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 the icon to **allow** receiving the alarms of the Base Station.

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

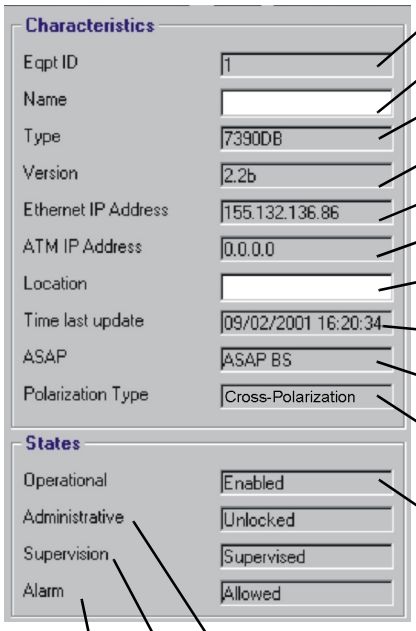
BS Alarms allowed means that all the alarms present in the BS equipment will be reported to the LT manager.

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

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

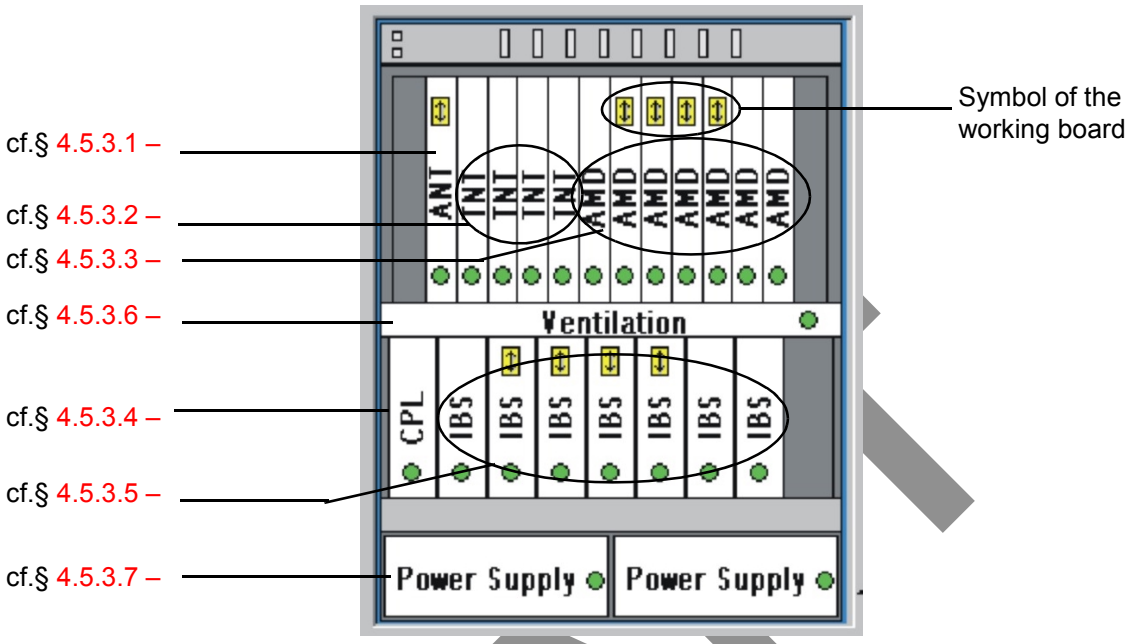
Administrative state unlocked for the BS: indicates whether locked or unlocked for modification at the network management level

Supervision state supervised for the BS

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

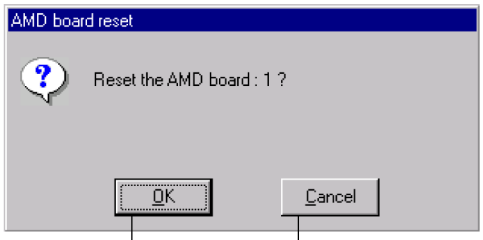
4.5.3 – DBS

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:

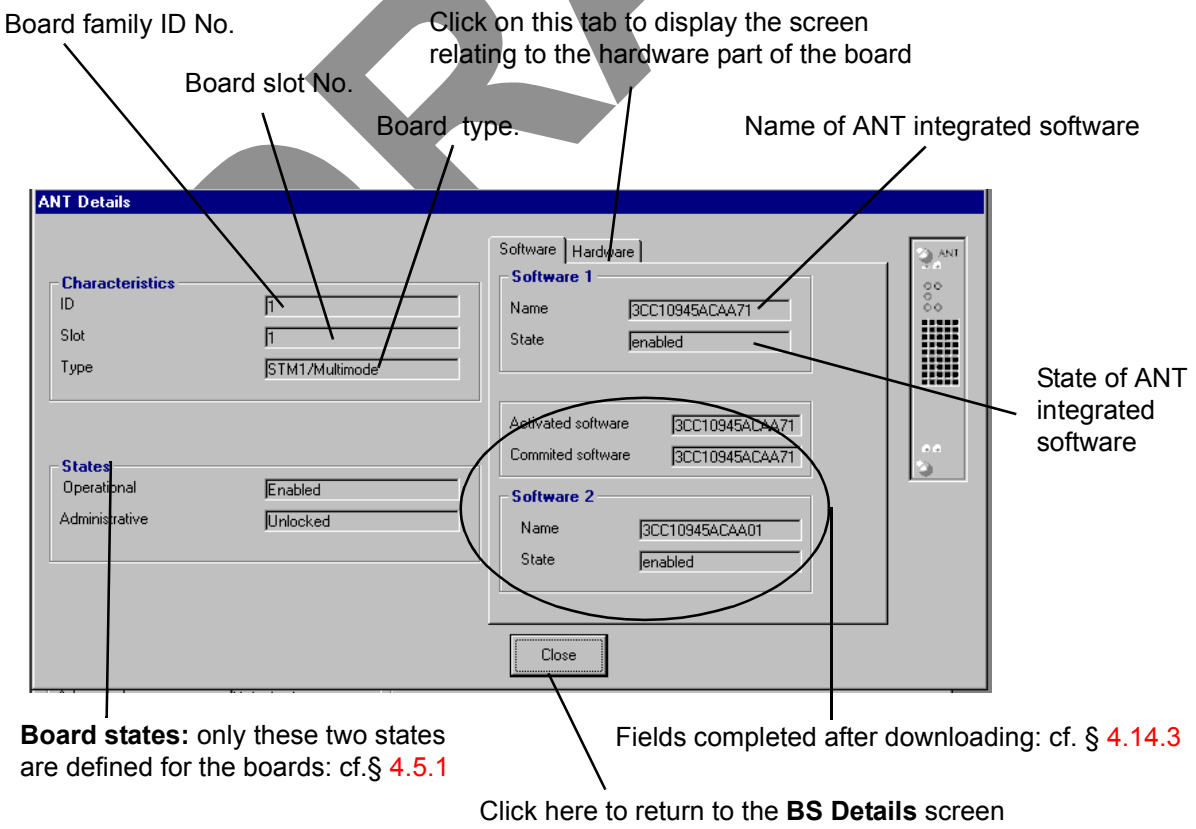
- **green spot:** no alarm is detected;
- **colored spot** (other than green): alarm detected: the color displayed corresponds to the most critical alarm level (cf. § *4.10.1.2 – Alarms color code*);
- **white board:** board physically present in the rack;
- **gray board:** board physically removed but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

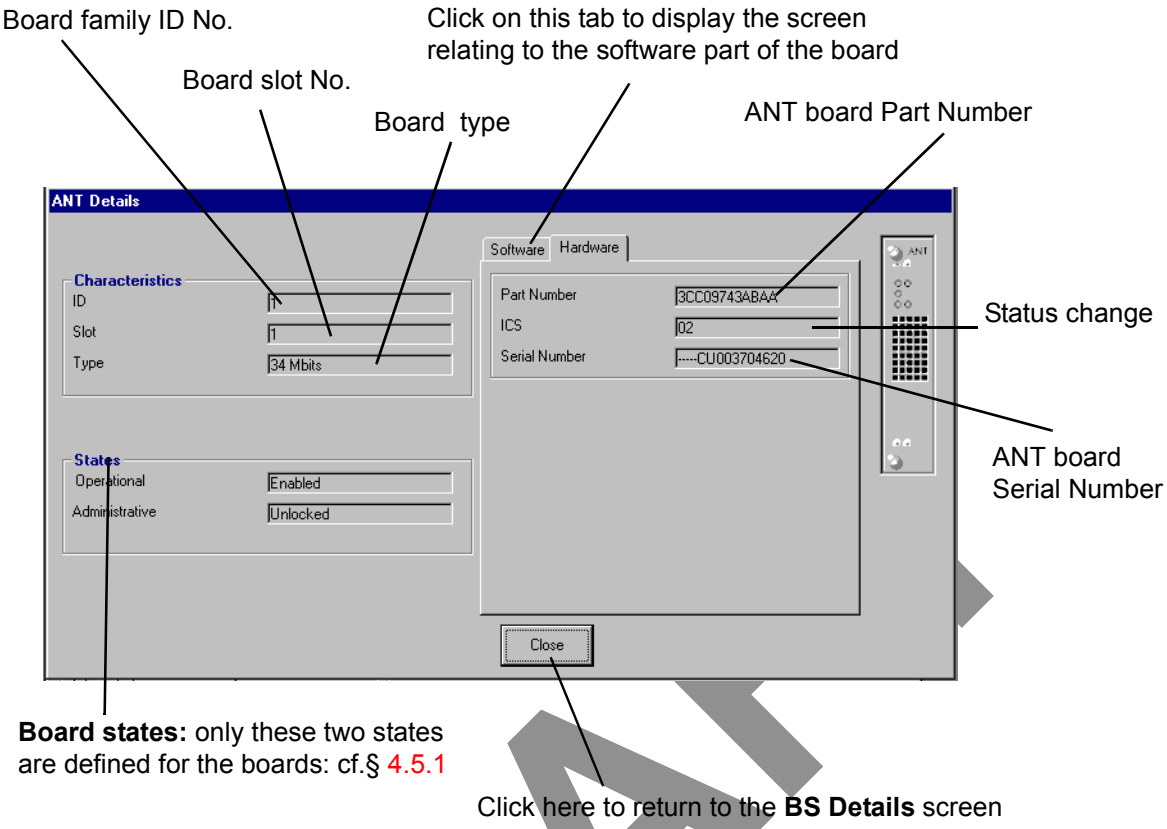
Number of equipments in the rack:

Equipment designation	Maximum number of equipments managed by the system in 2.2b	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

