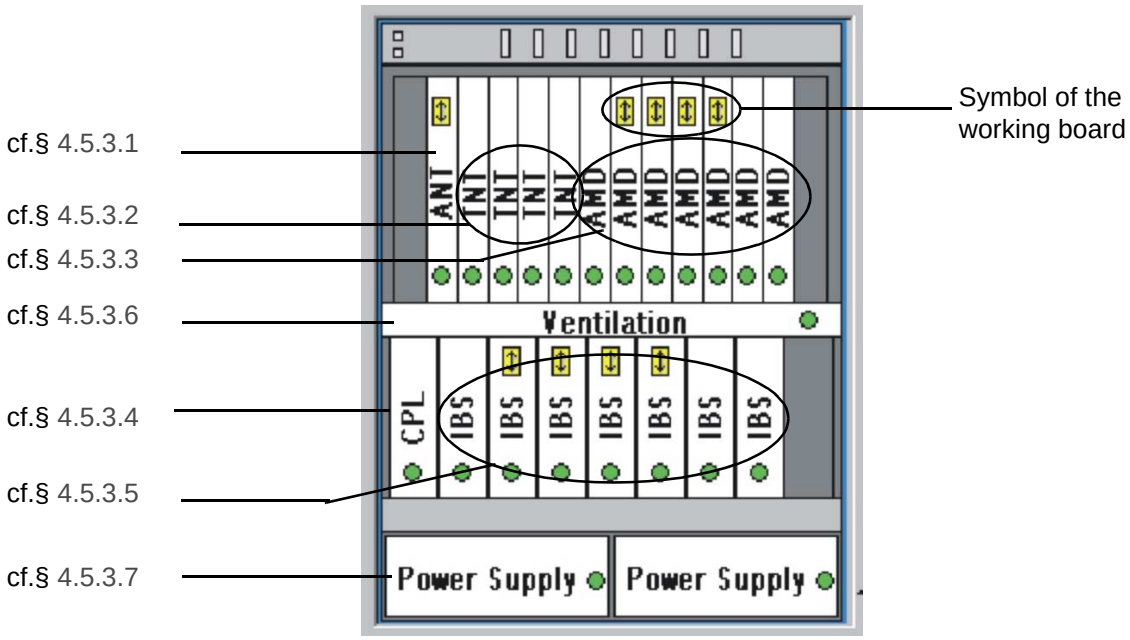
Administrative state unlocked for the BS: indicates whether locked or unlocked for modification at the network management level

Supervision state supervised for the BS

Alarm report state (only authorized values appear in the system)

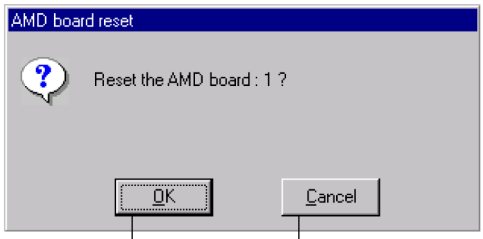
4.5.3 DBS

The central part of the ***BS details*** screen shows the rack and its sub-assemblies as detected by the 7390 LT:



On the ***BS Detail*** screen button bar:

Click on...	To.....
	...**access the details** of a selected sub-assembly (or **double-click** directly on one of the sub-assemblies)
	...**delete** a selected sub-assembly
	...**reset** a selected board. A confirmation screen is displayed:



Click here to **confirm** reset of the selected board.

Click here to **cancel** the reset request for the selected board.

Symbols on the equipment representations:

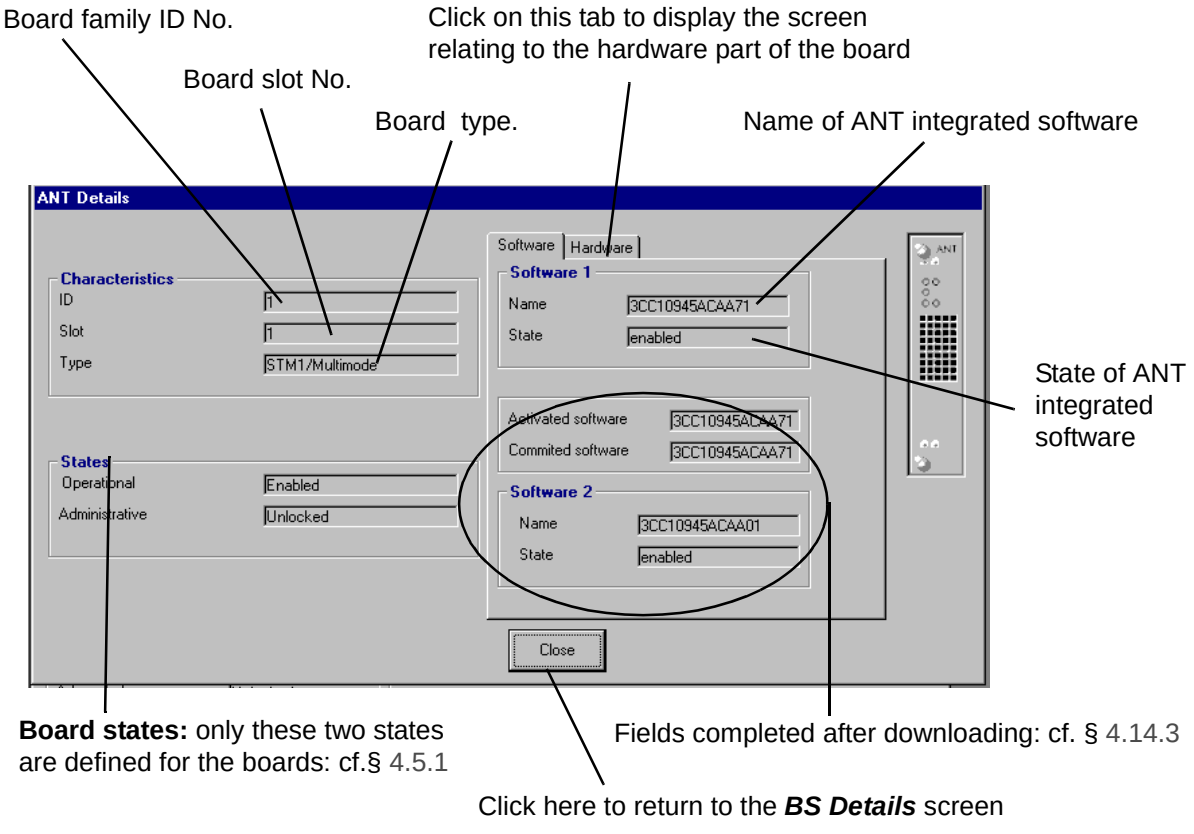
- **green spot:** no alarm is detected;
- **colored spot** (other than green): alarm detected: the color displayed corresponds to the most critical alarm level (cf. § *4.10.1.2 Alarms color code*);
- **white board:** board physically present in the rack;
- **gray board:** board physically removed but still present in the system management.

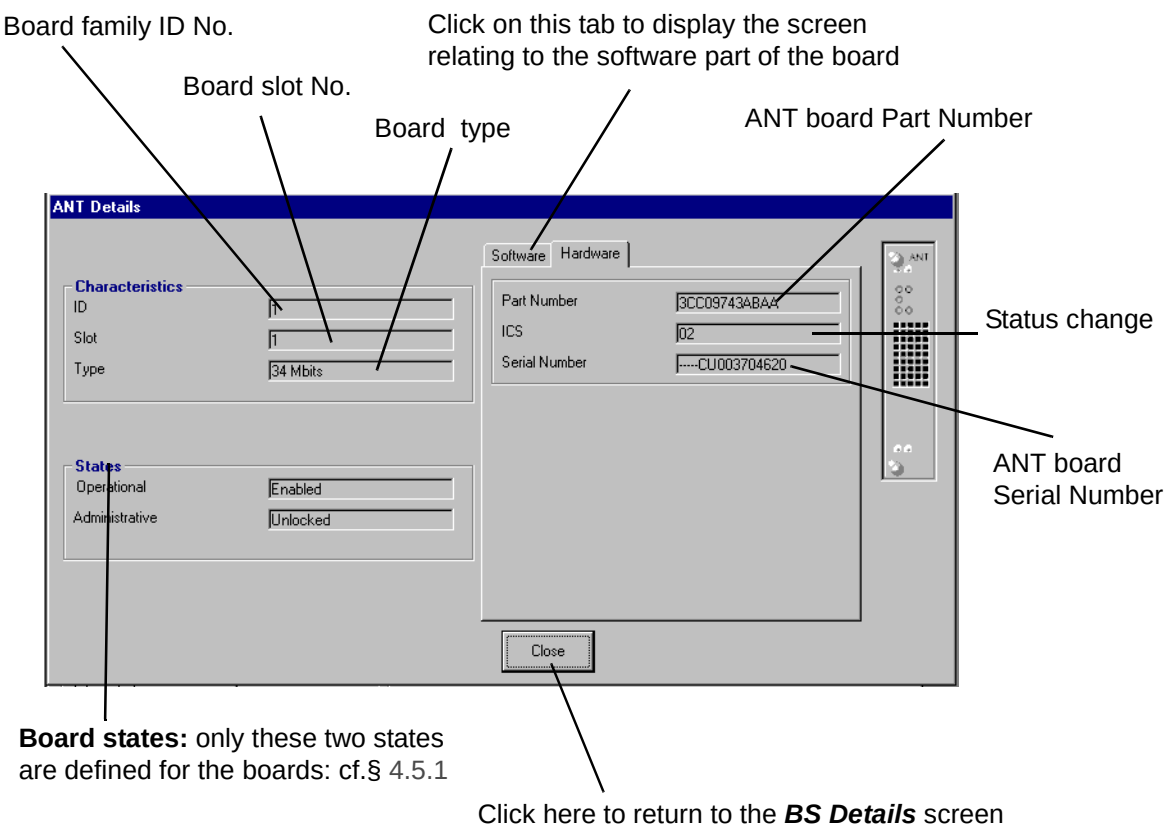
Number of equipments in the rack:

Equipment designation	Maximum number of equipments managed by the system in 2.2	Maximum number of equipments that can be included in the BS
ANT board	2	2
TNT board	4	4
AMD board	8	8
CPL board	1	1
IBS board	8	8
Power Supply Unit	2	2
Ventilation subrack	1	1

4.5.3.1 ANT board screen

ANT (**A**TM **N**etwork **T**ermination): ATM interface board.



