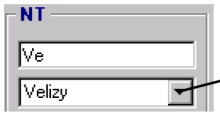
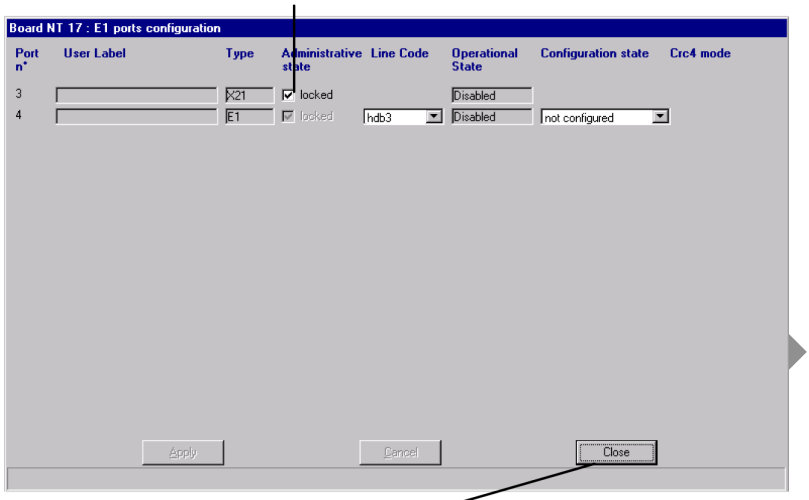
In case of transmission < 32 TS, the TNT port has to be structured.

4.12.2.5– Port selection on the NT side



On the E1 cross-connection screen (see § 4.12.1.3 – Presentation of the E1 link management screen),
Click on the arrow to scroll down the NT list declared, then **select** the **NT** concerned by the cross-connect.

Click here to lock/unlock the port (only possible modification)



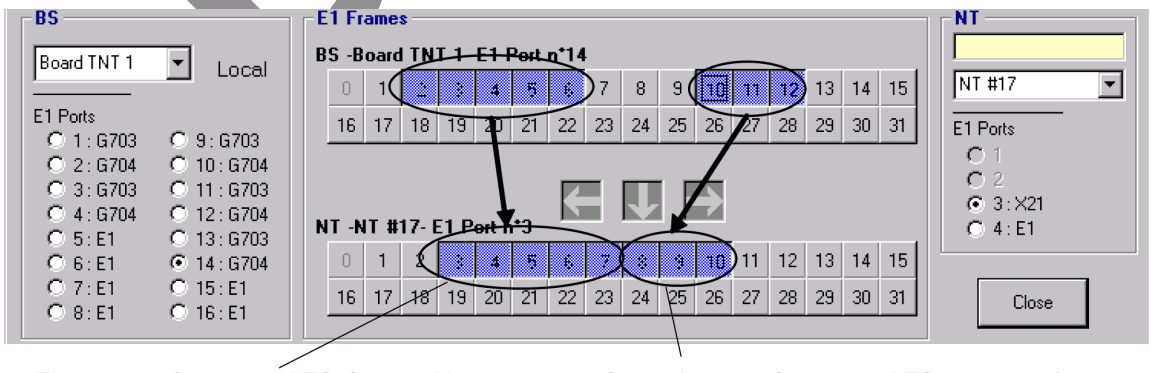
Click here to return to the leased lines management window.

There is no particular configuration to define the X21 ports.

4.12.2.6– Cross-connect

In the case of an X21 "cross-connection", the cross connect is performed between an NT X21 port and a TNT board E1 port.

⚠	**IN THE CASE OF STRUCTURED CROSS CONNECT, ALL THE TIME SLOTS MUST BE CONSECUTIVE ON THE NT SIDE**



First group of connected TS: free position

Second group of connected TS: **consecutive** position to that of the previous group.

As the TNT/NT ports cross connection principle is the same as that of the E1 leased lines, refer to § *4.12.1.6 – Cross-connect*.

4.12.2.7– Grooming

As the possibility of grooming is of the same type as for E1 leased lines, refer to § *4.12.1.7 – Grooming*.

4.12.3– Leased lines T1

A **T1** cross-connection is a **link** between a **TNT** board of the BS linked to the TDM network (or ATM if the CES is used: see § *4.12.6 – Circuit emulation (CES)*) and the **NT** terminal (E1 port) linked to the user peripheral devices.

The maximum flow offered on a **T1** link is **1.544 Mbit/s**.

4.12.3.1– Creation procedure of a T1 link

The implementation **stages** for a **T1** cross-connection are as follows:

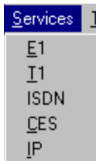
1. Selection and configuration of the ports for cross-connect: BS side (TNT board) (see § *4.12.3.4 – Ports configuration of TNT board (BS)*);
2. Selection and configuration of the ports for cross-connect: NT side (see § *4.12.3.5 – Configuration of NT ports*);
3. Cross-connect between time-slots of selected ports: (see § *4.12.3.6 – Cross-connect*);
4. Creation of a T1 link: (see § *4.12.5 – Principles of management common to all types of leased lines*).

4.12.3.2– Access to the T1 link management

To access T1 link management:

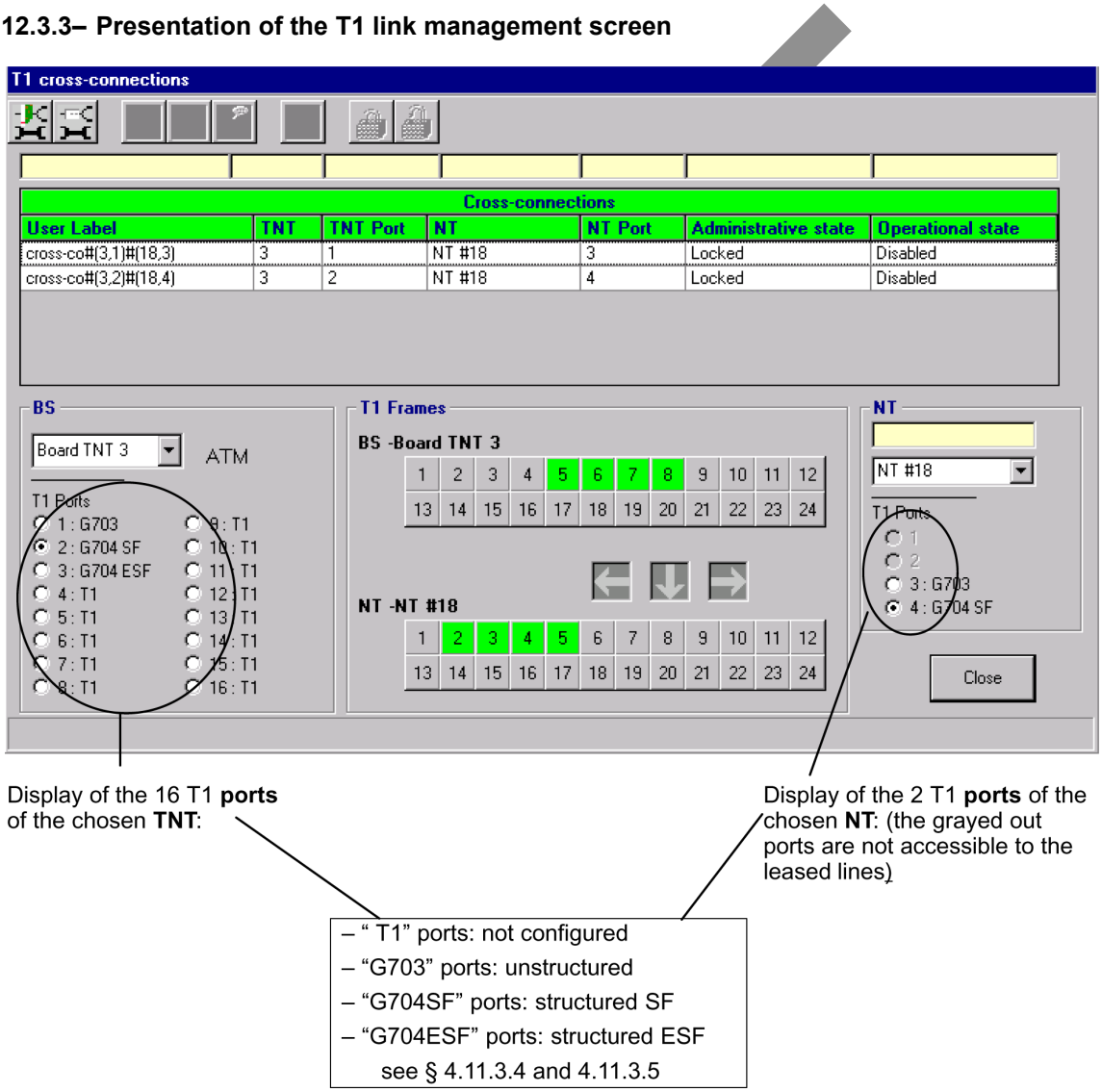
– click on the button shown here (in the main screen button bar),

or else,



– open the ***Service*** pull-down menu and choose the item: ***T1***

4.12.3.3– Presentation of the T1 link management screen



Display of the 16 T1 **ports** of the chosen **TNT**:

Display of the 2 T1 **ports** of the chosen **NT**: (the grayed out ports are not accessible to the leased lines)

– " T1" ports: not configured
– "G703" ports: unstructured
– "G704SF" ports: structured SF
– "G704ESF" ports: structured ESF
see § 4.11.3.4 and 4.11.3.5

As the other sections are the same as that of the E1 leased lines screen, refer to § *4.12.1.3 – Presentation of the E1 link management screen*.

***Nota**: In unstructured mode, 24 + 1 TS are used on the radio.*
In the other cases, the same number of TS is used for the TS link as well as for the radio.

4.12.3.4– Ports configuration of TNT board (BS)

On the E1 cross-connection screen (see § 4.12.1.3 – Presentation of the E1 link management screen), **select** first of all, the **TNT board** concerned by the cross-connect by scrolling down the list.

Note: *The TNT board must comprise T1 type ports (see § 4.5.3.2 – TNT board screen).*

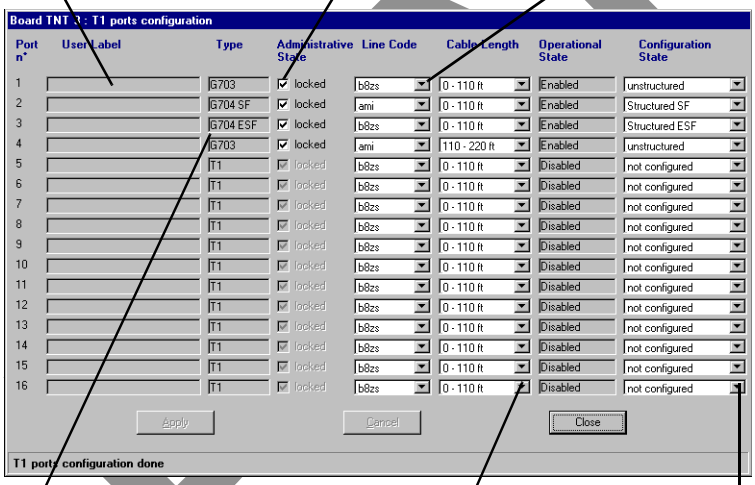
Next, access the **ports configuration** of the TNT board selected by clicking on the first button, shown here (on the toolbar of the **T1 cross-connections** screen).

The screen listing the T1 ports of the TNT is displayed:

The port labels are to be entered in the **TNT Ports Configuration** screen: (cf: § 4.5.3.2 –)

Check box to **lock / unlock** the port's administrative state. By default, the port is locked.

Scroll down the list **to choose** the **line code** type: ami or b8zs



Port type: G703, G704SF, G704ESF and initially T1

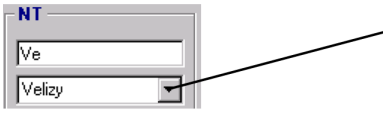
Scroll down the list **to configure** the **port**: structured SF structured ESF or unstructured (initially: not configured))

Scroll down the list **to select** the interval covering **the length of the cable connected** to this port: 0 to 110 ft /110 to 220 ft / 220 to 440 ft / 440 to 660 ft (1 ft = 1 foot = 0.3048 m **)**

Note: *The modification of the port configuration is possible if the port state is locked.*

Note: *Unlocking a port state is only possible if you have configured it.*

4.12.3.5– Configuration of NT ports



On the E1 cross-connection screen (see § *4.12.1.3 – Presentation of the E1 link management screen*),
Click on the arrow to scroll down the NT list declared, then **select** the **NT** concerned by the cross-connect.

Next, access the **ports configuration** of the chosen NT by clicking on the second button, shown here (on the button bar of the **T1 Leased Lines** screen).

As the NT port configuration principle is the same as that for E1 leased lines, refer to § *4.12.1.5 – Configuration of NT ports*.

4.12.3.6– Cross-connect

	T1 type (TNT) ports cannot be cross connected with E1 or X21 type (NT) ports. To make a **T1** "cross-connection", only T1 type **ports** with the **same configuration** can be **cross connected:** G703-G703 (unstructured cross connect), G704SF-G704SF (structured cross connect), G704ESF-G704ESF (structured cross connect).

As the TNT/NT ports cross connection principle is the same as that for E1 leased lines, refer to § *4.12.1.6 – Cross-connect*.

Note: *In the case of cross connection G703 we have 25 TSs transmitted on the radio (24 used and 1TS for the frame management from where 25x64 = 1.6 Mbps).*

4.12.3.7– Grooming

As the possibility of grooming is the same as for the E1 leased lines, refer to § *4.12.1.7 – Grooming*.

4.12.4– Leased lines ISDN

An **ISDN** cross-connection is a **link** between a **TNT** board of the BS linked to the TDM network (or ATM if the CES is used: see § *4.12.6 – Circuit emulation (CES)*) and the **NT** terminal (ISDN port) linked to the user peripheral devices.

The maximum **flow** offered on an ISDN link is 128 kbps.

4.12.4.1– Access to the ISDN link management

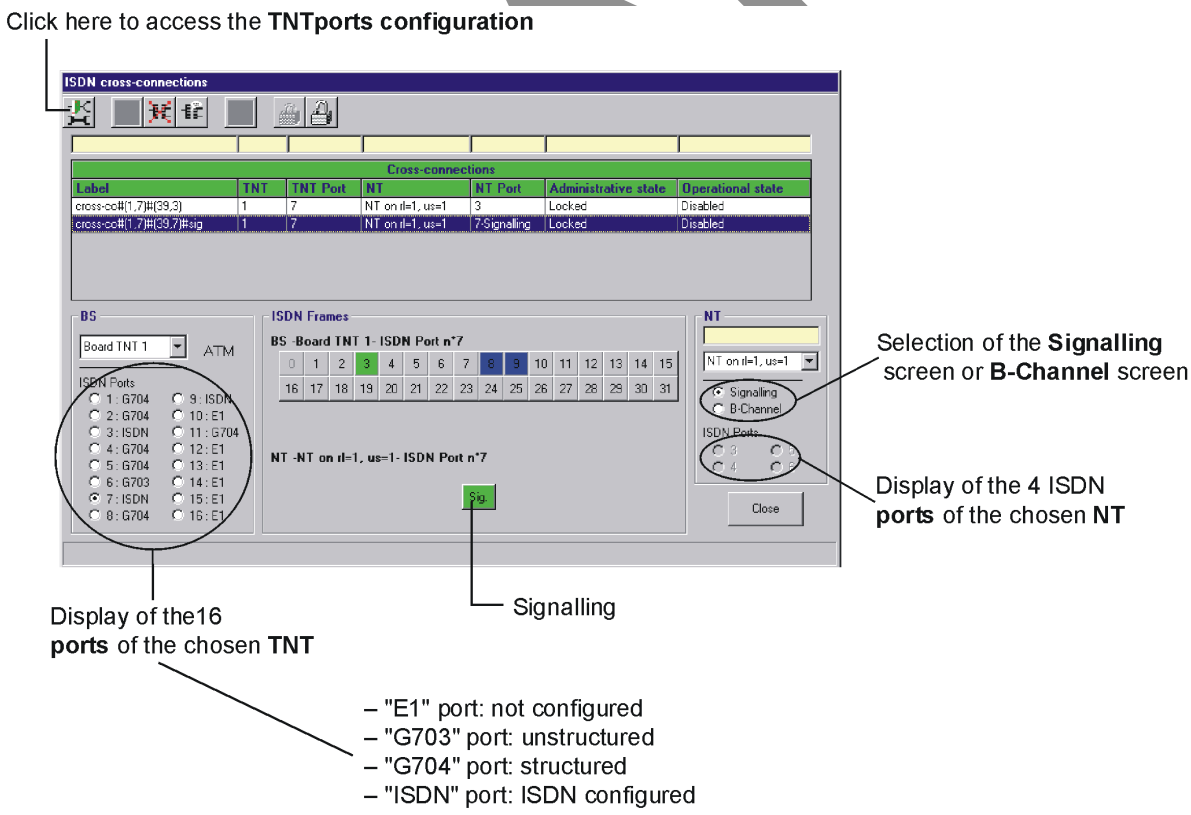
To access ISDN line management:

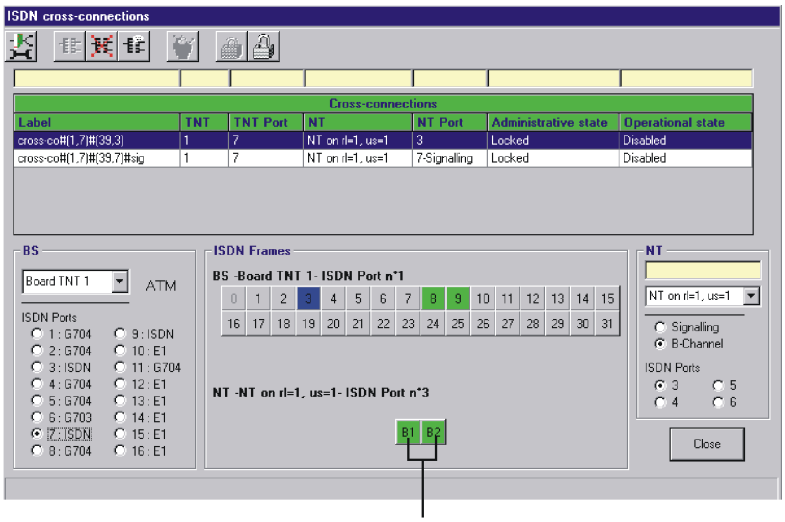
– click on the button shown here (in the main screen button bar),

or else,

– open the ***Services*** pull-down menu and choose the item: ***ISDN***.

4.12.4.2– Presentation of the ISDN link management screen





B-Channels

As the other sections are the same as that of the **ISDN Leased Lines** screen, refer to §*4.12.1.3 – Presentation of the E1 link management screen 4.12.1.3 – Presentation of the E1 link management screen*.

Nota: *There is no particular confirmation when creating an ISDN link for a ISDN port.*

4.12.4.3– Ports configuration of TNT board (BS)

Select first of all the **TNT board** concerned by the cross-connect by scrolling down the list

Nota : *The TNT board must comprise ISDN type ports (see § 4.5.3.2 – TNT board screen).*

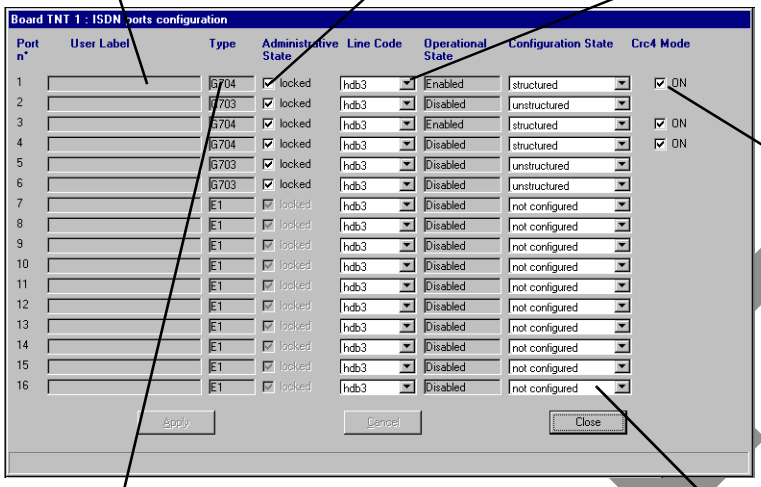
Next, access the **ports configuration** of the TNT board selected by clicking on the first button, shown here (on the toolbar of the ISDN cross-connections screen).

The screen listing the ISDN ports of the TNT is displayed:

The port labels are to be entered in the **TNT Ports Configuration** screen: (cf:§ 4.5.3.2 –)

Check box to **lock / unlock** the port's administrative state. By default, the port is locked.

Scroll down the list **to choose** the **line code** type: hdb3



Appears if the configuration state is structured: to be checked if the corresponding hardware uses CR4

Port type: G703, G704, ISDN and initially E1

Scroll down the list **to configure** the **port**: unstructured, structured, structured ISDN (initially: not configured))

***Nota**: The modification of the port configuration is possible if the port state is locked.*

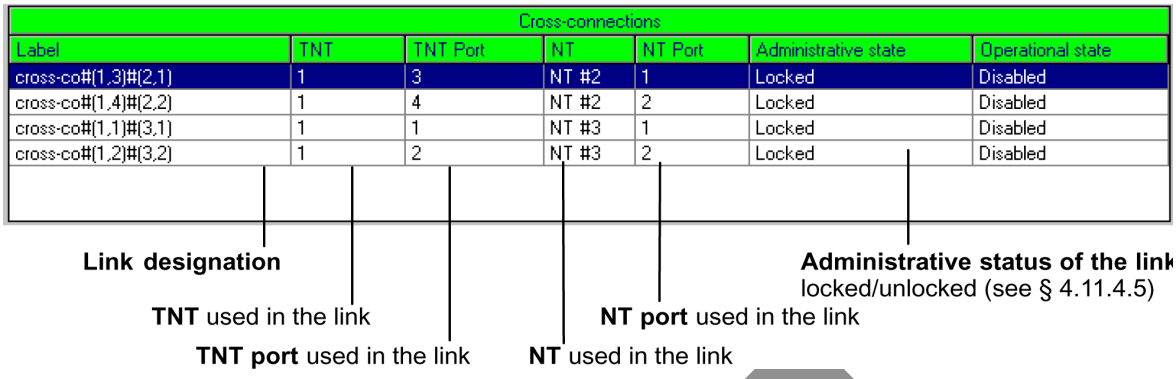
4.12.4.4– Grooming

The possibility of grooming is the same as for the E1 leased lines, refer to § *4.12.1.7 – Grooming*.4.12.1.7 –

4.12.5– Principles of management common to all types of leased lines

4.12.5.1– List of cross-connections

The ***Leased Lines*** screen lists existing links by displaying their **characteristics**:



4.12.5.2– Cancelling a current configuration of cross-connection

To **cancel** a configuration of cross-connection:

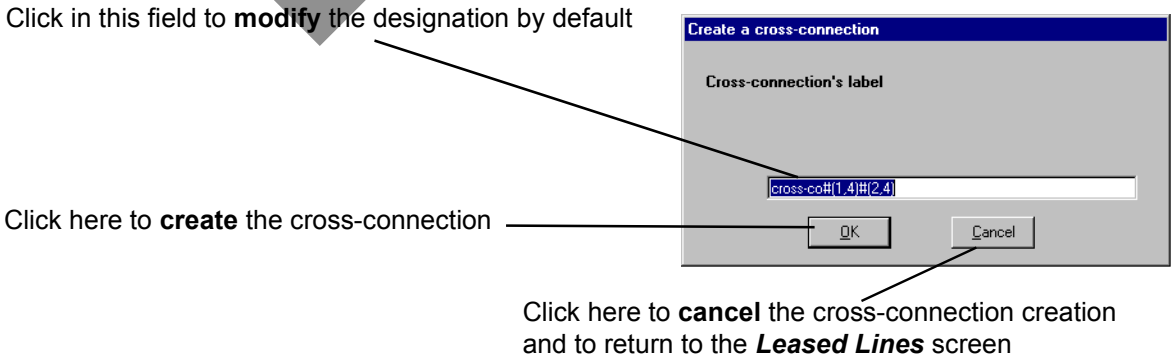
- select the cross-connection you wish to cancel in the cross-connection list

and then,

- click on the button shown here (in the button bar of the ***Leased Lines*** screen).