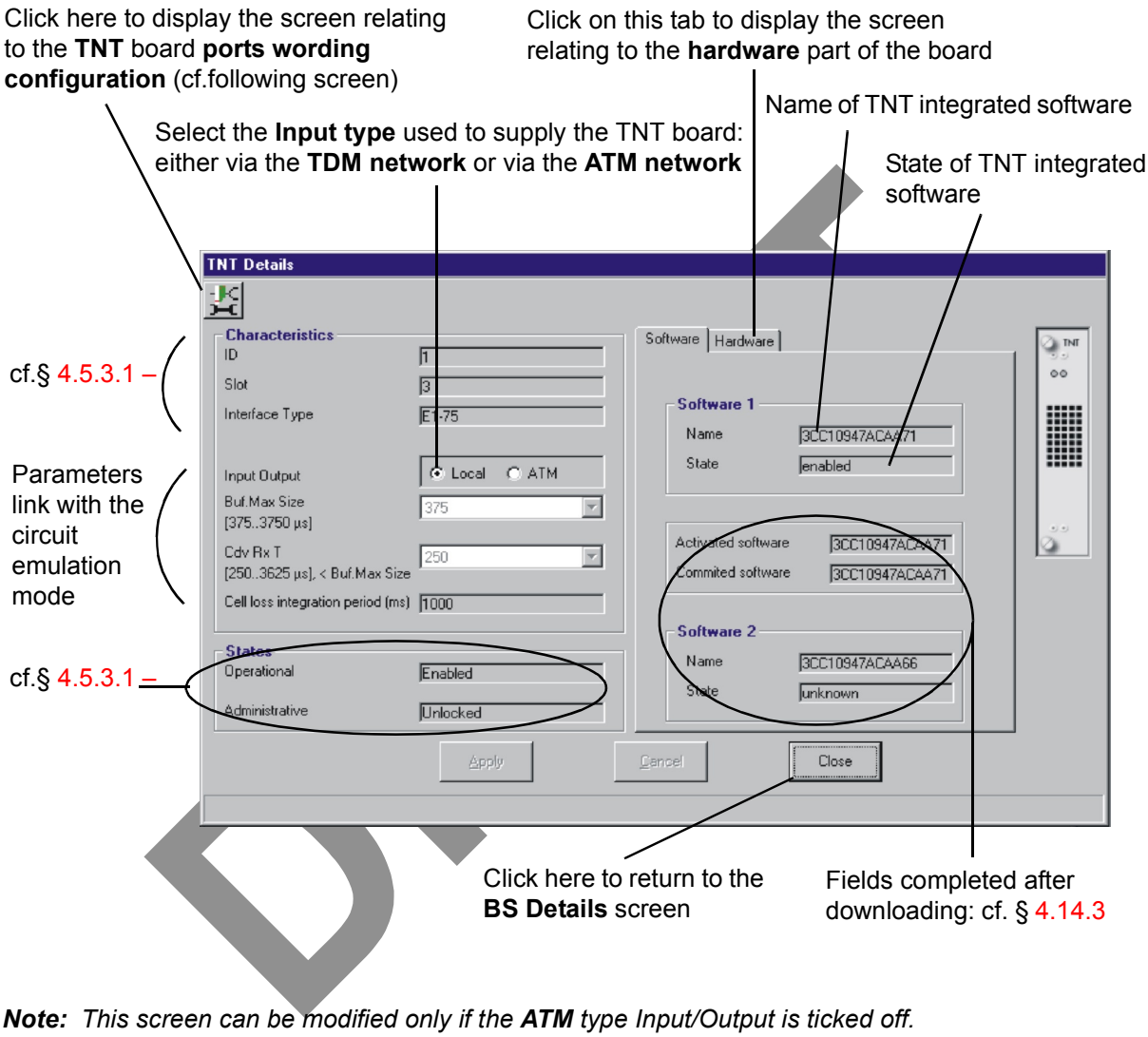
ANT (**A**TM **N**etwork **T**ermination): ATM interface board.



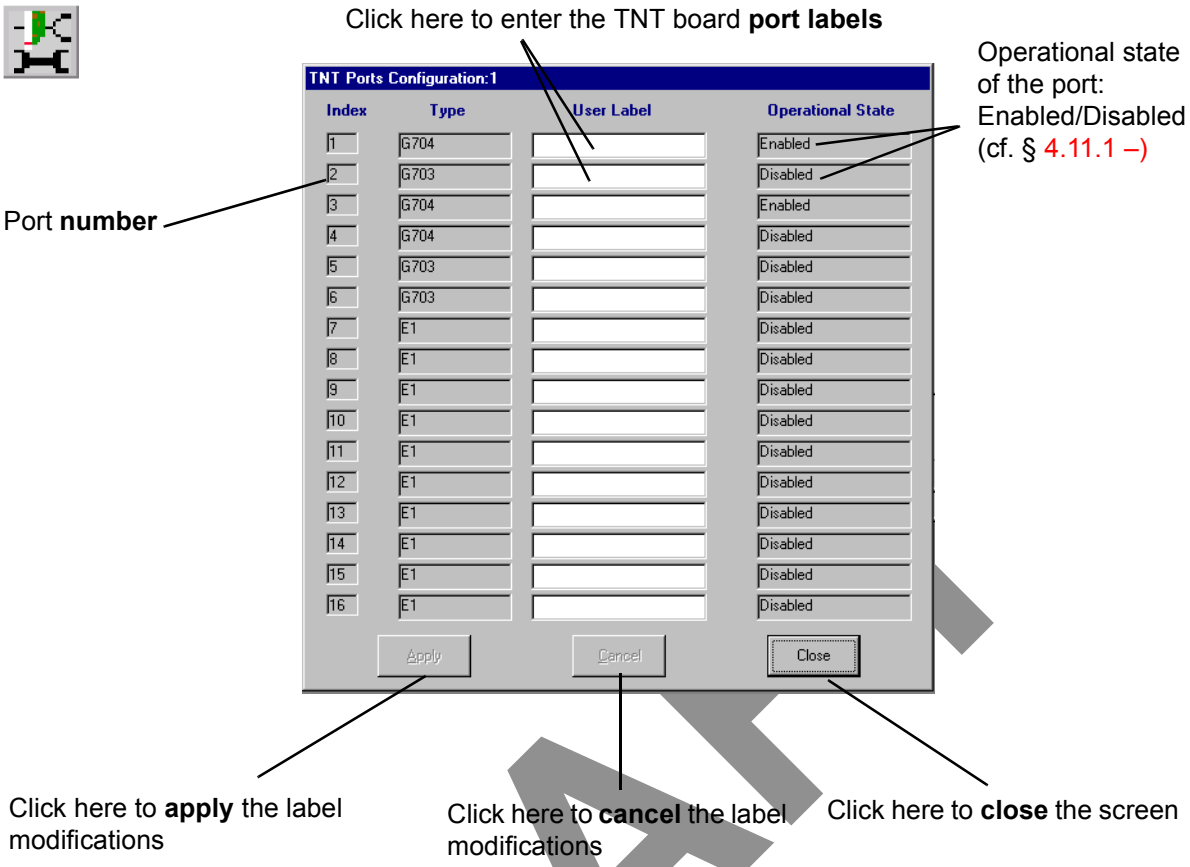

Board family ID No.
Board slot No.
Board type
Click on this tab to display the screen relating to the software part of the board
ANT board Part Number
Status change
ANT board Serial Number
ANT Details
Software
Hardware
Characteristics
ID
Slot
Type
1
1
34 Mbits
Part Number
ICS
Serial Number
3CC09743ABAA
02
-----CU003704620
States
Operational
Administrative
Enabled
Unlocked
Close
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).

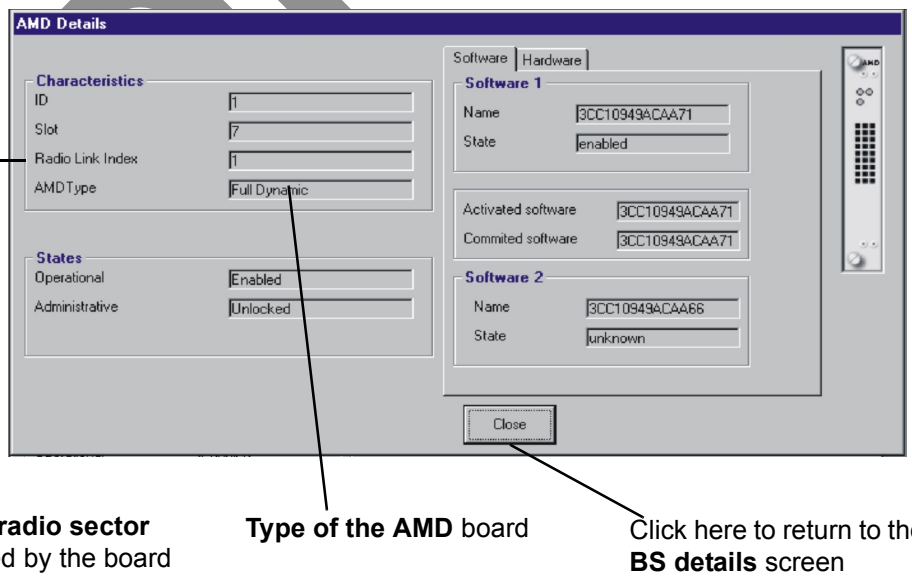


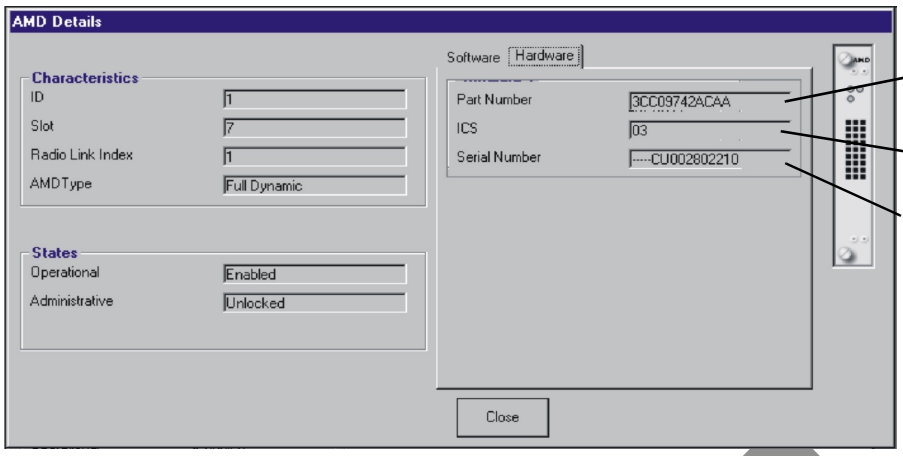
Note: *This screen can be modified only if the **ATM** type Input/Output is ticked off.*



4.5.3.3 – AMD board screen

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

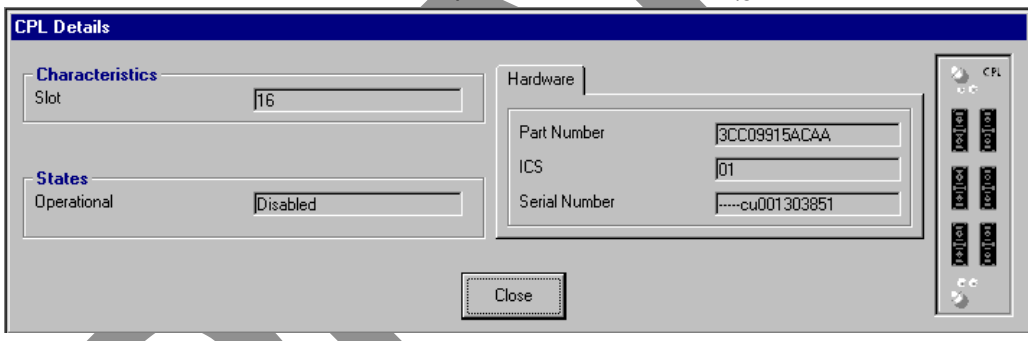




4.5.3.4 – CPL board screen

CPL (Coupler): network interface coupler board.