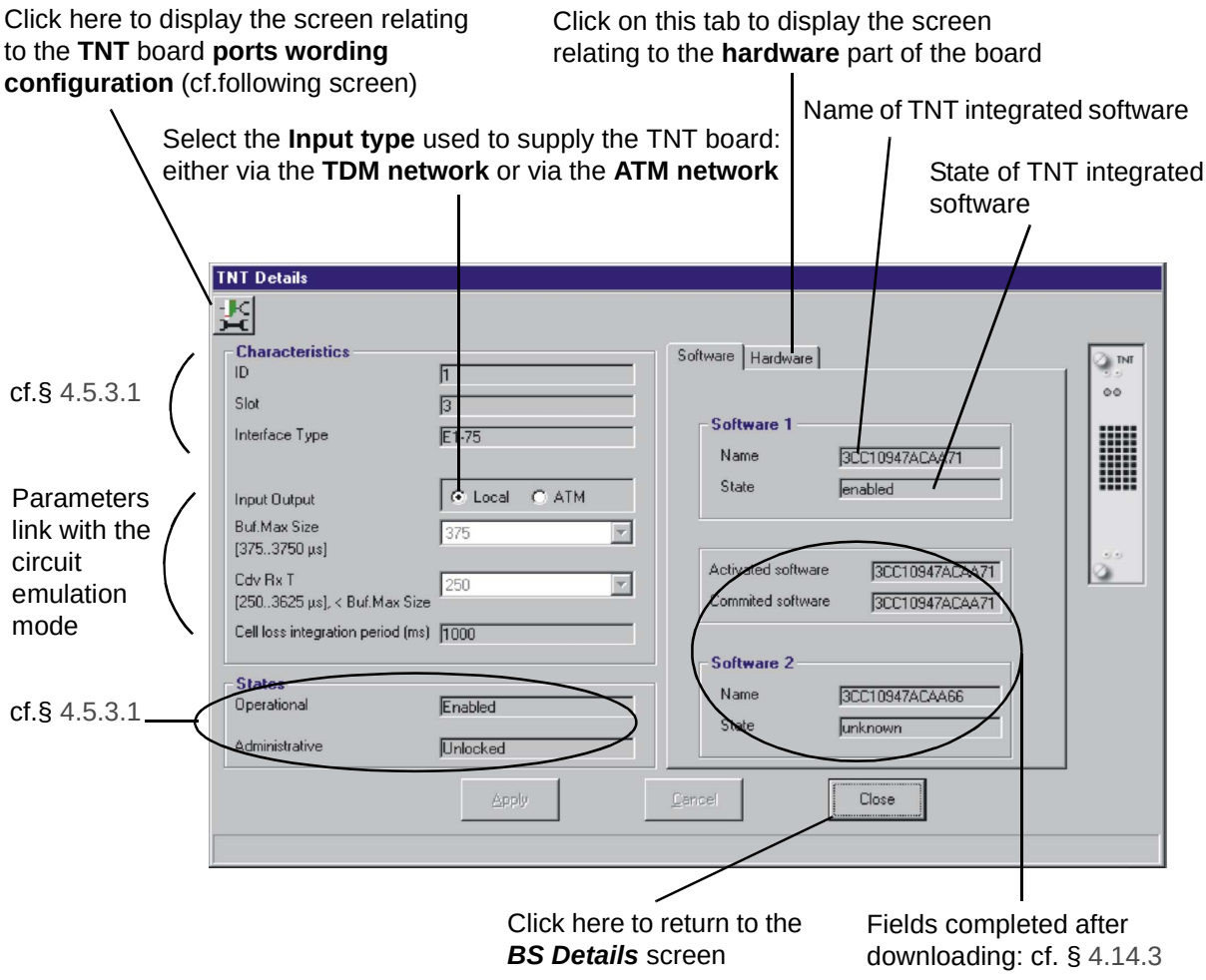


Board states: only these two states are defined for the boards: cf.§ 4.5.1

Click here to return to the ***BS Details*** screen

4.5.3.2 TNT board screen

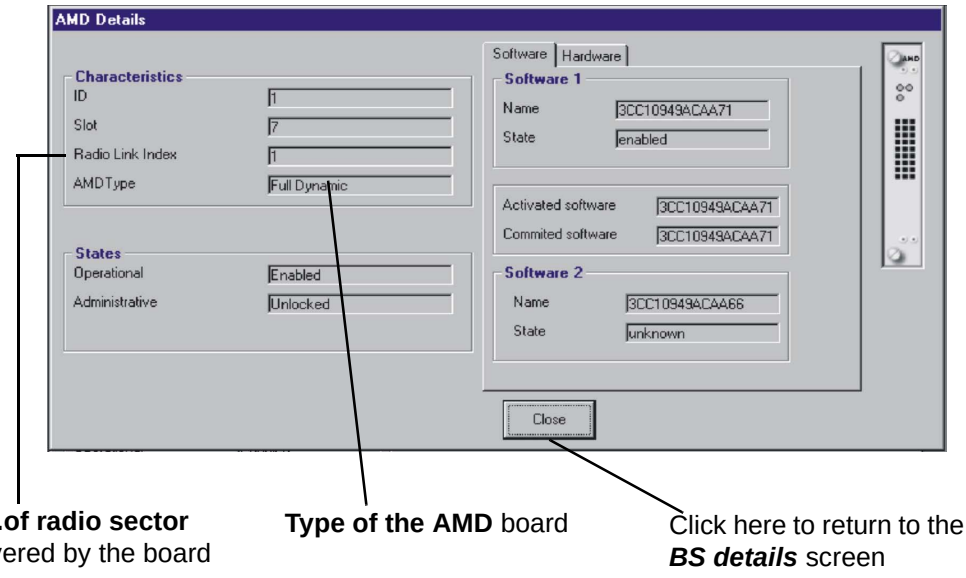
TNT (**T**DM **N**etwork **T**ermination): board providing the leased line service (E1, X21, T1, CES).

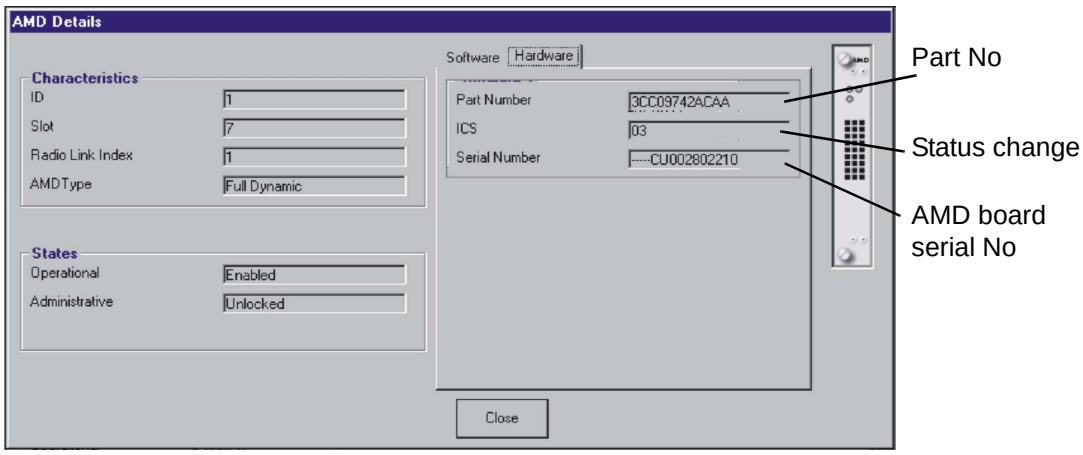


Note: *This screen can be modified only if the **ATM** type Input/Output is ticked off.*

4.5.3.3 AMD board screen

AMD (**ATM MO**DEM) : ATM modulator demolulator board.

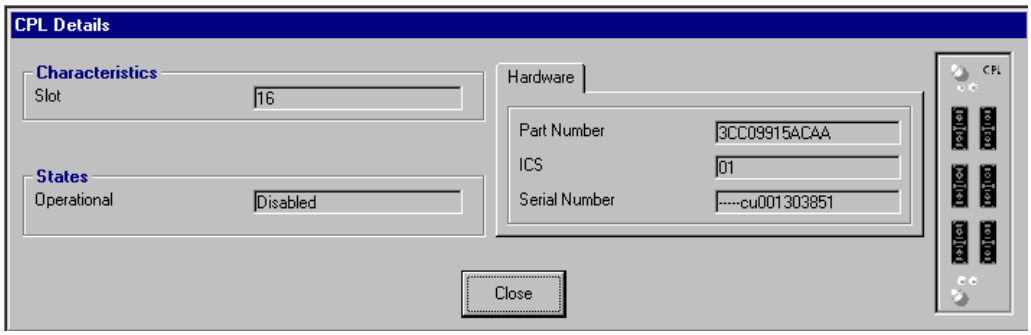




4.5.3.4 CPL board screen

CPL (Coupler): network interface coupler board.

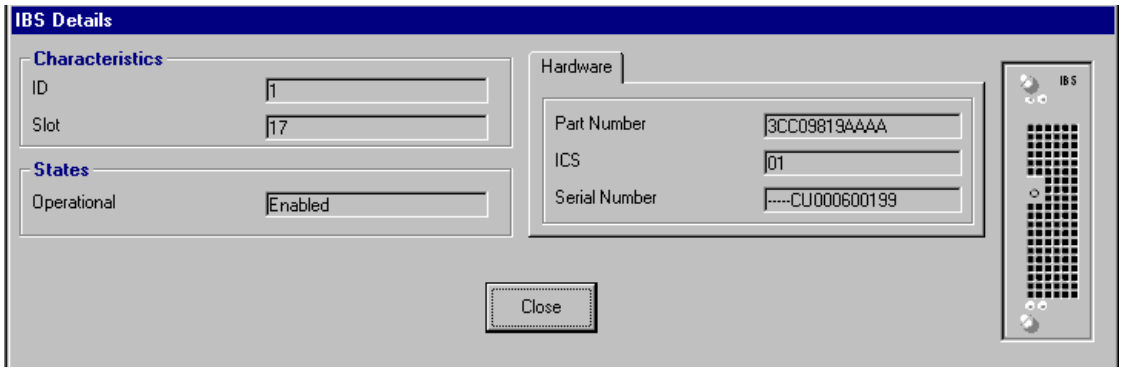
For the items on this screen, refer to the description of the ANT board (§ *4.5.3.1 ANT board screen*).



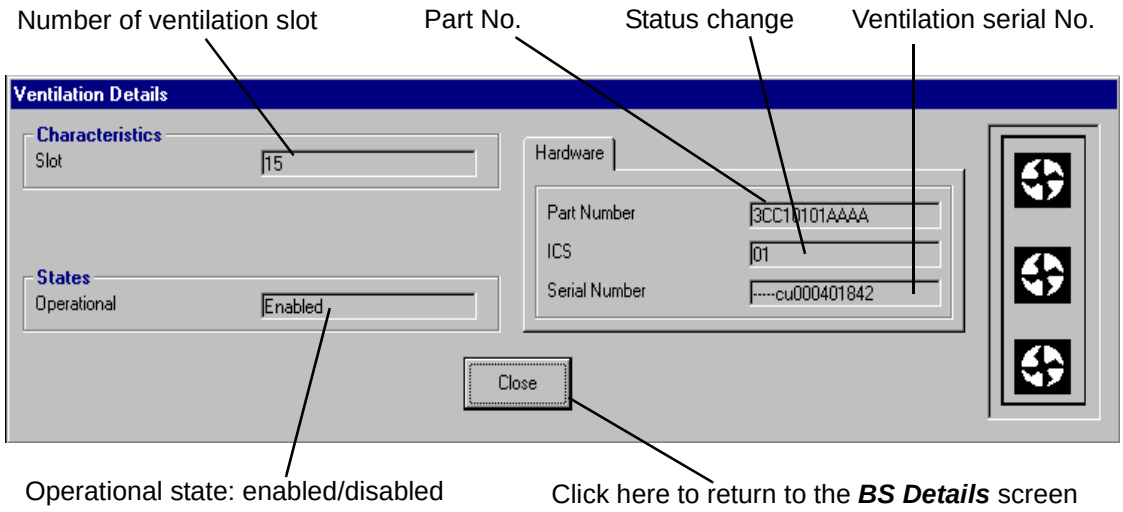
4.5.3.5 IBS board screen

IBS: (**I**ntermediate frequency **B**ase **S**tation): IF board.

For the items on this screen, refer to the description of the ANT board (§ *4.5.3.1 ANT board screen*).



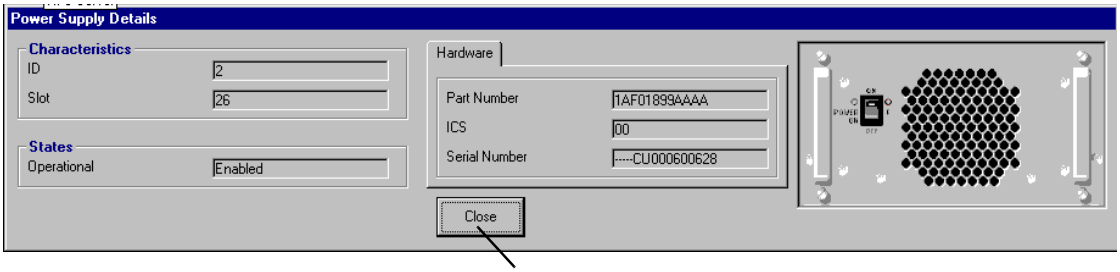
4.5.3.6 Ventilation



4.5.3.7 PSU

PSU : **P**ower **S**upply **U**nit.

For the items on this screen, refer to the description of the ANT board (§ *4.5.3.1 ANT board screen*)

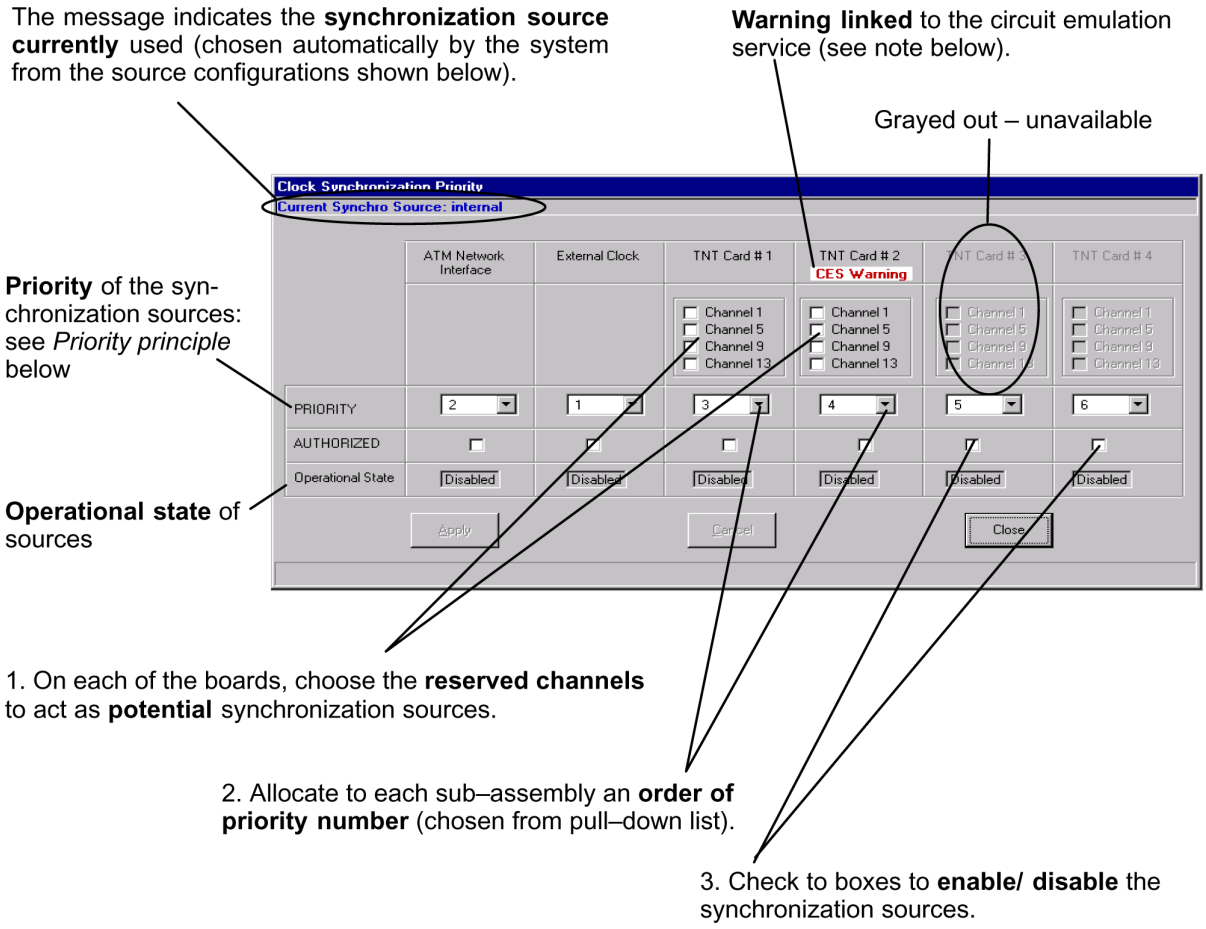


4.5.4 Clock synchronization parameters

To access the **synchronization** parameters, click on the button shown here (in the button bar of the ***BS Details*** screen).