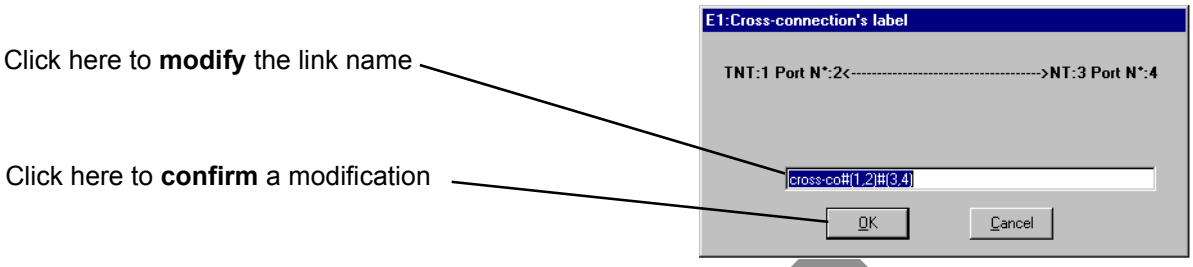
4.12.5.3– Creation of a cross-connection

Following cross-connection, access cross-connect creation by clicking on the button shown here (in the button bar of the ***Leased Lines*** screen).



4.12.5.4– Editing the name of a link of leased line type

To **edit the name** of a link, select the link in the cross-connections list (see § *4.12.1.4 – Ports configuration of TNT board (BS)*), then click on the button shown here.



4.12.5.5– Locking / Unlocking of a cross-connection

It is possible to lock or unlock a cross-connection:

- **unlocking authorises** traffic on the link,
- **locking blocks** traffic on the link.

This action is carried out by modifying the **administrative status** of the cross-connection.

When a link is created, its administrative status is **locked by default**, which prevents the system from being blocked during cross-connection, in the event of equipment problems.

	**FOR A SUBSCRIBER TO HAVE ACCESS TO TRAFFIC, THE CROSS-CONNECTION MUST BE UNLOCKED FOR CREATION OF CLIENT SERVICES. THIS OPERATION IS THE RESPONSIBILITY OF THE TELECOMS OPERATOR.**

The **locking** operation may then be implemented on the cross-connection for reasons of maintenance or for freezing services during disputes between end user and telecoms operator.

Note: *The administrative status of the cross-connections is not correlated with that of the ports. This makes it possible to manage the "grooming" capacity at the TNT board ports (see § 4.12.1.7 – Grooming) where several cross-connections to different NT ports can be cross-connected to the same port of a TNT board.*

	**IF A PORT IS LOCKED / UNLOCKED, ALL THE CROSS-CONNECTIONS INVOLVING THIS PORT WILL BE RESPECTIVELY LOCKED/UNLOCKED**

To lock / unlock a link, select the cross-connection concerned on the **E1 cross-connection** screen (see § *4.12.1.3 – Presentation of the E1 link management screen*) and:

– click on the icon of the toolbar shown here to **lock**: the administrative status of the cross-connection switches from "unlocked" to "**locked**".

– click on the icon of the toolbar shown here to **unlock**: the administrative status of the cross-connection switches from "locked" to "**unlocked**".

4.12.5.6– Suppression of a leased line

To **leave out** a link: select the link in the cross-connections list (see § *4.12.1.4 – Ports configuration of TNT board (BS)*), then click on the button shown here (in the button bar of the screen).

Note: *an unlocked cross-connection cannot be suppressed (see § 4.12.1.1 – Procedure of creation of an E1 link (E1 cross-connection)).*

4.12.6– Circuit emulation (CES)

Circuit emulation allows leased lines (E1, X21, T1, ISDN) to be implemented on the **ATM** network (and no longer TDM).

It deals with the creation, in addition to the standard leased line link, of a second "cross-connection" between the **TNT** board and the **ANT** board which is linked to the **ATM** network. The CES processes the signal to recreate it on the TNT board, which therefore emulates a direct "cross-connection" between the ATM network and the TNT board.

This operating mode notably allows a single connection cable on the BS for all types of client services.

Note: *a TNT board (and therefore all its ports) can operate only in a given mode: either local (TDM network) or ATM..*

	**BEFORE PERFORMING CIRCUIT EMULATION, YOU MUST CONFIGURE THE INPUT / OUTPUT TYPE OF THE TNT BOARD IMPLEMENTED IN ATM MODE AND ALSO THE CHARACTERISTICS LINKED WITH SYNCHRONIZATION, USED TO RECREATE THE FRAMES ON THE TNT BOARD (SEE 4.5.3.2 –).**
	**BEFORE CREATION OF A CES LINK, ASSOCIATED TNT PORTS MUST BE LOCKED.**

4.12.6.1– CES link creation procedure

The **steps** to implement a CES "cross-connection" are as follows:

1. Selection of the implemented TNT board;
2. Selection of the selected TNT board ports;
3. Choice of the ATM link Vci on the ANT board;
4. Creation of the CES link.

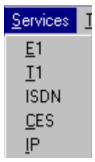
Note: *There is **only one type of CES link**. Indeed, there is no correlation between the TNT port type (E1, T1,ISDN and their G703, G704 (SF, ESF) configurations and the CES "cross-connection".*

4.12.6.2– Access to CES management

To access circuit emulation management:

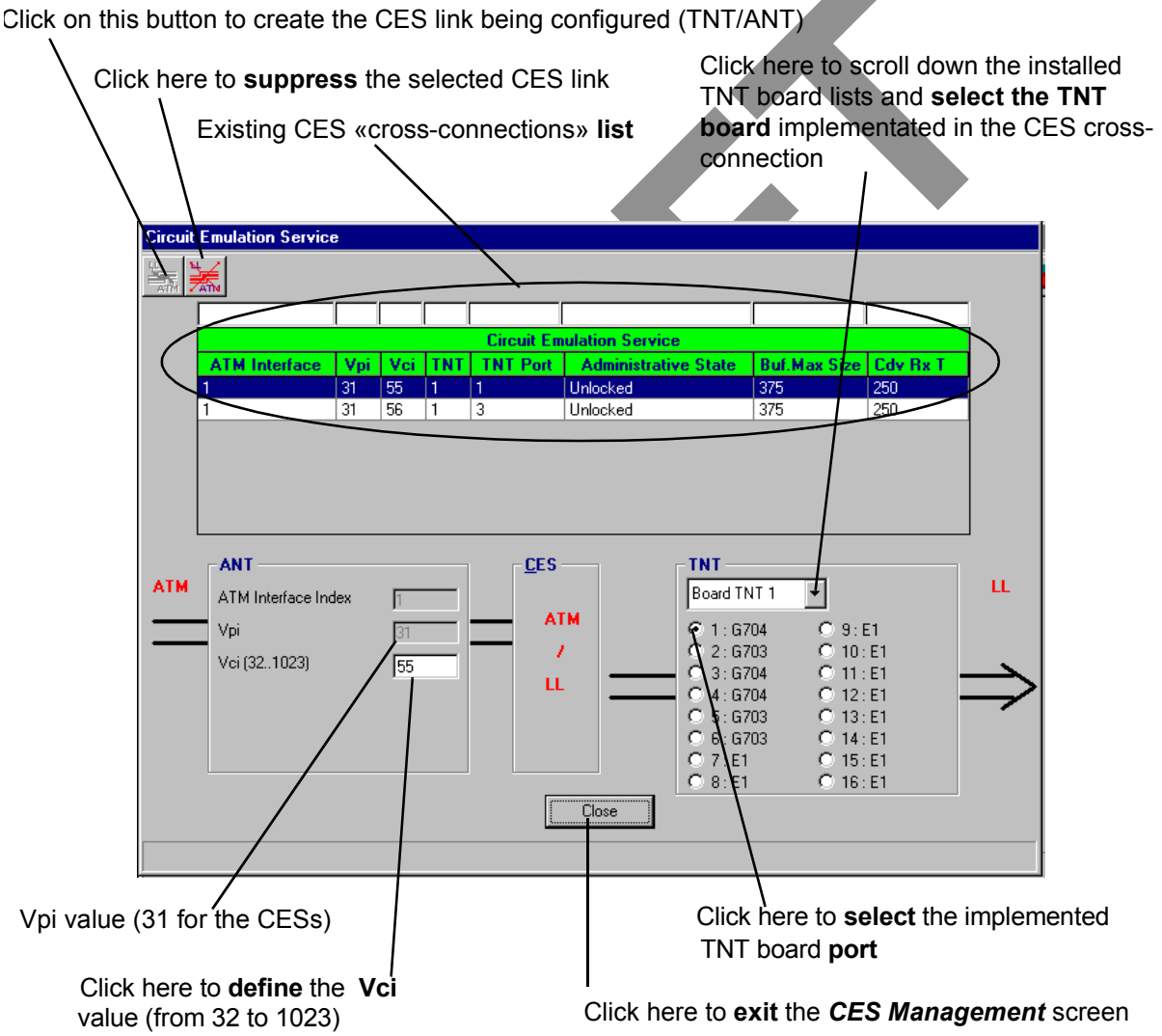
– click on the button shown here (in the main screen button bar),

or else,



– open the ***Services*** pull-down menu and choose the item: ***CES***

4.12.6.3– Presentation of the CES management screen



	**ONCE THE TNT / ANT LINK IS CREATED, THE TNT BOARD CAN NO LONGER BE CONFIGURED IN LOCAL MODE, AND THE VALUES LINKED TO THE SYNCHRONIZATION (CELL DV AND MAX BUFF) CANNOT BE MODIFIED. TO DO SO WOULD REQUIRE THIS LINK TO BE PREVIOUSLY SUPPRESSED.**

To allow modification, the TNT port must be locked. Unlock it after CES creation.

4.12.6.4– Suppression of a CES link

To **suppress** a CES type link, select it in the circuit emulation services list of the ***Circuit Emulation Service*** screen (see § *4.12.6.3 – Presentation of the CES management screen*) then click on the button of the toolbar shown here.

***Note**: to suppress a CES type link, the associated TNT port has to be locked.*

4.13– Client services: IP links

An IP cross-connection is a link between an **ATM** input of the BS linked to the network and an Ethernet port of the **NT** terminal linked to the user peripheral devices.

The maximum bit rate offered on an IP link is **8512 Kbps** in downlink (BS to NT) and **7448 Kbps** in uplink (NT to BS).

There are 2 types of TS link: the **static IP** service and the **dynamic IP** service.

4.13.1– Creation procedure of an IP link

The implementation **stages** for an **IP** cross-connection are as follows:

1. ATM board configuration at the BS: see § *4.9.1 – ATM*;
2. Configuration of the NT Ethernet ports: see § *4.13.2.2 – Configuration of NT Ethernet ports*;
3. Selection of the ATM channel: see § *4.13.2.3 – Creation of an IP link*;
4. Selection of the NT Ethernet port implemented in the link: see § *4.13.2.3 – Creation of an IP link*;
5. Choice of the IP link type: see § *4.13.2.3 – Creation of an IP link*;
6. Choice of transmission and reception traffic: see § *4.13.2.3 – Creation of an IP link*;
7. IP link creation: see § *4.13.2.3 – Creation of an IP link*;

4.13.2– Access to the IP link management

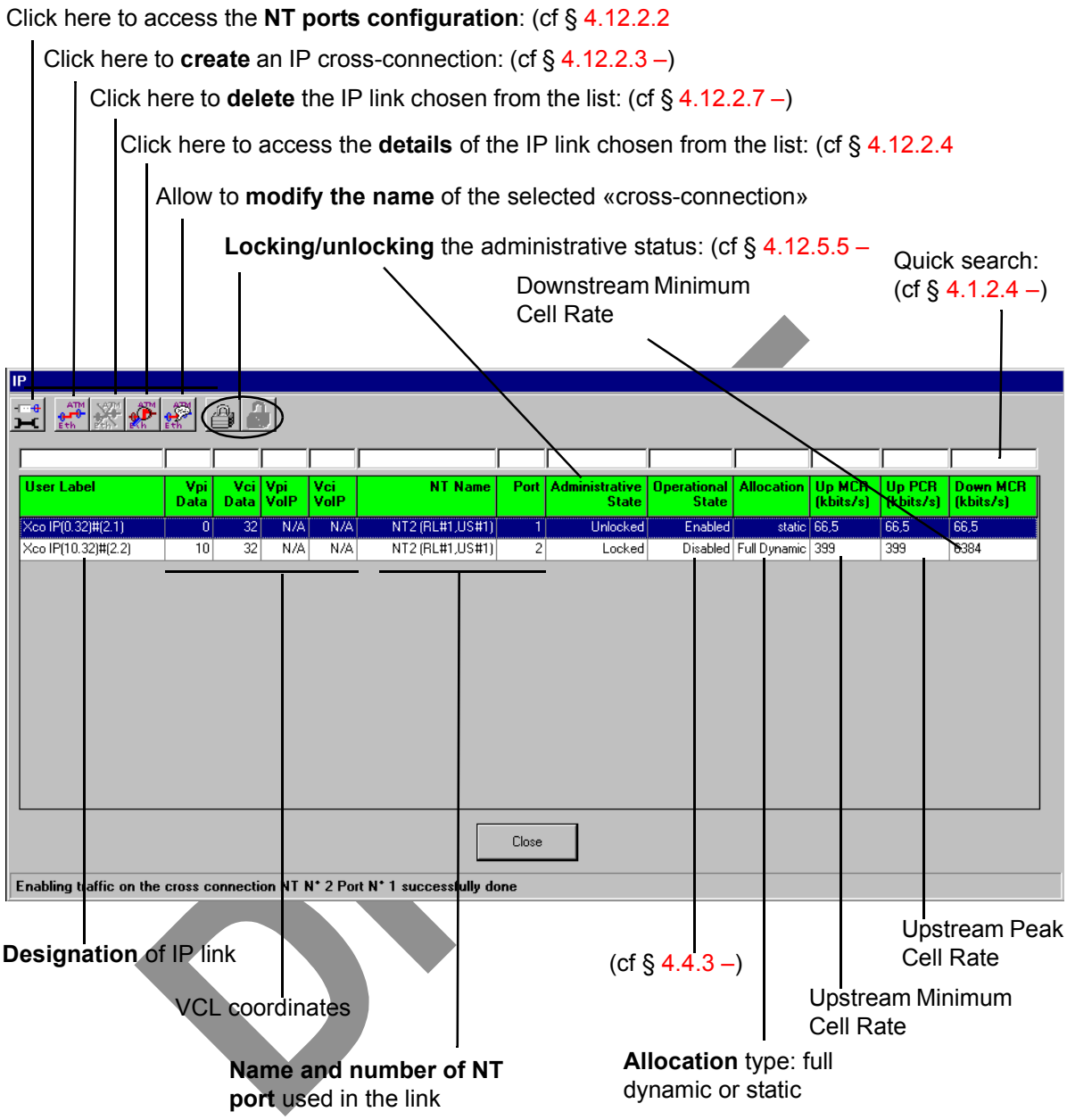
To access **IP services** management:

– click on the button shown here (in the main screen button bar),

or else,

– open the ***Service*** pull-down menu and choose the item: ***IP***.

4.13.2.1– Presentation of the IP screen



Up MCR: This value indicates the Minimum Cell Rate in Kbit/s, which can be used in the upstream bandwidth in order to transmit flow. For Ethernet flow, the maximum value is 7168. For ATM flow, the maximum value is 8192 on ETSI channels and 9984 on FCC channels.

Up CCR: This value indicates the Complementary Cell Rate in kbit/s (PCR = MRC + CCR).

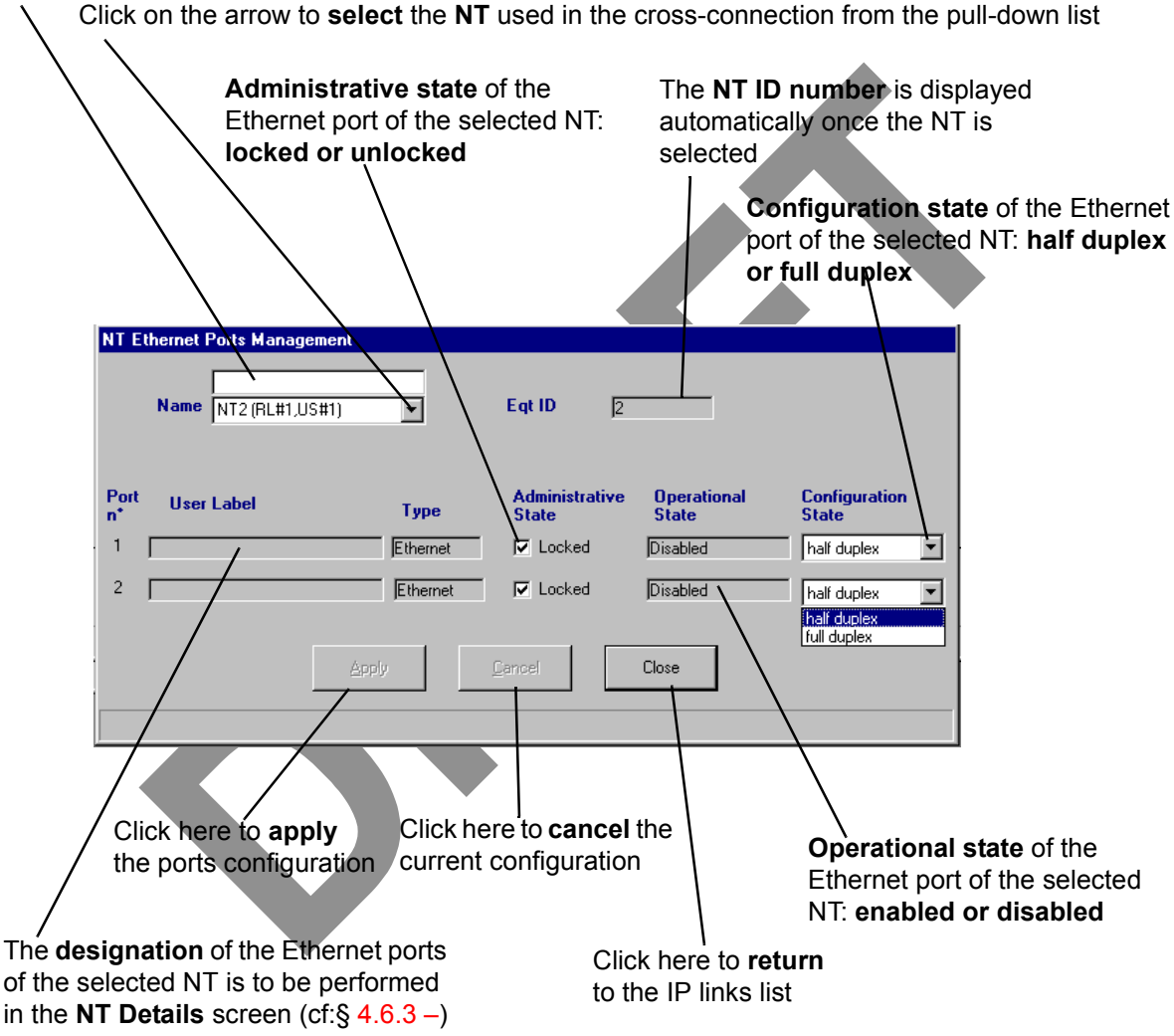
Up PCR: This value indicates the Peak Cell Rate in Kbit/s in the upstream bandwidth.

Down MCR: This value indicates the rate in kbit/s, which can be used in the downstream bandwidth in order to transmit flow.

4.13.2.2– Configuration of NT Ethernet ports

To access the **NT Ethernet ports configuration**, click on the button shown here (on the button bar of the IP screen).

Quick search (cf: § 4.1.2.4 –)



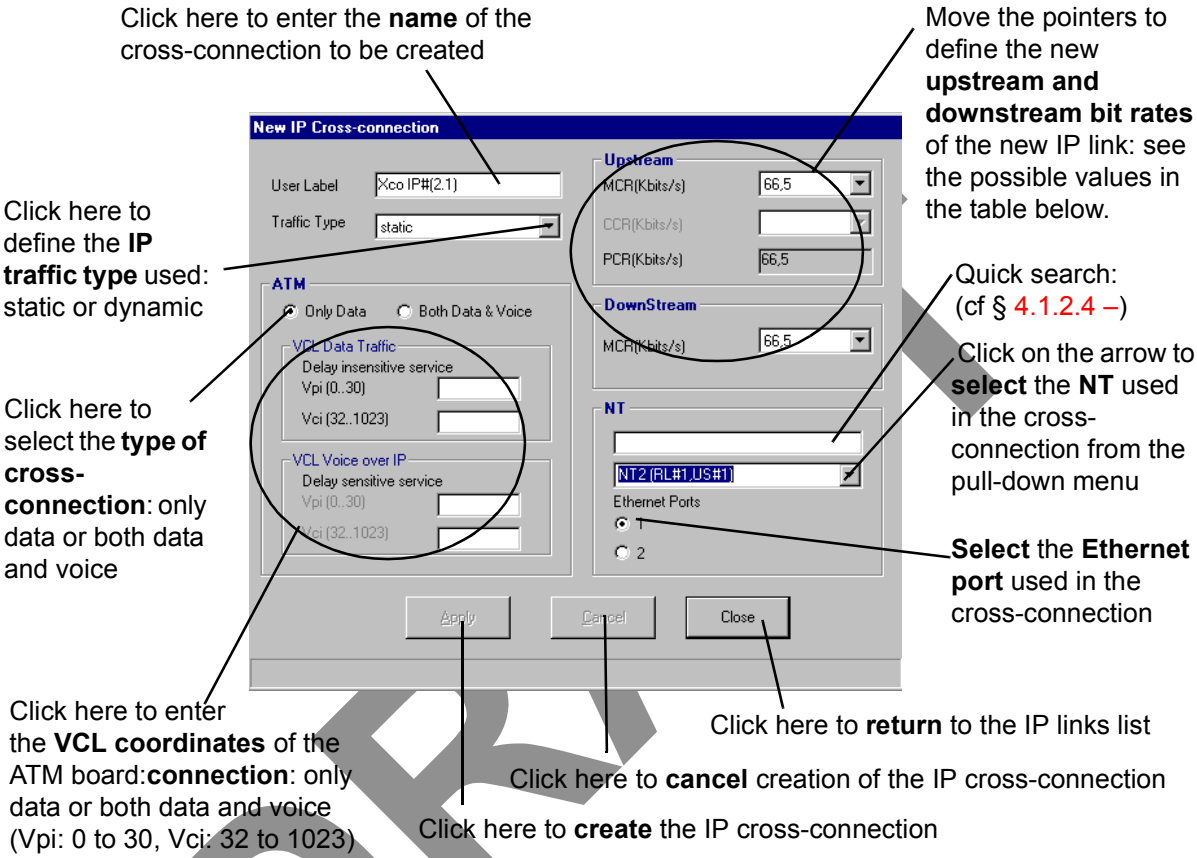
Note: *Do not enter more than 60 characters.*

Note*: When a NT port is full duplex the Configuration State field is deactivared in the other port. When the Administrative State is unlocked the Configuration State field is deactivated.*

4.13.2.3– Creation of an IP link

AN IP link can be composed of 2 kinds of traffic: data and voice. At creation, the operator has to choose if the 2 kinds are used or not. Then, he configures each part.

To access **creation** of an IP link, click on the button shown here (in the button bar of the ***IP*** screen).