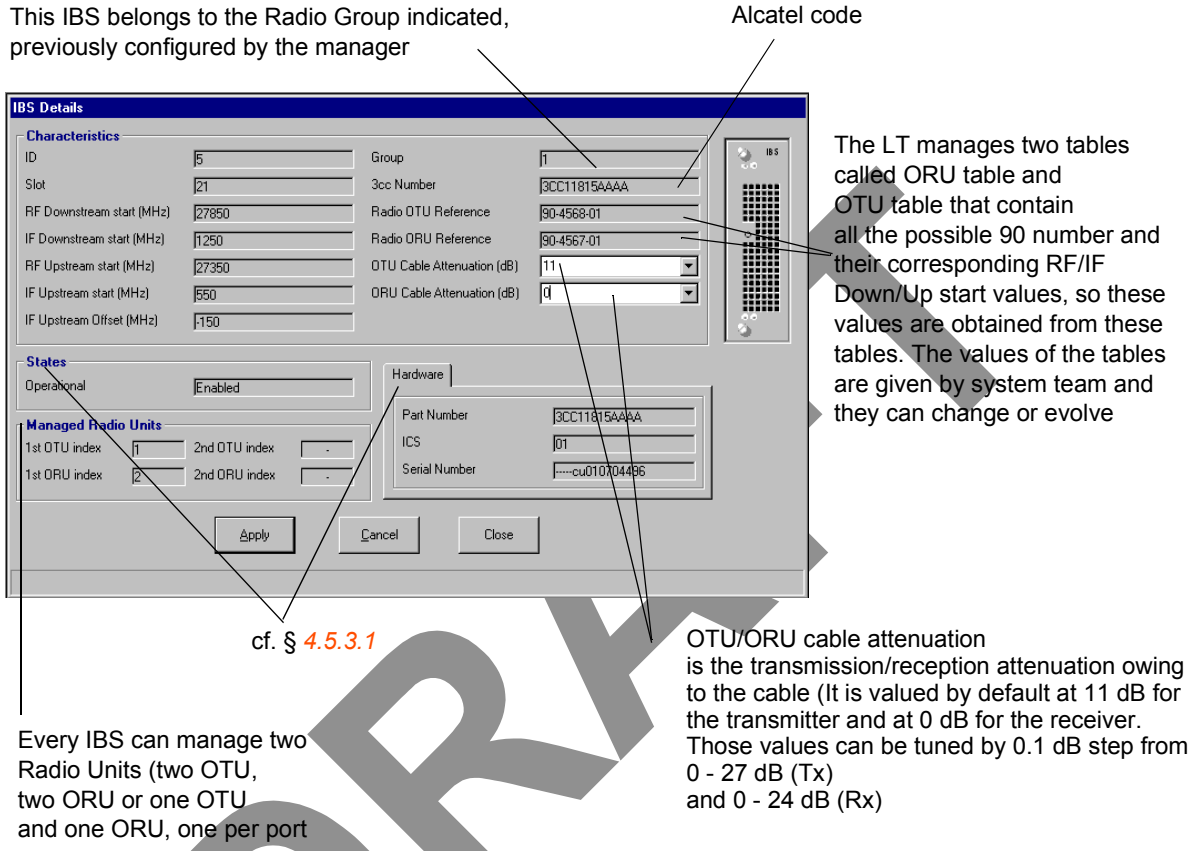
For the items on this screen, refer to the description of the ANT board (§ *4.5.3.1 – ANT board screen*).



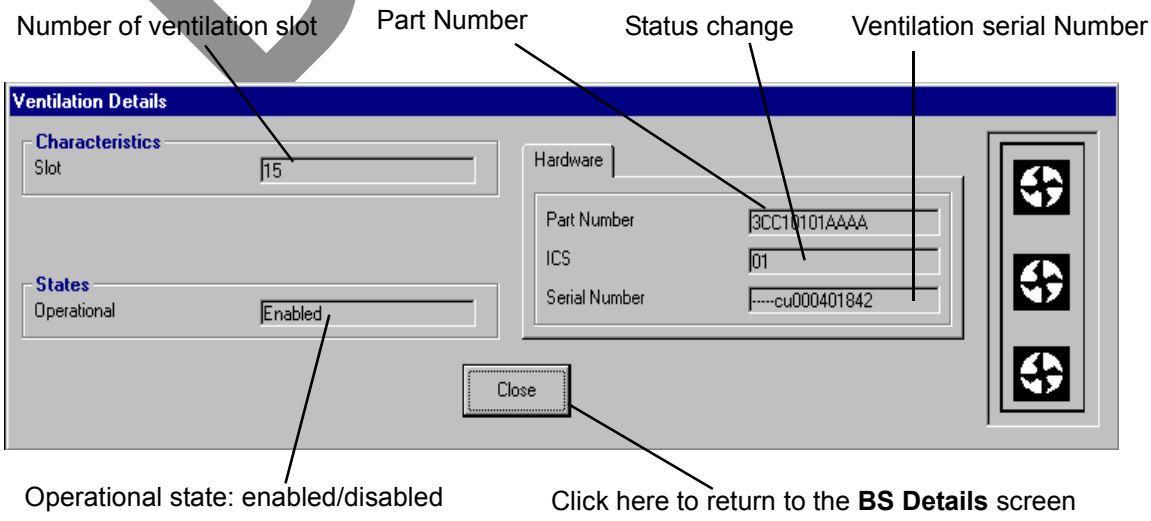
4.5.3.5 – IBS board screen

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*).



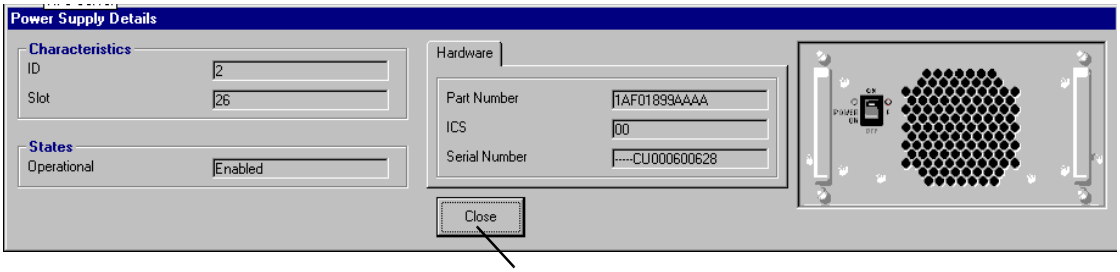
4.5.3.6 – Ventilation



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*)



Click here to return to the **BS Details** 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).

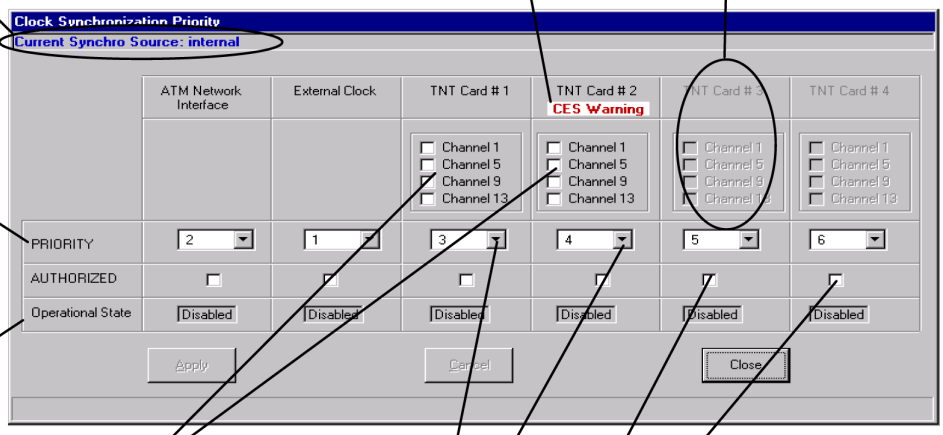
This involves defining the setup rules for the synchronization sources used.

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**.

The message indicates the **synchronization source currently** used (chosen automatically by the system from the source configurations shown below).

Warning linked to the circuit emulation service (see note below).

Grayed out – unavailable



Priority of the synchronization sources: see *Priority principle* below

Operational state of sources

1. On each of the boards, choose the **reserved channels** to act as **potential** synchronization sources.

2. Allocate to each sub–assembly an **order of priority number** (chosen from pull–down list).

3. Check to boxes to **enable/ disable** the synchronization sources.

– *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 § 4.13.3.**

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*.

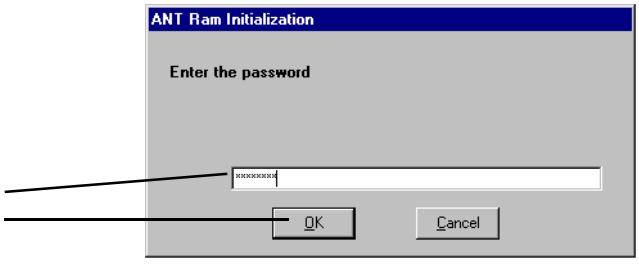
To synchronize the time of the agent, click on the button of the **BS Details** screen button bar (see § *4.5 – Base Station Supervision*) shown here.