This involves defining the setup rules for the synchronization sources used.

There is one default synchronization source (internal oscillator) and **six configurable sources**: ATM, external clock and the four TNT boards. The TNT boards have 16 ports and 4 can be used as synchronization ports: these are ports **1**, **5**, **9** and **13**.



– *Priority principle:*

- the ***order of priority*** numbers take precedence, followed by the **channel numbers**, in increasing order of appearance.
- an **order number** must be **single** (one specific number per sub-assembly).
- Order number **one** is for the **highest level of priority**.

Note: *Two sources cannot be assigned the same order of priority (the «Apply» button is not available).*

Note: *In the screen shown in the above example, the warning message under **TNT card N°2** is displayed because the type of input for the TNT 2 card has been set to ATM (see § 4.5.3.2 TNT board screen), this board is thus in Circuit Emulation mode.*

4.5.5 Sending time to the Agent

⚠	**ONLY USE THIS UPDATE FUNCTION IF THE SNTP SERVER IS NOT ENABLED: (SEE § 4.14.4)**

This function allows to update time of the SNMP agent with the LT Windows Operating System (OS) time. It is specially necessary at the first installation, to initialize the time of the system or, when there is a big drift of the NE time in regards to that of the local PC (where the 7390 LT is running): see events log § *4.8 NE management*.

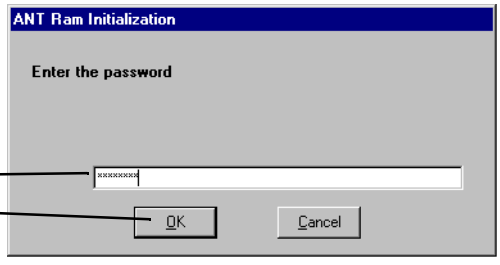
To synchronize the time of the agent, click on the button of the ***BS Details*** screen button bar (see § *4.5 Base Station Supervision*) shown here.

4.5.6 Memory initalization

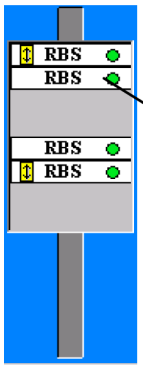
⚠	**THIS FUNCTION, RESERVED TO MAINTENANCE OR FIRST START UP OF BASE STATION, WILL DELETE THE CURRENT CONFIGURATION.**

This function allows memory initialization by the SNMP agent located in ANT board.

The operator has to enter the password (Alcatel 7390), then to click on «*OK*» to validate this password and start the memory initilization.



4.5.7 RBS

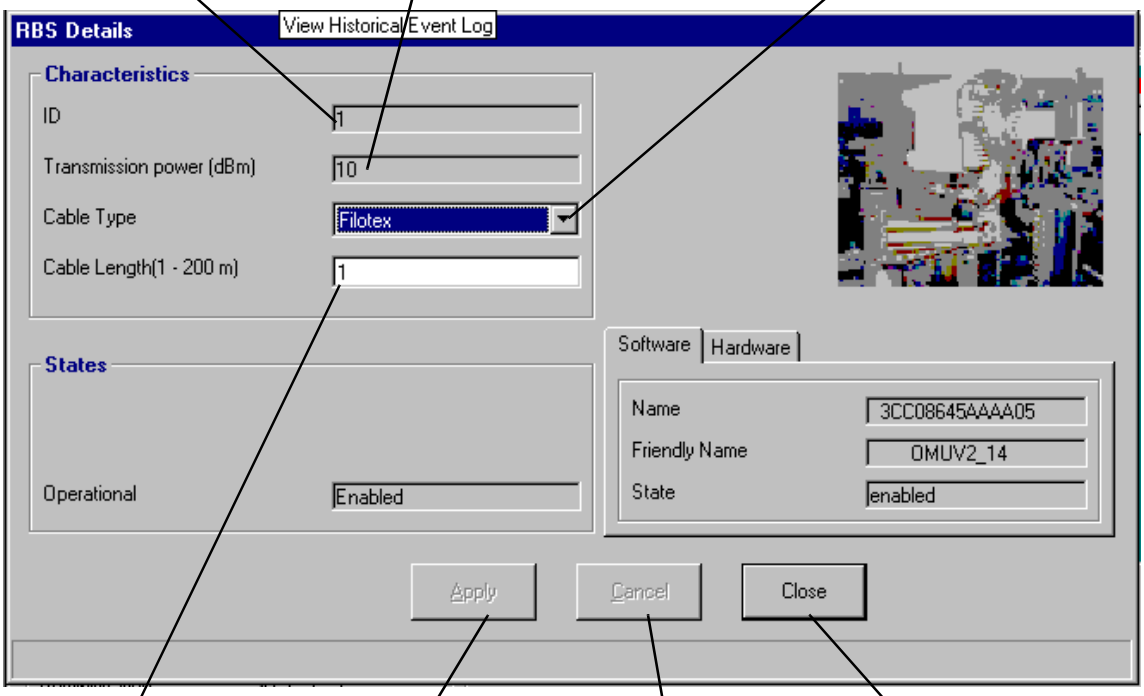


On the right of the BS supervision screen are all the RBSs associated with the BS:
Double–click on the **RBS** whose **details** you require, in order to display the following screen:

RBS **identification** Number

Click on the arrows to modify the Transmission power; this value indicates the output power in dBm (+7dBm to +17 dBm, by step of 1 dB)

Click on the arrow to open the list and to select the **cable type** (see note below)(automatic recovery for flat RBS)



Click here to enter the **actual cable length** (automatic recovery for flat RBS)

Click here to close the window and **to return** to the ***RBS Details*** screen

Click here **to take into account** the modifications

Click here **to cancel** the modifications

Note: *Specifications of the available cables in the **RBS Details** screen:*
Attenuation calculation is done with: A= K1 x √f + K2 x f (f fréquency in MHz) in dB for 100 m length

- *Filotex: K1 = 0,418; K2 = 0,004; Lmax = 200 m*
- *Andrew: K1 = 0,22; K2 = 0,0012; Lmax = 300 m*

4.5.8 Redundancy state

4.5.8.1 Principle

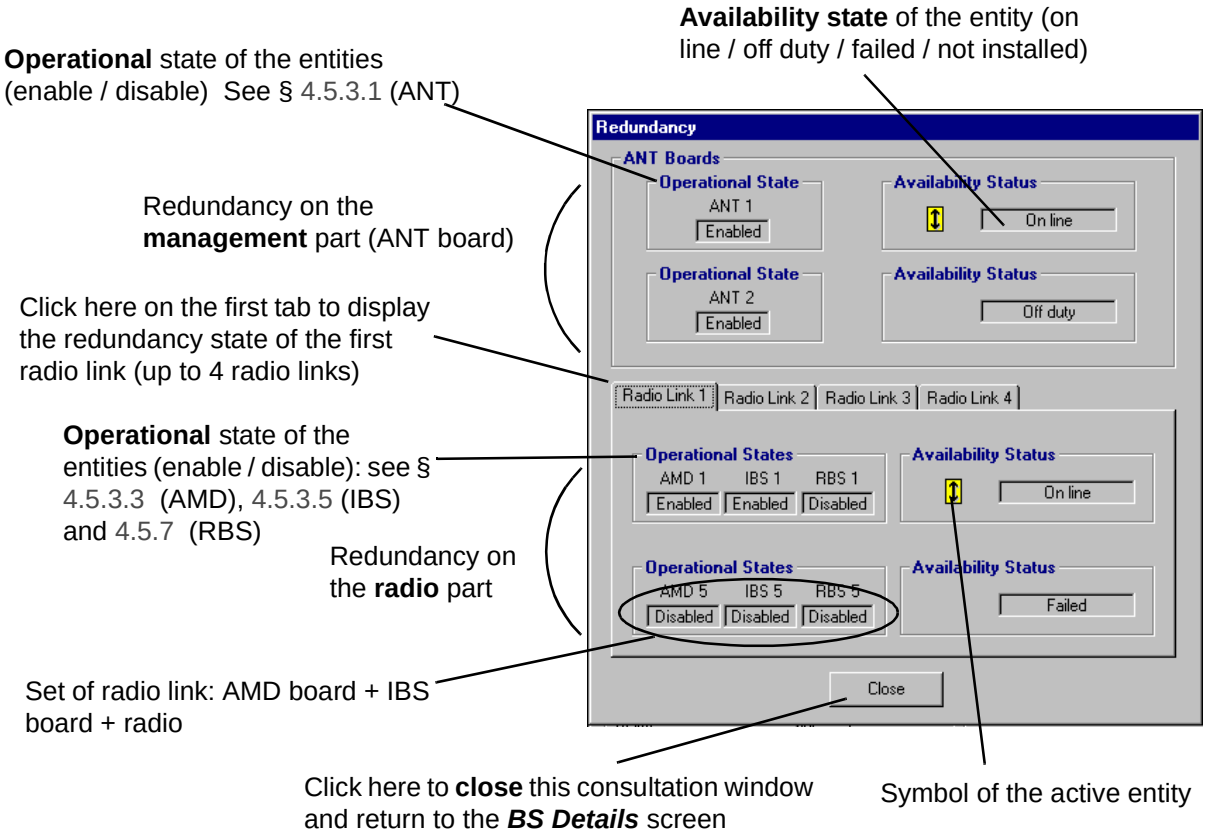
Redundancy of the A7390 system corresponds to a **1+1** configuration and works in the "**cold redundancy**" mode. That means for **one active** entity, there is **one stand-by** entity and when the active entity has failed, the **switch over** to the stand-by entity provokes a **temporary service cut**.

Redundancy applies to the management part (ANT board) and to the radio part (radio links) of the system.

4.5.8.2 Access to redundancy state display

To access **consultation of the** system **redundancy state**, click on the icon shown here, that is in the button bar of the ***BS Details*** screen (§ *4.5 Base Station Supervision*).

The screen below is displayed:



Note: *The place of the boards into the DBS is directly linked to their role in redundancy (see § 4.5.8.3 Board and location in the cabinet according to their role in redundancy).*

Note: *The disponibility state on line corresponds to an active entity.*

Comments on radio link 2 as shown in the previous example:

Radio link 2 initially consists of the **AMD 2** (slot 8), **IBS 2** (slot 18) and **RBS 2** triplet.

The **redundancy** capability of radio link 2 comes with the installation of the **AMD 6** (slot 12), **IBS 6** (slot 22) and **RBS 6** triplet.

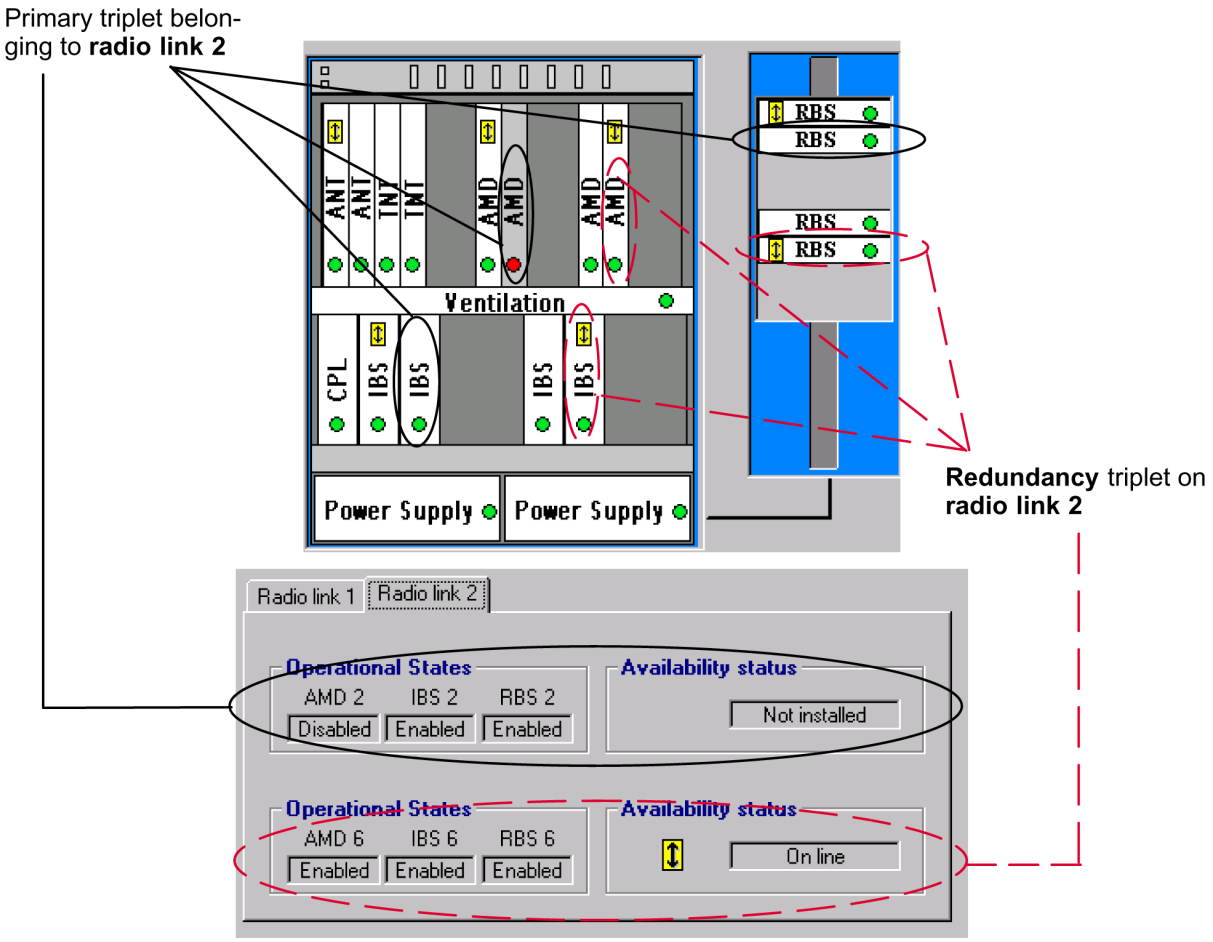
The **BS *Details*** screen (§ *4.5 Base Station Supervision*) allows the boards inserted in the cabinet and associated RBSs to be displayed, and also their role in redundancy. The operating entities may also be displayed with the operation symbol (double-arrow).