The following table gives the information to define the different bit rate types in the ***New IP Cross-connection*** screen:

IP traffic type	Upstream channel (transmission)		Downstream channel (reception)
	Possible MCR values (Kbps)	**Possible CCR values (Kbps)**	**Possible MCR values (Kbps)**
Full dynamic IP	Discrete values from 8.3125 to 7448	Discrete values from 0 to 8512 by 66.5 kbps pitch	Discrete values 8.3125; 16.625; 33.25; 66.5; 133; 266; 532; 1064; 2128; 3192; 4256; 5320; 6384; 7448 and 8512
Static IP	Discrete values from 66.5 to 7448 by 66.5 kbps pitch		Discrete values from 66.5 to 8512 by 66.5 kbps pitch

Note: *The bit rates represent the bit rates used on the ATM access of the DBS.*

⚠	**PHYSICALLY, EACH NT CAN ACCEPT A MAXIMUM TOTAL BIT RATE OF 15 MBPS FOR THE SUM OF THE DOWNSTREAM CHANNELS AND THE UPSTREAM CHANNELS**

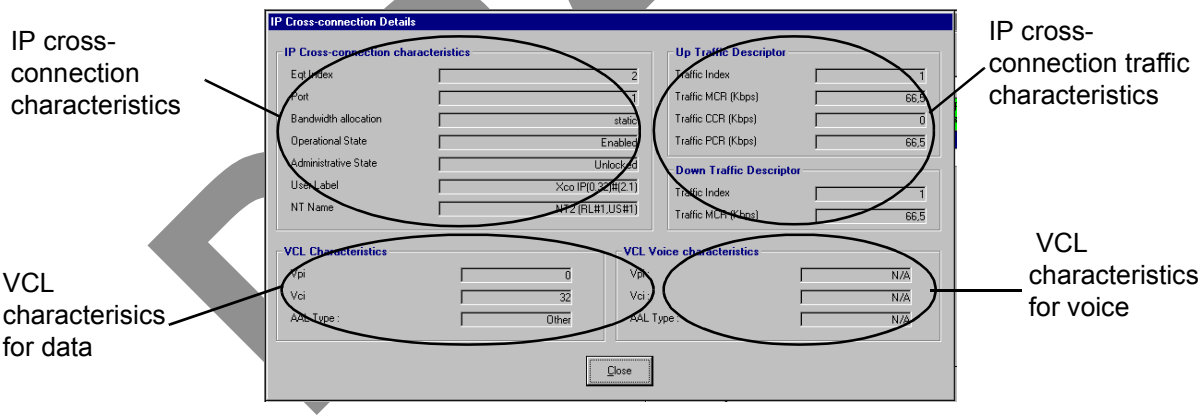
Nota: *Only one "cross-connection" may be sufficient to use all the capacity of an NT. In case of overflow, the 7390 LT displays an error message after the agent has rejected the IP link creation.*
The agent checks that maximum bit rate on all the Ethernet ports is lower or equal than 15 Kbps.
That maximum bit rate on DS traffic of all Ethernet ports is lower or equal than 8512 Kbps.
That maximum bit rate on the US traffic of all the Ethernet ports is lower or equal than 7448 Kbps.

Note: *A pair of coordinates of ATM cells (Vpi, Vci) is single. When creating the IP cross-connection, if you define a pair already existing, an error message will inform you at the bottom of the window. You can consult the list of the couples already defined, reserved to the IP cross-connections in the list of the IP links § 4.13.2.1 – Presentation of the IP screen.*

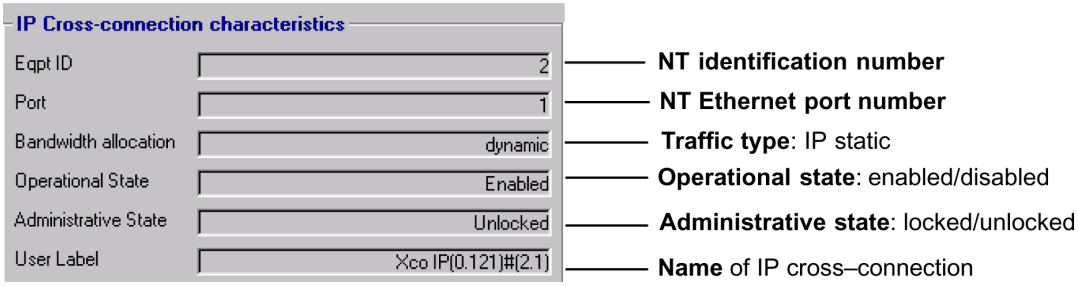
Note: *Ethernet port 2 has a 32 bytes buffer (port 1 only 16). Also use this one for heavy bursty traffic.*

4.13.2.4– Characteristics and traffic of an IP link

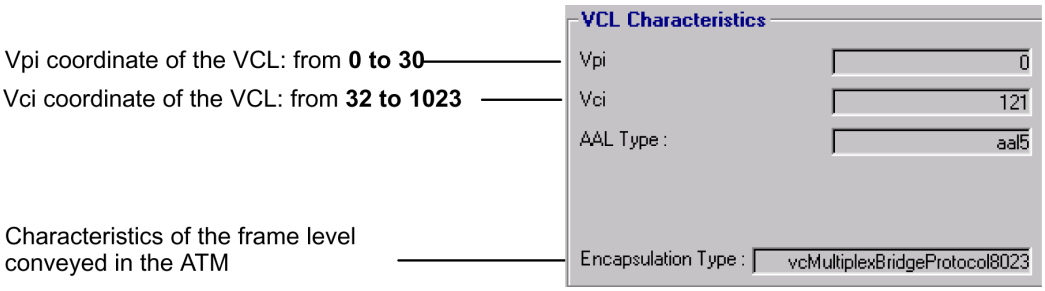
To access the consultation of the **characteristics** of an IP link chosen from the list of IP cross-connections, click on the button shown here (in the button bar of the ***IP*** screen).



– *IP cross-connection characteristics:*

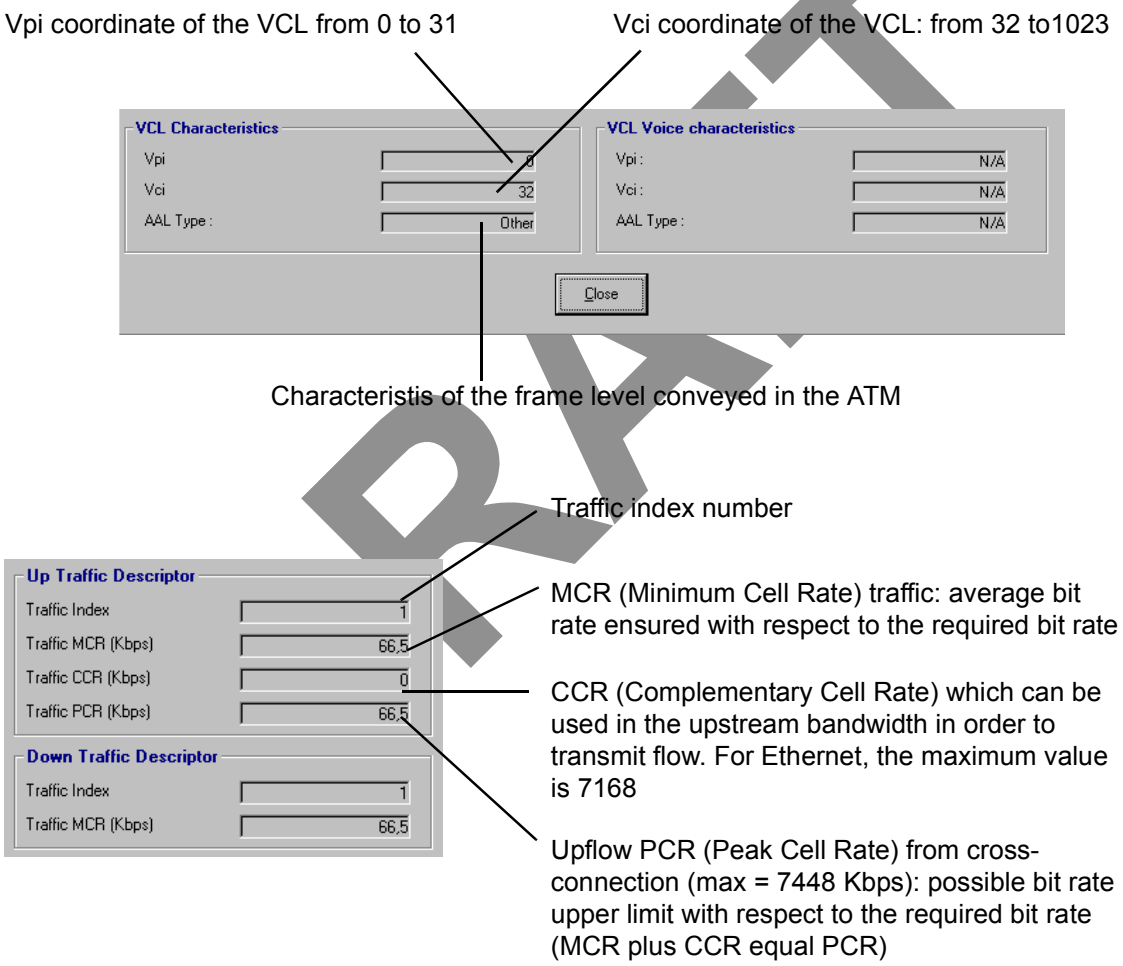


– *VCL characteristics for data:*



– *VCL characteristics for voice*

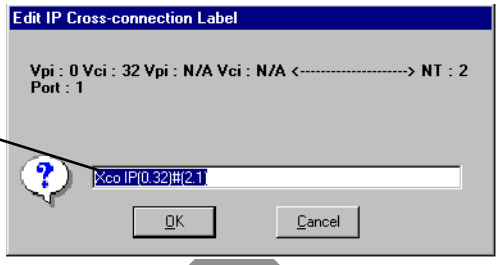
– *Uplink (reception) and downlink (transmission) traffic description:*



4.13.2.5– Editing the name of an IP link

To modify the name of an IP link selected in the IP cross-connections list, click on the button shown here (on button bar of the ***IP*** screen).

Click in this field to modify the name of an IP link



4.13.2.6– Locking / unlocking of an IP cross-connection

It is possible to **lock** or **unlock** a cross-connection:

- unlocking authorises IP traffic on the link,
- locking blocks IP traffic on the link.

This action is carried out by modifying the **administrative status** of the IP cross-connection.

When a link is created, its administrative status is **locked by default**, which prevents the system from being blocked during cross-connection, in case of equipment problems.

	**FOR A SUBSCRIBER TO HAVE ACCESS TO TRAFFIC, THE CROSS-CONNECTION MUST BE UNLOCKED FOR CREATION OF CLIENT SERVICES. THIS OPERATION IS THE RESPONSIBILITY OF THE TELECOMS OPERATOR.**

The **locking** operation may then be implemented on the cross-connection for reasons of maintenance or for freezing services during disputes between end user and telecoms operator.

Note: *the administrative status of the cross-connections is not correlated with that of the ports.*

	**IF A PORT IS LOCKED, THERE WILL BE NO SERVICE ON ANY CROSS-CONNECTION INVOLVING THIS PORT.**

To lock / unlock a link, select the cross-connection concerned on the **IP Cross-connection** screen (§ *4.13.2.1 – Presentation of the IP screen*), and:

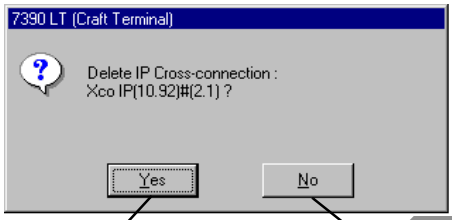
– click on the icon of the button bar shown here to **lock**: the administrative status of the IP cross-connection switches from "**unlocked**" to "locked".

– click on the icon of the button bar shown here to **unlock**: the administrative status of the IP cross-connection switches from "**locked**" to "unlocked".

4.13.2.7– Deleting an IP link

To **delete** an IP link chosen from the list of IP cross-connections, click on the button shown here (on button bar of the **IP** screen).

A confirmation screen is displayed:



Click here to **delete** the IP cross-connection

Click here to **cancel** the request to delete the IP cross-connection

Note: *An IP link can be deleted only if it is locked.*

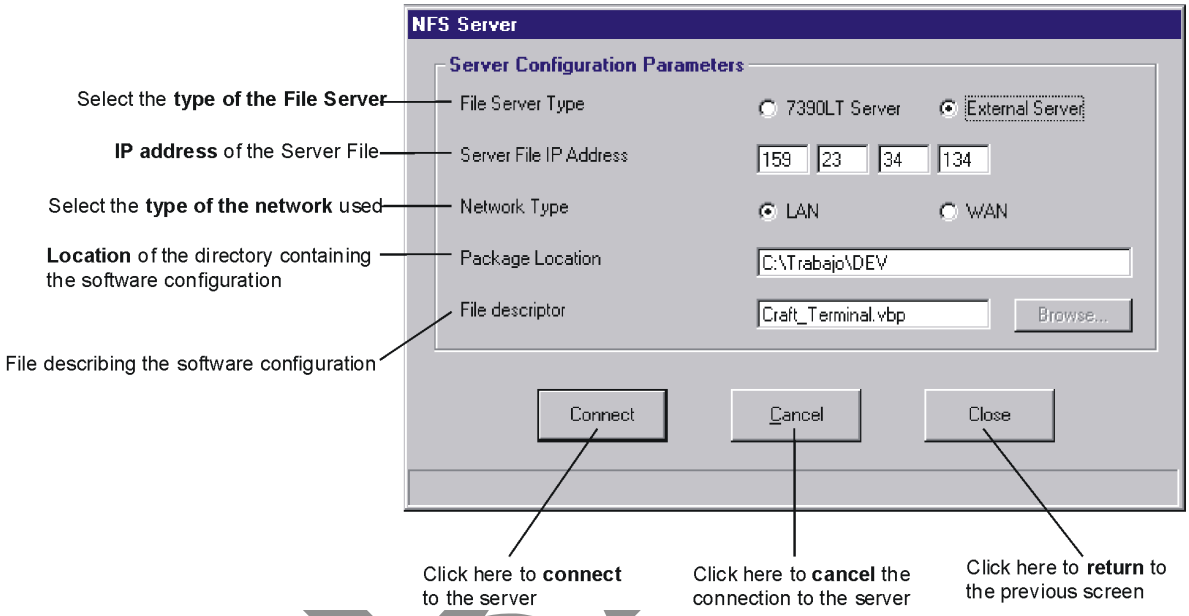
4.14– Utilities

4.14.1– NFS server

To configure the NFS server:

– click on the button shown here (on the ***7390LT*** main screen),

– or, open the ***Management*** pull-down menu and choose *NFS Server*.



4.14.2– Backup / Restore

The backup and restore functions are mainly used for protection during maintenance operations in order to avoid the loss of system configuration data (equipment parameters, created customer services, etc.).

These functions are implemented locally, on the 7390 LT craft terminal. The configuration data is backed up on the ANT board.

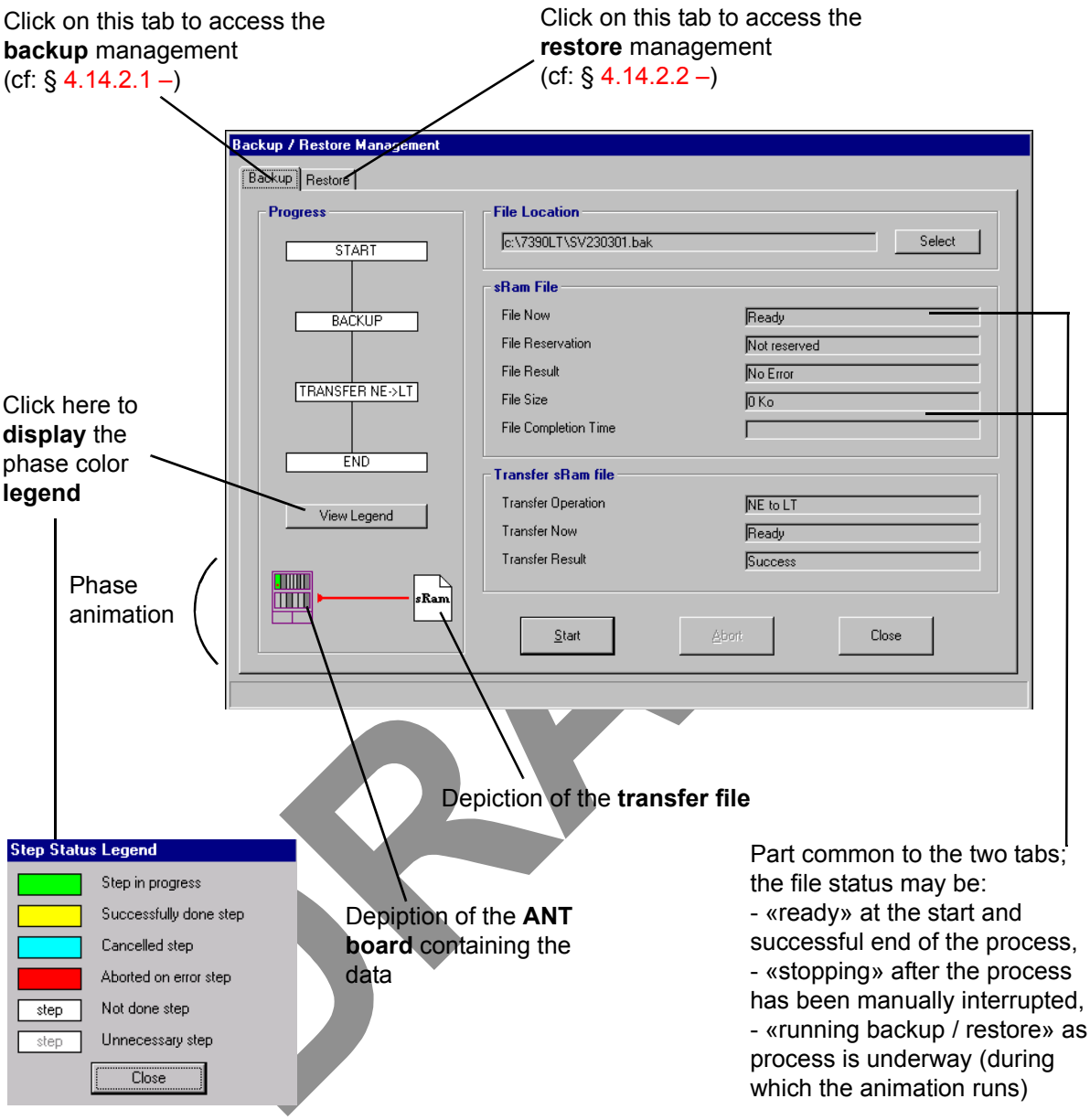
To access the backup / restore function:

– click on the button shown here on the main button bar,

or else,

– open the ***Database*** pull-down menu and select the heading: ***Backup / Restore Management.***

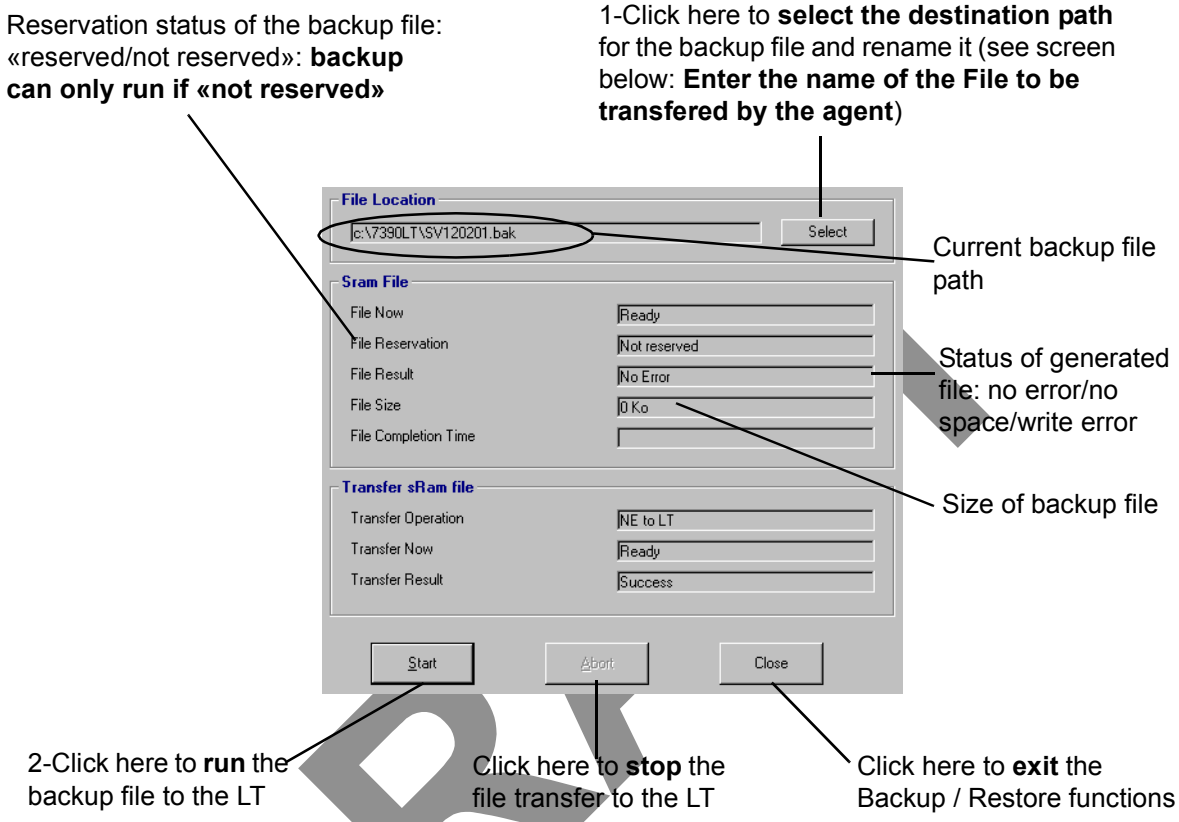
The following screen appears, in which each tab is dedicated to each of the 2 functions:



4.14.2.1– Backing up a system configuration

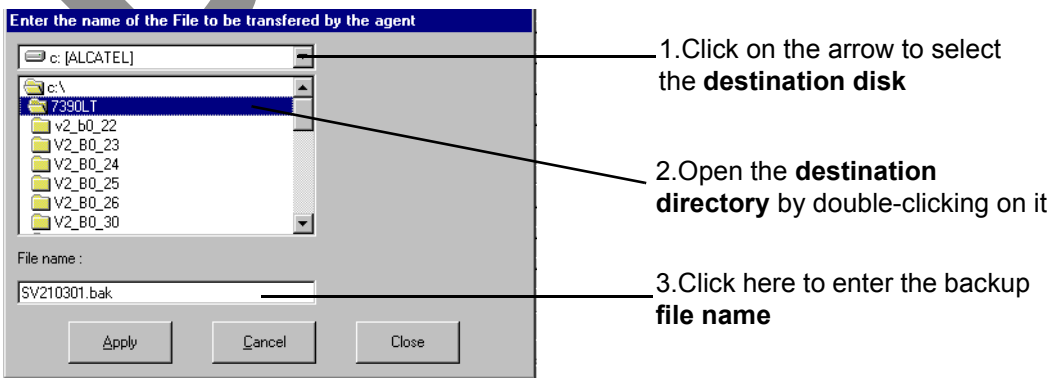
The **backup** takes place in two phases: **the conversion** of the contents of the ANT memory **into a file** that can be transferred then the **transfer** of the configuration file **to** the **LT** database.

To access the backup management, click on the Backup tab of the ***Backup / Restore Management*** screen (see § *4.14.2 – Backup / Restore*).



Backup has terminated successfully once the ***file result*** field displays "no error", the ***file size*** is not zero and the ***file status*** is "ready".

– Change the transfer file name after clicking on the ***Select*** button of the previous screen:



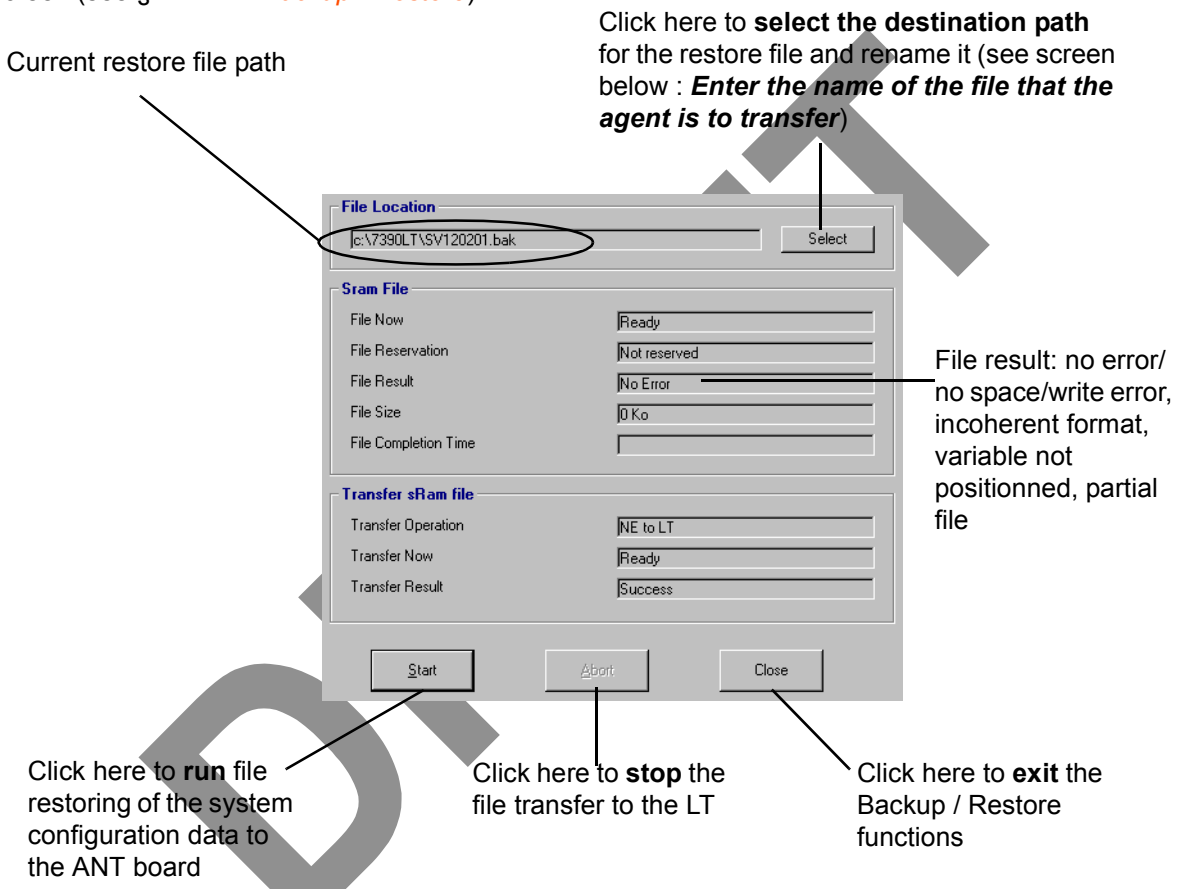
Note: *The destination directory must be shared in NFS format: see NFS server configuration in A.2.6.3 – Configuring the NFS server.*

4.14.2.2– Restoring a system configuration

⚠	**IN THE "BS DETAILS" SCREEN, IF THE FIELD "NAME" IS EMPTY, YOU CAN RESTORE ANY BACKUP, OTHERWISE YOU CAN ONLY RESTORE BACKUP THAT CONTAINS THE SAME BS "NAME"**

Restoration is carried out in two phases: the **transfer** of a configuration file from the LT database to the Agent, then the **restore configuration** to the ANT board (with conversion of the configuration file into exploitable data).