4.5.6 – Memory initalization

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

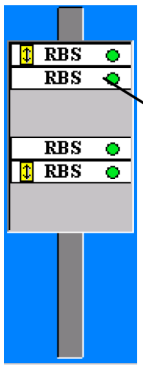
This function allows memory initialization by the SNMP agent located in ANT board.

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



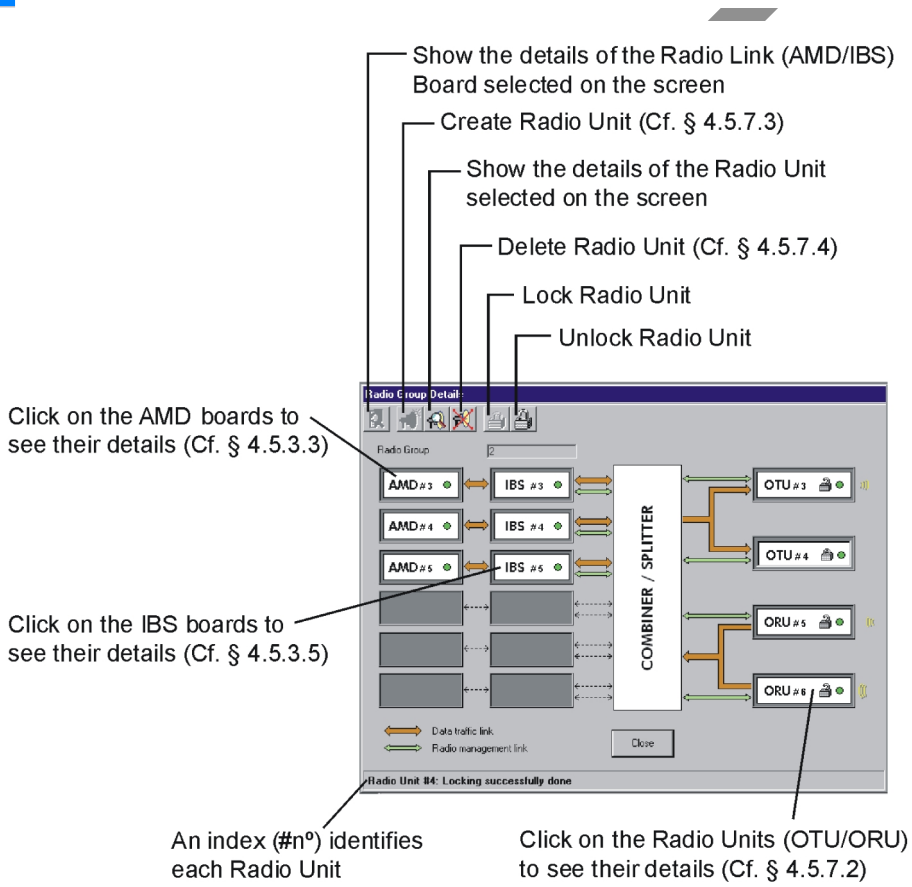
4.5.7 – X-Pol RBS

4.5.7.1 – Radio group screen



On the right of the BS supervision screen are all the X-Pol RBSs associated with th

Double–click on the **RBS** whose **details** you require, in order to display the following screen:



It is possible to have up to eight Radio Links and seven Radio Groups. A Radio Group is composed of a maximum of two OTU, two ORU and 6 AMD/IBS boards.

When a Radio Unit is active and unlocked, it is displayed through a yellow wave (going out for the OTU or going inside for the ORU)

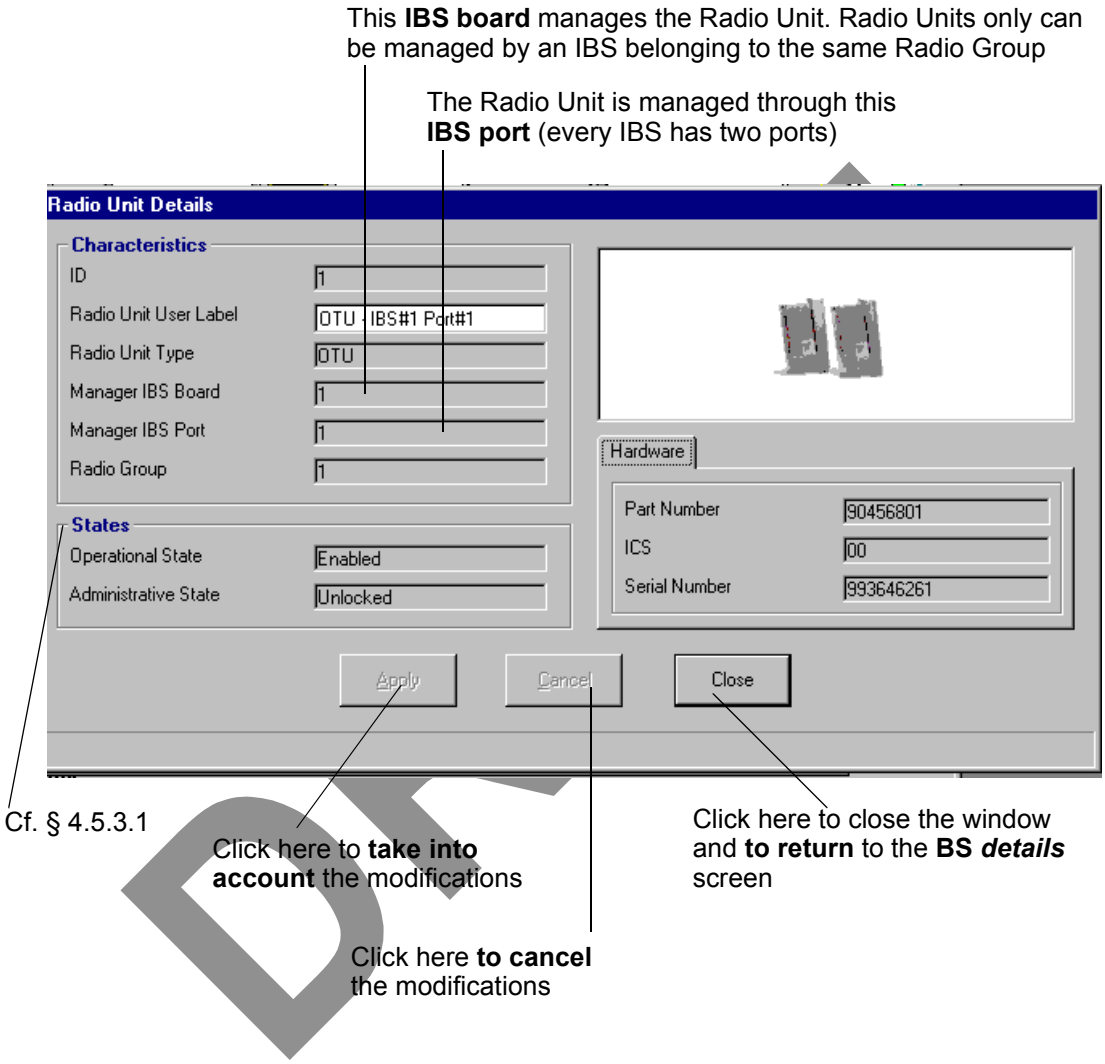
A green point means that there is not any alarm; red point means that the unit has some alarm.

Data traffic link shows the traffic flow through the radio link.

Radio management link shows the signalling or management messages traffic between the BS and its Radio Units.

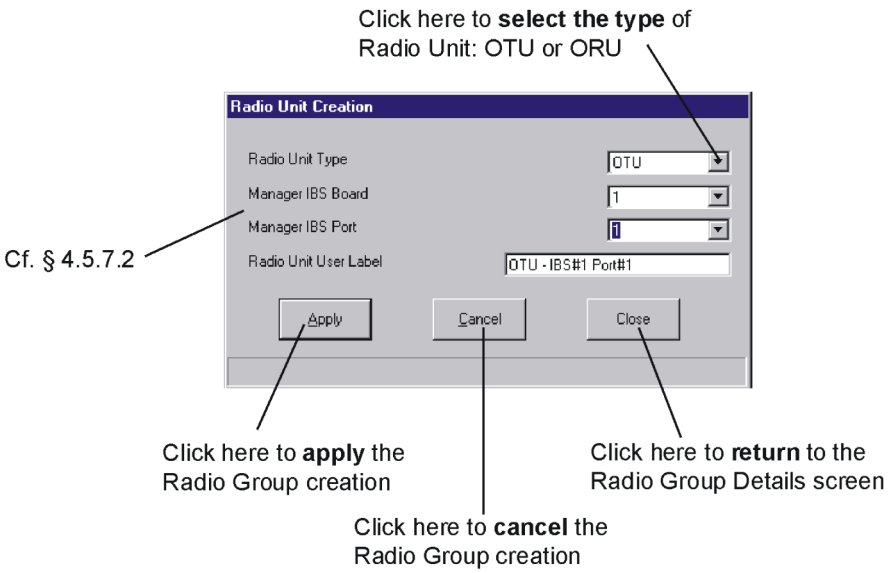
4.5.7.2 – Radio Unit screen

To see the details of a Radio Unit, select it, and click on the button shown here (Radio Group Details button bar). You can also obtain the details by double-clicking on the Radio Unit in the screen.



4.5.7.3 – Radio Unit Creation

To create a Radio Unit, click on the button shown here (Radio Group Details button bar).



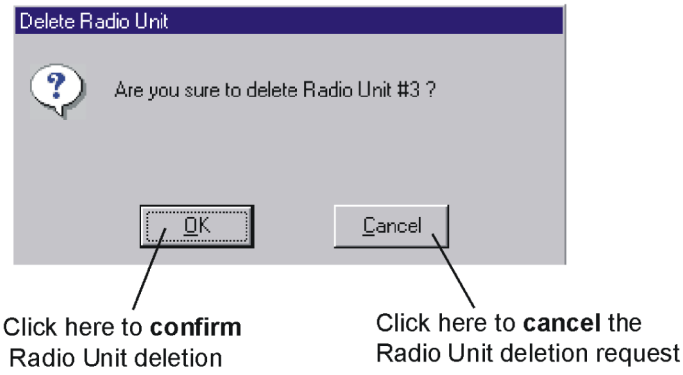
4.5.7.4 – Lock Radio Unit

Obligation to click the button for Lock Radio Unit.

4.5.7.5 – Delete Radio Unit

To delete a Radio Unit, click on the button shown here (Radio Group Details button bar).