In the example, the AMD 2 card has been removed; it is thus reported as a critical alarm (red) (see § *4.10.1 Alarms*). Triplet 1 is no longer operational: consequently, switch-over was to triplet 2, this is confirmed by the presence of the operation symbol on AMD 6 and IBS 6 cards and on RBS 6.

This information is grouped on the ***Redundancy*** screen (§ *4.5.8.2 Access to redundancy state display*):

- ***operational state*** of the AMD2 card reported "disabled", (card withdrawn)
- ***availability*** of triplet 2= "Not installed",
- ***availability*** of triplet 6= "On line" with operation symbol present.

Conclusion: radio link 2 is available and operating via triplet 6.



4.5.8.3 Board and location in the cabinet according to their role in redundancy

ACTIVE PART		REDUNDANCY PART		
Board	**Slot number into the DBS**	**Board**	**Slot number into the DBS**	**Radio link**
ANT 1	1	ANT 2	2	-
AMD 1	7	AMD 5	11	1
AMD 2	8	AMD 6	12	2
AMD 3	9	AMD 7	13	3
AMD 4	10	AMD 8	14	4
IBS 1	17	IBS 5	21	1
IBS 2	18	IBS 6	22	2
IBS 3	19	IBS 7	23	3
IBS 4	20	IBS 8	24	4

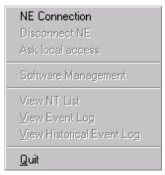
In accordance with *Figure 57 – Place of the boards into the DBS*.

4.6 NT Supervision

The system manages 100 NTs maximum per BS, with 31 NTs maximum per upstream for 28 MHz channelization and 15 NTs for 14 MHz. The NT Supervision automatically begins as soon as the NE is connected.
To access the list of declared NTs associated with the BS:

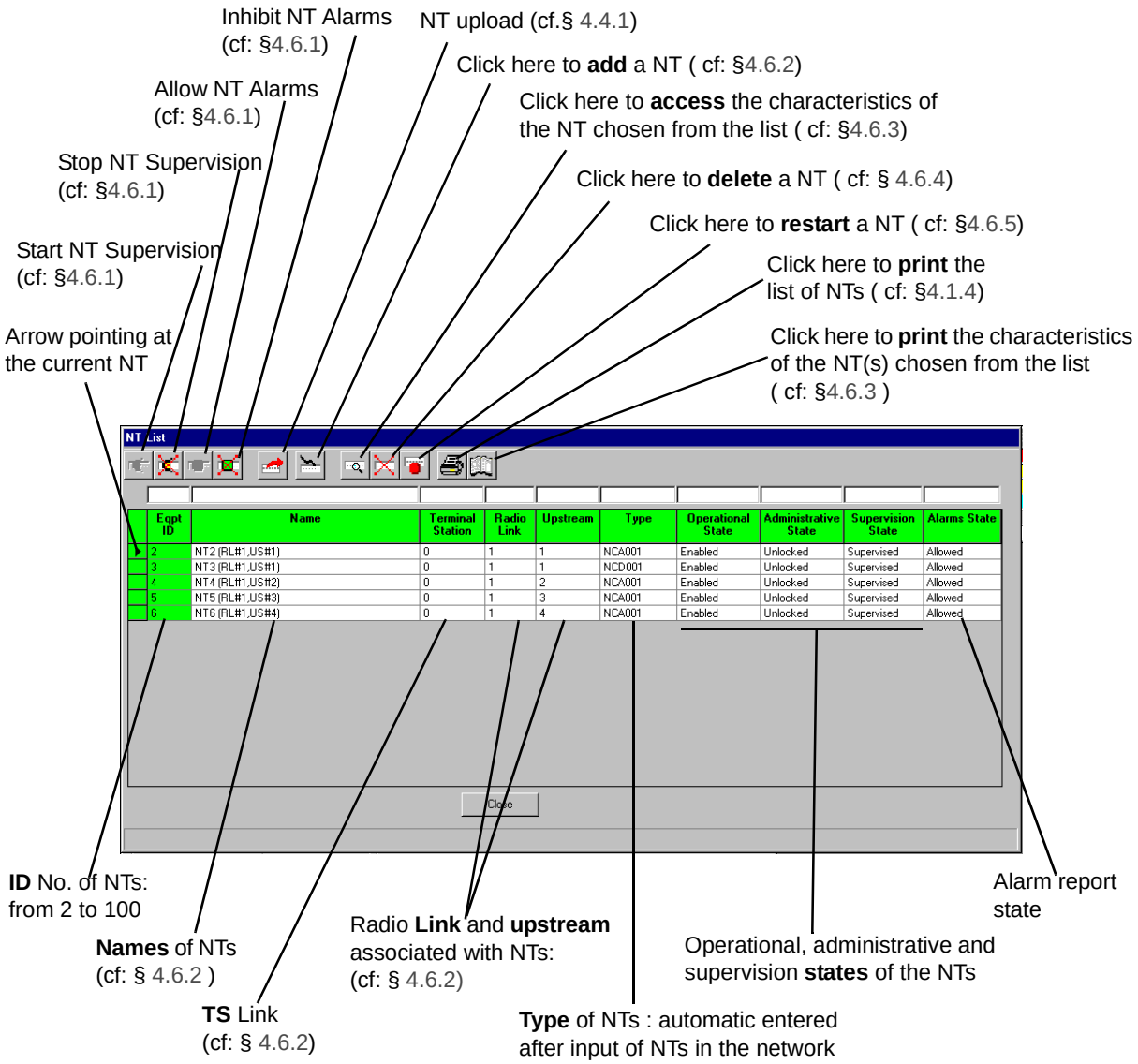
click on the third button of the main menu button bar,

or else,



open the ***Management*** pull-down menu and choose the item: ***View NT List***.

The screen belows is displayed:



Note: *The "**ID**" column displays the color of the most critical alarm for the NT concerned.*
Note: *The number of NTs present in the list corresponds to the "number of NTs" displayed perma-*

nently on the main screen status bar (cf. § 4.1.2.6 Title, menu, button and status message bars).

Note: *Remember that it is possible to access a given NT rapidly from the list of all NTs via the sort and search functions (cf. § 4.1.2.4 Sorting and searching in a list).*

4.6.1 NT Supervision

To **Start or Stop the supervision** of the NT:

Click on this icon to **start** the supervision of the NT.

Click on this icon to **stop** the supervision of the NT.

NT supervised means that the system sends to the manager all the events corresponding to that NT.

A given NT can be supervised only if the **BS** is supervised.

When a **NT is supervised,** the «*Start NT Supervision*» button is disabled.

When the **NT is not supervised** the «*Stop NT Supervision*» button is disabled. Then, no action can be applied over it, so all the «*Apply*» buttons are disabled. Therefore it implies that the alarms on this NT are not allowed (the «*Allow NT Alarms*» button is disabled).

To **Allow or Inhibit the alarms** of the NT:

Click on this icon to **allow** receiving the alarms of the NT.

Click on this icon to **inhibit** receiving the alarms of the NT.

NT Alarms allowed means that all the alarms present in the NT equipment will be reported to the LT manager.

Allowing or inhibiting alarms on NTs have to be done one by one. It is not possible to allow or inhibit alarms in all the NTs by one action.

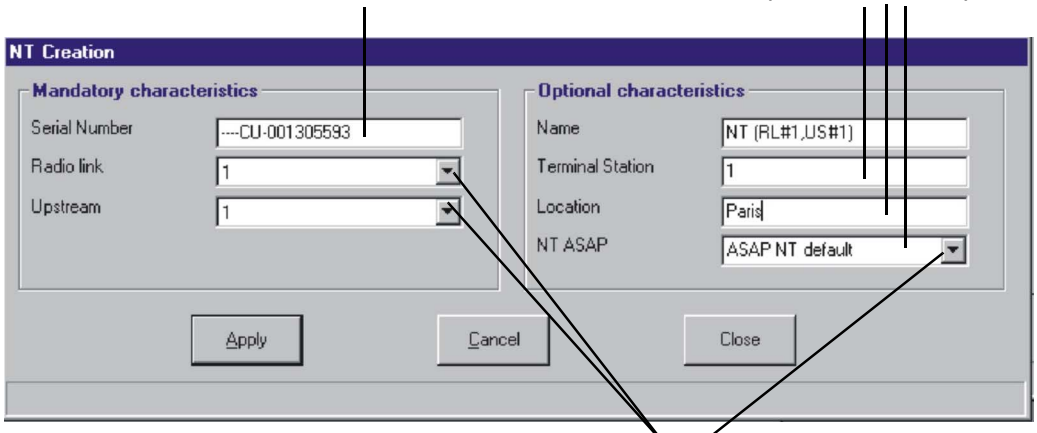
When the **NT alarms are allowed,** the «*Allow NT Alarms*» button is disabled.

When the **NT alarms are inhibited,** the «*Inhibit NT Alarms*» button is disabled. When the alarms are inhibited on a given NT, the NT appears grey in the NT list screen to indicate that it is unknown if the NT has or does not have any alarm present.

4.6.2 Declaring a new NT

To add an NT, click on the button shown here (on the ***NT*** screen button bar).
An input screen is displayed:

Click in the **fields** to enter the various information (described below)



Click on the **arrows** to display the list, then select:
- the radio sector (radio link),
- the upstream,
- the list of NT ASAP table (cf.4.10.2)

Mandatory NT characteristics to be entered	Optional NT characteristics to be entered
Serial number (of NT): see data supplied by planner and warning below **Radio link:** corresponding radio sector from 1 to 4. **Upstream:** Connected upstream number, from 1 to 4	**Name** (of NT): by default displays NT#***Eqt Index*** **Terminal Station link**: numerical entry supplied by the planner. **Location:** town or geographical sector. **ASAP:** name of alarms correspondence base.

	When entering the **Serial Number** noted on the label, respect the above syntax: "----CU-serial number" (without space between characters).
	If several NTs are on same RT, the same **Upstream** must be declared for all NTs.

4.6.3 NT Details

To access the characteristics of an NT:

– **click** on the button shown here (NT screen button bar),

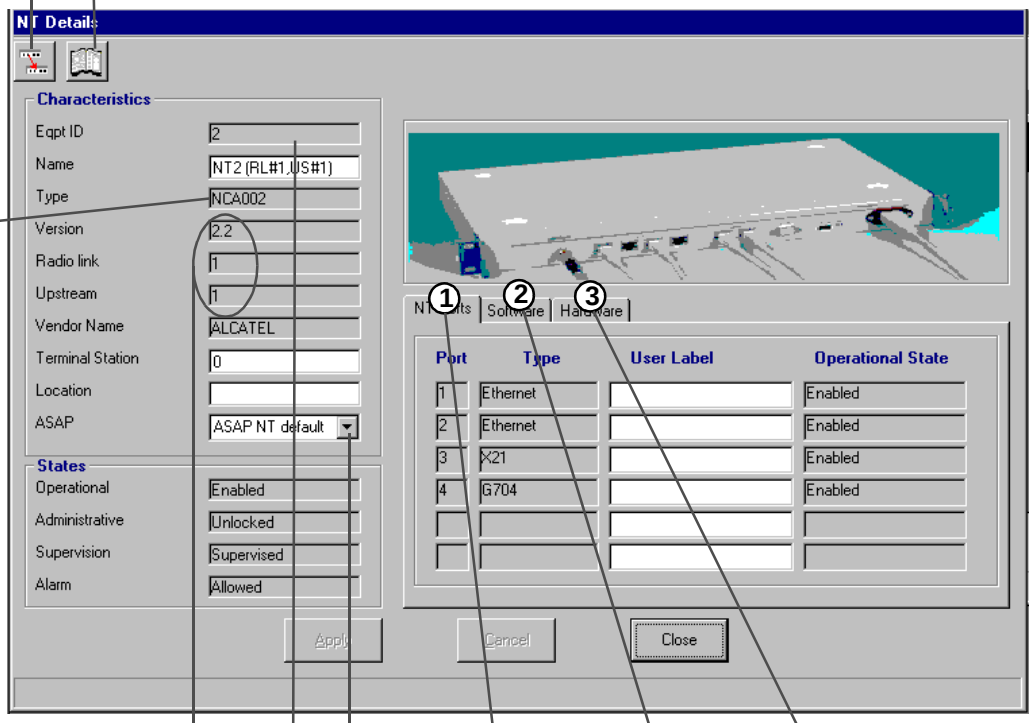
or else,

– **double-click** directly on a line from the list of NTs.