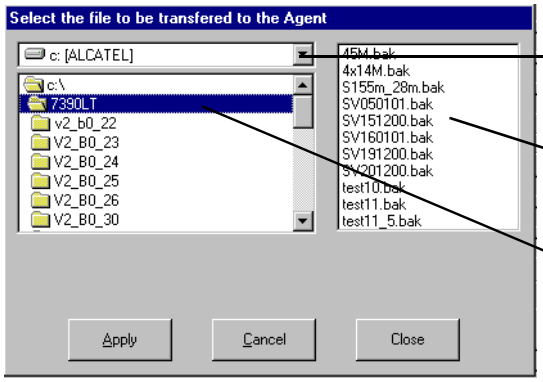
To access the restore management, click on the restore tab of the ***Backup / Restore Management*** screen (see § *4.14.2 – Backup / Restore*).



Restoration has terminated successfully once the ***file result*** field displays "no error", the ***file size*** is not zero and the ***file status*** is "restore".

Note: *Once restoration is complete, the configuration is then reintegrated into the system. The Agent reboots automatically with this new configuration; there is a break in the management link with the LT but the reconnection to the NE and recovery of data take place automatically.*

– Change the transfer file name after clicking on the Select button of the previous screen:



1.Click on the arrow to select the **source disk**

3.Select the desired **restore file** from the list of files of the selected directory

2.Select **the source directory** of the LT by double-cliking on it

4.14.3– Downloading

	**DO NOT RENAME FILES OR DIRECTORIES.**

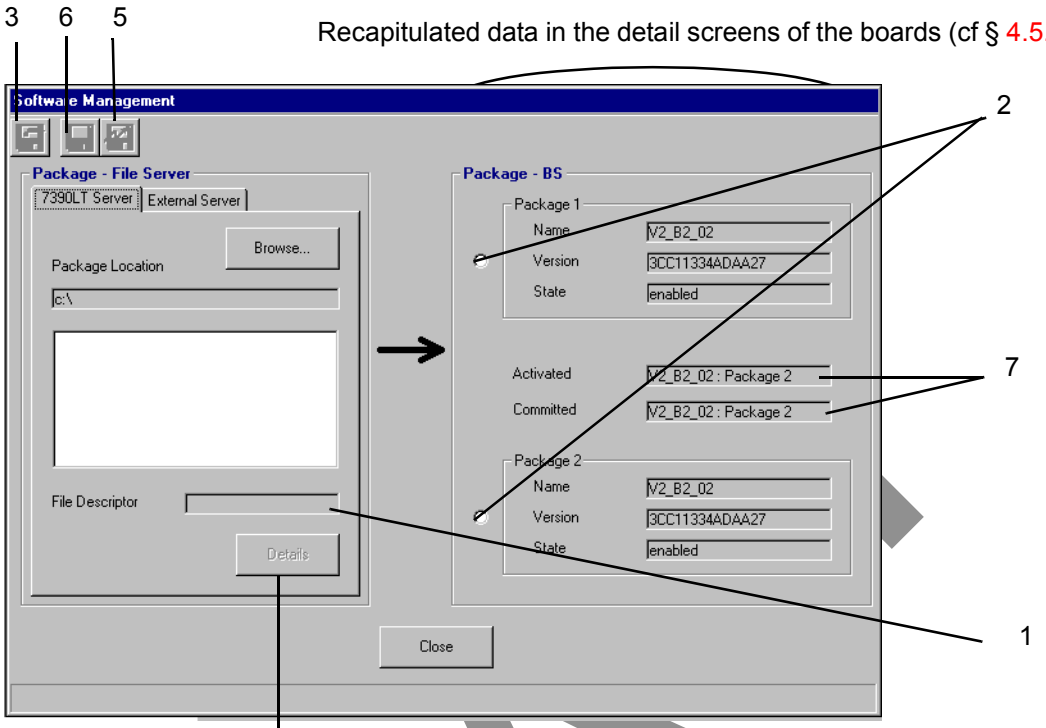
Downloading, mainly used during maintenance, or on first commissioning, replaces or upgrades the component software of the NE (BS + NTs).
AMD boards must be configured with their radio settings prior to starting downloading. NE downloading must always come before any 7390 LT update if this update is included in the software upgrade.
During the download of a new software, the IP Traffic can be degraded to about 10^{-3} .
Downloading can be carried out via **Ethernet** (10 BT) or **ATM**.
On ATM, the max. bit rate authorised is **10 Mbps**.
To access the downloading function:

– click on the button (provided it is active, see § *4.1.2.2 – Entry fields*) on the main menu button bar (shown here),

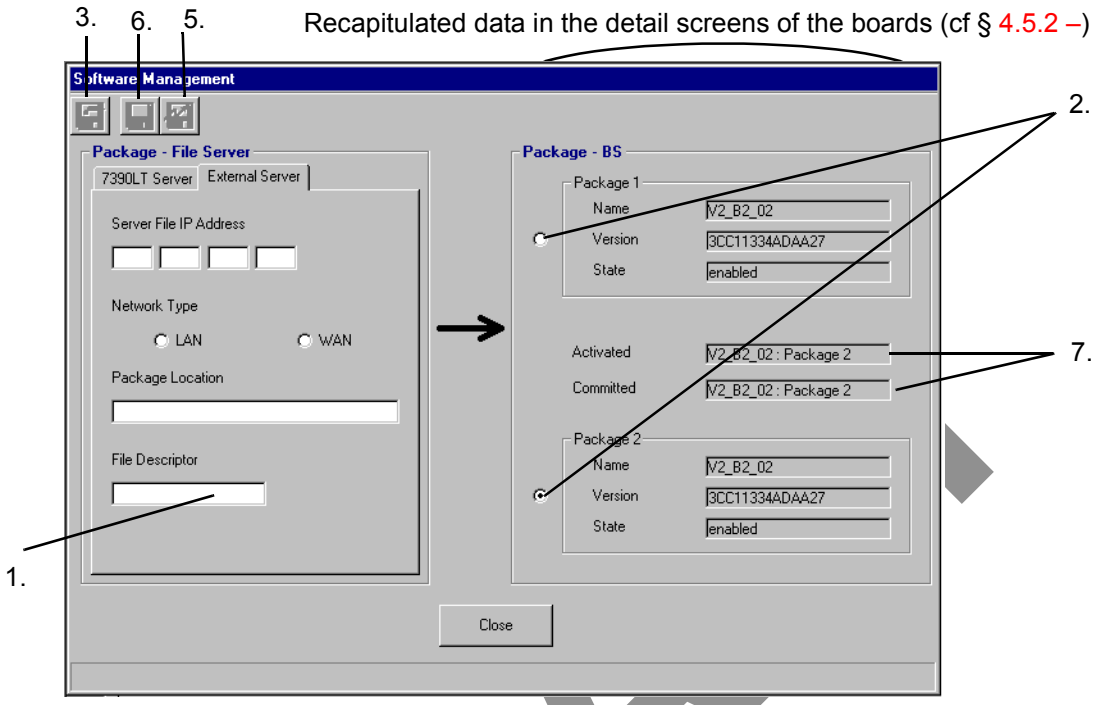
or else,

– open the ***Management*** pull-down menu and choose the item: ***Software Management***.

– Software Package in the 7390LT server



– Software Package in an external server
If a NFS server is defined (see § 4.14.1 –), when the LT detects a disynchronization between the two software packages, it will obtain the right software in that server.



⚠	**THE SOFTWARE DOWNLOADING DIRECTORY MUST BE IN THE SAME COMPUTER AS THE LT APPLICATION, MUST NOT CONTAIN NON STANDARD ASCII OR SPACE CHARACTERS AND MUST NOT BE RENAMED**

4.14.3.1– Downloading steps

– **pre-requirement**: AMD boards should be configured (mandatory).

There are two possible cases in point, influencing how the downloading steps should proceed: i.e., whether or not the MIB versions (databases modelling the equipment) are different for the manager and for the agent. Once downloading is run, the system detects automatically any discrepancy between the MIB versions, and realigns where necessary.

Note: *The **About 7390 LT** window gives the database version (see § 4.2.2 – Accessing and running 7390 LT).*

The downloading steps are as follows:

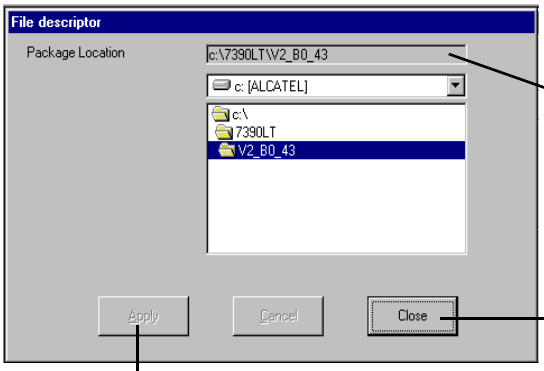
1. Select the **file** describing the software configuration (action in Software Management screen) (§ *4.14.3.2 – Object and destination of the software to be imported*),
2. Select the software **storage zone** on the BS (action in Software Management screen) (package 1 or 2),
3. **Load** the software (action in Software Management screen) (§ *4.14.3.4 – Software import*),
4. **Rendering MIB compatibility**: (in the case of divergent MIBs) (automatic in other screen) (§ *4.14.3.6 – Rendering compatible the MIBs)*,
5. **Referencing of the software** (action in **Software Management** screen) (§ *4.14.3.7 – Referencing software*),
6. **Activate** the selected software configuration (action in Software Management screen) (§ *4.14.3.8 – Activation of data*),
7. **Updating** the statuses on the 7390 LT: wait for 10 minutes approximately (action in **Software Management** screen, § 4.14.3 –),
8. **Start again Loading** the same package on the other software storage zone (without activating nor referencing it) to enable automatic update of the new NTs coming in the network.

Note: *Each software package must be individually exported via NFS Server (see A.2.6.2 – Installation of NFS server)*

- *NR 2.1 to NR 2.2a upgrade is described in § 7.3.12.2 – Upgrading the equipment from release 2.1 / 2.2a to 2.2b*
- *Commissioning for the first time is described in § 7.3.13 – First 7390NE software update*
- *NR 2.1 to NR 2.2b upgrade is described in § 7.3.12.2 –Upgrading the equipment from release 2.1 / 2.2a to 2.2b*
- *NR 2.2a to NR 2.2b upgrade is described in § XXXXXXXXx*

4.14.3.2– Object and destination of the software to be imported

To **select** the software to be downloaded, click on the button shown here (see screen § *4.14.3 – Downloading*); the updated list of software is displayed; double click on the file to be imported, on the «*Apply*» button then on «*Close*».



Location of the directory containing the software configuration

Click here to **return** to the previous screen

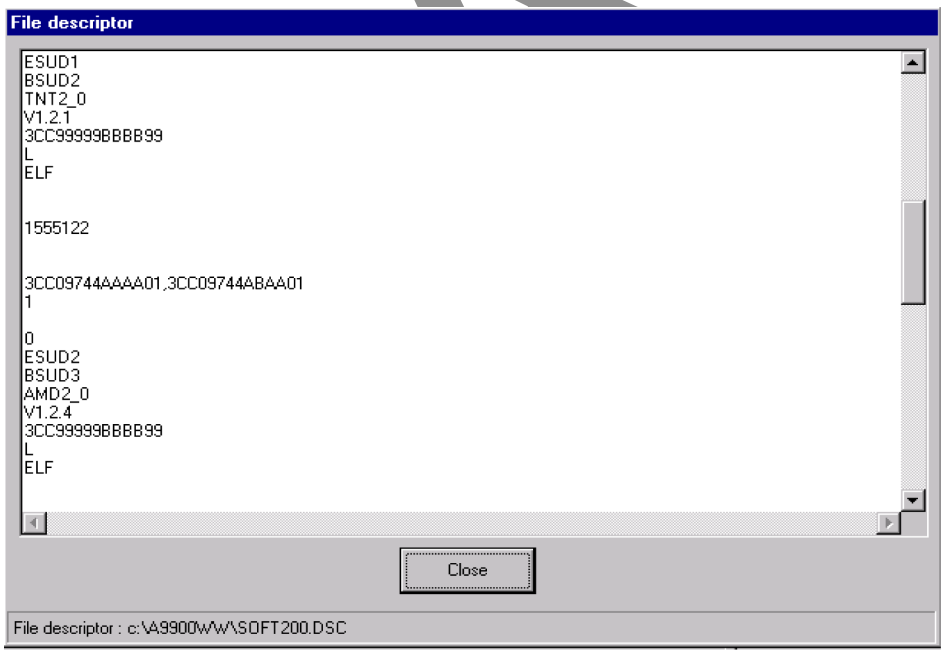
Click here (if active) to **select** the file to be downloaded

Back to the software management window, **select** the file then the destination package which is available (the one which activates the "Download" icon). see step 2 § *4.14.3 – Downloading*.

4.14.3.3– Detail of the software configuration file

The maintenance operator can choose **display** as a means of checking the content of the file describing the software configuration.

To **display** the content of the software configuration file, click on the button shown here (see screen in § *4.14.3 – Downloading*): the listing is displayed; then close the window with a click on the «*Close*» button.



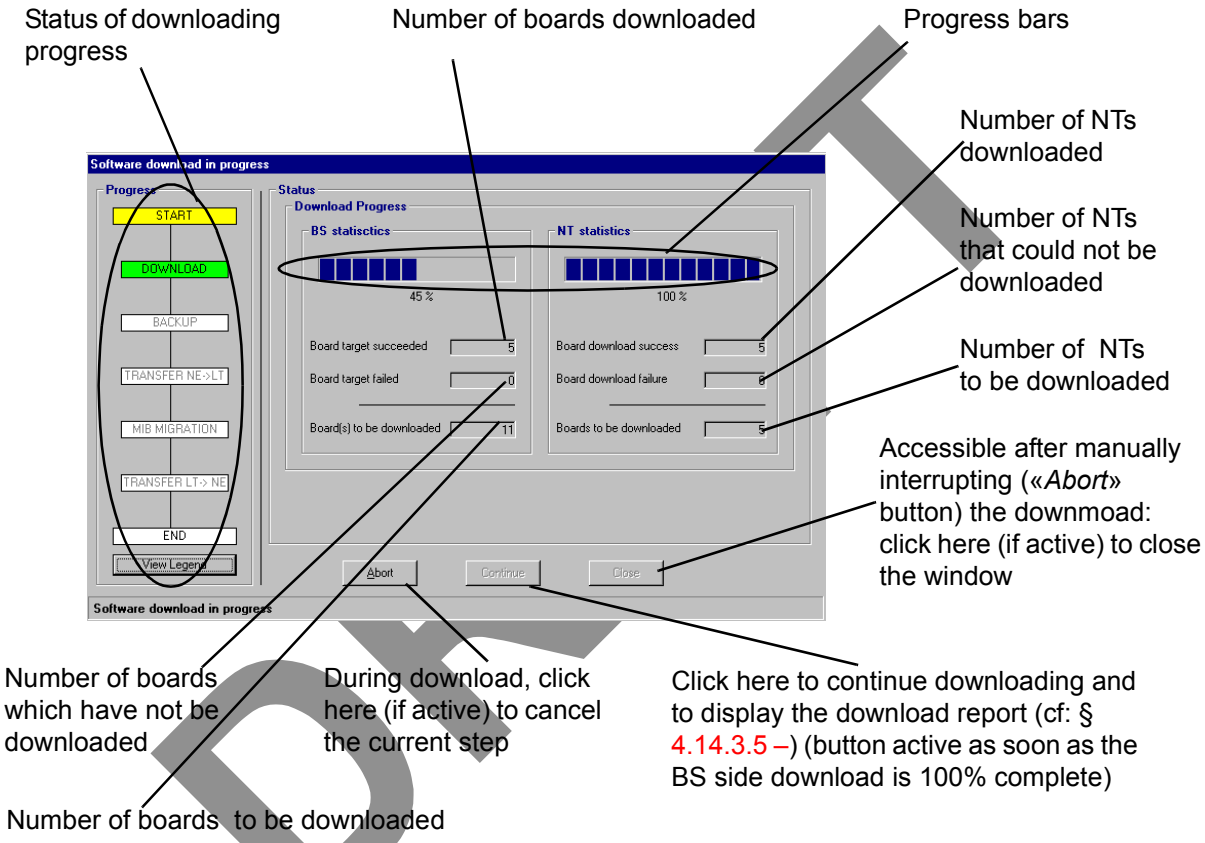
4.14.3.4– Software import

To **load** the software to the boards:

Click on the «*Download*» button shown here (provided it is active) of the ***Software Management*** screen button bar.

Note: *this button is activated once the selections described in the previous paragraph have been made.*

A screen indicating the **progress** of the downloading is displayed:

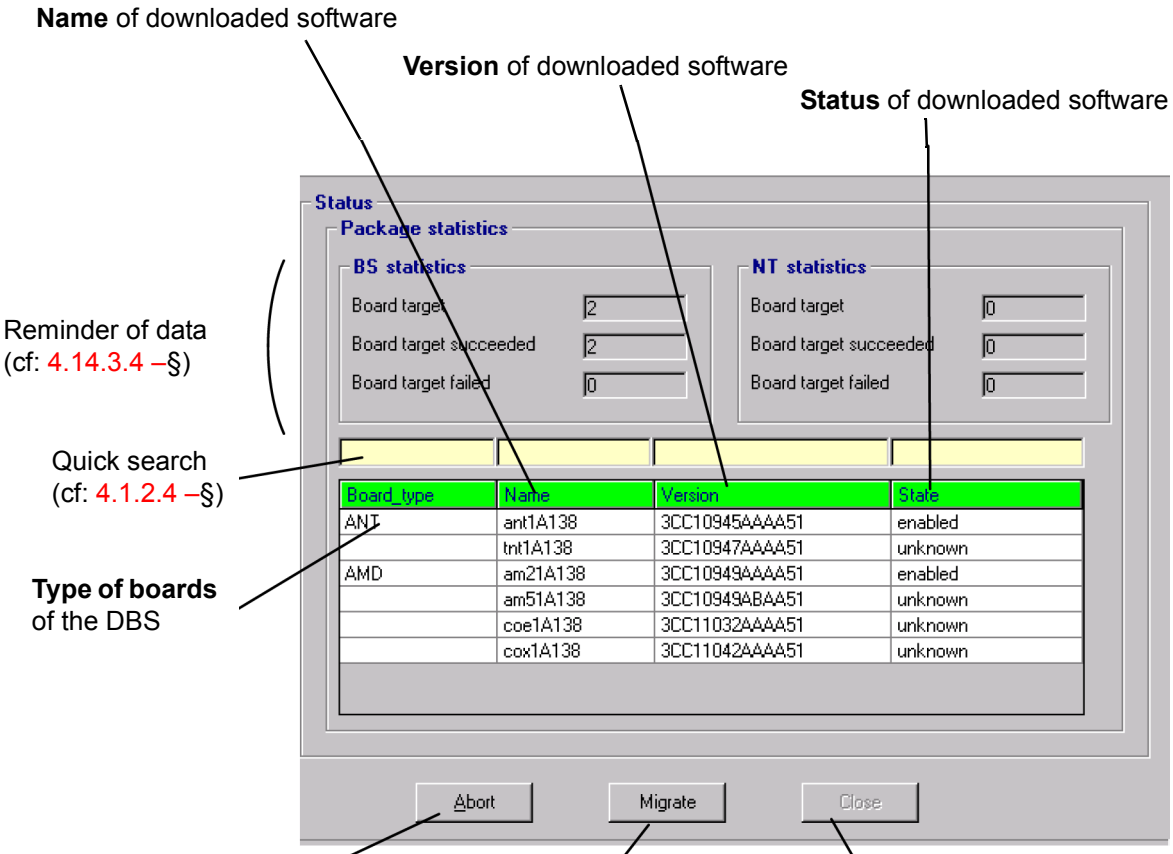


The sequencing of the download phases is permanently displayed, throughout the download. The sequence is presented on the left of the window, and features the following **color code**:
- **white**: step not carried out ;
- **white with gray writing**: step not required ;
- **green**: step underway ;
- **yellow**: step successfully completed ;
- **sky blue**: current step canceled ;
- **red**: step interrupted by error.