The following window is displayed:



4.5.8 – Redundancy Radio capability

4.5.8.1 – Principle

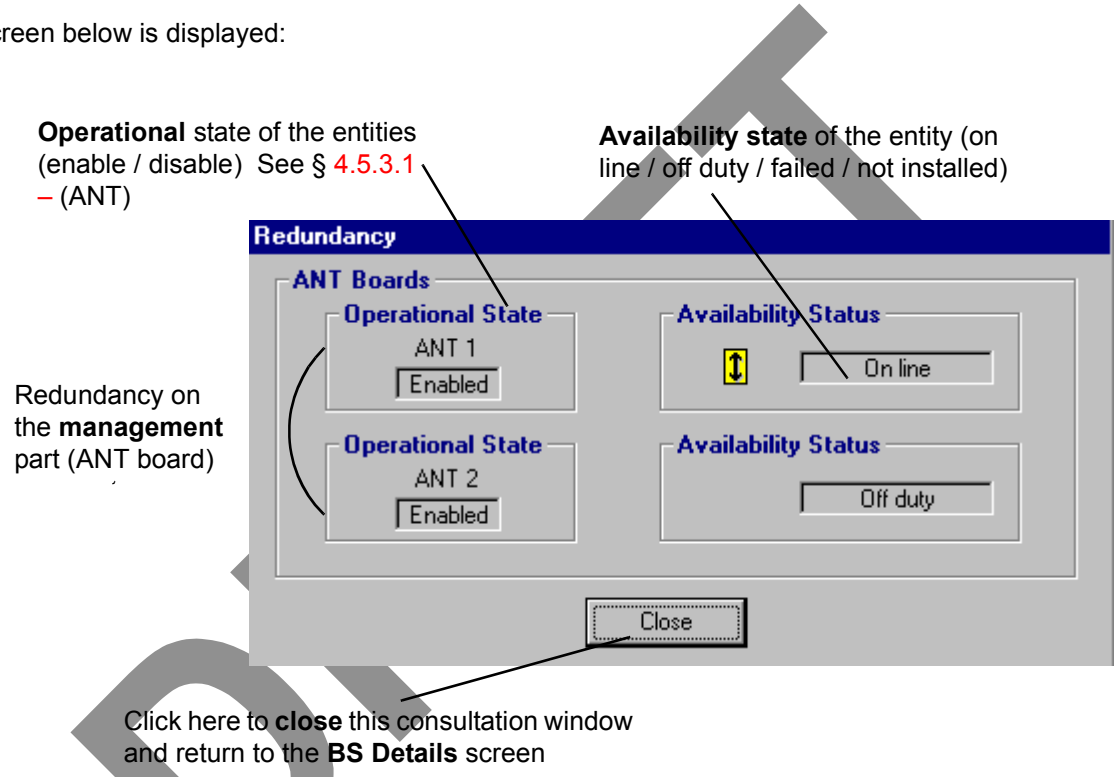
Redundancy of the A7390 system corresponds to a **1+1** configuration and works in the "**cold redundancy**" mode. That means for **one active** entity, there is **one stand-by** entity and when the active entity has failed, the **switch over** to the stand-by entity provokes a **temporary service cut**.

Redundancy applies to the management part (ANT board).

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).*

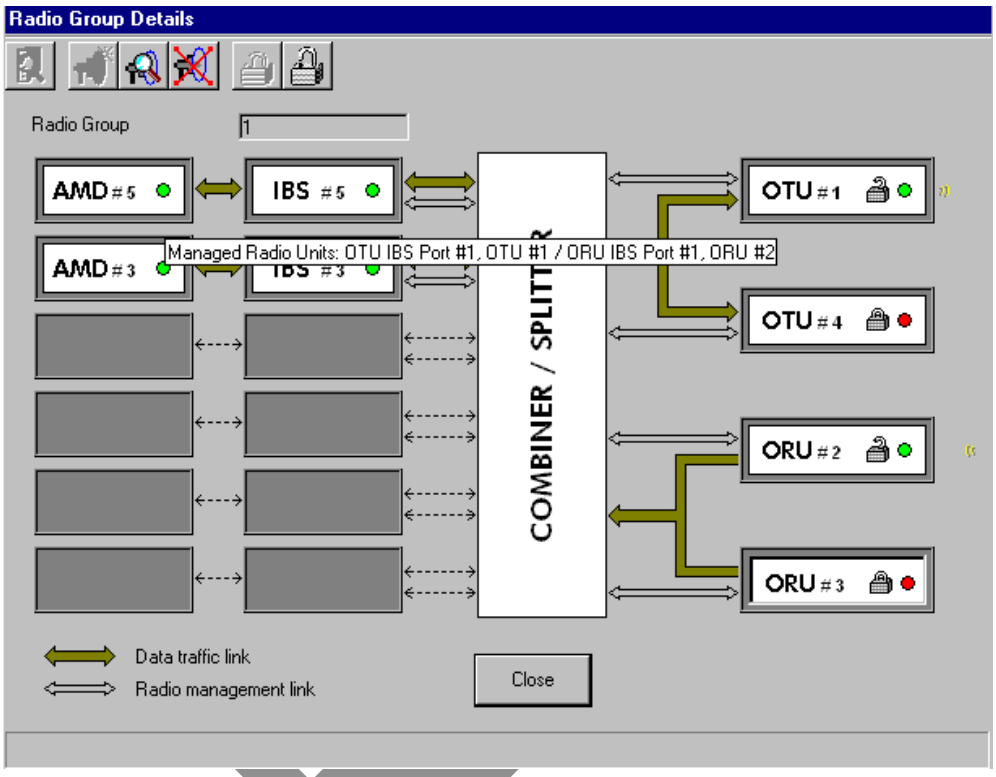
Note: *The disponibility state on line corresponds to an active entity.*

We could create a new Radio Unit with other carrier (see § *4.5.7.3 –* Screen Radio Unit Creation)

The management of the second pair must be manager by a porteur different from the first pair.

The second radio is supervisor with the other IBS.

We can verification with the mouse on the radio managment



It is necessary to position the mouse on the connection «Radio Manager Link» which we have in the screen.

4.6 – NT Supervision

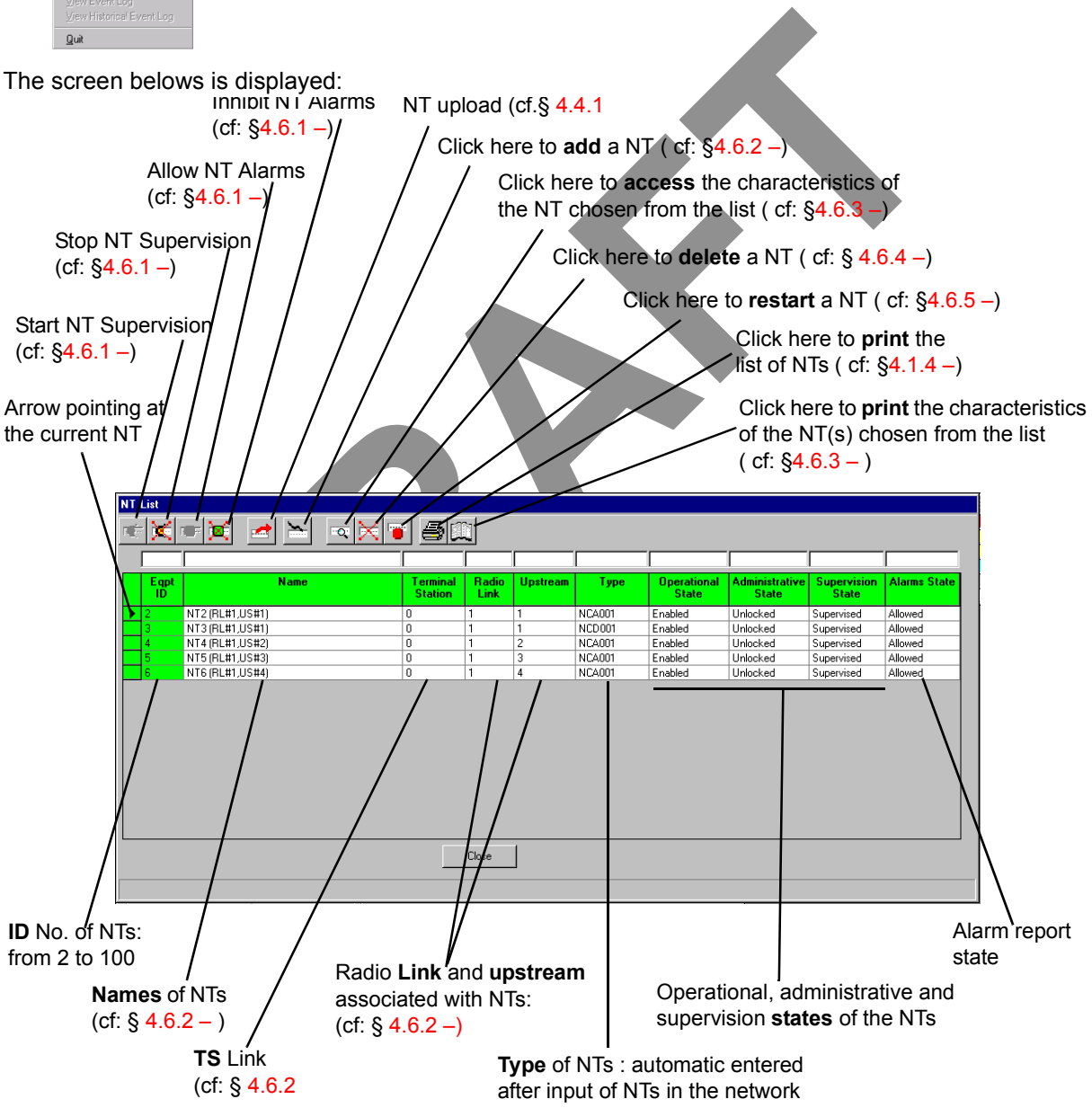
The system manages 100 NTs maximum per BS, with 31 NTs maximum per upstream for 28 MHz channelization and 15 NTs for 14 MHz. The NT Supervision automatically begins as soon as the NE is connected.
To access the list of declared NTs associated with the BS:

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 permanently 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 the icon to **start** the supervision of the NT.

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

Click on the 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.