A global screen is displayed in which (under ***Characteristics***) the majority of the items in the § *4.6.2 Declaring a new NT* are to be found:

Click on this button to **substitute the NT serial number:** cf.§ 4.6.6

Click on this button to **print the caracteristics** of the NT that are displayed in this screen



Will be **automatically** filled in after declaration of the NTs

Click on this tab to display the **ports** characteristics

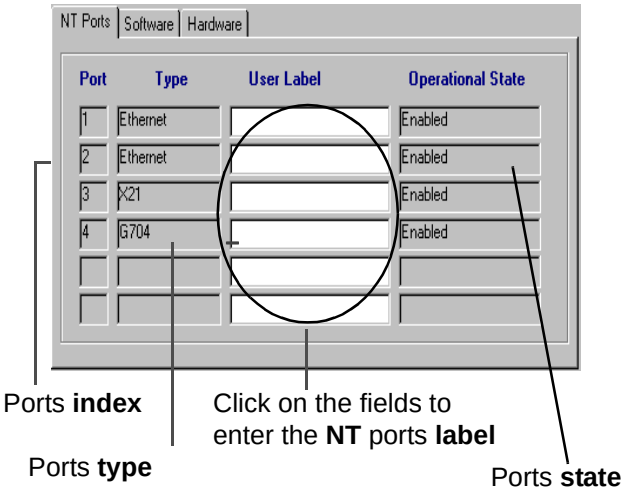
Click on this tab to display the **hardware** characteristics

Will be automatically filled in after the NTs enter the network

Click on the arrow to choose the ASAP table you want to assign to the NT (cf.4.10.2)

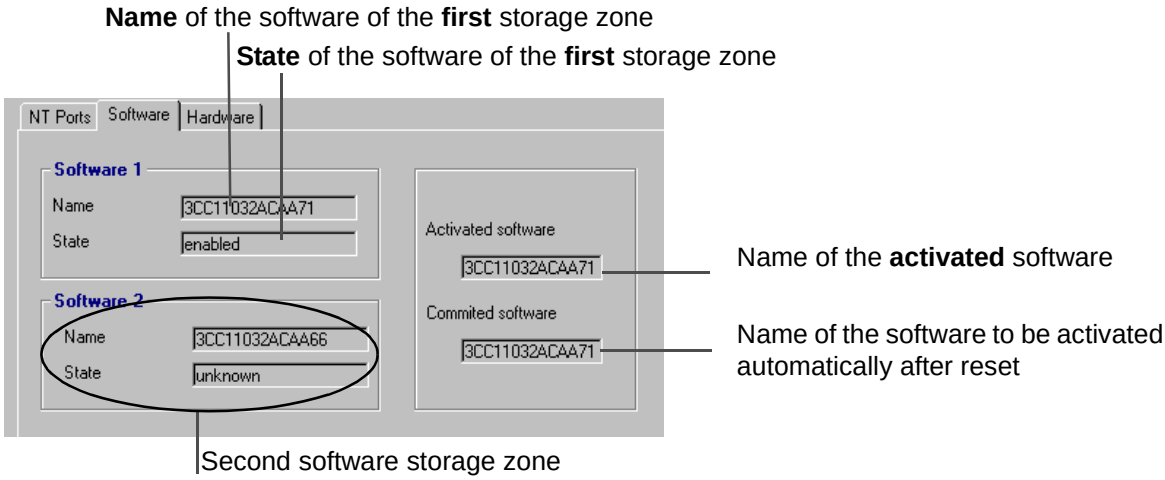
Click on this tab to display the **software** characteristics

1. NT ports:



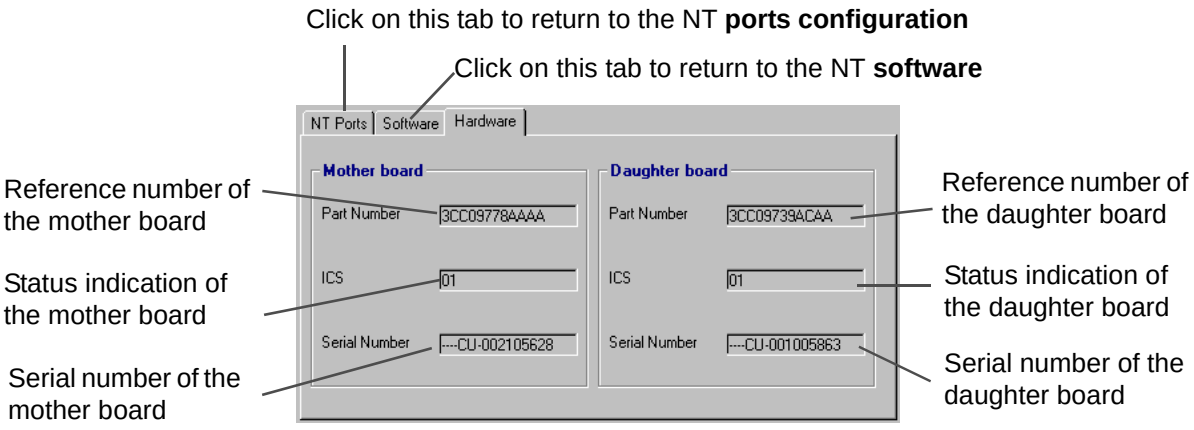
Port	2 E1/2T1	1 E1 and X21
3	G703-1	X21
4	G703-2	G703-1

2. NT software:



Note: *Software names are the same except in the case of download.*

3. NT hardware:

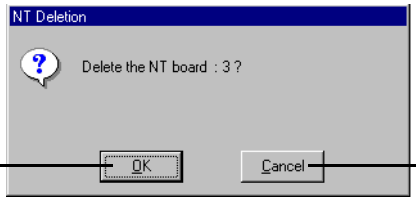


4.6.4 NT deletion

To delete an NT :

– **click** on the NT in the list
– **click** on the button shown here (***NT*** screen button bar).

A confirmation screen is displayed :



Click here to **confirm** NT deletion

Click here to **cancel** the NTdeletion request

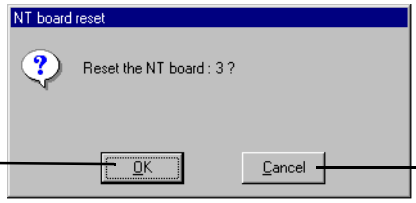
Note: *You have to delete all cross-connections before deleting the NT.*

4.6.5 NT reset

To reset an NT:

– **click** on the NT in the list
– **click** on the button shown here (***NT*** screen button bar).

A confirmation screen is displayed:



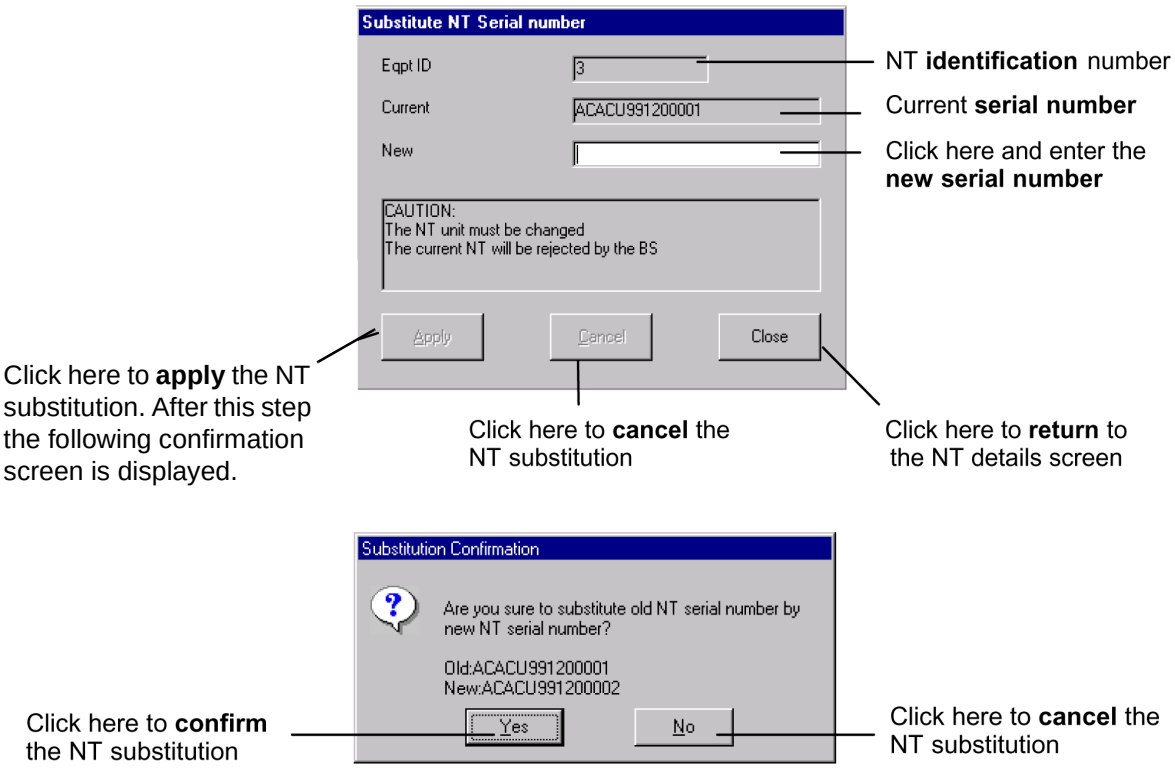
Click here to **confirm** NT reset

Click here to **cancel** the NTdeletion request

4.6.6 NT substitution

To substitute an NT, **click** on the button shown here (***NT Details*** screen button bar).

The following screen is displayed:



The NT substitution will be effective the first time when the "old" NT will have left the network. Then, the NT with the new serial number will be authorized to enter the network.

4.7 Radio supervision and parameters

4.7.1 Radio configuration

To access the supervision and parameters of the **Radio** link, click on the button shown here (***BS*** screen button bar)

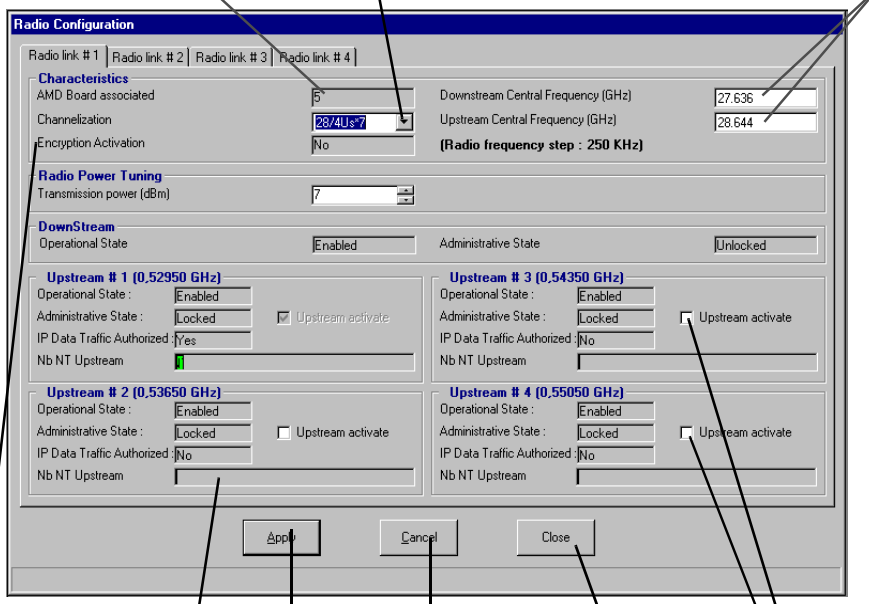
The ***Radio Configuration*** screen is displayed and presents the radio ***characteristics***.

The screen displays as many "Radio link # ..." tabs as there are radio links in the system (4 maximum).

Click on the arrow to select the **bandwidth**: 14/4 Us*3.5, 28/4 Us*7 MHz (by default: not configured) - (see note 1 below)

No. of the **AMD** board associated with the sector.

Click here to enter the **central frequencies** of the **upstream** (reception) and **downstream** (emission) channels (see radio scheduler)



Encryption activation: No (see note 2 below)

Click here to **cancel** the modifications

Click here to **apply** the modifications

Click here to **return** to the ***BS details*** screen

Progression bar representing the **number of NTs** connected to the upstream channel N° 3 (see note 3 below)

Click here to **activate** the **upstream**. (see note 4 below)

Note 1: *To change a bandwidth, refer to § 7.3.6 Change of channelling.*

Note 2: *Encryption: the data of service are systematically encoded, the management data are not encoded.*

Note 3: *NT number: move the mouse pointer onto a progression bar and a tooltip displays the ratio between the number of declared NTs and the max. number of managed NTs for a given channel.*

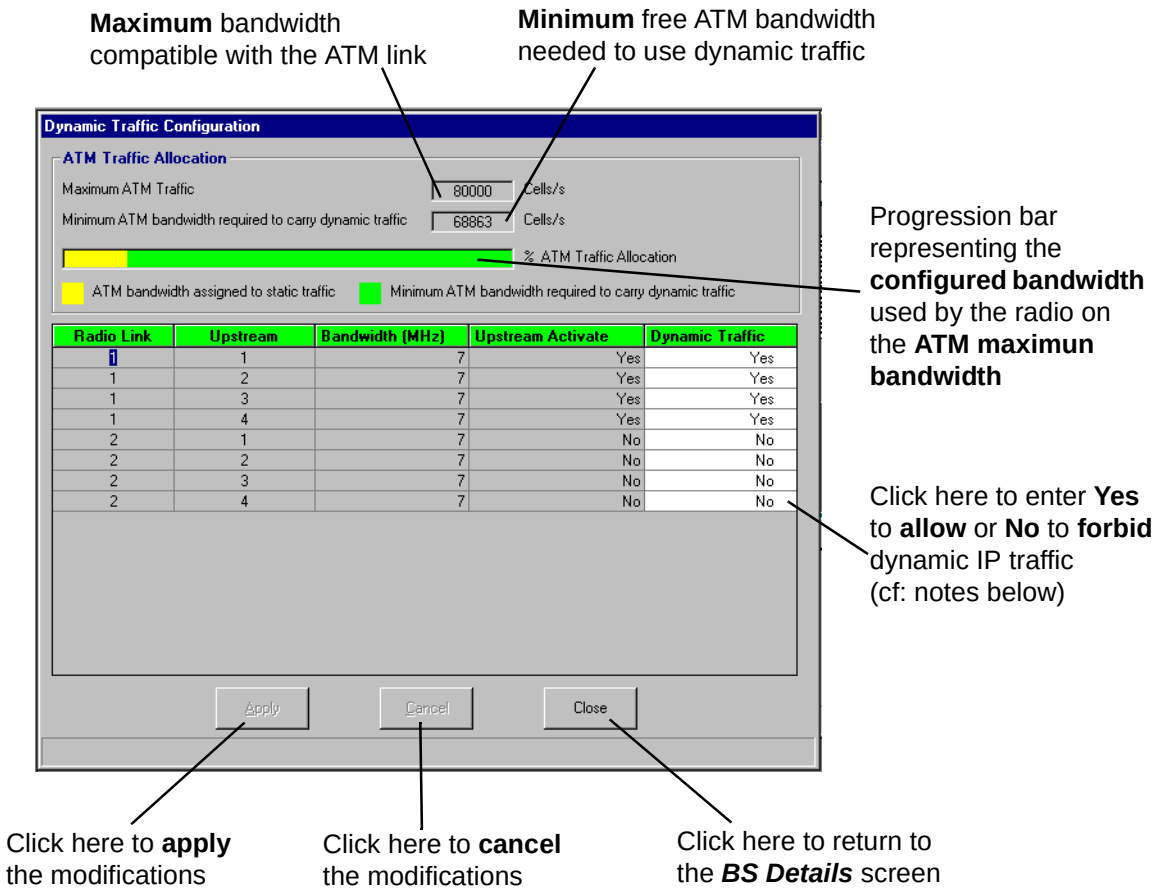
Note 4: *As long as there is data traffic on the upstream, you cannot deactivate it.*

IF YOU WANT TO CREATE AN IP SERVICE ON AN NT, THE UPSTREAM USED BY THIS NT MUST BE CONFIGURED. CF. § 4.7.2.