Note: *During the download phase, it is forbidden to insert any board in the DBS.*
Note: *If NTs were to be inserted during downloading, their download statistics would not be updated.*
Note*: If the status DOWNLOAD becomes red because of a time out, it does not mean that the software import step was interrupted by error.The loading is still going on in the system. But the operator will have to start the sofware import again.*

4.14.3.5– Downloading report

Once the downloading phase is over (see § *4.14.3.4 – Software import*), a report is provided detailing the software present for the different board types of the BS:



Click here (if active) to **cancel** the rendering MIB compatibility, if the button is available at the end of the process

Click here to **migrate** the MIB if the button is still active at the end of the process: it requires the **rendering MIB compatibility step** (cf:§ 4.14.3.6

OR

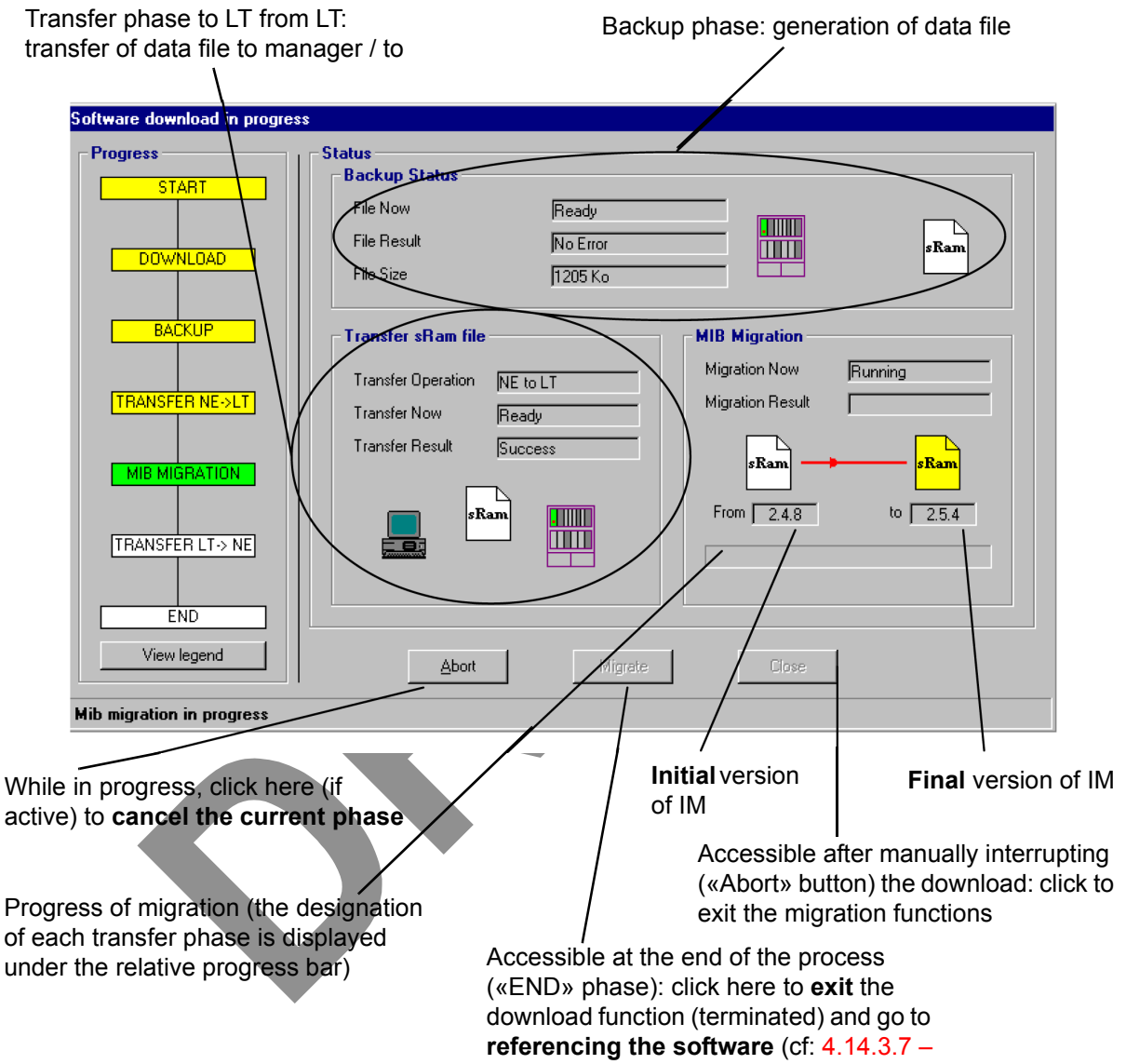
Click here (if active) to **exit** the dowload function (terminated) and go to **referencing the software** (cf: § 4.14.3.7

⚠	**IF MIB COMPATIBILITY IS CANCELLED, NE CONFIGURATION IS ENTIRELY LOST**

4.14.3.6– Rendering compatible the MIBs

⚠	**"C:/A7390WW" CONVERSION DIRECTORY MUST BE EXPORTED IN READ / WRITE STATE TO THE NFS SERVER AND THE SOFTWARE REQUIRED FOR MIGRATION MUST BE INSTALLED**

This operation only takes place where there are different versions of the databases, and ensures that the common exchange base structures are compatible.



Note: *Movement between the phases:* ***Backup, NE->LT transfer, MIB Migration*** *and* ***LT->NE transfer*** *takes place automatically without having to click* ***Continue****.*
The ***Backup*** *phase is too rapid to view its progress in the "Backup Status" screen zone.*
The phases: ***NE->LT transfer*** *and* ***LT->NE transfer*** *may take a greater or lesser time depending on the link bit rate. Their progress is displayed in the "Transfer sRam file" zone.*
The principle of these 3 steps is the same as for the Backup/Restore function: § 4.14.2.1 – Backing up a system configuration.
The ***MIB Migration*** *phase is quite a long operation that lasts around 30 minutes.*
Migration is successfully terminated once the ***migration result*** *displays "success".*

4.14.3.7– Referencing software

The committed software is activated by default when restarted; for the referencing of the software:

Select first of all the required storage zone,
then, click on the «*Referencing*» button of the ***Software Management*** screen button bar shown here.

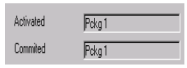
Note: *This button is activated if the software status is "enabled".*

The "Committed" zone of the ***Software Management*** screen (§ *4.14.3 – Downloading*) is automatically filled.

4.14.3.8– Activation of data

To **run** the downloaded software:

Click on the «*Activate*» button of the ***Software Management*** screen button bar shown here.



The "Activated" zone of the ***Software Management*** screen (§ *4.14.3 – Downloading*) is automatically filled.

Note: *Once the MIBs have been rendered compatible, the equipment (NE) reboots with the new IM version.*
The link with the LT is broken. Reconnection to the NE and recovery of the data therefore requires a new version of the corresponding LT. For this, refer to the procedure described in A.2.2 – Installation Procedure CHANGING THE DESTINATION DIRECTORY of the program ("Change directory" button), so as not to overwrite the old version of the 7390 LT.

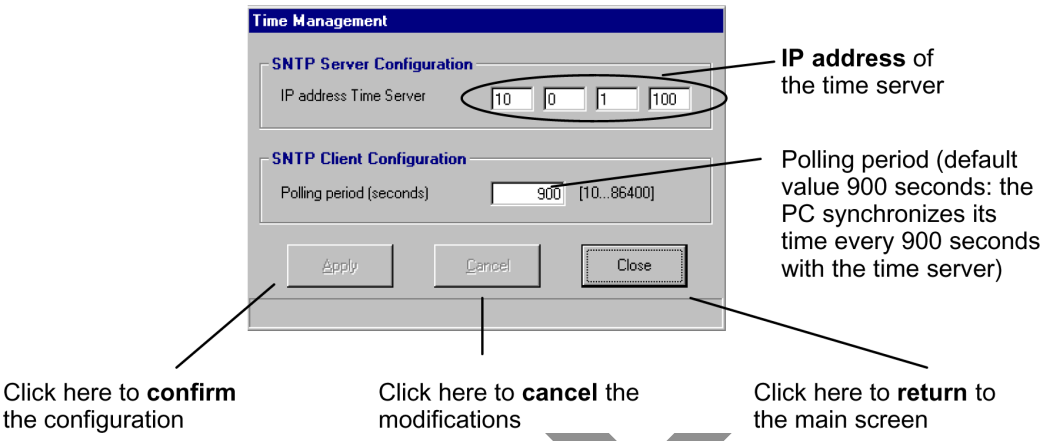
Note: *Once the software is activated and referenced, do not forget to start again downloading the same software on the other software storage zone (without activating or referencing it) to re-create the NFS assembly point, so as the new NTs that come in the network can perform automatic download.*

4.14.4– SNTP server configuration

- click on the button shown here (on the 7390LT main screen),

- or, open the Management pull-down menu and choose Time Management.

The following screen is displayed:



When the SNTP server IP address is set to 0.0.0.0, the SNTP client of the 7390NE is disactivated.

Otherwise the 7390NE SNTP client is activated and it tries to synchronize on this SNTP server IP address.

When the SNTP client is disactivated, you can set the BS time manually (see § 4.5.5 –).

Note: *A time server loss alarm will be declared when connection to SNTP time server is lost and SNTP client activated.*PAGE INTENTIONALLY LEFT BLANK

5 – Commissioning the Base Station (7390BS)

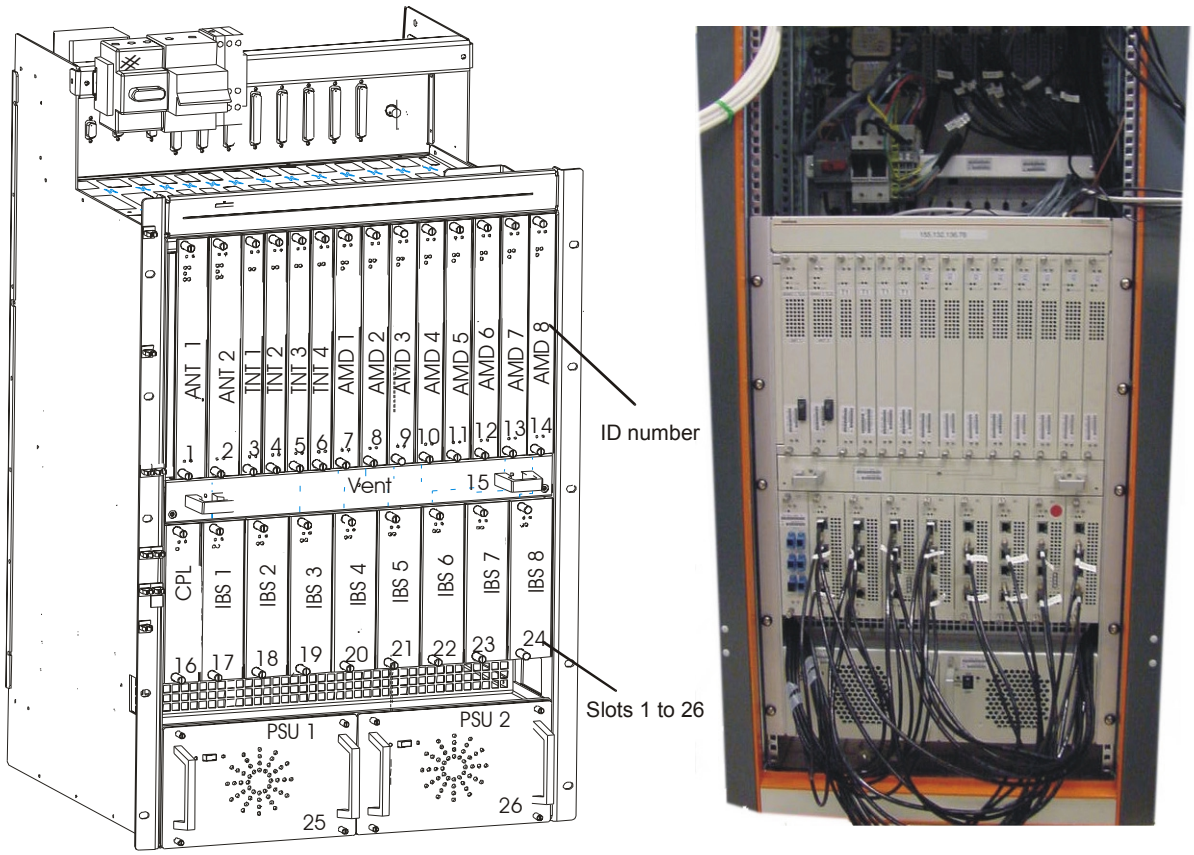


Figure 109 – Base station optical configuration

Base Station commissioning is carried out using a compatible laptop PC fitted with the 7390LT installation and programming software. The PC is connected directly to the DBS rack (see *Figure 110 – Connecting laptop PC to DBS rack*) using a cable supplied with the equipment.

Commissioning involves:

- **initialisation** and **configuration** of Base Station parameters,
- **control** and **validation** of the installed parameters before running the system.

5.1 – Initialisation and configuration of parameters

Preliminary conditions

To commission a Base Station it is necessary:

- to have access to all sub-assemblies required for Base Station creation associated with the site specific installation sheet, (see *Appendix 1 – Installation sheet*),
- to have access to the 7390LT software version corresponding to the site configuration,
- to have access, on the laptop PC, to an installation software compatible with the boards to be installed,
- that the network operator gives the mission order to the installer.

Main steps

To commission a Base Station it is necessary to carry out the following:

- installation of the **DBS** rack (see Chapter 3.5 – Base Station equipment installation),
- installation and configuration of the associated **X-Pol RBS**(s) (see *Chapter 3 – Installation of the Base Station*),
- configuration and commissioning of the station using the **7390LT**.

5.1.1 – Equipment required

To configure the Base Station parameters the following equipment is required:

- the **X-Pol RBS** transceivers already installed outdoors, connected to the DBS,
- ARESTOR,
- SPLITTER,
- BIAS-T,
- RS422,
- IGAU,
- the **DBS rack** assembly,
- a laptop **PC** equipped with:
  - the **7390LT** Base Station initialisation and programming software, (see *Appendix 2 – Installation of 7390LT software)*,
  - the Windows® **NT4 SP5 Workstation**® system,
  - the data transfer application (OMNI® NFS).

The minimum PC specifications are as follows:

- microprocessor: Pentium II 450 MHz,
- RAM: 128 MB,
- Hard disk: min. 10 GB,
- Graphics board: 8 MB,
- 3" 1/2 floppy drive (internal or external),
- 12x CD drive (internal or external),
- ports: 1 available serial (DB9) and 1 available parallel (centronix) port,
- mouse: 2 buttons (PS2 series) or tracking device,
- network board: Ethernet 10/100BT (RJ45),
- 12" monitor (1024x768).

5.1.2 – Powering up X-Pol RBS and DBS equipment in site configuration

⚠	**BEFORE POWERING THE EQUIPMENT, BE SURE ITS INSTALLATION IS CONFORM TO THE PROCEDURES DESCRIBED IN SECTION § 3.5.2; IN PARTICULAR CHECK THE RIGHT POLARITY OF THE 48V CABLES (POWER SUPPLY CABLES).**

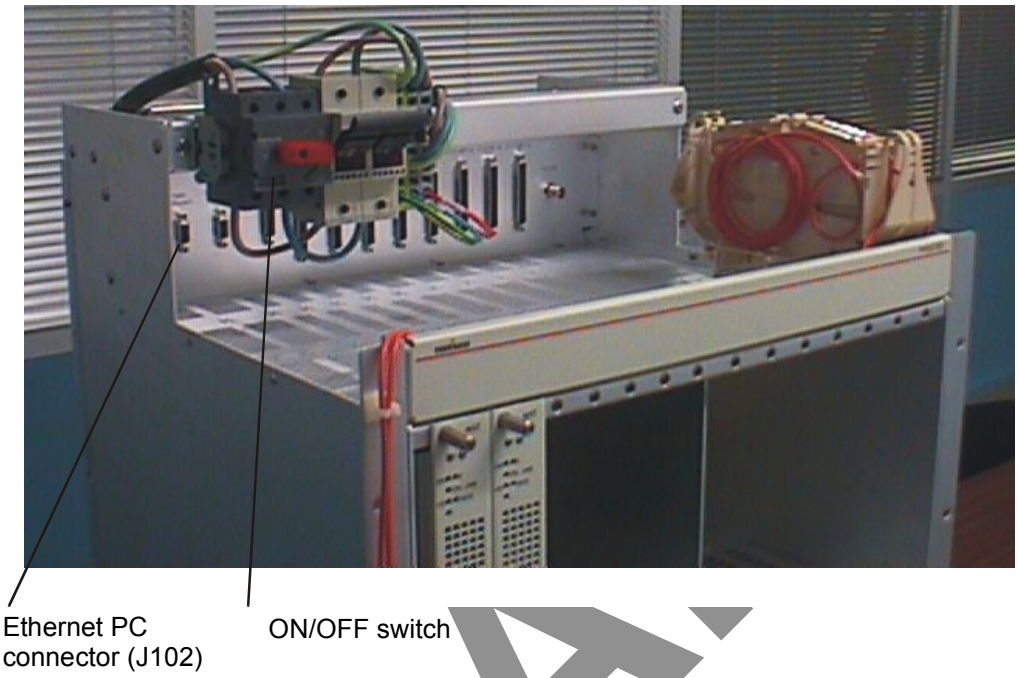
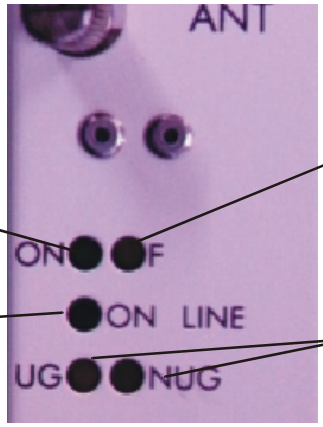


Figure 110 – Connecting laptop PC to DBS rack

Steps

1. Power up the **DBS rack** using the general ON/OFF switch (see *Figure 56*).
2. Power up the **power supply units** at the bottom of the rack (switch at ON).
3. Check the DC/DC power coupling and the status of the power supply boards:
   - board **operational**: green "ON" LED lit; red "F" LED unlit,
   - board presenting a **fault** but still **powered**: green "ON" LED **lit**; red "F" LED lit (see *Figure 111 – Role of the LEDs of the DBS board*).
4. Check the operational status of the DBS boards:
   - active **operational** board, if the green "ON" LED is **lit** and if the red "F" LED is **unlit** and, in addition, for the ANT and AMD boards, if the green "ON LINE" LED is **lit**;
   - the board is in standby if the "ON LINE" LED is **unlit**, for the ANT board the "F" LED is **unlit**, on the contrary for the AMD boards the red "F" LED is **lit**;
   - board **not operational**, but **powered**: the green "ON" LED is **lit** and if the red "F" LED is **lit** and, in addition, for the ANT and AMD boards, the green "ON LINE" LED is **unlit**.



Green "ON" LED lit: indicates the **power supply** status of the board

Red "F" LED:
- lit during the **initialization phase.**
- subsequently lit in normal operation to indicate a **problem** with the board.

Green "ON LINE" LED lit: indicates the **operational status** of the board

RED ''UG'' and ''NUG'' LEDs (not managed from NR 2.0 to NR 2.2b).

Note: *In the initialization phase, the red "F" LED is lit, as is the green "ON" LED.*

	**POWER SUPPLY UNITS MUST BE OFF BEFORE POWERING UP THE DBS RACK WITH GENERAL SWITCH.**

Figure 111 – Role of the LEDs of the DBS board

5. Connect the PC to a power source and power up.
6. Allocate an IP address to the PC that is compatible with that of the BS. This condition is imperative for communication between PC and BS to take place. The IP address of the BS (default value: 192.168.99.1 with sub-net mask: 255.255.255.0) and of the PC must be defined in the same sub-net. For example: the IP address: 192.168.99.2 and the sub-net mask: 255.255.255.0 can be allocated to the PC.
7. Connect laptop PC to DBS rack using a dedicated cable (Ethernet link, not provided). Use the connector situated on the top panel of the DBS rack (see *Figure 110 – Connecting laptop PC to DBS rack*).

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

8. Initialize the system by running the 7390LT software: to do this, the configuration steps listed in the

following table must be executed:

Order number of steps	Designation of steps linked to the 7390LT	Comments	Reference of screen or paragraph
I	**Starting up the LT**	Follow the instructions described previously in the manual to start up the 7390LT software. Close the information window displayed when the program is running in order to access the 7390LT main screen.	4.2.2 –
II	**Connecting to the BS**	Connect the DBS following the instructions seen before. . *IP address*: enter the address which is blank on first start-up; for subsequent connections, the last used IP address is displayed by default. Click on "Apply" to activate retrieval of MIBs on PC; this terminates with the opening of the BS supervision screen.	4.3.1 – 4.5 –

Order number of steps	Designation of steps linked to the 7390LT	Comments	Reference of screen or paragraph
III	**Initializing the RAM ANT board**	**On first start-up**, it is wise to initialize the ANT board SNMP agent memory. To do this, follow the instructions in §4.5.5. **Warning**: this destructive function is not to be used subsequently for an operation, but is **reserved for maintenance operations**. This initialization causes a reboot of the 7390LT; return to step III to reconnect.	4.5.6 –
IV	**Select CROSS-POL configuration**	In the ***BS Details*** screen: - select Cross-Polarization for polarization type. - click on the «***Apply***»' button, ***Nota:*** configuration of radio links is only available after this step.	4.5 –
V	**Checking recognition of sub-assemblies (boards and X-Pol RBS) by the LT**	Check on the rack represented in the **BS supervision** screen that the physically present sub-assemblies are taken into account by the LT. Running the 7390LT software automatically retrieves the serial number for each board, their modification index and their software version. Check the conformity of the data against the delivery slip.	4.5 – 4.5.3.1 – to 4.5.3.7 – 4.5.3.6 –
VI	**Synchronization**	This involves defining the priority rules for the possible timing sources for the station. Priority 1 of course relates to an external source, since this allows the station to be immune to user error. For the moment, it is not possible to select one of the channels (1, 5, 9 or 13) of the TNT board present since they are not yet defined. You should come back to this step VI when at least one has been configured. . *Operational Status*: the effective presence of a signal used for synchronization is signaled by the wording "Enabled". If no signal is valid, the station uses its internal clock. --> Confirm the modifications and quit the screen to return to the ***BS supervision*** screen.	4.5 –
VII	**Agent time setting**	In the ***BS Details*** screen: - click on the icon to send the time to the agent. - check that the ***Last time setting*** section has been consequently modified (automatic).	4.5 –

Order number of steps	Designation of steps linked to the 7390LT	Comments	Reference of screen or paragraph
VIII	**Setting Radio link parameters**	Radio characteristics: . *AMD Board associated*: fields automatically filled: check that the parameters are those anticipated. . *Band Width (MHz)*: define the band Width: 14 or 28MHz. . DownStream Central (GHz): Enter the frequency of the downstream channel, according to radio planning. . *Upstream Central (GHz)*: Enter the central frequency of the four upstream channels, according to radio planning. --> Confirm settings: after a few seconds, the four frequencies of the upstream channels, Upstream # 1, Upstream # 2, Upstream # 3 et Upstream # 4, are calculated and displayed. NB: there are as many tabs as installed radio sectors (radio links). . *Transmission power (dBm)* (defines an output power from 0 dBm to 27 dBm): Adjust the display value to give that required for the link study. If no value is supplied, use by default the value +17 dBm, which gives the greatest range. NB: If the specified value is +7 dBm, it is recommended not to leave it in this status, but to quit the value and return to it by using the up and down arrows. Note: The Rx gain must be at 40 dB. Upstream characteristics: . activation of upstream, . validate upstream apply data trafic. Quit the screen to return to the BS supervision screen. Note that the alarm indicator of the AMD board(s) has switched from yellow to green, to indicate the settings have been accepted (otherwise see Appendix A.6.1).	4.7 – 4.7.1 – 4.7.2 4.5 –
IX	**First 7390NE software update**	Download, reference and activate.	7.3.13 –

Order number of steps	Designation of steps linked to the 7390LT	Comments	Reference of screen or paragraph
X	**Configuration of X-Pol RBS** X-Pol RBS parameters: type and length of cable.	Characteristics: . *ID:* field automatically filled with the radio link number. . *Cable type*: select the type of cable from the scroll menu. . *Cable length*: enter the length of the cable which connects the X-Pol RBS to the DBS. NB: Never leave at 0, even for a tabletop bench. --> Confirm the settings to return to the ***BS supervision*** screen NB: Note that the alarm indicator on the X-Pol RBS has changed from yellow to green. Repeat the same operations for all the X-Pol RBS.	4.5.7 – note 4.5.7 – 4.5 –
XI	**Configuration of the ATM medium type** (only for DBS with optical interface)	*Select sdh or sonet* for the Medium type configuration, then apply	4.9.1 –
XII	**Information about the BS**	. *Name:* enter the name of the base station (e.g., Base ST #1) . *Location:* enter the location of the base station (e.g., Orlando)	4.5 –

9. Quit the 7390LT software (see § *4.3.2 – Disconnecting the NE assembly*)
10. Fill in the Installation Sheet (see *Appendix 1 – Installation sheet*).

5.2 – Checking and validating parameters

Once the Equipment is commissioned, the 7390LT software can be used to:

- connect the Base Station, offering the possibility to update site data (see § *4.3.1 – NE Connection*),
- supervise the entire A7390 (NE) system.

6 – Operation and maintenance

6.1 – Network supervision

The status of the system is controlled permanently by the supervision function provided by the 7390LT software. This function is described in § *4.4 Supervision Principles* and *4.5 Base Station Supervision*. It offers the following operational help tools:

- a **log of all the events** taking place between the Agent (NE) and the Manager (7390 LT) from the connection (see § *4.8 NE management*),
- a **historical event log** (see § *4.8.3 Historical Event log*)
- an **alarms list** (see § *4.10.1 Alarms*).