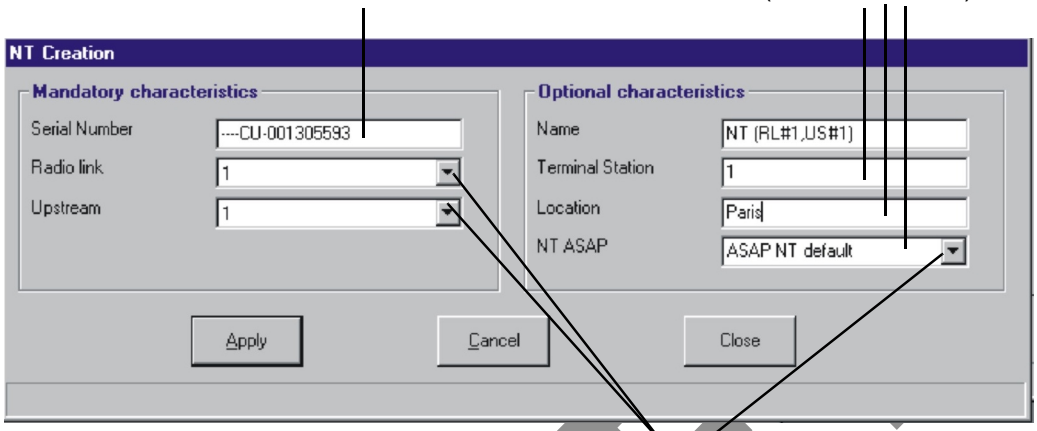
When the **NT alarms are allowed,** the "Allow NT Alarms" button is disabled.

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

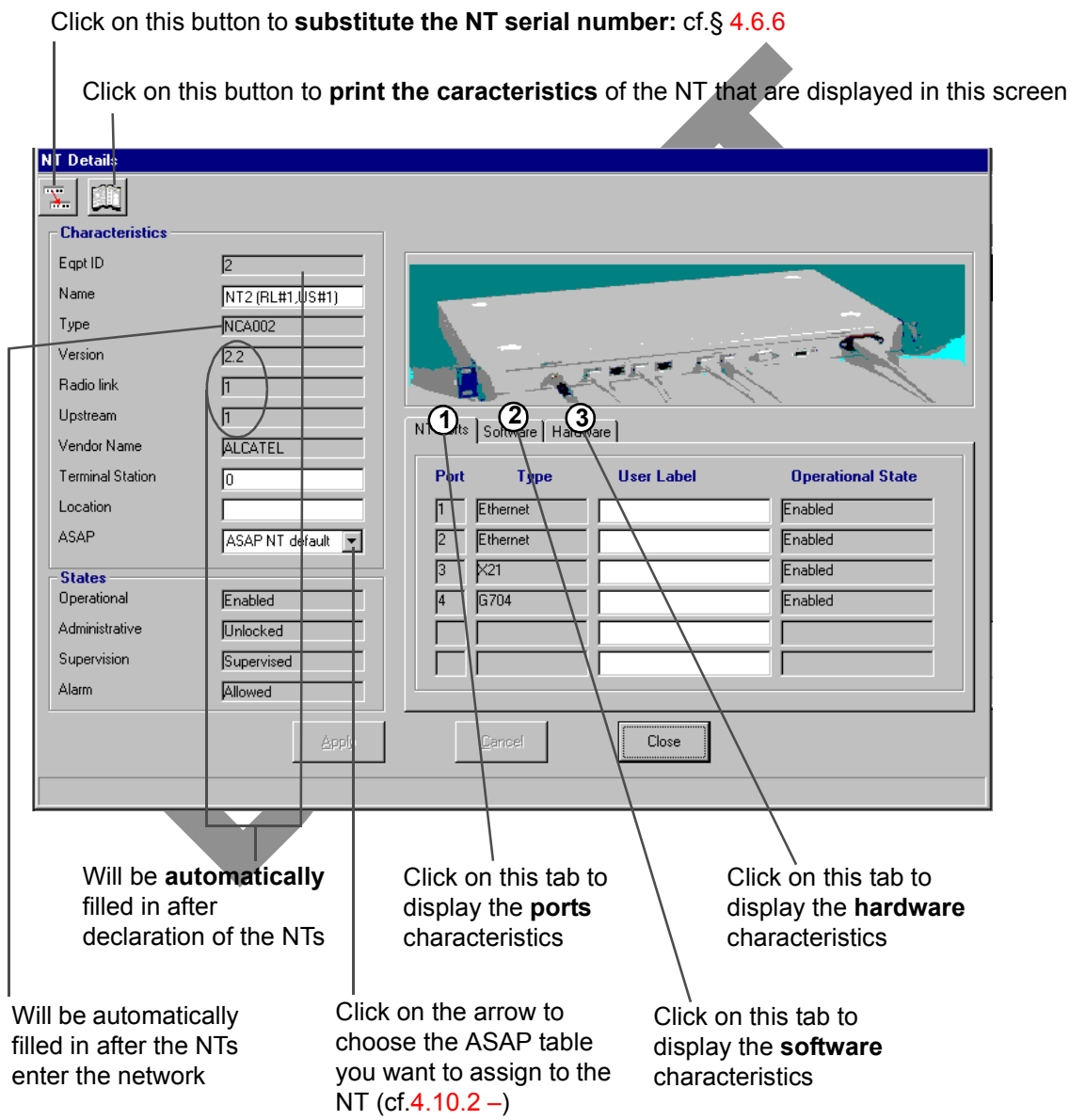
To access the characteristics of an NT:

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

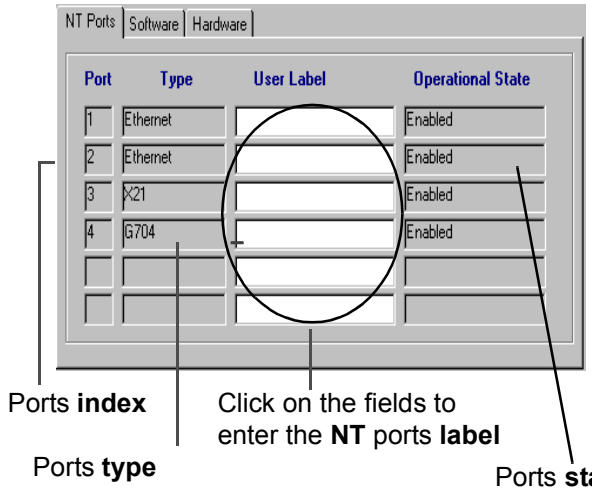
or else,

– **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:

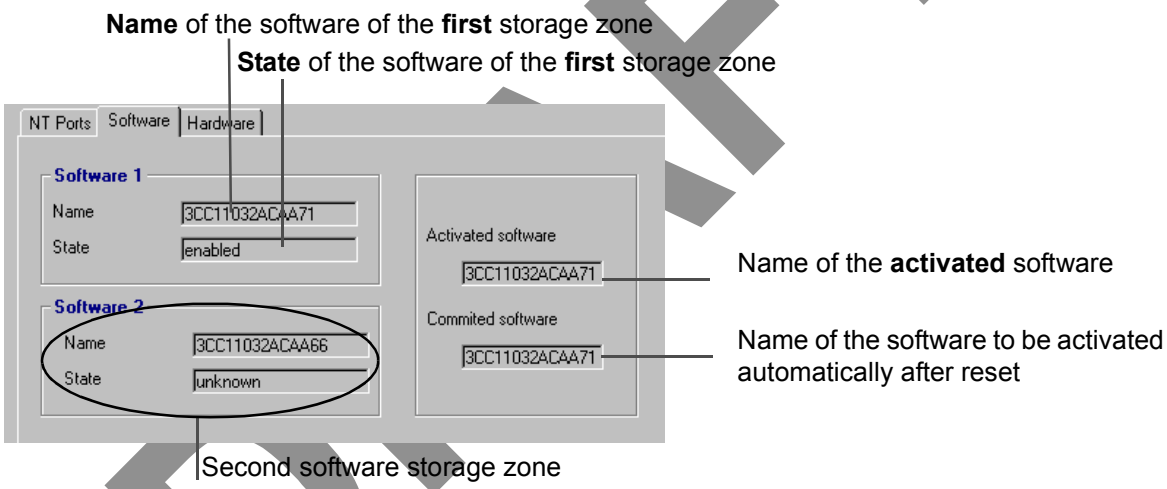


1. NT ports:



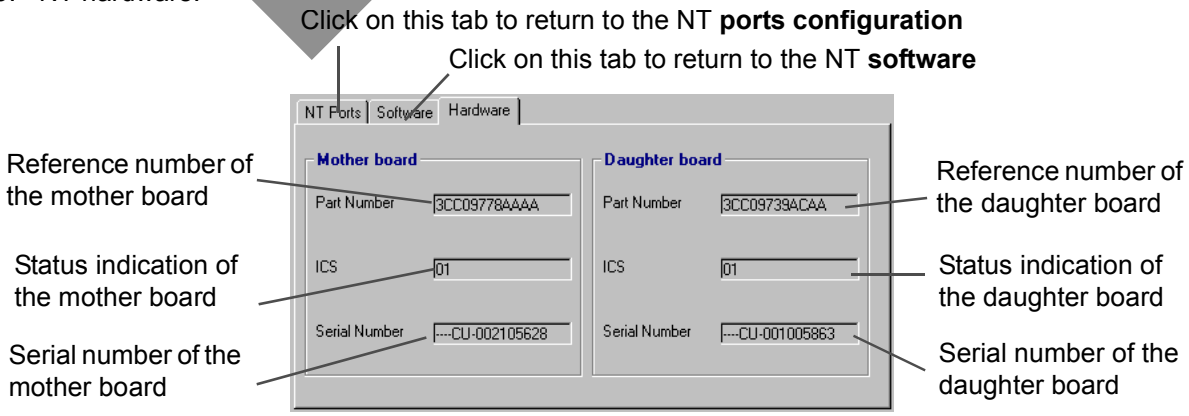
Port	2 E1/2T1	1 E1 and X21
3	G703-1	X21
4	G703-2	G703-1

2. NT software:



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

3. NT hardware:

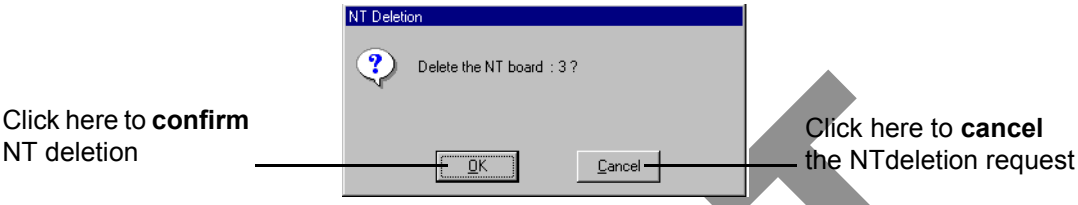


4.6.4 – NT deletion

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 :



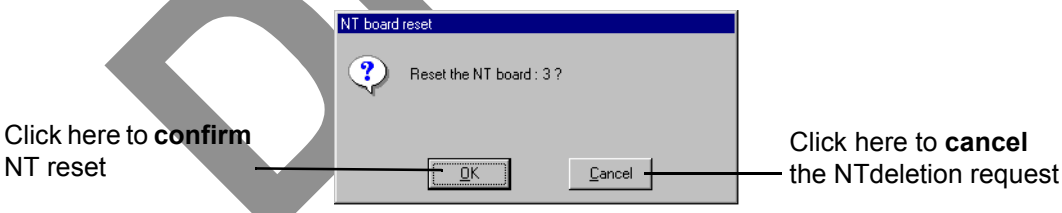
Note: *You have to delete all cross-connections before deleting the NT.*

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).