4.7.2 Dynamic Traffic Configuration

To access the configuration of the IP data traffic, click on the button shown here (***BS Details*** screen button bar).

The ***Dynamic Traffic Configuration*** screen is displayed:



Note: *You can only **activate dynamic services** (Dynamic Traffic: Yes) if the **upstream** is **activated** (Upstream: Yes).*
(Cf. § 4.7.1 Radio configuration.)

Note: *The authorization facility for Dynamic IP Traffic on any upstream is provided in order to avoid overloading of the ATM interface: the air bandwidth available to data traffic should never exceed the bandwidth available on the ATM interface ("Maximum Bandwidth" ⩾ "Configured Bandwidth").*

Note: *The system controls the configured bandwidth according to the maximum bandwidth of the ATM interface and according to the overbooking configuration.*

Services	Unit	Cell/s
Static IP	66.5 Kbps	157
Circuit Emulation (CES)	2 Mb/s (E1)	5447
	1.5 Mb/s (T1)	4107
Dynamic IP	66.5 Kbps	157

4.7.3 On-demand Service management

4.7.3.1 Introduction

Radio resources management consists of distributing system resources, for each upstream and downstream channel of each radio link, according to customer services to be created.
Customer services are available according to two types of radio traffic: **dynamic** (dynamic IP) and static (leased lines, static IP).

The bit rate available for each radio channel is given by the bandwidth defined in the ***Radio Configuration*** screen (see § *4.7.1 Radio configuration*).

Radio resources management is carried out according to two operating principles (that can be jointly implemented): system ***self-management*** (default configuration) and ***pre-configuration*** (carried out by the operator).

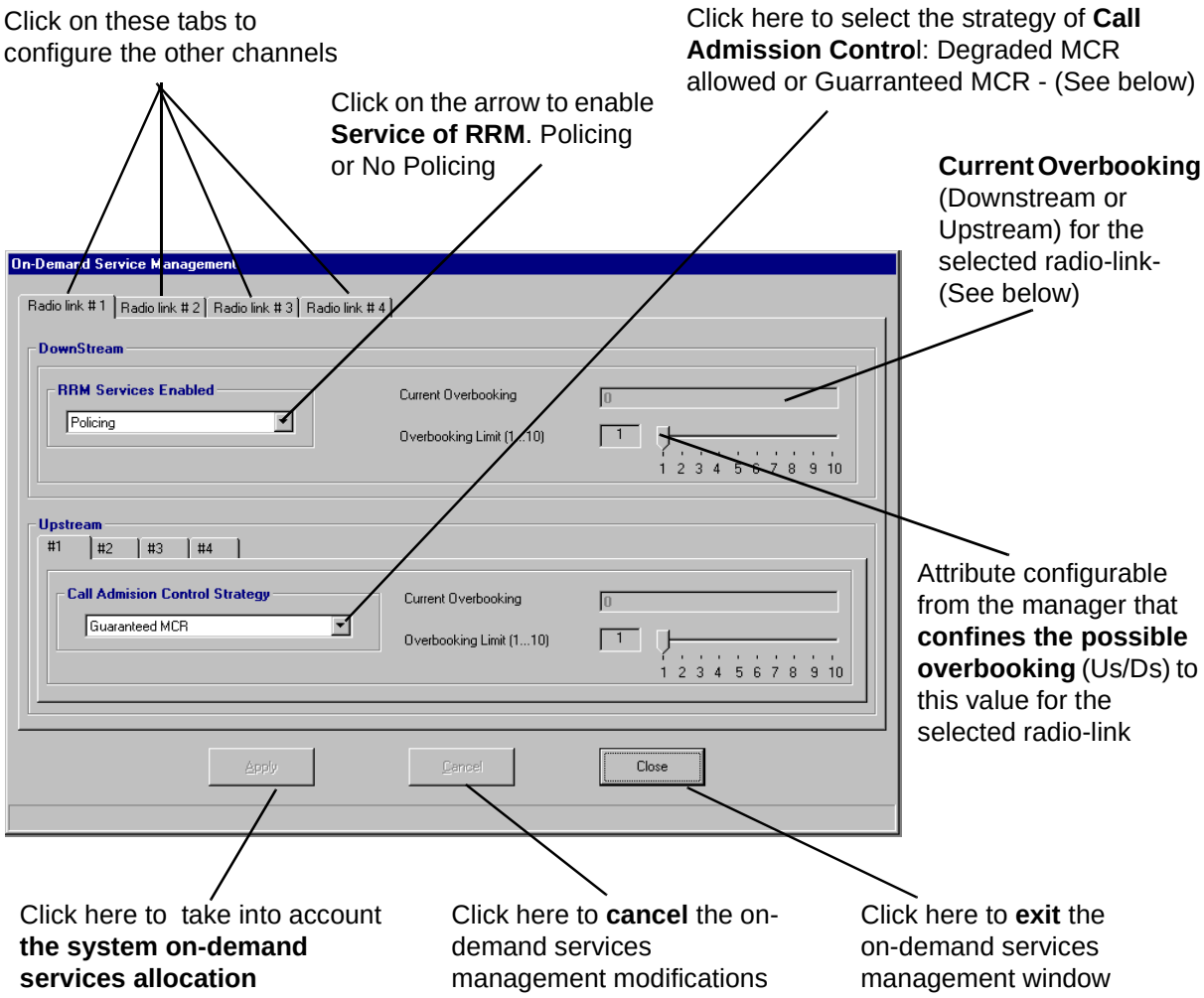
	**STATIC SERVICES CONFIGURATION MAY CAUSE DYNAMIC IP SERVICES TO BE SHUT DOWN**

– System self-management:
In this case, the system **automatically** manages **the radio part** according to the following principles:;
  - by default, overbooking limit is 1. That means no overbooking is allowed.
  - CAG = Guaranteed MCR.
  - RRM Devices Enabled = Policing.

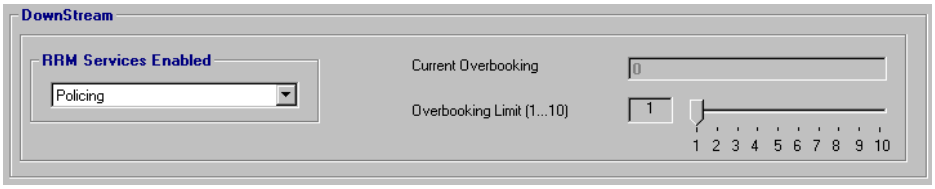
Note: *Circuit emulation always requires a leased line. Radio resources are implicitly dedicated to circuit emulation via the leased line.*

4.7.3.2 Access to the radio pre-configuration

To access **on-demand services** management and proceed with **radio** pre-configuration, click on the button shown here (in the button bar of the ***BS Details*** screen).



– **Downstream channels**



Policing: is a buffer management function that implements intelligent discard mechanisms to prevent buffer overflows.

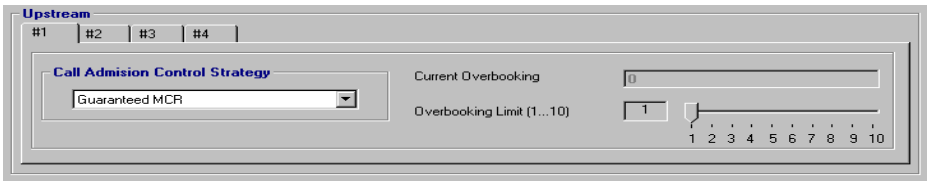
Overbooking:

– limit = 0 means that overbooking has no sense because in this upstream dynamic traffic is not allowed,

– limit = 1 means no overbooking is allowed,

– limit > 1 means it is possible to use more bandwidth than the physical one.

– **Upstream channels**



Call Admission Control Strategy:

– **Guaranteed MCR**, allows the CAC to deny connection to an RRM port if the current sum of the connected RRM ports does not allow to accept the new RRM port without exceeding the dynamic resources.

Degraded MCR allowed:

– allows the CAC to accept every connection request. In this case, congestion event may happen and the RRM scheduler will need to degrade the MCR contract parameter of each connected RRM port, up to its "maximum degraded MCR".

4.7.4 Bandwidth allocation

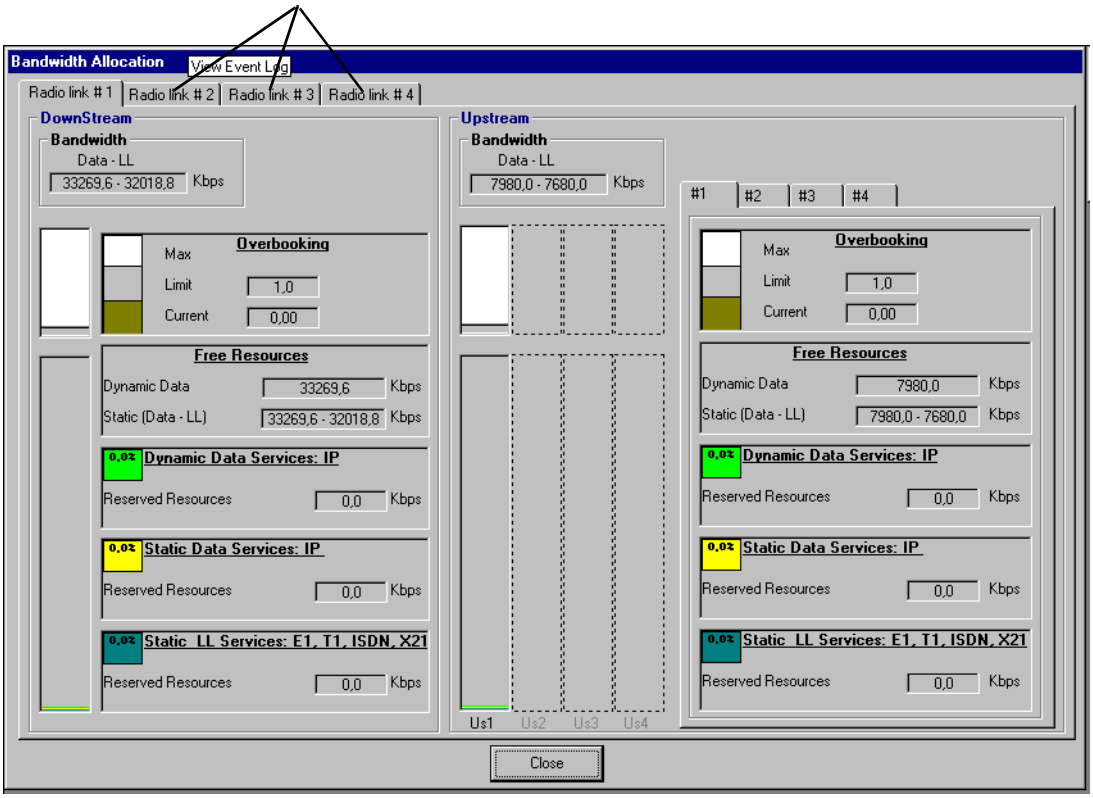
The 7390LT offers the capacity to display radio resources reserved for traffic and therefore potentially available to create customer services.

	**THE RADIO RESOURCES DISPLAYED CORRESPOND TO BANDWIDTH ALLOCATION AND NOT TO THE CURRENT TRAFFIC ON THE SERVICES CREATED.**

To **view** reserved **radio** resources, click on the button shown here (***BS Details*** screen toolbar).

***Nota** : The system always runs in self management mode, but pre-configuration is possible to avoid shutdown during static service creation; thus the system automatically returns to self management mode if the capabilities are exceeded*

Click on these tabs to display the radio resources of the other channels



Meaning of the colors used to show the different parts of the bandwidth:

The **blue** zone represents the bit rate allocated to **leased lines** (LL) type services.

The **yellow** zone represents the bit rate allocated to **static IP** (IPstat) type services.

The **light** grey zone represents the proportion of bit rate still **available** to create new **static services** (FreeS) without disturbing the dynamic zone.

The **dark** grey zone represents the proportion of bit rate still **available** to create new **dynamic services** (FreeD).

The **green** zone represents the bit rate allocated to the **dynamic IP** (IPdyn) type services, as the physical limit of the system reserved to the dynamic services has not been reached (OF<1).

Once the bandwidth is filled, (maximum bit rate authorized by the system's physical limits), the zone is displayed in **orange** to warn the operator of the risk of dynamic service unavailability.
When the bit rate allocated to the dynamic services exceeds the booking factor limit (OFL), the zone changes to **red**.

	**IF THE ZONE IS ORANGE, CHECK THAT SIZE OF THE REMAINING DYNAMIC ZONE IS GREATER THAN THE LARGER DYNAMIC CROSS-CONNECTION IF IT'S NOT THE CASE THIS CONNECTION WILL BE UNAVAILABLE.**

The whole **bandwidth** is represented on a scale from **0 to 100%**.