6.2 – Operation

The configuration operations relating to current operations are as follows:

- Time setting (see § *The operator is advised of any inappropriate commands by error messages (see Appendix 6 – Error messages and corrective actions).*),
- Configuration of frequencies (see § *6.2.2 – Configuration of frequencies and transmit power*),
- Configuration of transmit power level (see § *6.2.3 – Configuration of the cable attenuation dB*)
- Configuration of X-Pol RBS (see § *6.2.4 – Configuration of the RBS*),
- Activation of upstream (see § *6.2.4 – Activation of upstream*),
- Validation of upstream for IP data traffic (see § *6.2.5 – Validation of upstream for IP data traffic*),
- Radio resources management (see § *6.2.6 – On-demand Service Management*),
- Configuration of IP addresses (see § *6.2.7 – Configuration of IP addresses*),
- Configuration of the NFS server (see § *6.2.8 – Configuration of the NFS Server*),
- Configuration of ATM interface (see § *6.2.9 – Configuration of ATM interface*),
- Configuration of TNT board for circuit emulation (see § *6.2.10 – Configuration of TNT board for circuit emulation*),
- Creation of ASAP table for NT (see § *6.2.11 – Creation of ASAP table for NT*),
- Suppression of ASAP table for NT (see § *6.2.12 – Suppression of ASAP table for NT*),
- Change of alarm severity profile (see § *6.2.13 – Change of alarm severity profile*),
- Service creation: leased lines, data and/or VoIP (Voice over IP), IP, CES, ISDN (see § *6.2.14 – Service creation leased lines, IP, CES, ISDN*),
- Service suppression: leased lines, data and/or VoIP, CES, ISDN (see § *6.2.15 – Service suppression leased lines, IP, CES, ISDN*),
- Start radio performance for NT (see § *6.2.16 – Start radio performance for NT*),
- Stop radio performance for NT (see § *6.2.17 – Stop radio performance for NT*),
- Start radio performance for radio link (see § *6.2.18 – Start radio performance for Radio Link*),
- Stop radio performance for radio link (see § *6.2.19 – Stop radio performance for Radio Link*)
- Stop NE supervision (see § 6.2.20 – Stop NE Supervision)
- Start NE supervision (see § 6.2.21 – Start NE Supervision)
- Stop NT supervision (see § 6.2.22 – Stop NT Supervision)

- Start NT supervision (see § 6.2.23 – Start NT Supervision)
- Stop BS supervision (see § 6.2.24 – Stop BS Supervision)
- Start BS supervision (see § 6.2.25 – Start BS Supervision)
- Backup (see § *6.2.26 – Backup*),
- Restore (see § *6.2.27 – Restore*).

Note: *The operator is advised of any inappropriate commands by error messages (see Appendix 6 – Error messages and corrective actions).*

6.2.1 – Time setting

6.2.1.1 – Manual time setting

Time setting is carried out from the ***BS Details*** screen (see § *4.5 Base Station Supervision*) by clicking on the «Set Agent time» button (see § *4.5.5 Sending time to the Agent*). The system updates its time only when manual time setting is done.

Note: *Manual time setting is not allowed when SNTP server is configured.*

6.2.1.2 – Automatic Time Setting by SNTP

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Configuration of the IP address of SNTP server.	Go to the ***Time Management*** screen and configure an IP address time server.	4.14.4
II	Check that SNTP server is available.	Check that the time server loss alarm has disappeared.	4.10.1.3

Note: *Once the automatic time setting is set, the system updates its time every fifteen minutes with the SNTP server time.*

6.2.2 – Configuration of frequencies and transmit power

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Access to the ***Radio Configuration*** screen.	Go to the ***Radio Configuration*** screen from the ***BS Details*** screen.	4.5
II	**Definition of the radio parameters.**	In the ***Radio Configuration*** screen: - select the radio link tab, - define the channelization type - define the frequency of the uplink channel, - define the frequency of the downlink channel, - define the transmission power (dBm) - validate.	4.7

	CHECK THAT THE FREQUENCIES ENTERED CORRESPOND TO THE DATA OF THE IMPLEMENTATION SHEET (SEE A.1).
	THE SECTOR REBOOTS, FOR THIS SECTOR, THE SERVICES ARE TEMPORARILY UNAVAILABLE.

6.2.3 – Configuration of the cable attenuation dB

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Access to the ***Configuration IBS***.	In the IBS screen double-click on the IBS icon or open the Radio group details windows then double-click on the IBS.	
II	Definition of the cable attenuation (dB)	- define X-Pol RBS Tx cable attenuation dB, - define X-Pol RBS Rx cable attenuation dB, - validate.	

6.2.4 – Activation of upstream

The upstream activation allows to be able to create NT.

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Access to the radio screen.	Go to the ***Radio Configuration*** screen from the ***BS Details*** screen.	4.7.1
II	Activation of the upstream.	In the ***Radio Configuration*** screen: - select the upstream to be activated and apply.	4.7.1

6.2.5 – Validation of upstream for IP data traffic

The validation of upstream for IP data traffic allows to be able to create IP services (cf. § *4.7.2 IP data traffic configuration*).

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Edit the IP data traffic configuration.	Go to ***IP Data Traffic Configuration*** screen from the ***BS Details*** screen.	4.7.2
II	Validate on the upstream.	- click on the data traffic field for the right upstream and select "YES" to repeat the same for the other upstreams to be validated, - validate the modification by clicking on «*Apply*».	4.7.2
III	Check configured bandwidth.	Check on the ***IP Data Traffic Configuration*** screen that the configured bandwidth has been correctly decreased.	4.7.2

6.2.6 – On-demand Service Management

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Access the ***On-demand Service Management*** screen	From the ***BS Details*** screen, access the ***On-demand Service Management*** screen.	4.5
II	Overbooking configuration	In the ***On-demand Service Management*** screen: - choose the radio link to manage. The different possible actions are: - for the downstream channels: - define the overbooking factor limits, - select or no the policing. - for each upstream channel: - define the overbooking factor limits, - select the Guaranteed MCR or allow a degraded MCR. - validate by pressing the "*Apply*" button.	4.7.3.2
III	Display of allocated radio resources	From the ***BS Details*** screen, access to the used ***On-demand Service Management*** screen. - consult the radio resources reserved for the traffic	4.5 4.7.3

Note: *When a service is created, the operator can check bandwidth use by displaying the use radio resource (see stage III).*

6.2.7 – Configuration of IP addresses

IP configuration consists in defining:

- the IP addresses of the BS, corresponding to each of the ATM and Ethernet interfaces,
- the sub-nets of 7390 LT managers associated with the ATM and / or Ethernet interfaces.

6.2.7.1 – IP addresses of the ATM and Ethernet interfaces of the BS

	BOTH IP ADDRESSES MUST BELONG TO DIFFERENT SUB-NETS.

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Access to the IP address parame-ters of the BS.	Go to ***BS's Local Networks*** screen from the «*Change IP address» button*.	4.5 4.9.2
II	Allocation of an IP address to the ATM interface.	In the "ATM Network" part of the ***BS's Local Networks*** screen: - enter the Pvi/Vci parameters, - select the bit rate, - validate. **Nota**:This stage can be not performed. In this case the IP interface remains not configured.	4.9.2
III	Allocation of an IP address to the Ethernet port.	In the "Ethernet Network" part of the ***BS's Local Networks*** screen: .- define the IP address, - define the sub-net mask, - enter the IP address of the router associated with the Ethernet input, - validate. **Nota**:This stage can be not performed. In this case the IP interface is configured with default IP address of the BS (192 168 99.1).	4.9.2

Note: *IP address 0.0.0.0. is not rejected but the system remains with the former IP address.*

	IT IS RECOMMENDED TO CHANGE THE ADDRESSES OF THE BS WITH A LT CONNECTED LOCALLY TO THE BS.

6.2.7.2 – Sub-net of Manager (7390 LT)

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Access to "Network address" settings	Go to the ***Target Network*** screen from the «*Change Network address*» button.	4.5 4.9.3
II	Definition of the manager sub-net associated with interface 1.	In the "Interface 1" part: - define the IP address, - define the sub-net mask, - define the interface associated with manager 1 (ATM or Ethernet), - validate.	4.9.3
III	Definition of the manager sub-net associated with interface 2.	In the "Interface 2" part: - define the IP address, - define the sub-net mask, - define the interface associated with manager 2 (ATM or Ethernet), - validate.	4.9.3

Note: *The two sub-nets can be associated with the same interface.*

6.2.8 – Configuration of the NFS Server

In order to keep a connection between a DBS and a NFS server (even after a DBS reset), it is possible to configure the access to a NFS server. Once done, any board or NT with a wrong software version will be automatically updated..

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Selection of a File Server Type.	Go to the ***NFS Server*** screen: - select the File Server Type. In case of 7390 LT Server, perform step II. In case of External Server, perform step III.	4.14.1
II	Selection of the file which describes the software configuration (7390 LT server).	In the ***NFS Server*** screen: - click on the «*Browse...*» button, - select the File descriptor in the ***File Browser*** screen, - click on the «Apply» button, - then, close the ***File Browser*** screen. **Nota:** In the ***NFS Server*** screen, Package Location and File descriptor parameters are automatically updated. Do not perform step III and go to step IV.	4.14.1

Order number of steps	Designation	Comments	Refer to paragraph concerned
III	Configuration of the file which describes the software configuration (external server).	In the ***NFS Server*** screen: - assign an IP address to the external server, - select Network Type (LAN or WAN), - give a Package Location, **Nota**: Be cautious of the upper and lower cases. - give a File descriptor name.	4.14.1
IV	Validate the NFS Server configuration.	- click on the «*Connect*» button to take into account the NFS Server Configuration. **Nota**: An error message can appear (cf: Appendix 6)	4.14.1

6.2.9 – Configuration of ATM interface

The 155 MBPS interfaces must be configured. The 34 Mbps interface is not configurable.

6.2.9.1 – Configuration of the 155 MBPS interface_I

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Configuration of the Medium Type.	Go to the ***ATM Ports Details*** screen: - select the Medium Type (sdh or sonet), - click on «*Apply*».	4.9.1

6.2.10– Configuration of TNT board for circuit emulation

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Lock all TNT Ports	Go to the ***E1 cross-connection*** screen and open the ***TNT port configuration*** screen Lock all the ports	4.5.3.2
II	Change the input type of the TNT board	Go to the ***TNT Details*** screen: - select ATM, - and *«Apply»*. **Nota**: This change will make the TNT board reset	4.5.3.2
III	Check TNT configuration	- Check the TNT board becomes green again,	4.5.3.2
IV	Configure parameters for circuit emulation	- Change parameters, (Buf Max Size) and (Cdv Rx T)	4.5.3.2

	FOR T1 «Cdv RxT» AND «Buf Max Size» PARAMETER MUST NOT BE SET TO RESPECTIVELY 250 µs AND 375 µs (THE LOWEST VALUE).

6.2.11– Creation of ASAP table for NT

Note: *The new ASAP table is created with severities equal to the severities of the NT default table.*

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Access to ***ASAP List*** screen.	From the menu bar, open ***ASAP List*** screen.	4.10.2
II	Create a new ASAP.	- click on the «*New ASAP*» button, - enter the new ASAP name. - validate	4.10.2.1
III	Change the alarm severity profile.	- click on the severity to be changed to make appear scroll down list. - click on the «*Modify ASAP*» button - select the new severity. - repeat this action for the severities to be changed. - finally, validate by clicking on *«Apply»*.	4.10.2.2
IV	Association of these ASAPs to NTs.	Go to ***NT List*** screen. - double click on the first NT in the ***NT Details*** screen. - select wanted ASAP and validate by clicking on *«Apply»*. - repeat these actions for the NT whose ASAP table has to be changed.	4.6

6.2.12– Suppression of ASAP table for NT

Note: *No NT must reference the ASAP table to be suppressed.*

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Select the ASAP.	Go to the ***ASAP List*** screen, select the ASAP.	4.10.2
II	Remove suppression.	- click on the «*delete ASAP*» button and confirm the suppression by clicking on the «*OK*» button.	4.10.2.3

6.2.13– Change of alarm severity profile

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Select the ASAP	- Go to the ***ASAP List*** screen, select the ASAP. - Click on «*Modifiy ASAP*» button.	4.10.2
II	Change severity of a label.	- Click on the severity to be changed to make appear scroll down list. - Select the new severity. Repeat this action for the severities to be changed. - Finally, validate by clicking on *«Apply»*.	4.10.2.2

6.2.14– Service creation leased lines, IP, CES, ISDN

Several cases may be distinguished according to whether leased lines (E1, X21, T1, CES) or IP cross-connect creation is involved.

6.2.14.1– Creating an E1 cross-connection

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Configuration of TNT port on BS	Go to the ***E1 cross-connections*** screen: - select the TNT board, - access the configuration of the TNT board ports, - select a port from the list, - configure the port: . select structured or unstructured, . validate by clicking on *«Apply»*. . unlock the administrative status of the port, . validate by clicking on *«Apply»*.	4.12.1.2 4.12.1.3 4.12.1.4
II	Configuration of port on NT	Go to the ***E1 cross-connections*** screen: - select the NT, - access the configuration of the NT ports, . select structured or unstructured, . validate by clicking on *«Apply»*. . unlock the administrative status of the port, . validate by clicking on *«Apply»*.	4.12.1.3 4.12.1.5
III	Cross-connection of timeslots of selected ports	In the ***E1 cross-connections*** screen: - two cross-connect modes are available depending on whether the cross-connection ports are structured or unstructured. - validate the cross-connection by creating the E1 cross-connection (following step).	4.12.1.6

Order number of steps	Designation	Comments	Refer to paragraph concerned
IV	Creation of an E1 link	In the ***E1 cross-connections*** screen: - click on the cross-connection creation button. In the ***Create a cross-connection*** screen: - assign a designation to the cross-connection if you want to modify the default designation. - click on «*OK*»to create the link.	4.12.5.3
V	Unlocking and activating the cross-connection	In the ***E1 cross-connections*** screen: - click on the «*unlock*» button.	4.12.5.5

Nota: When a E1 port or E1 cross-connection is locked or unlocked a SIA alarm can appear temporarely.

6.2.14.2– Creating an X21 cross-connection

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Configuration of TNT port on BS	Go to the ***E1 cross-connections*** screen: - select the TNT board, - access the configuration of the TNT board ports - select a port from the list, - configure the port: . select structured or unstructured, . validate by clicking on *«Apply»* . unlock the administrative status of the port, . validate by clicking on *«Apply»*.	4.12.2.3 4.12.2.4
II	Configuration of port on NT	Go to the ***E1 cross-connections*** screen: - select the NT, - access the configuration of the NT ports, . unlock the administrative status of the port, . validate by clicking on *«Apply».*	4.12.2.3 4.12.2.5
III	Cross-connection of time slots of selected ports	In the ***E1 cross-connections*** screen: - two cross-connect modes are available depending on whether the cross-connection ports are structured or unstructured. - validate the cross-connection by creating the X21 cross-connection (following step).	4.12.2.6
IV	Creation of an X21 link	In the ***E1 cross-connections*** screen: - click on the cross-connection creation button. In the ***Create a cross-connection*** window: - assign a designation to the cross-connection if you want to modify the default designation. - click on «*OK*» to create the link.	4.12.5.3

Order number of steps	Designation	Comments	Refer to paragraph concerned
V	Unlocking and activating the cross-connection	In the ***E1 cross-connections*** screen: - click on the «*unlock*» button.	4.12.5.5

6.2.14.3– Creating a T1 cross-connection

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Configuration of TNT port on BS	Go to the ***T1 cross-connections*** screen: - select the TNT board, - access the configuration of the TNT board ports, - select a port from the list, - configure the port: . unlock the administrative status of the port, . validate by clicking on *«Apply»*.	4.12.3.3 4.12.3.4
II	Configuration of port on NT	Go to the ***T1 cross-connections*** screen: - select the NT, - access the configuration of the NT ports, - go to the ***Ports Configuration*** screen, . select structured or unstructured, . validate by clicking on *«Apply»*. . unlock the administrative status of the port, . validate by clicking on *«Apply»*.	4.12.3.3 4.12.3.5
III	Cross-connection of time slots of selected ports	In the ***T1 cross-connections*** screen: - two cross-connect modes are available depending on whether the cross-connection ports are structured or unstructured. - validate the cross-connection by creating the T1 cross-connection (following step).	4.12.3.6
IV	Creation of a T1 link	In the ***T1 cross-connections*** screen: - click on the cross-connection creation button. In the ***Create a cross-connection*** window: - assign a designation to the cross-connection if you want to modify the default designation. - click on «*OK*» to create the link.	4.12.5.3
V	Unlocking and activating the cross-connection	In the ***T1 cross-connections*** screen: - click on the «*unlock*» button.	4.12.5.5

6.2.14.4– Creating a CES cross-connection

Note: *The TNT board must be configured for circuit emulation.*

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Creation of LL cross-connection	See step I, II, III, IV of section 6.2.14.1 –(E1), 6.2.14.2 – (X21) and 6.2.14.3 – (T1)	
II	Check if the TNT port is locked	Go to the ***E1 cross-connections*** screen: - select the TNT board, - access the configuration of the TNT board ports, - select a port from the list, - lock the administrative status of the port, - validate by clicking on *«Apply»*.	4.12.6.3
III	Creation of a CES link	- select the TNT board, - select a TNT port from the list. - choose the Vci of ATM link - click on the «*Cross-connection Creation*» button.	4.12.6.3
IV	Unlock the TNT port	Go to the ***E1 cross-connections*** screen: - select the TNT board, - access the configuration of the TNT board ports, - select a port from the list, - unlock the administrative status of the port, - validate by clicking on *«Apply»*.	4.12.4.3
V	Unlock the LL cross-connection or unlock NT port	In the ***E1 cross-connections*** screen: - click on the «*unlock*» button. Go to the ***E1 cross-connections*** screen: - select the NT, - access the configuration of the NT ports, - unlock the administrative status of the NT ports, - validate by clicking on *«Apply»*	4.12.5.5 4.12.3.5(E1) 4.11.2.5 (X21) 4.12.3.5 (T1)

	DO NOT UNLOCK A PORT OF A TNT CONFIGURED FOR CES WITHOUT HAVING ASSOCIATED E1 CROSS-CONNECTION TO THE PORT AND WITHOUT HAVING UNLOCKED THIS E1 CROSS-CONNECTION BEFORE.

6.2.14.5– Creating an IP cross-connection

Note: *Before creating an IP cross-connection, check if upstream is validated for data traffic.*

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Configuration of Ethernet ports on NT	Go to ***IP*** screen from main screen. - go to ***NT Ethernet Ports Management*** screen from the ***IP*** screen, - select the NT, - select the Configuration State (half or full duplex),, - unlock the port, - validate by clicking on *«Apply»*.	4.13 4.13.2.2
II	Creation of an IP link	Go to ***New IP Cross-connection*** screen from the ***IP*** screen, - select the NT involved in the IP link, - select the Ethernet port involved in the link, - select the IP service type (dynamic or static), - define the flow in transmission and reception, - select the traffic type (Only Data or Both Data & Voice), - enter the VCL parameters(Vpi, Vci) for Data traffic and for Voice over IP if needed.,	4.13.2.1 and 4.13.2.3 4.13.2.3 table
III	Unlocking and activating the IP cross-connection	In the ***IP*** screen, click on the «*unlock*» button.	4.13.2.6

6.2.14.6– Creating an ISDN Servic.

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Configuration of TNT port on BS	Go to the ***ISDN cross-connections*** screen: - select the TNT board, - access the configuration of the TNT board ports, - go to the ***ISDN ports Configuration*** screen: - select a port from the list, - configure the port with ISDN: . validate by clicking on *«Apply»*, . unlock the administrative status of the port, . validate by clicking on *«Apply»*.	4.12.2.3 4.12.4.3
II	Creation of an ISDN signaling Link (for D channels)	Go to the ***ISDN cross-connections*** screen: - select signaling, - select one TS of TNT port, - assign the TS to the signaling TS, - click on the cross connection creation button.	4.12.4.2 4.12.1.6
III	Activation the cross-connection	In the ***ISDN cross-connections*** screen: - click on the «*Unlock*» button.	4.12.4.3
IV	Configuration of TNT port on BS	Go to the ***ISDN cross-connections*** screen: - select the TNT board, - access the configuration of the TNT board ports, - select a port from the list, - configure the port with ISDN: . validate by clicking on *«Apply»*, . unlock the administrative status of the port, . validate by clicking on *«Apply»*.	
V	Creation of an ISDN Link (for B channels)	Go to the ***E1 cross-connections*** screen: - select the NT, - select the NT ISDN port - select one opr two TS of TNT port, **Nota**: If only one B channel is inlvolved in the ISDN link, select only one TS if both B channels or involved, select two TSs. - assign the TS to the B channel TS, - click on the «*Cross-connection Creation*» button.	4.12.4.2
VI	Activation of the ISDN Link	In the ***E1 cross-connections*** screen: - select the ISDN Link - click on the «*Unlock*» button.	4.12.4.2
VII	Creation of an ISDN Link over another ISDN port	- repeat step IV to VI for the following ISDN port,	4.12.4.2

- One free time slot of the selected TNT port in ISDN configuration can be cross-connected to the signalling time-slot on the NT side.
- It is not possible to create a B-channel ISDN cross-connection if there is not created first a signalling cross-connection.
- It is possible to cross-connect up to 8 free time-slots of the selected port and up to 8 B-channels of the 4 ISDN-BA user port, but just 1 cross-connection by NT port. Then, it is possible to have 4 B-channel cross-connections by port.
- 2 cross-connections cannot coexist over the same NT port. So, if there is a B1 cross-connection and the user wants to do a B1+B2 cross-connection, he has to remove the B1 cross-connection before creating the B1+B2 cross-connection.

Note: *In the case of modifying the amount of enabled BRA-ISDN port at any WW-NT\ISDN, its existing cross-connection for B-channels transport has to be removed and a new one has to be created according to the new condition. This could even cause other cross-connections to be re-allocated (removed-created) in order to provide for enough bearer capacity in consecutive time slots at a certain GXDI E1 link.*

Note: *A 7390 platform identifies n*64 Kbits/s transport services, not presenting any link with ISDN related resources (i.e. OWSA-channels, B channels).*

6.2.15– Service suppression leased lines, IP, CES, ISDN

Several cases may be distinguished according to whether leased lines (E1, X21, T1, CES) or IP cross-connect suppression is involved.

6.2.15.1– Suppression of an E1 cross-connection

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Locking the cross-connection	In the ***E1 cross-connection*** screen: - select the cross-connection to suppress - click on the «*lock*» button.	4.12.5.5
II	Locking the ports used in the cross-connection	In the ***Board TNT x : ISDN ports configuration***: lock the relevant TNT port then click on «*Apply*». In the ***NT Board: E1 ports configuration***: lock the relevant NT port, then click on «*Apply*».	4.12.4.3 4.11.1.5
III	Suppression of E1 cross-connection	Once the "cross-connection" is selected in the "cross-connections" list: - click on the «*suppress*» button of the toolbar - validate the confirmation screen - check that the suppressed "cross-connection" no longer appears in the "cross-connections" list.	4.12.5.6

6.2.15.2– Suppression of an X21 cross-connection

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Locking the cross-connection	In the ***E1 cross-connection*** screen: - select the X21 "cross-connection" to be suppressed - click on the «*lock*» button	4.12.5.5
II	Locking the ports used in the cross-connection	In the ***Board TNT x : ISDN ports configuration***: - lock the relevant TNT board port - click on «*Apply*». In the ***NT Board: X21 ports configuration***: - lock the relevant NT port - click on «*Apply*».	4.12.4.3 4.11.1.5
III	Suppression of X21 cross-connection	Once the "cross-connection" is selected in the "cross-connections" list: - click on the «*suppress*» button of the toolbar - validate the confirmation screen - check that the suppressed "cross-connection" no longer appears in the "cross-connections" list.	4.12.5.6

6.2.15.3– Suppression of a T1 cross-connection

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Locking the cross-connection	In the ***T1 cross-connection*** screen: - select the cross-connection to suppress - click on the «*lock*» button.	4.12.5.5
II	Locking the ports implemented in the cross-connection	In the ***Board TNT x : ISDN ports configuration***: - lock the relevant TNT board port - click on «*Apply*». In the ***NT Board: T1 ports configuration***: - lock the relevant NT port - click on «*Apply*».	4.12.4.3 4.11.1.5
III	Suppression of T1 cross-connection	Once the "cross-connection" is selected in the "cross-connections" list: - click on the «*suppress*» button of the toolbar - validate the ***Confirmation*** screen - check that the suppressed "cross-connection" no longer appears in the "cross-connections" list.	4.12.5.6

6.2.15.4– Suppression of a CES cross-connection

	DO NOT UNLOCK A PORT OF A TNT CONFIGURED FOR CES WITHOUT HAVING ASSOCIATED E1 CROSS-CONNECTION TO THE PORT AND WITHOUT HAVING UNLOCKED THIS E1 CROSS-CONNECTION BEFORE.