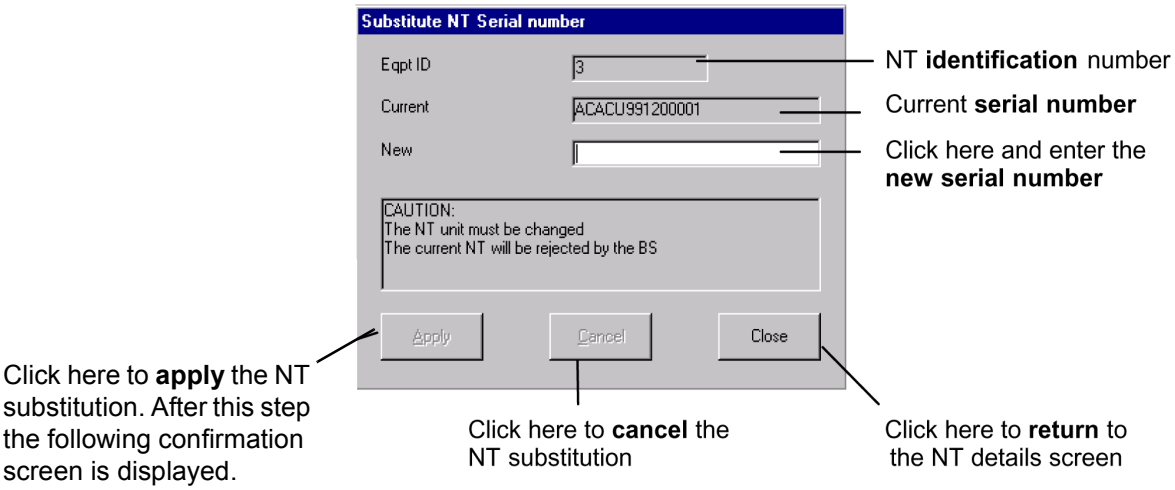
A confirmation screen is displayed:

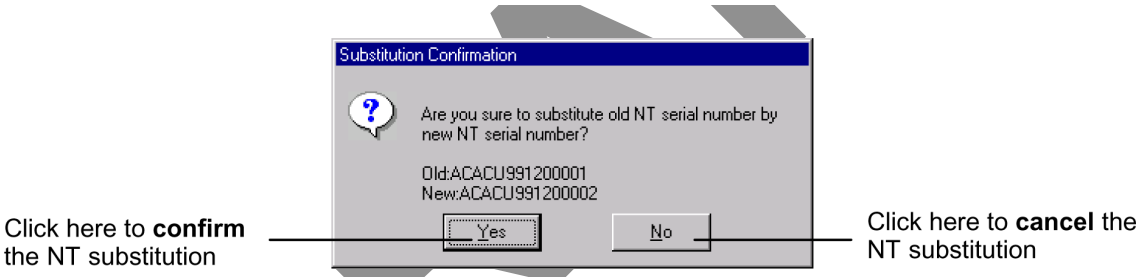


4.6.6 – NT substitution

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

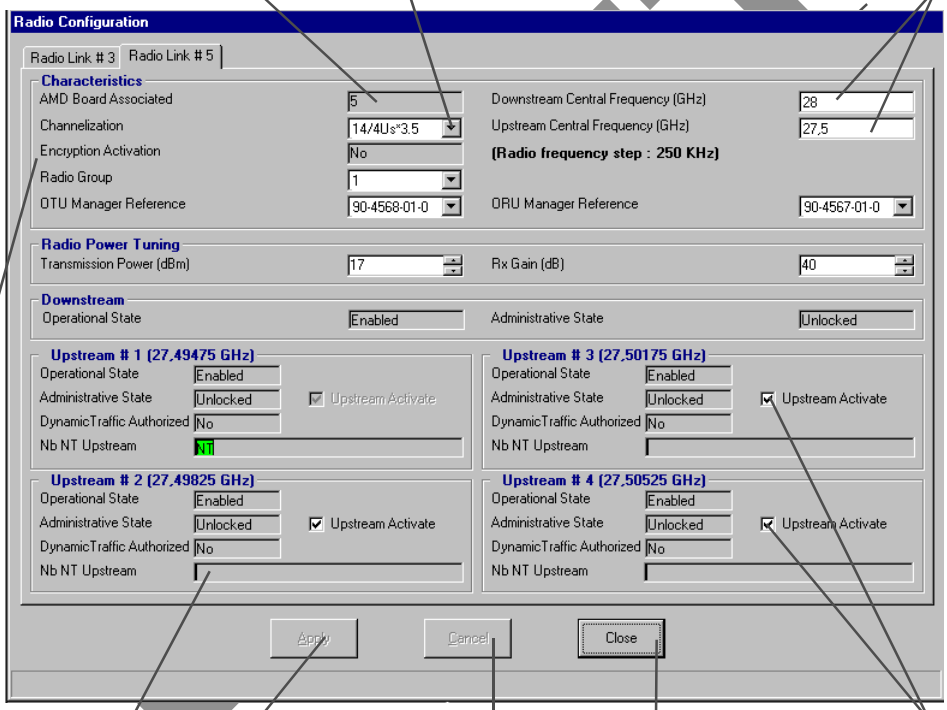
The ***Radio Configuration*** screen is displayed and presents the radio ***characteristics***.

The screen displays as many "Radio link # ..." tabs as there are radio links in the system (8 maximum).

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

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

Click here to **apply** the modifications

Click here to **cancel** the modifications

Click here to **activate** the **upstream**.

Progression bar representing the **number of NTs** connected to the upstream channel N° 3

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

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

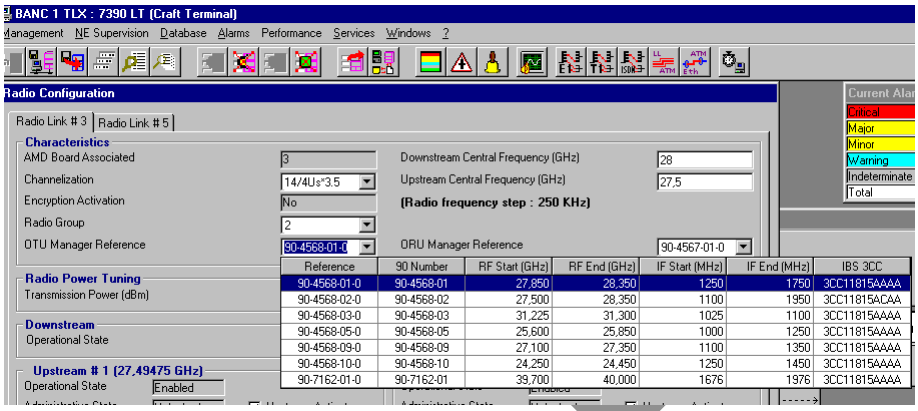
Note 2: *Encryption: the data of service are systematically encoded, the management data are not encoded.*

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.*

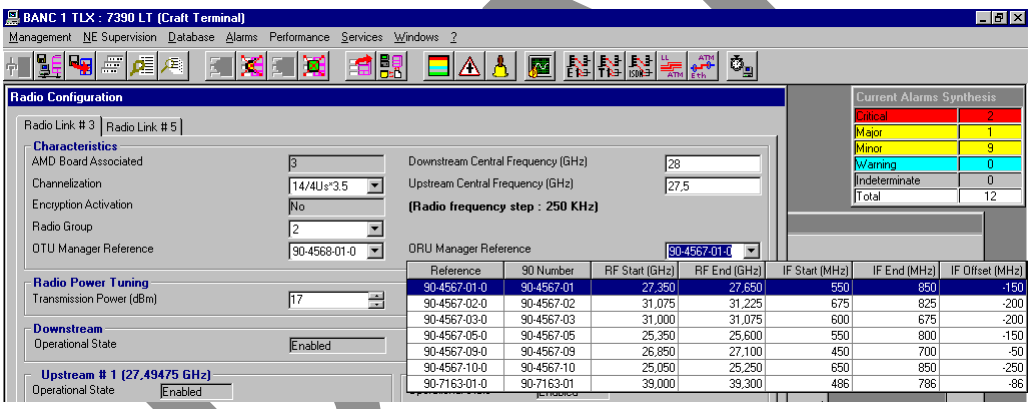
Note 4: *As long as there is data traffic on the upstream, you cannot deactivate it.*

	**IF YOU WANT TO CREATE AN IP SERVICE ON AN NT, THE UPSTREAM USED BY THIS NT MUST BE CONFIGURED. CF. § 1..**

1. Define the channelization ckick on the button (14/4 Us*3.5 or 28/4 Us*7 MHz).
2. Define the downstream central frequency.
3. Define the upstream central frequency.
4. Define the frequency of X-Pol Tx (OTU).