It is divided into three zones: the **static LL zone**, the **static IP zone** and the **dynamic IP zone**.

The **static zone** represents the portion of the bandwith allocated to **static services**, with display of both bit rate types: **leased line** (LL) and **static IP** (ATM) bit rate.

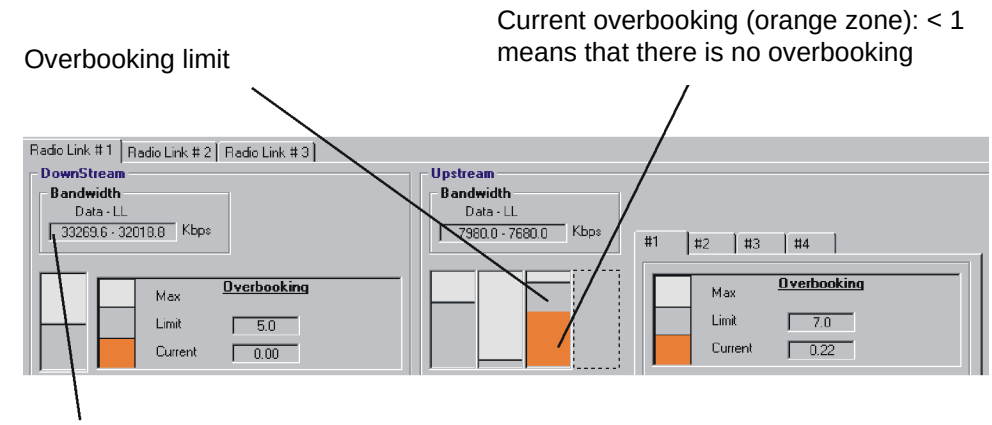
The **dynamic zone** represents the portion of the bandwidth allocated to the **dynamic services**: the dynamic IP services.

***Note** : The available bit rate depends on the traffic type allocated: leased lines, static or dynamic IP.*

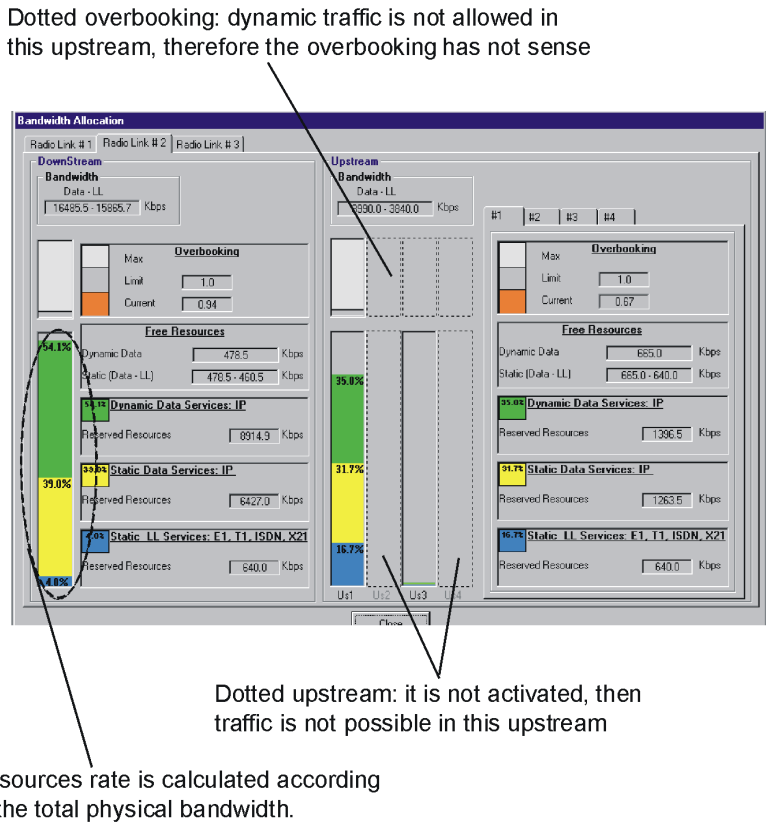
***Note** : The dynamic zone is the zone remaining available, corresponding to the total bandwidth minus the static zone; the static zone corresponds to the static IP service bit rate.*

The **overbooking factor limit** (OFL) is a value **defined by the operator** (until 10 as maximum) and can be modified at any time depending on radio resource requirements: if the operator wishes to offer more services than the system can physically provide **simultaneously** on the available bandwidth, he defines this value which will represent a risk level of dynamic degraded service.

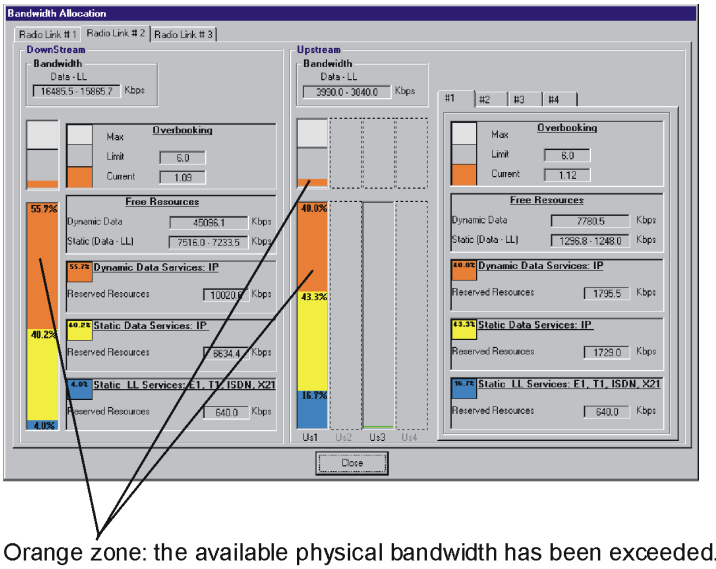
***Note** : When OFL = 1 (default value), it corresponds to the system physical limit assigned to the dynamic zone (= width of bandwidth).*
If OFL = 2, double the dynamic zone physical bandwidth can be used for dynamic IP services.



IP traffic is measured according to «ATM» Rate = 66.5 Kbps, whereas LL is measured with rate = 64 Kbps



When the dynamic traffic (green color) is overbooked, green is changed to orange (see next screen).



Orange zone: the available physical bandwidth has been exceeded.
However, since overbooking limit > 1 has been defined,
it is possible to use more bandwidth

4.8 NE management

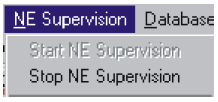
As soon as the 7390LT is connected to the NE, it keeps a log of all the events taking place between the Agent (NE) and the Manager (7390 LT) for the corresponding part of the supervised NE. This supervision tool is mainly used as a log file to be used for maintenance purpose (see *Chapter 6 Operation and maintenance*).

4.8.1 NE Supervision

To **Start or Stop the supervision** of the NE:

Click on the icon to **start** the supervision of the NE.

Click on the icon to **stop** the supervision of the NE.



Or else, open the **NE Supervision** pull-down menu and choose the item **Start NE Supervision** or **Stop NE Supervision**.

NE supervised means that the agent sends to the manager all the events related to the network element. When the **NE is supervised,** the «*Start NE Supervision*» button is disabled.

When the **NE is not supervised,** the «*Stop NE Supervision*» button is disabled. The manager has lost its synchronization with the agent. BS and NT are not supervised and events are not received.

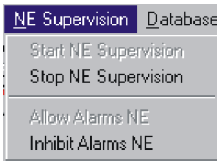
Starting the NE supervision implies a total NE upload, because it is the only way to align again the LT

and the MIB agent.

To **Allow or Inhibit the alarms** of the NE:

Click on this icon to **allow** receiving the alarms of the NE.

Click on this icon to **inhibit** receiving the alarms of the NE.



Or else, open the **NE Supervision** pull-down menu and choose the item **Allow Alarms NE** or **Inhibit Alarms NE**.

NE Alarms allowed means that all the alarms present in the NE equipment will be reported to the LT manager.

When the **NE alarms are allowed,** the «*Allow Alarms NE*» button is disabled.

When the **NE alarms are inhibited,** the «*Inhibit Alarms NE*» button is disabled. Moreover, neither alarm window is present in the 7390LT nor alarm code colour is showed in the main window.

4.8.2 Events log

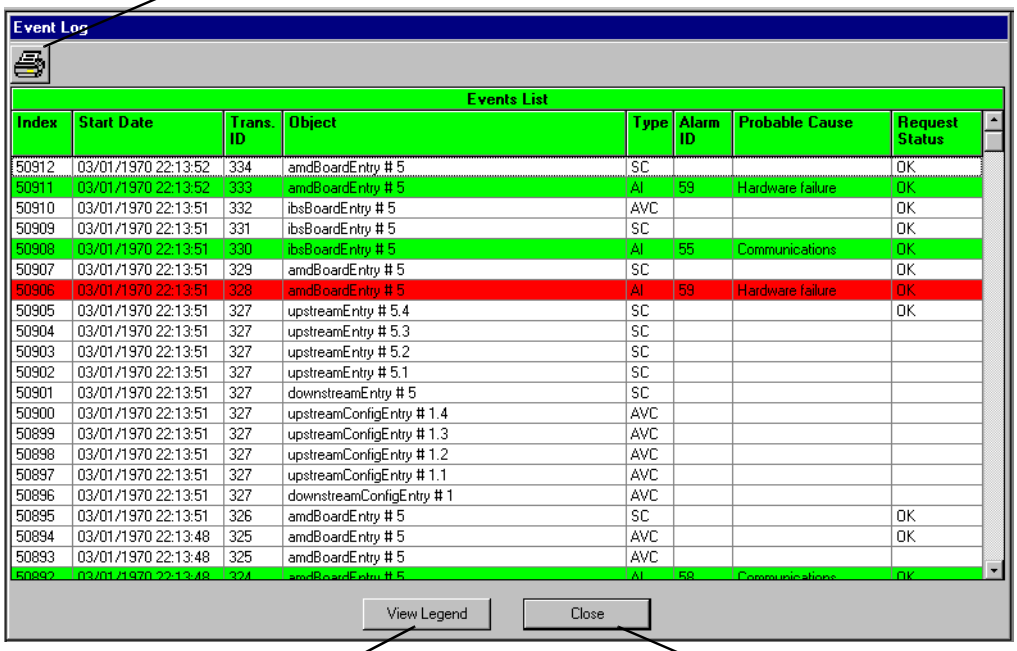
Note: *the events log (in read only) is presented in reverse chronological order. The most recent event is at the top of the list. The circular list can contain up to 5000 events*

.

To access the ***events log***:

- click on the button shown here (on the 7390 LT main screen),
- or, open the ***Management*** pull-down menu and choose ***View Event Log***.

Click here to **print** the events log on the default printer (see § 4.1.4 Printing)



Key of the differents event types (see § 4.8.4 Event log legend)

Click here to **quit** the events list

Index: this is the event number: an incremental cyclic counter is activated each time an event takes place.
Start date: time-stamping of the event (format: day/month/year, hour/minute/second).
Trans ID: transaction number allowing the action which occurred on the system and the different events resulting from it, to be linked; in the example above, the action corresponding to event number 294 corresponds to 5 events (see groups ID Trans. 165).
Object: indicates the part of the system affected by the event (format: designation#equipment ID followed by port number).
Type: abbreviation (which key is permanently displayed at the bottom of the window) of the event type: alarm, deletion, creation, etc.
Alarm ID (if the event ***type*** is an alarm): alarm identifier corresponding to its coming out number (chronological).
The line is displayed in the color related to the alarm: when the alarm ends, the same line will be displayed (with an incrementing ***Index***) in green to symbolize the end of alarm.

Probable cause (field associated with the alarm): description of the cause of the problem from the ASAP (giving the severity for a given probable cause).
Request status: request status in the form of abbreviation whose legend is displayed at the bottom of the screen. This is to identify the way a group of events has been terminated (same ID Trans.); the transaction status of the **last** event of a same group is therefore **ok** if the action succeeded.

Note: *ends of alarm are displayed in green.*

4.8.3 Historical Event log

This function allows all or certain events, listed in the events log since the last connection, to be retrieved.

4.8.3.1 Accessing the historical event log

To access the **historical event log**:

- click on the button shown here (in the **7390 LT** main screen),
- or, open the ***Management*** pull-down menu and select the ***Historical Event Display*** section.