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Lock the TNT port (Necessary before suppressing the CES cross-connection)	In the ***Board TNT x : ISDN ports configuration***: - lock the relevant TNT board port - click on «*Apply*».	4.12.4.3
II	Suppression of the CES cross-connection	In the ***Circuit Emulation Service*** screen: - select the "cross-connection" to be suppressed - click on the «*suppress*» button - validate the ***Confirmation*** screen - check that the suppressed "cross-connection" no longer appears in the "cross-connections" list.	4.12.6.3 4.12.6.4
III	Lock of NT ports lock of LL cross-connection	In the ***NT Board: xx ports configuration***: - lock the relevant NT port - click on «*Apply*». In the ***xx Cross-connection*** *screen*:- select the cross-connection to suppress - click on the «*lock*» button.	4.11.1.5 4.12.5.5

Order number of steps	Designation	Comments	Refer to paragraph concerned
IV	Suppression of LL cross-connection	Once the "cross-connection" is selected in the "cross-connections" list: - click on the «*suppress*» button of the toolbar - validate the ***Confirmation*** screen - check that the suppressed "cross-connection" no longer appears in the "cross-connections" list.	4.12.5.6

6.2.15.5– Suppression of an IP cross-connection

	DO NOT UNLOCK A PORT OF A TNT CONFIGURED FOR CES WITHOUT HAVING ASSOCIATED E1 CROSS-CONNECTION TO THE PORT AND WITHOUT HAVING UNLOCKED THIS E1 CROSS-CONNECTION BEFORE.

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Locking the cross-connection	In the ***IP*** screen: - select the cross-connection to suppress - click on the «*lock*» button.	4.13.2.6
II	Locking the NT Ethernet ports	In the ***NT Ethernet Ports Management*** screen: - check the «locked» box for each port concerned, - then, click on «*Apply*».	4.13.2.2
III	Suppression of IP cross-connection	Once the "cross-connection" is selected in the "cross-connections" list: - click on the «*suppress*» button of the toolbar - validate the ***Confirmation*** screen - check that the suppressed "cross-connection" no longer appears in the "cross-connections" list.	4.13.2.2

6.2.15.6– Suppression of an ISDN service.

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Locking the ISDN link using B channels	In the ***ISDN cross-connection*** screen: - select the cross-connection using B channel, - click on the «*lock*» button.	4.13.2.6
II	Locking the ports used in the cross-connection	In the **TNT board: Ports configuration** screen: - lock the relevant TNT port, - click on «*Apply*».	4.13.2.2
III	Suppression of the ISDN link	Once the first "cross-connection" is selected in the "cross-connections" list: - click on the «*suppress*» button of the toolbar - validate the *Confirmation* screen - check that the suppressed "cross-connection" no longer appears in the "cross-connections" list.	4.13.2.7

Order number of steps	Designation	Comments	Refer to paragraph concerned
IV	Locking the ISDN link for signaling	In the ***ISDN cross-connection*** screen: - select the cross-connection involving signaling - click on the «*lock*» button.	4.13.2.6
V	Locking the ports used in the cross-connection	In the **TNT board: Ports configuration** screen: - lock the relevant TNT port, - click on «*Apply*».	4.13.2.2
VI	Suppression of the ISDN link	- select the cross-connection involving signaling - click on the «*suppress*» button of the toolbar - validate the **Confirmation** screen - check that the suppressed "cross-connection" no longer appears in the "cross-connections" list.	4.13.2.7

6.2.16– Start radio performance for NT

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Selection of the NT	Go to the ***Radio Performance*** screen: - select the NT in the **NT List** screen, - click on *«Apply».* **Nota**: Up to 4 NT per Radio link can be monitored	4.11.1.1
II	Monitor the NT	- check that ***NT Monitoring and Maintenance*** screen appear in the ***Radio Performance*** screen	4.11.1.2

	RADIO PERFORMANCES CAN BE MONITORED ONLY FOR 4 NTs ON A SAME RADIO LINK (SO, UP TO 16 NTs FOR ONE BS.

6.2.17– Stop radio performance for NT

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Selection of the NT	Go to the ***Radio Performance*** screen: - click on the «*Radio Link*» tab associated on the NT, - click on the NT tab.	4.11.1.2
II	Stop the performance	- click on the stop monitoring icon, - click on the ***Stop Performance Monitoring*** screen: you have selected the right NT.	4.11.1.2

6.2.18– Start radio performance for Radio Link

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Selection of the radio link	Go to the ***Radio Performance*** screen, - select the radio link in the radio link list, - click on the *«Apply»* button.	4.11.1.1
II	Monitor the radio link	- check that the monitoring screen appears in the ***Radio Performance*** screen.	4.11.1.2

6.2.19– Stop radio performance for Radio Link

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Selection of the radio link	Go to the ***Radio Performance*** screen, - click on the «global» tab of the Radio Link you want to stop, - click on the global tab.	4.11.1.2
II	Stop the performance	- click on the stop monitoring icon, - click on the ***Stop Performance Monitoring*** screen: you have selected the right Radio link.	4.11.1.2

6.2.20– Stop NE Supervision

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Stop supervision	Go to the main screen - click on the icon to stop NE supervision - click on «*Yes*» to confirm	4.8.1
II	Checking	Check that the supervision states have changed in the ***BS Details*** screen and in the ***NT List*** screen.	4.8.1

*Note: The **Current Alarms Synthesis** screen disappears and no more configuration is possible*

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6.2.21– Start NE Supervision

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Start supervision	Go to the main screen - click on the icon to start NE supervision - click on «*Yes*» to confirm	4.8.1
II	Checking	Check that the supervision state has changed in the ***BS Details*** screen and in the ***NT List*** screen.	4.8.1

6.2.22– Stop NT Supervision

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Stop supervision	Go to the ***NT List*** screen - select the desired NT - click on the icon to stop the supervision of the NT	4.6.1
II	Checking	Check that the supervision state has changed in the ***NT List*** screen.	4.6

6.2.23– Start NT Supervision

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Start supervision	Go to the ***NT List*** screen - select the desired NT - click on the icon to start the supervision of the NT ***Note****: The icon is active only if the BS is already supervised.*	4.6.1
II	Checking	Check that the supervision state has changed in the ***NT List*** screen.	4.6

6.2.24– Stop BS Supervision

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Stop supervision	Go to the ***BS Details*** screen - click on the icon to stop the supervision of the BS ***Note**: The icon is not active if at least one NT is supervised (check in the **NT List** screen).*	4.5.1
II	Checking	Check that the supervision state has changed.	4.5

6.2.25– Start BS Supervision

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Start supervision	Go to the ***BS Details*** screen - click on the icon to start the supervision of the BS	4.5.1
II	Checking	Check that the supervision state has changed.	4.5

6.2.26– Backup

	THE DESTINATION PATH OF THE BACKUP FILE MUST BE CONFIGURED IN R/W IN THE NFS SERVER.
	NON STANDARD ASCII (INCLUDING «-» AND «_») OR SPACE CHARACTERS ARE NOT ALLOWED FORTHE DESTINATION PATH OF THE BACKUP FILE

***Note**: A time out may appear if the back up function is launched under a severe flow of alarms.*

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Check the BS name	In the ***BS Details*** screen: - check that the BS name is not empty. ***Nota:** The name will be used for restore operation.*	4.5
II	Selection of the destination path of the backup file	From the ***Backup / Restore Management*** screen: - select the «*Backup*» tab - click on the «*select*» button	4.14.2

Order number of steps	Designation	Comments	Refer to paragraph concerned
III	Modification of the transfer file name	In the ***Enter the name of the File to be transfered by the agent*** screen: - click on the arrow to select the destination disk - open the destination directory by double-clicking on it - enter the name of the backup file - click on «*Apply*» to take into account the path - click on «*close*» to return to the ***Backup / Restore Management*** screen	4.14.2.1
IV	Backup	- click on the «"*start*» button of the ***Backup / Restore Management*** screen - once the operation is complete: exit this function by clicking on «close».	4.14.2

6.2.27– Restore

	THE INTEGRITY OF THE FILE TO BE RESTORED IS UNDER THE OPERATOR'S RESPONSIBILITY. THE SYSTEM DOES NOT MANAGE ANY INTEGRITY LOSS.

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Check the BS name	Check that the BS station name has not changed since the backup operation. ***Nota:*** *If BS name is empty, restoration is possible but the risk of restoring a wrong configuration is high.*	
II	Selection of the restore file path	Make sure that the restore directory is exported in R/W to the NFS server. From the ***Backup / Restore Management*** screen: - select the *«Restore» tab* - click on the «*select*» button	4.14.2
III	Modification of the transfer file name	In the ***Enter the name of the File to be transfered by the agent*** screen: - click on the arrow to select the LT source disk - select the LT source directory by double-clicking on it - select the file that you wish to restore in the files list of the selected directory. - click on «*Apply*» to take into account the path - click on «*close*» to return to the ***Backup / Restore Management*** screen	4.14.2.1
IV	File transfer	- click on the «*start*» button of the ***Backup / Restore Management*** screen - once the operation is complete: exit this function by clicking on «*close*».	4.14.2
V	Checking activated and referenced fields in the software management screen	After NE is restarted, both fields must be filled, otherwise carry out an entire download. (see § 7.3.12 –)	4.14.3

6.3 – Preventive maintenance

Preventive maintenance is carried out by:

- permanent monitoring of the system provided by the supervision function,
- periodic inspection of the equipment to ensure that:
  - the link cables between the NE elements are not damaged,
  - the external equipment is properly assembled,
  - the internal equipment is correctly in place.

	After stopping the **BS** or **resetting** an **ANT** board (deliberately or not), DO NOT forget to download again the same software on the available package (1 or 2) without activating nor referencing it, to re-create the NFS assembly point so as the new NTs that come in the network can perform automatic download.

6.4 – Corrective maintenance

6.4.1 – Alarms processing

Knowledge of the implicitly induced alarms may be necessary for the operator to be able to carry out maintenance and estimate the quality of the services offered by the 7390NE. This is why the present document offers, in this chapter, a basic knowledge to the operator of the alarm correlation.

6.4.1.1 – Checking alarms for each equipment management function

The "alarms control" functions of each board's equipment management for a given type of element are responsible for supervision, clearing and masking of alarms for this element. Each of its functions is responsible for notification to the SNMP agent of the starts and ends of alarms that it controls.

The ANT board is in addition responsible for the processing of alarm indicators ("Critical", "Major" and "Minor" indicators).

The AMD board implements an equipment management function for each of the following types of element:

- the AMD itself
- the IBS
- the X-Pol RBS
- the NT
- the static cross-connects on the radio link.

The TNT board implements an equipment management function for each of the following types of element:

- the TNT itself
- the E1-G703 port of the TNT

The NT implements an equipment management function for each of the following types of element:

- the E1-G703 port of the NT
- the E1-G704 port of the NT
- the Ethernet port of the NT

6.4.1.2 – Terminology relating to the alarms

Active alarm: an alarm is active as soon as the start of this alarm is notified to the ANT board, and remains so as long as its end is not notified

Anomaly: discrepancy between the intended and real characteristics of an item. An anomaly may or may not affect the capacity of this item to carry out a required function. Several successive anomalies of the same type are generally considered a fault.

Defect: limited interruption of the capacity of an item to carry out the required function. A defect may or may not necessitate maintenance action.

Alarm clearance: clearing an alarm initiation by notifying its end.

Board alarm function: for AMD, TNT, IBS, X-Pol RBS or NT boards, the alarm function is the totality of the "Alarms control" functions of the elements that they manage.

Alarm masking: Storage of an alarm without immediate notification of alarm initiation. Masking allows the seriousness of the alarms for a given element to be hierarchically ordered: masking is carried out when a higher order alarm appears. If on unmasking (carried out at the end of the higher order alarm) the alarm which was masked is still present, an alarm initiation **must be notified**.

6.4.2 – Definition of 7390NE alarms

6.4.2.1 – Alarms relating to boards

The actions described are not necessarily controlled by the management software (they can be controlled by the equipment itself).

In the tables below, the term "board" may related to any part of the DBS (ANT, TNT, AMD, IBS, CPL, X-Pol RBS, PSU, Fans), or to an NT.

List of the alarms relating to the boards of 7390NE:

Probable cause	Alarm name	Definition	Actions
Board missing	Board_missing	1. One of the boards (AMD, ANT, TNT, IBS, CPL), already known to the agent, is physically absent from the 7390NE. 2. When the alarm object is the BS, it means that a load module (i.e.: a bus adaptative board, connected at the bottom of the rack) is physically absent. 3.This alarm also occurs for NT creation, when the radio link is not established with the BS.	**Internal NE actions:** depends on the functionalities and use of this board in the 7390NE. **Operator actions:** 1. Install the missing board (see § 6.5 –). If the board is intentionally withdrawn, its suppression will make the alarm disappear (see 4.5.3) 2. Contact the TAC (see page 3) 3. No action

Probable cause	Alarm name	Definition	Actions
Communi-cation Sub-system Failure	Comm_loss	The connection (for manage-ment link set-up) between the active ANT board and the "Board" element (redundant ANT; TNT, AMD, IBS, CPL, coo-ling unit, power supply unit) is not set up or is lost. When the alarm object is an NT, it may mean a durable loss of radio link.	**Internal NE actions:** reset (automatic or controlled) of the "Board" element if the board is a TNT or AMD board or an NT. No impact if the Board is an IBS or X-Pol RBS board: these two elements can continue to function without their management link. The setup or re-establishment of the connection requires the complete (re)configuration of this element. This procedure of (re)confguration is automatic and internal to the BS (as long as all the element configu-ration parameters are valid). **Operator action:** no action.
Type mis-match	Board_type_er ror	1. Alarm on TNT board. Alarm on TNT board after changing a board (replacement of board by another type of board). 2. Alarm on NT board. Alarm on NT unit after changing a board (replacement of a unit by another type of NT). 3. Alarm on CPL board. Alarm on CPL board after changing the board (replacement of a board by another type of board). 4. Alarm on ANT board. Alarm on ANT board after changing a board (replacement of a board by another type of board).	**Internal NE actions:** the "cross-connections" are not in service. **Operator actions:** 1. Change the board (see § 6.5 –). 2. Change the board or suppress the NT and recreate it. 3. Check type of the ANT and CPL boards. Change the ANT or CPL board (see § 6.5 –). 4. Check the type of the ANT board and change the board (see § 6.5 –).

Probable cause	Alarm name	Definition	Actions
Configuration error	Board_config. error	The Board (AMD or X-Pol RBS) element configuration parameters list that must be completed by the manager is incomplete.	**Internal NE actions:** some parameters being reported missing, the " Board " element configuration by the ANT board did not succeed and the system is waiting for a complete configuration. **Operator action:** achievement of the configuration. In the case of the X-Pol RBS, check that the type of cable allocated is one supported by the system (see § 4.5.7). Check that the frequencies set for this X-Pol RBS correspond to the data in appendix A.1 for the corresponding radio link. A configuration error alarm on X-Pol RBS may indicate also a hardware failure of the X-Pol RBS.
Hardware failure	HW_failure	Hardware failure detected by a board (ANT, TNT, AMD, cooling unit).	**Internal NE actions:** No action **Operator action:** replacement of the faulty board (see § 6.5 –).
Power supply problem	Power_problem	Power supply failure	**Internal NE actions:** No action **Operator action:** replacement of the power supply unit.
Cooling system problem	FAN_degraded	The fans of an element function in degraded mode, i.e., a single fan is faulty.	**Internal NE actions:** no action. **Operator action:** replacement of the cooling unit
Synthesizer problem	Synth	Synthesiser problem (IBS or X-Pol RBS).	**Internal NE actions:** for the X-Pol RBS, automatic cut-out of the transceiver For the IBS, no action **Operator action:** replacement of the faulty component.
Transmit power problem	TX_power	Power problem during transmission	**Internal NE actions:** automatic cut-out of the transmitter **Operator action:** replacement of the X-Pol RBS

Probable cause	Alarm name	Definition	Actions
Software version mismatch	Version_mismatch	The software version of the inserted board does not comply with the software package of the NE.	**Operator action:** check if it is the good software version (state of the software is set to downloading, cf. § 4.5.3.x) - if not, click on the "download" button of the software management screen toolbar to allow automatic update of the board (activation and referencing must not be done).
Storage problem	Storage_Pb	Storage capacity is not compliant with transmitted traffic that implies the loss of data (only for ANT, AMD)	**Operator action:** Check the synchronisation of the system.
Time server loss alarm	Time_server_loss	The BS cannot access to SNTP server either: - just after the automatic time setting if SNTP server is not available - twelve hours after the BS has lost its SNTP link or - when the SNTP server address is not configured.	**Internal NE actions:** If SNTP server address is configured, the BS continues polling the SNTP server. **Operator actions:** If SNTP server unavailable, check that the BS can address SNTP server (see § 4.9.2and 4.9.3) and check the network link between BS and SNTP server. If loss of SNTP link, check server process if SNTP. If wanted, configure SNTP server address (see § 6.2.1.2 –).

6.4.2.2 – Alarms relating to ports

The table below provides the list of alarms specific to the 7390NE **ports**, along with their definition and describes the automatic actions internal to the 7390NE-NR2.1 caused by the presence of each of these alarms. The actions described are not necessarily controlled by the management software (they may be controlled by the equipment itself).

List of the alarms relating to 7390NE ports:

Probable cause	Alarm name	Definition
Alarm indicator signal	Ais	Detection of "all-1" signal in the useful data (either in the data transported in the G.704 frame or in the SDH frame container).
Line Alarm Indicator signal	L-AIS	Detection of "all-1" ATM signal received on line (i.e., before unframing; this alarm only exists for the ATM port (ATM over SDH).
Errored CRC	CRC (*)	Detection of errored blocks in the received frame.
Frame alignment signal	FAS (*)	Detection of frame alignment word of errored frame.
Loss of multiframe alignement	Lmfa (*)	Loss of multi-frame alignment.
Loss Of Frame	LOF (*)	Detection of loss of frame alignment word.
Loss of pointer	LOP (*)	Detection of the reception of a pointer not valid for a STM-N signal (bytes H1,H2 and H3).
Loss Of Signal	LOS	Absence of received signal: detection of the absence of transition in the received signal ("frame" level).
Remote Alarm Indicator	RAI (*)	Alarm indication on the transmitted signal, signalled by remote.
RemoteErrorIndicator	REI (*)	Error indication on the transmitted signal, signalled by remote.
ATMPathRemoteDefectIndicator	P-RDI (*)	Fault indication on the transmitted and unframed signal, signalled by remote (either for the G.704 frame or in the SDH container).
ATMLineRemoteDefectIndicator	L-RDI (*)	Fault indication on the ATM signal transmitted on line.
ATMPathAlarmIndicatorSignal	P-AIS	Detection of the "All 1" signal in the virtual container.
(*) : this alarm can only exist if the signal transmitted/received by the port is framed.		

Note: *For these type of alarms, there is no action to be carried out (either from NE nor by the operator).*

Note: *If a «LOS» appears while a «LOF» alarm is active, a»LOS» alarm will be indicated until both alarms disappear (only on ATM interface).*

6.4.2.3 – Functional alarms

The 7390NE functions, for which the "Alarm" function of the ANT board manages the alarms, are as follows:

- Time management of the 7390NE
- Synchronization of the 7390NE
- Security
- Activation of leased line cross-connects.

The table below provides the list of alarms specific to the **functions** of the 7390NE, along with their definition. It also describes two types of actions:

- the **automatic internal actions to the 7390NE** - NR2.1, caused by the presence of each of these alarms. The actions described are not necessarily controlled by the management software (they may be controlled by the equipment itself).
- the actions to be done by the **operator** when necessary.

List of the functional alarms:

Probable cause	Alarm name	Definition	Actions
Synchronization clock missing	Clock_missing	Loss of BS internal clock used for slaving PLL of the ANT board.	**Internal NE actions:** no direct immediate impact. **Operator action:** no action.
Loss of synchro-nization priority clock	Priority	Absence or loss of priority refe-rence clock for 7390NE synchro-nization.	**Internal NE actions:** fallback to next priority clock. **Operator action:** no action.
PLL unlocked	Synchronization	Sync roll of the ANT board PLL.	**Internal NE actions:** no action. **Operator action:** no action.
Round trip delay minimization	Alloc_error	Impossible to allocate resources to set up a Leased Line cross-connec-tion, since the Round Trip Delay minimisation require-ment cannot be respected (and yet the number of resources required for setting up this cross-connection are sufficient => Defragmentation).	**Internal NE actions:** No resource allocated to the "cross-connection": rejection of the cross-connection set-up request by the AMD board. **Operator action:** locking, then unlocking all the leased lines (see § 4.12.1.4).

6.5 – Replacing a DBS board

	AFTER THE FAN MODULE IS REMOVED, BE CAREFUL WITH THE FAN BLADES.

Note: *To proceed with the extraction / insertion of a board, it is not necessary to cut the BS power supply. Do not forget to tighten the screws of the board with a screwdriver.*

Note: *Each time you insert or replace any board in the DBS, you must download again the same software (click on "download" button without activing nor referencing it) This will occur the newly inserted or replaced boards of the BS to be updated.*

6.5.1 – Boards other than the ANT

To change any board, other than the ANT, follow the steps below:

Order number of steps	Designation of linked steps	Comments	Refer to screens or paragraphs concerned
I	Extraction of the board manifesting a fault	For the **AMD,TNT, IBS** and **CPL boards**, the color of their graphic representation in the BS supervision screen changes from white to **grayed-out**. However, in the case of a module or ventilation block, the color of the graphic representation remains unchanged. In the alarms list, the extracted board appears with "**Board_missing**" alarm (for the AMD, TNT, IBS and CPL boards), or "**Comm_loss**" alarm. In the specific case of the **AMD board**, the IBS and X-Pol RBS boards associated with it give rise to a "**Comm_loss**" alarm.	4.5 6.4.2.1 –
II	Insertion of the new board	The **red "F"** LED on the front edge of the board **remains lit** throughout the initialization and self-configuration phase of the board, then is extinguished. The alarms then disappear from the alarms table. In the specific case of the **AMD board**, not only do the alarms relating to it disappear, but those of its associated IBS and X-Pol RBS boards can also appear. In addition, the NTs attached to it are automatically (re)integrated in the network and the E1 or IP services become automatically accessible.	4.10.1.3
III	Checking the software version of the re-inserted board	In the current Alarm table, check that there is no Version mismatch alarm for the re-inserted board; otherwise, restart a download with neither referencing nor activation (see § 7.3.12 –).	4.10.1.3

Order number of steps	Designation of linked steps	Comments	Refer to screens or paragraphs concerned
IV	Checking the board operational status	The board is **operational** if the green "ON" LED is lit and if the red "F" LED is **extinguished**. ***Nota:*** *In the case of a redundant AMD board: if the green "ON LINE" LED is extinguished and the red "F" LED is lit, this means that the board is in stand-by.*	5.1.2 –
V	Checking the operational status of the NTs and the restoration of cross-connections.	Only in the case of an AMD or IBS board.	4.6 4.13.2.1 4.12.5.1

6.5.2 – Replacement of an ANT board

To change an ANT board, follow the steps below:

6.5.2.1 – Rack with only one ANT

Order number of steps	Designation of linked steps	Comments	Refer to screens or paragraphs concerned
I	Backup	Note the activated and referenced software in the screen (see § 4.5.3.1). Before extracting the board to change, perform a backup of the system in accordance with the procedures seen in the "Backup" section.	6.2.26 –
II	Extraction of the board manifesting a fault	Extraction of the board causes the loss of the management link and services. The system is no longer in operational status.	
III	Insertion of the new board	The red "F" LED on the front edge of the board remains lit throughout the initialization and self-configuration phase of the board, then is extinguished. Recommissioning and **complete** configuration of the system are required.	5.1.2 –
IV	Checking the software version of the re-inserted board	In the screen related to the new ANT board, check the insert board is at the right version. In the software item **ANT Details** screen, the activated and referenced software must be the same as for the board previously removed, otherwise carry out an entire download.	4.5.3.1 4.14.3.1 7.3.12 –
V	Restoring	To restore data, restore the system configuration in accordance with the procedures seen in the "Restore" section.	6.2.27 –

6.5.2.2 – Rack with 2 ANT boards: replacement of the active board

	THE NEW ANT BOARD MUST NOT COMPRISE A NR2.0 SOFTWARE (A NR2.0 ANT BOARD MUST BE UPDATED ON ANOTHER TEST RACK).