5. Define the frequency of X-Pol Rx (ORU).

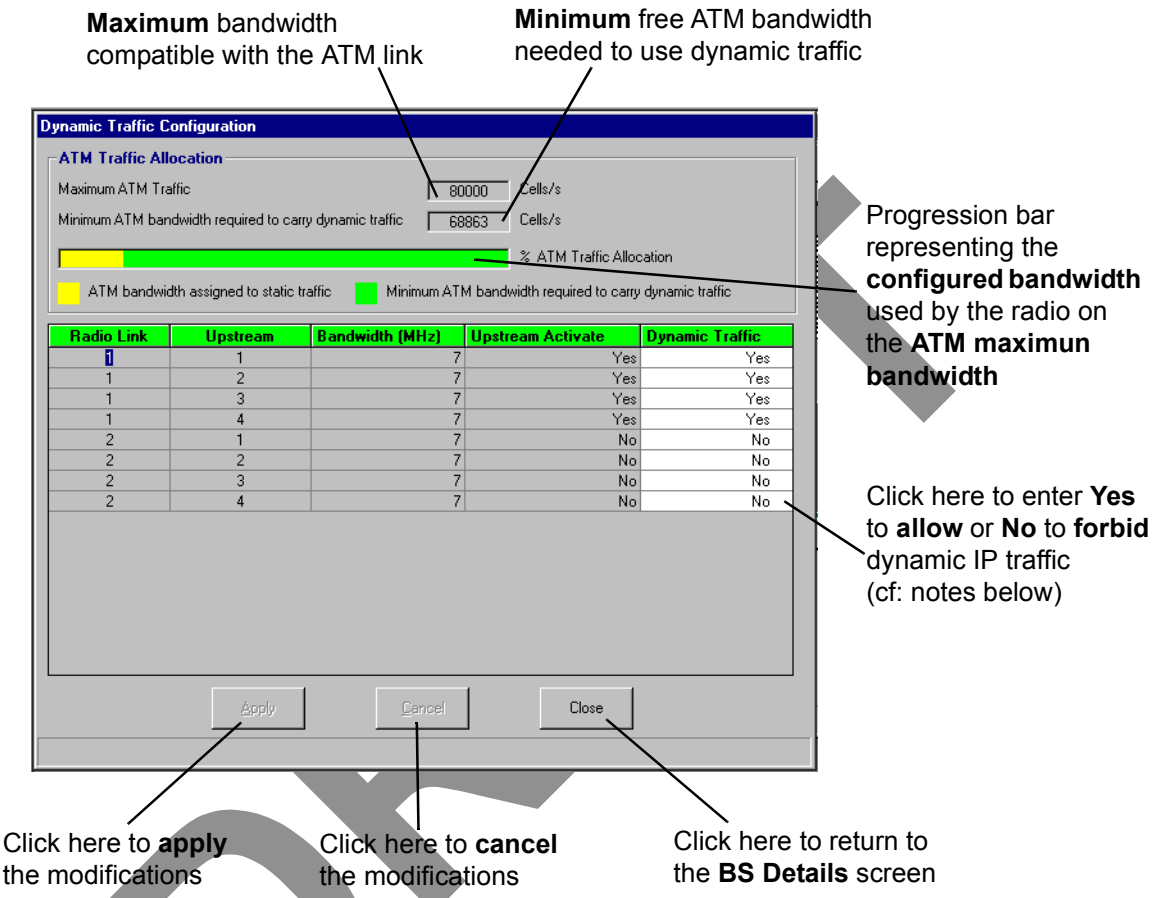


6. Define the Transmission Power dBm (+17 dBm) with the step of 1 dB.
7. Define the Rx gain dB (-40 dB) with the step of 1 dB.
8. Click for upstream validate.
9. Click on «apply» to take into account the configuration.

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"* u *"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).

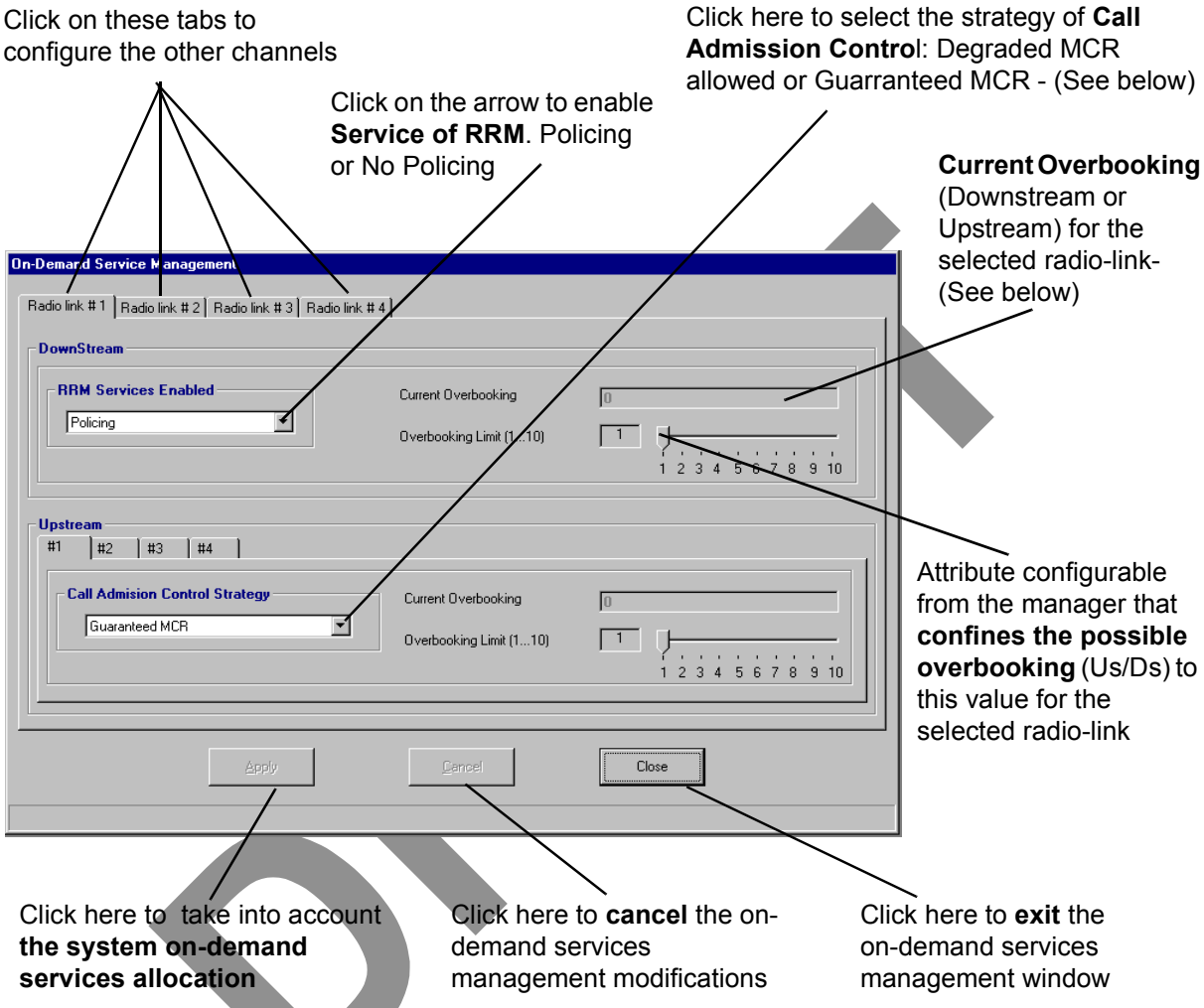
	**STATIC SERVICES CONFIGURATION MAY CAUSE DYNAMIC IP SERVICES TO BE SHUT DOWN**

– 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.

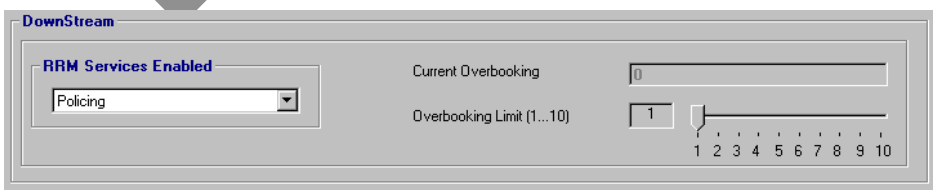
Note: *Circuit emulation always requires a leased line. Radio resources are implicitly dedicated to circuit emulation via the leased line.*

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**

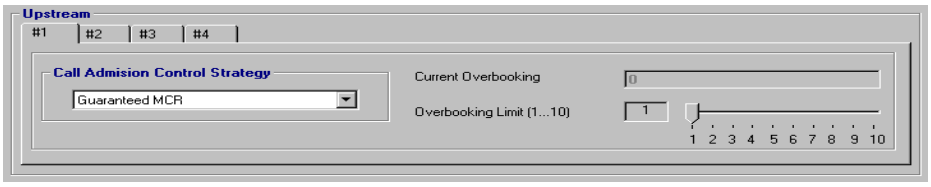


Policing: is a buffer management function that implements intelligent discard mechanisms to prevent buffer overflows.

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

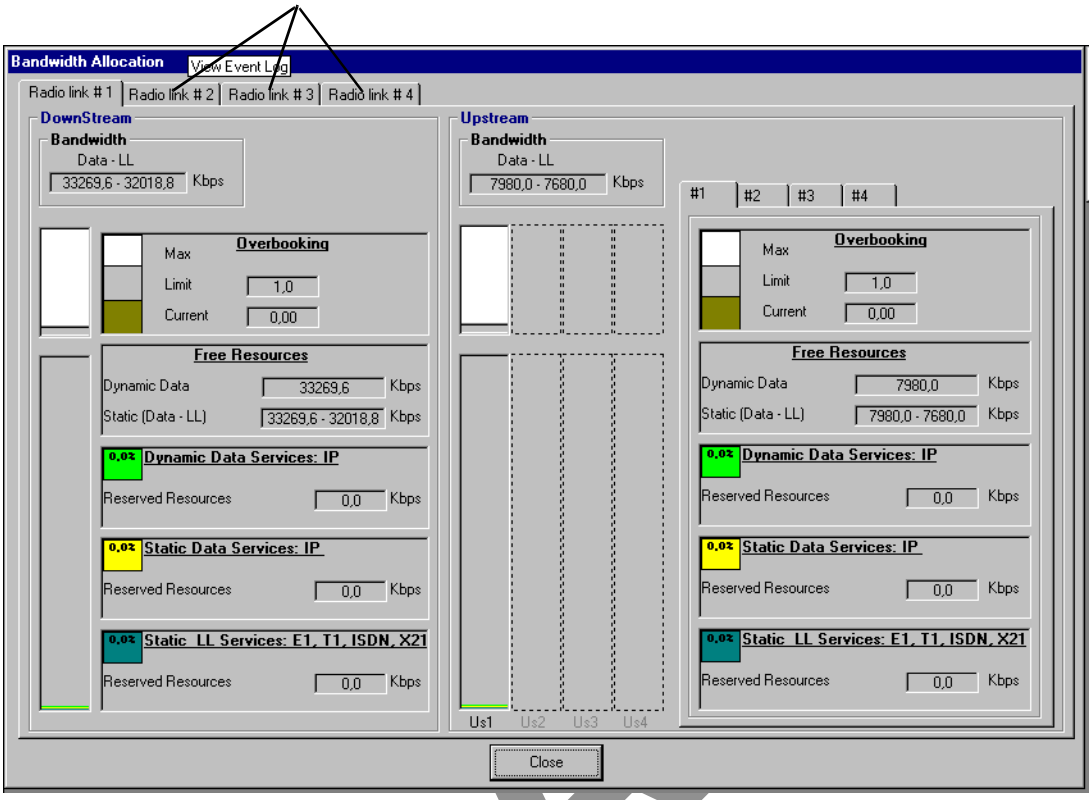
The 7390LT offers the capacity to display radio resources reserved for traffic and therefore potentially available to create customer services.

	**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 (***SB 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**.