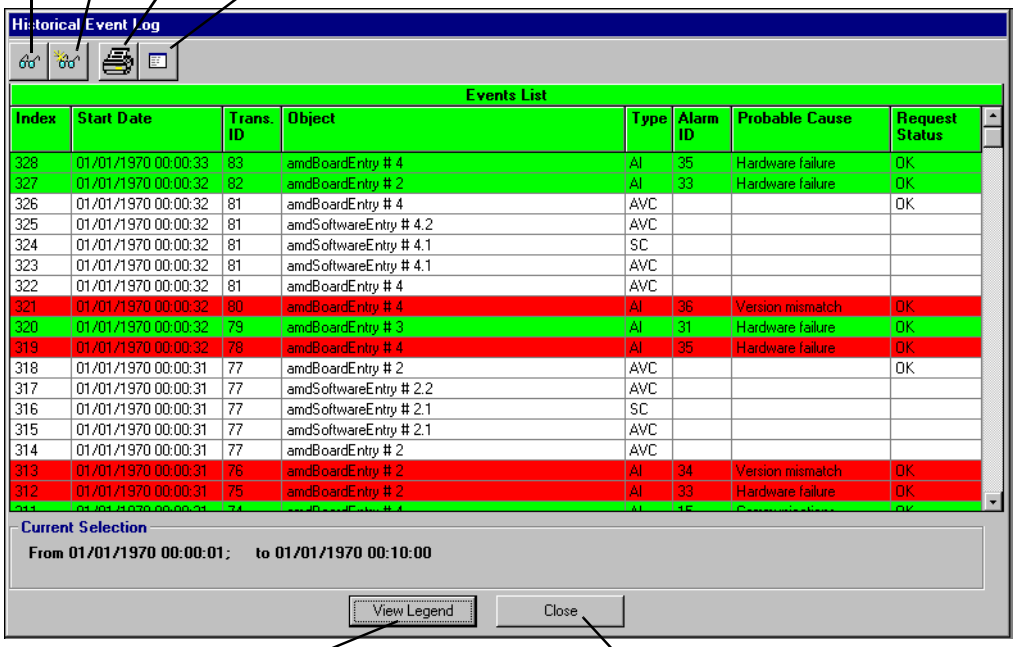
The screen below is displayed:

Click here to access **search** of items to be retrieved from the historical event log (cf:§ 4.8.3.2)

Click here to **refresh the historical display** of the event log according to the selection criteria displayed at the bottom of the screen

Click here to **print** the event list on the default printer (cf: § 4.1.4)

Click here to **save** the historical event log file (cf: § 4.8.3.3)



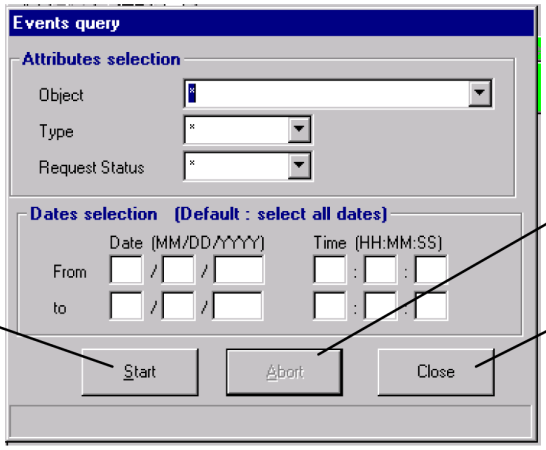
Key of the different possible types of event (cf: § 4.8.4)

Click here to **quit** the ***Historical Event Log*** screen

4.8.3.2 Searching for items in the historical event log

To access the events **search**, click on the button shown here (in the ***Historical event log*** screen).

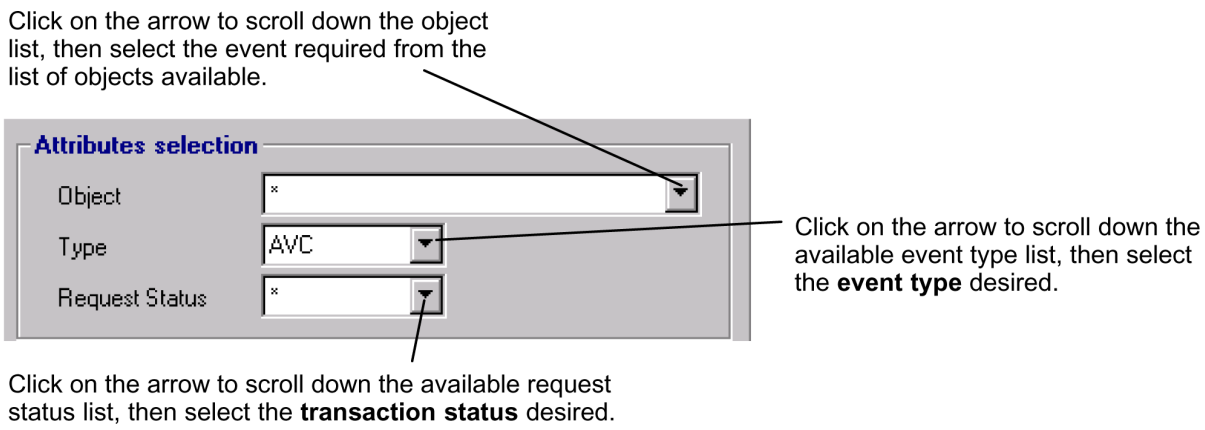
The following screen is displayed:



Note: *The search process can take several minutes to start after launch depending on the number of events listed.*

Two types of search criteria are available to retrieve the events in question from the entire historical event log since the last connection:

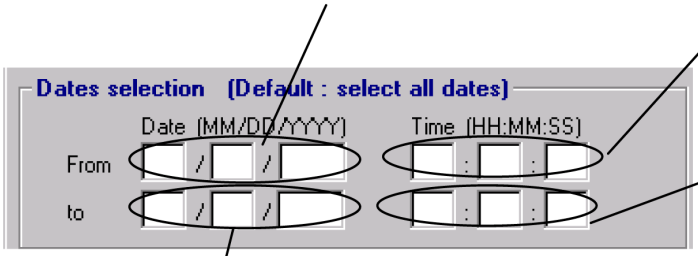
– event **attributes**: object, event type and transaction status linked with the event.



Note: *The selection of a star in the "attribute selection" fields allows all the items of the list for the section concerned to be taken into account (no defined criteria).*

– **Time periods**.

Click in these 3 fields to enter the **date from** which events must be considered: e.g.: 07 then, 02, then 2000 to begin on 2 July 2000.



Click in these 3 fields to enter the first selected day **initial time** (format: hour/minute/second).

Click in these 3 fields to enter the last selected day **final time** (format: hour/minute/second).

Click in these 3 fields to enter the **last day** to consider events: e.g.: 07 then, 10, then 2000 to stop searching on 10 July 2000.

Note: *By default, no date is selected: all dates are taken into account.*
The tabulation key also allows you to move from one field to another.

Note: *The chosen selection criteria are permanently displayed at the bottom of the* ***Historical Event Log*** *screen.*

4.8.3.3 Historical event log item backup

To perform backup of events corresponding to the defined search criteria (see § *4.8.3.2 Searching for items in the historical event log*), click on the button shown here (in the ***Historical Event Log*** screen).

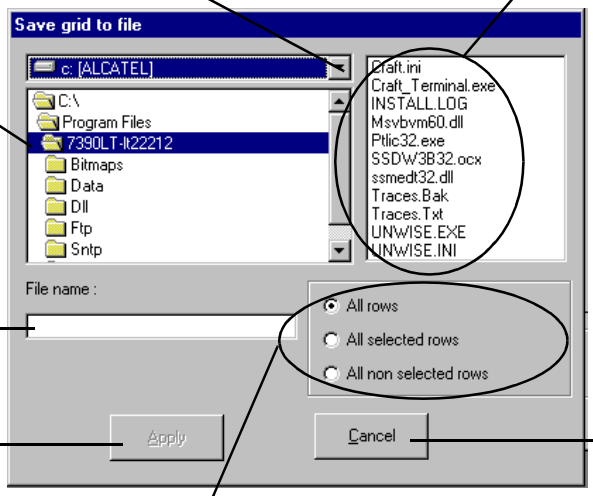
The following screen is displayed:

1- Click on the arrow to select the **disk** on which the event file is to be saved

Display of file names already present in the selected directory

2- Select the **directory** where the event file is to be saved

3- Click in this field to enter the backup file **name**



Click here to **start** the back up

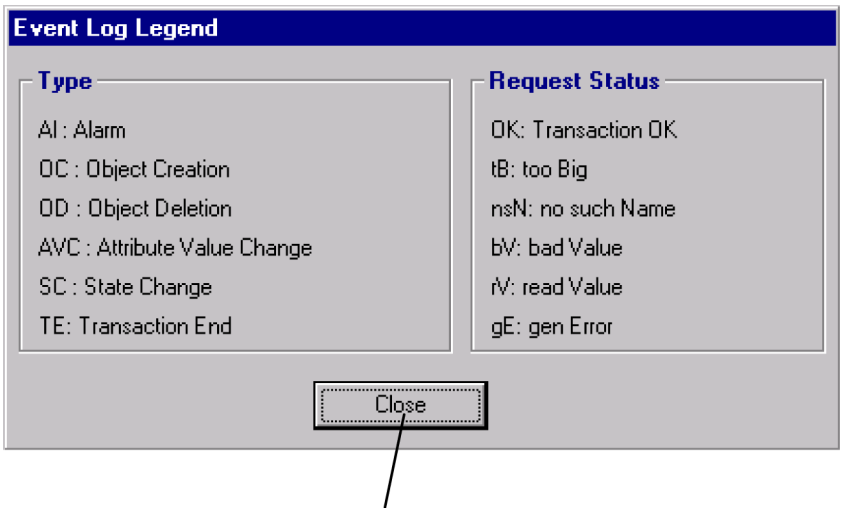
Click here to **cancel** the **backup**

Check one of the 3 sections to define the backup content with regard to the history displayed in the ***Historical Event Log*** screen (cf: § 4.8.3.1). This filter is added to the previously defined criteria (cf: § 4.8.3.2)

4.8.4 Event log legend

To access the legend of events listed in the ***Event Log*** *screen*, click on the button shown here (at the bottom of the ***Event Log*** and ***Historical Event Log*** screens).

The following legend is displayed:



Click here to **quit** the ***Event Log Legend*** screen

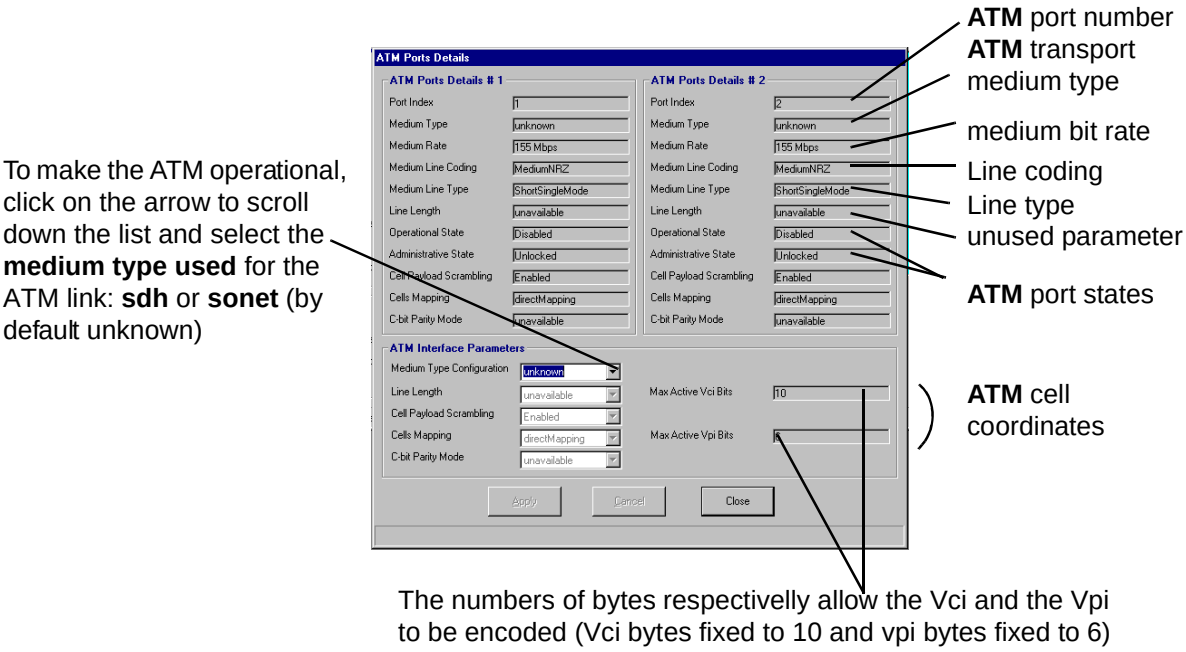
4.9 Interface parameters

4.9.1 ATM

To access the parameters of the **ATM** link, click on the button shown here (in the ***BS details*** screen toolbar).

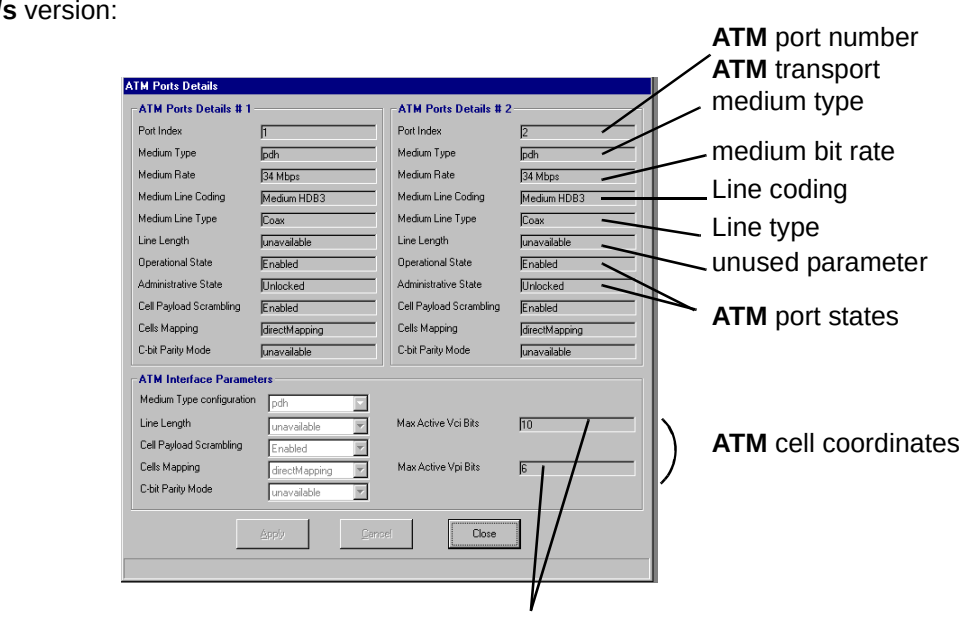
The following screen is displayed:

For the **155 Mbit/s** version:



The numbers of bytes respectivelly allow the Vci and the Vpi to be encoded (Vci bytes fixed to 10 and vpi bytes fixed to 6)

For the **34 MBit/s** version:



The numbers of bytes respectivelly allow the Vci and the Vpi to be encoded (Vci bytes fixed to 10 and vpi bytes fixed to 6)

Note: *For the 34Mbit/s version, the Medium Type configuration cannot be modified.*