Order number of steps	Designation of linked steps	Comments	Refer to screens or paragraphs concerned
I	Extraction of the active board to replace.	Extracting the active board implies switching to the redundant board. Check the transfer on the ***BS Details*** screen.	4.5.8 4.5
II	Insertion of the new board	The red "F" LED on the front edge of the board remains lit throughout the initialization and self-configuration phase of the board, then is extinguished. A transfer is performed on the active board. Check on the ***Redundancy*** screen.	5.1.2 – 4.5.8
III	Checking the software version of the re-inserted board	In the current Alarm table, check that there is no. Version mismatch alarm for the re-inserted board; otherwise, restart a download with neither referencing nor activation (see § 7.3.12 –).	4.10.1.3

6.5.2.3 – Rack with 2 ANT boards: replacement of the redundant board

Order number of steps	Designation of linked steps	Comments	Refer to screens or paragraphs concerned
I	Extraction of the redundant board to replace.	In the ***BS Details*** screen: - check that the extracted ANT board is with critical alarm (alarms list).	4.10.1.3
II	Insertion of the new board	The red "F" LED on the front edge of the board remains lit throughout the initialization and self-configuration phase of the board, then is extinguished. The board remains in stand-by: check on the ***Redundancy*** screen.	5.1.2 – 4.5.8
III	Checking the software version of the re-inserted board	In the current Alarm table, check that there is no. Version mismatch alarm for the re-inserted board; otherwise, restart a download with neither referencing nor activation (see § 7.3.12 –).	4.10.1.3

6.5.3 – Replacement of ventilation module

Wait for complete stop of the fans when extracting the module.

6.5.4 – Replacement of a fuse

Shutdown power supply using the switch.

6.6 – Replacement of the X-Pol RBS

Replacement of an X-Pol RBS has no impact on alignment. To replace the X-Pol RBS:

– disconnect the grounding cable (see *Figure 31 – Grounding the outdoor equipment with the 9900UXI102 pole mounting*),

We have four cables behing X-Pol RBS and DBS:

– two cables RS422 Data with pling LEMO:
  • two cables IF IF and DC cable for X-Pol RBS Tx/X-Pol RBS Rx,
  • one cable with reference frequency.
– disconnect the X-Pol RBS/ DBS connection cable,
– release the snap-locks starting with those on the side , then those on top and finally those at the bottom,
– remove the X-Pol RBS Tx or X-Pol RBS Rx,
– put in place the new X-Pol RBS in accordance with the procedure described in § *3.3.5 – Installation of the RBS Unit*,
– reconfigure the radio settings in accordance with the procedure described in § *4.5.7 X-Pol RBS*.
– verify X-Pol RBS configuration, in Radio group details.

6.7 – Replacement of a NT

Note: *A NT unit can be replaced by another NT unit of the same type without suppressing services.*

Order number of steps	Designation of linked steps	Comments	Refer to screens or paragraphs concerned
I	Access to the configuration of NT.	Go to ***NT List*** screen from the main button bar: - select the NT to be replaced and open NT details screen, - check if it is the right NT.	4.6 4.6.3
II	Change the serial number.	Go to the ***Substitute NT Serial number*** screen and enter the serial number of the new NT unit. - validate by clicking on «*Apply*» and confirm the substitution.	4.6.6
III	Replacement of NT unit.	On the site, change the NT unit and check the new unit enters into the network (cf. User Manual of the Terminal Station, Ref. 3CC12423Axxx TQBJA).	4.10.1.3
IV	Check the radio link NT.	Check that there is no comm_loss alarm on the NT.	
V	Check the NT hardware.	Check that there is no board_type_error.	4.6.3
VI	Check the NT software.	Check that there is no version mismatch alarm on the NT. - Restart download only (no referencing and no activating), - Check that the NT becomes unable.	4.14.3

Note: *NT unit cannot be replaced by another NT unit of a different type. If wanted, the services on this NT must be suppressed then created again when the NT has been declared and has been entered into the network.*

6.8 – Malfunctions

6.8.1 – Malfunctions on installation

The A7390 is a reliable and easy-to-install system. By following the procedures described in the documentation, no problem should occur. However, if these procedures have been poorly applied, here is a list of the possible problems that may arise.

Manifestation of the problem	Possible causes	Solution
The equipment cannot be powered up.	Wrong 48 V polarity	Restore correct polarity by following the instructions in § 3.5.2 –.
Poor reception	1. Problem of polarization at X-Pol RBS 2. Problem of alignment at RT	1. Check the right installation of the antenna on the X-Pol RBS (see § 3.3.5 –) 2. Check alignment at RT.

6.8.2 – In-service system malfunctions

Manifestation of the problem	Possible causes	Solution
On system start-up, the red "F" LED remains lit following initialization.	1. Bad contact 2. Faulty board	1. Check that the board is properly inserted. 2. Extract and re-insert the board (see § 6.5 –). If reinserting the board has not resolved the problem, change the board.
With the system in service, the "F" LED changes to red.	Faulty board or redundant board	If it is redundant AMD board, check if there is a hardware failure on the 7390LT. Change the board. (see § 6.5 –)
Loss of all NTs on the same upstream.	Bad ground connection	Wire the ground connection following the instructions in § 3.5.2 –.
Sync loss on the E1 frame.	The client equipment is not synchronized with the NT clock.	Switch equipment synchronization from internal clock to clock signal received from NT (see § 4.5.4).

6.8.3 – Management malfunctions

Manifestation of the problem	Possible causes	Solution
The LT session will not run.	A session is underway on the OS.	Contact the OS operator to request handover.

7 – Changes of configuration

7.1 – Interventions required by system evolution

Evolution of the transmission network may require changes being made to equipment configurations in order to meet new needs. The A7390 equipment has sufficient flexibility to satisfy these scalability requirements. Modifications can be carried out by changing the software configuration with or without modifying the hardware configuration of the equipment, as the case may be. The 7390 LT may itself be subject to changes.

Two intervention modes may be distinguished:

- **remotely** for modifications involving only the **software configuration** of the equipment, carried out using the 7390LT software,
- **on site** for **hardware configuration** modifications, possibly complemented by software configuration modifications.

System evolution interventions, that can be carried out **remotely**, using simply the 7390LT software applications, are as follows:

- alarm filtering for **NT** and alarm filtering for **BS,**
- modification of **service parameters** (name, flow), see § *7.3.3 – Modification of service parameters*;
- modification of the **transmit power** level of the X-Pol RBS, see § *7.3.4 – Change of power level (X-Pol RBS)*;
- modification of the **IP addresses** of the equipment, see § *7.3.5 – Changing the IP address of the equipment*;
- modification of the channelling, see § *7.3.6 – Change of channelling*;
- modification of the channel **frequency** in the **same sub-band**, see § *7.3.11 – Change of frequency in the same sub-band*.
- **equipment upgrading**, see § *7.3.12 – Upgrading the equipment*.
- inhibition of IP data traffic on upstream, see § *7.3.7 – Inhibition of Dynamic traffic on upstream*.
- desactivation of upstream, see § *7.3.8 – Desactivation of upstream*.
- inhibition of automatic time setting, see § *7.3.9 – Inhibition of automatic time setting* .
- modification of CES parameter of a TNT board, see § *7.3.9 – Inhibition of automatic time setting*.

System evolution requiring modification of the hardware (and possibly software) configuration to be carried out **on site,** is as follows:

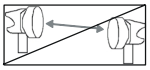
- modification of the channel **frequency** in **another sub-band**, see § *7.4.1 – Change of frequency in a different sub-band or band*;
- addition of a **radio sector**, see § *7.4.2 – Addition of a radio sector*;
- addition of a **network interface**, see § *7.4.3 – Network interface*;
- updating of the **7390LT software**, see § *7.4.4 – Updating the 7390LT software*;
- redundancy setting of the **ANT board**, see § *7.4.5 – Setting ANT board redundancy*;
- redundancy setting of a **radio sector**, see § *7.4.6 – Radio sector redundancy corresponding to the addition of AMD/IBS and backup X-Pol RBS boards*;
- change **network interface** 34 Mbit/s to 155 Mbit/s, see § *7.4.3.2 – Change of a network interface (34 to 155 Mbit/s)*.

Note: Change **network interface** 155 Mbit/s to 34 Mbit/s is not possible.

7.2 – Recommendations

△	**For carrying out work of any kind on boards (disassembly/assembly, configuration modification), the operator must be equipped with a grounding strap (e.g., a "Disposable Wrist Strap" 3M, reference 2209).** **THESE OPERATIONS ARE ONLY TO BE CARRIED OUT BY QUALIFIED TECHNICIANS AUTHORISED BY ALCATEL.**

△	**UPDATE THE REFERENCE DOCUMENTS AND LABELS IN ORDER FOR THEM TO COMPLY WITH THE NEW CONFIGURATION.**

The presence of the symbol  at the start of the description of an intervention indicates that this involves the temporary interruption of the link.

7.3 – Remote interventions using software

7.3.1 – Alarm filtering for NT

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Access to the choose NT	Go to ***NT List*** screen from the main button bar: - select the NT you wish to filter Alarms, - check if it is the right NT	4.6 –
II	Inhibits alarms	- click on the icon to inhibit receiving acknowledgement of the alarm of the NT, - check that the alarm reported has changed in the ***NT List*** screen	4.6.1 –

7.3.2 – Alarm filtering for BS

Order number of steps	Designation	Comments	Refer to paragraph concerned
I	Inhibits alarms	Go to the ***BS Details*** screen, - click on the icon to inhibit receving the alarms, - check that the alarm state has changed.	4.5.1 –

7.3.3 – Modification of service parameters

7.3.3.1 – Changing the name of an E1 leased line

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Edit the E1 link	On the ***leased lines*** screen: - select the link to edit - click on the edit icon	4.12.1.2 – (E1) 4.12.2.2 – (X21) 4.12.3.2 – (T1)
II	Modification of link name	In the modification field: - enter the new name of the link	4.12.5.4 –
III	Validation of the new name	- click on «*OK*»	

7.3.3.2 – Changing the capacity of an E1 leased line

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Suppression of the "cross- connec-tion" concerned	To modify the contract affected to an allocated line, the cross-connection must be suppressed first.	6.2.15 –
II	Creation of the new link	Assign the same value to the other parameters (ports, name, Vpi, Vci) as those of the previous "cross-connection".	6.2.14 –
III	Definition of the new bit rate	Create the new cross-connection by assigning the desired TS to the new "cross-connection" (the bit rate is defined depending on the number of TS assigned).	4.12.1.6 – (E1) 4.12.2.6 – (X21) 4.12.3.2 – (T1)

7.3.3.3 – Changing the name of an IP cross-connection

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Edit the IP link	On the ***IP*** screen: - select the IP link to edit - click on the edit icon	4.13.2.1 –
II	Modification of link name	In the modification field: - enter the new name of the IP link	4.13.2.5 –
III	Validation of the new name	Click on «*OK*»	

7.3.3.4 – Changing the capacity of an IP cross-connection

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Suppression of the "cross- connec-tion" concerned	To modify the contract affected to an IP link, the cross-connection must be suppressed first.	6.2.15 –
II	Creation of the new IP link	- assign the same value to the other parameters (especially Vpi and Vci) as those of the previous "cross-connection". - assign the new bit rate desired for transmission and for reception	6.2.14.5 – 4.13.2.3 – table

7.3.4 – Change of power level (X-Pol RBS)

	**THE POWER OF AN X-POL RBS MUST NOT BE MODIFIED IF RTS ARE ALREADY IMPLEMENTED, POINTING TO IT. IN THIS CASE, CONTACT THE RADIO PIANNER.**

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Modification of the power	On the ***X-Pol RBS Details*** screen: - modify the transmission power - validate by clicking on the «*Apply*» button - close the application	4.5.7 –
II	Checking the modification	In the **Current A*larms List***: - check that there are no new alarms for the X-Pol RBS	4.10.1.3 –
III	Updating the installation record	Note the new value of the X-Pol RBS transmission power in the BS installation record.	A.1.2 –

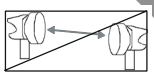
7.3.5 – Changing the IP address of the equipment

Note: *to ensure remote access after any change of IP address, it is necessary to signal the new IP address assigned to one of the BS interfaces (ATM or Ethernet) and the new IP configuration of remote managememt Network* ***to the supervisor before making changes****.*

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Notifiying the supervisor of the change	Inform the supervisor of the IP address change.	
II	Changing the NE IP address	On the ***BS's Local Networks*** screen: - modify the IP address - validate by clicking on the «*Apply*» button - close the application - wait (a few minutes) for the terminal to configure	4.9.2 –
III	Changing the network address	On the ***Network Address*** screen: - change the network addresses - validate by clicking on «*Apply*» - close the application - wait (several minutes) for the terminal to be configured	4.9.3 –
IV	Updating the installation record	Note the new value of the IP and network addresses in the BS installation record.	Appendix 1 –

	**IF THE ETHERNET IP ADDRESS CHANGES, IT IS IMPOSSIBLE TO CONNECT THE LOCAL LT TO THE BS.**

7.3.6 – Change of channelling



Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Suppressing client services	Suppress the different cross-connections (leased lines, IP) by refering to the "suppression of services" section of Operation.	6.2.15.4 – (LL) 6.2.15.5 – (IP)

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
II	Suppressing NT	On the ***NT List*** screen: - select the NT to suppress - click on the «*suppress*» button - confirm by clicking on «*OK*»	4.6 – 4.6.4 –
III	Desactivation of the upstream.	In the ***Radio Configuration*** screen: - unselect the upstream to be desactivated and - click on *«Apply»*	4.7.1 –
IV	Modification of the band width	On the ***Radio Configuration*** screen: - modify the band width - click on the «*Apply*» button to take into account the modifications - click on the «C*lose*» button to exit the window.	4.7.1 –
V	Activation of the upstream.	In the ***Radio Configuration*** screen: - select the upstream to be activated and apply.	4.7.1 –
VI	Creation of previously suppressed NTs	On the ***NT List*** screen: - click on the creation button - fill in the fields with the same information as for the suppressed NTs - click on the «A*pply*» button to validate - click on the «C*lose*» button to exit the window.	4.6 –
VII	Checking	Check the re-created NTs are in the NT list.	4.6 –
VIII	Alarms disappearance	- Wait for the disappearance of alarms from the NTs (approximately 10 minutes). If alarms persist, see Chapter 6	4.10.1.3 –
IX	Re-creation of client services	Re-create the suppressed cross-connections with the same characteristics as those suppressed in stage I.	6.2.14 –
X	Checking	In the different lists for the cross-connections: - check that the re-created links are in the leased line links lists (LL) and IP.	4.12.5.1 – (LL) 4.13.2.2 – (IP)

7.3.7 – Inhibition of Dynamic traffic on upstream

Note: *No IP cross-connection must be present in the system on the upstream to be unvalidated.*

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Edit the Dynamic Traffic Configuration.	Go to ***Dynamic Traffic Configuration*** screen from the ***BS Details*** screen.	4.7.2

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
II	Unvalidate on the upstream.	- click on the Dynamic traffic field for the right upstream and select "No", - validate the modification by clicking on «*Apply*».	
III	Check configured bandwidth	Check on the ***Dynamic Traffic Configuration*** screen that the configured bandwidth has been correctly decreased.	

7.3.8 – Desactivation of upstream

Note: *An upstream can be desactivated only if there is no NT declared on this upstream.*

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Access the radio management screen.	Go to the ***Radio Configuration*** screen from the ***BS Details*** screen.	
II	Desactivation of the upstream.	In the ***Radio Configuration*** screen: - unselect the upstream to be desactivated and - click on *«Apply»*.	

7.3.9 – Inhibition of automatic time setting

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Inhibition of the SNTP server.	Go to the **Time Management** screen and put 0.0.0.0 for the IP address time server and click on *«Apply»*. ***Nota:*** *The system will stop updating its time and will remain synchronized with its last update.*	4.14.4 –
II	Alarm appearance.	The alarm time server loss appears.	4.10.1.3 –
III	Manual time setting if wanted.	Time setting is carried out from the ***BS Details*** screen by clicking on the Time setting button. The system updates its time only when manual time setting is done. ***Nota:*** *Manual time setting is not allowed when SNTP server is configured.*	4.5.5 –

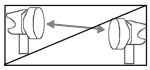
7.3.10– Modification of CES parameter of a TNT board

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Lock the TNT port (Necessary before suppressing the CES cross-connection)	In the ***Board TNT x: E1 ports configuration***: - lock the relevant TNT board port - click on «*Apply*».	4.12.1.4 –

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
II	Suppression of the CES cross-connection	In the ***Circuit Emulation Service*** screen: - select the "cross-connection" to be suppressed - click on the «*suppress*» button - validate the confirmation screen - check that the suppressed "cross-connection" no longer appears in the "cross-connections" list.	4.12.6.3 – 4.12.6.4 –
III	Configure parameters for circuit emulation	- Change parameters, (Buf Max Size) and (Cdv Rx T) ***Nota:*** *The TNT board will reset. Wait until TNT board becomes enabled again.*	4.5.3.2 –
IV	Creation of a CES link	- select the TNT board, - select a TNT port from the list - choose the Vci of ATM link - click on the cross-connection creation button.	4.12.6.3 –
V	Unlocking and activating the cross-connection	In the ***E1 cross-connection*** screen: - click on the «*unlock*» button. ***Nota:*** *If the TNT port is used for synchronisation, it must be masked then unmasked.*	4.12.1.3 –

Note: *For T1 services, CdvExt parameter must be greater than 375 µs.*

7.3.11– Change of frequency in the same sub-band



Check with reference to the table in § *7.5 – Sub-band distribution plan* whether the new frequency belongs to the same sub-band. If so, follow the procedure described below. If not (change of sub-band), follow the procedure indicated in
§ *7.4.1 – Change of frequency in a different sub-band or band*.

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Modification of reception and transmission central frequencies	On the ***Radio Configuration*** screen: - modify the central upstream frequencies - modify the central downstream frequencies - validate by clicking on «*Apply*» - close the application	4.7 –

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
II	Checking	In the **Current *Alarm List***: - check that there are no alarms at the AMD and IBS board and X-Pol RBS level. - wait for disappearance of all NT alarms (approximately 10 minutes). If alarms persist, see part 6.	4.10.1.3 –
III	Updating the installation record	Note the new values of the frequencies in the BS installation record.	Appendix 1 –

7.3.12– Upgrading the equipment

Note: *Software download fails if a hardware failure is present.*

7.3.12.1– Upgrading the equipment from release 2.0 to 2.2b

⚠	**FOLLOWING THE FIRST DOWNLOAD, THE WHOLE CONFIGURATION IS LOST (THE REFERENCED AND ACTIVATED PACKAGE INFORMATION IS THEREFORE LOST), A SECOND DOWNLOAD IS THUS REQUIRED TO UPGRADE THIS INFORMATION AND TAKE THE BOARDS INTO ACCOUNT.**

Note: *This upgrade is only carried out once. Other upgrades correspond to an NR 2.1 update, cf. § 7.3.12.2 – Upgrading the equipment from release 2.1 / 2.2a to 2.2b.*

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Complete download	There is loss of system configuration (synchronization, time, radio, X-Pol RBS, NT, services, IP addresses) - The cabinet is not already operational, indeed: on completion of the download, the DBS boards operational status is notified as "active" but the boards are not recognized by the system.	7.3.12.2 – 4.5.3 –
II	X-Pol RBS and radio configuration (setting traffic frequencies)	The AMD boards become operational for the second download, but not for service.	5.1.2 – -VIII 5.1.2 – X
III	Second complete download	The DBS boards are recognized by the system.	7.3.12.2 –
IV	System configuration	- synchronization - agent time setting - configuration of the ATM medium type - information about the BS - create the NTs - create the services	5.1.2 – -VI 5.1.2 – VII 5.1.2 – -XI 5.1.2 – -XII 4.6.2 – 6.2.14 –
V	Checking	In the ***NT List*** *screen*: - the NTs come into the network. - check that their operational status is "active". Otherwise re-start a download, only by clicking on the «*download*» button.	4.6 – 4.14.3.4 –

7.3.12.2– Upgrading the equipment from release 2.1 / 2.2a to 2.2b

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Installation of MIB migration tools	Check that migration tool is property installed on the system, a directory "c:\mibconv" should exist on your PC/LT. Create the directory "c:\A7390WW" on your PC/LT and export it in R/W with the NFS server.	Appendix 3 –
II	**Connect** LT 2.1	The LT 2.1 / 2.2*a* has to be started and connected to the BS.	
III	**Back up** the configuration	Go to the ***Backup / Restore Management*** screen: - give the name of the file and start the Backup ***Nota:*** *In the file name it is advised to indicate the network release (in this case 2.1 / 2.2a).*	6.2 –
IV	**Selection of the file** which describes the software configuration	In the ***Software Management*** screen: - click on the button «*Select*»: the update software list is displayed: then, double-click on the file to import, then on the «*Apply*» button, and finally on the «*Close*» button.	4.14.3 – 4.14.3.2 –
V	**Selection** of the software storage zone on the BS	Click on package 1 or 2 of the ***Software Management*** screen.	4.14.3 –
VI	Downloading the software	- click on the «*Download*» button of the Software management screen toolbar to import data, - click on the «*continue*» button.	4.14.3.4 –
VII	MIB migration	- click the «*Migrate*» button and wait until completion.	4.14.3.6 –
VIII	**Referencing** the software	In the ***Software Management*** screen: - select the chosen package, - click on the «*reference*» button of the toolbar.	4.14.3.7 –
IX	**Activating** the selected software configuration	Click on the activation button of the ***Software Management*** screen toolbar.	4.14.3.8 –
X	**Connect** LT 2.2b	- quit the LT 2.1 / 2.2*a*, - start the LT 2.2b and - connect it to the BS.	
XI	**Updating** the statuses on the 7390LT	Wait for approximately 10 minutes.	
XII	**Restarting downloading** of the same package, to the other software storage zone	Click on the «*download*» button of the ***Software Management*** screen toolbar to allow automatic update of the new NTs coming into the network	4.14.3 –

Note: *If the download status becomes red due to a timeout, the BS is still downloading the software. Another message will appear to indicate the successful download: the upgrade can be carried*

on.

7.3.12.3– Downgrading the equipment from release 2.2b to 2.1 / 2.2a

Note: *A local PC must be used to communicate with the BS and must contain on its hard disk directories:*

- *software 7390 LT 2.1 / 2.2a and embedded 2.1 / 2.2a software package,*
- *software 7390 LT 2.2b,*
- *backup 2.1 /2.2a(perform just before upgrade 2.2b).*

The 2.2a version must be activated in the system.

	**NTs THAT ARE NOT IN TRACKING MODE WHEN MIGRATING FROM NR 2.2B TO NR 2.2A OR NR 2.1 WILL BE LOST UNTIL COMING BACK TO NR 2.2B.**

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	**Connection** of a local PC with software 7390 LT 2.2b	- start the 7390 LT software, - connect the DBS by using current IP address of the DBS.	
II	**Selection of the** file which describes the software confi-guration	In the ***Software Management*** screen: - click on the button «*Select*»; the last software update is displayed; then, double click on the file to import, then on the «*Apply*» button, and finally on the «*Close*» button.	4.14.3 – 4.14.3.2 –
III	**Selection** of the software storage zone on the BS	Click on package 1 or 2 of the ***Software Management*** screen.	4.14.3 –
IV	**Downloading** the software	- click on the «*Download*» button of the Software management screen toolbar to import data. - click on the «*Continue*» button.	4.14.3 –
V	MIB **migration**	This step is automatically detected by the system. In that case, do not click on the «*Migrate*» button and click on the «*Abort*» button.	4.14.3.6 –
VI	**Referencing** the software	In the ***Software Management*** screen: - select the chosen package, - click on the «*reference*» button of the toolbar.	4.14.3.6 –
VII	**Initializing** the RAM ANT board	Follow the instruction in cf. 4.5.6 – ***Nota:*** *The configuration is lost.*	4.5.6 –
VIII	Quit 7390 LT 2.2b software		
IX	**Connection** of a local PC with 7390 LT 2.1 software or 2.2a	- start the 7390 LT software, - connect the DBS by using the default IP address (192.168.99.1) ***Nota:*** *Assure that the PC is configured to connect the BS with the default IP address (cf. 5.1.2 – 6/7)*	
X	**Restore** the 2.1 or 2.2a	Go to the ***Backup / Restore Management*** screen: - select "Restore tab", - select the restore file path with the 2.1 or 2.2a backup file, - start the transfer.	4.14.2 –
XI	**Quit** the 7390 LT software		
XII	**Connection** of local PC with 7390 LT 2.1 or 2.2a software	- start the 7390 LT software, - connect the DBS by using the configured IP address. ***Nota:*** *Assure that the PC is configured to connect the BS with the configured address.*	
XIII	First 7390 NE software **update**	See § 7.3.11.	
XIV	**Checking**	- check the activated and referenced software package, - check board and NT states.	

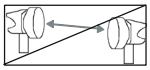
7.3.13– First 7390NE software update

⚠	**THIS UPDATE IS CARRIED OUT AS DESCRIBED IN § 7.3.10.2 BUT THERE MAY BE NO MIGRATION (THE MIGRATION STEP CAN BE CANCELLED).**
⚠	**FOR AN AUTOMATIC UPDATE, THE LT MUST REMAIN CONNECTED.**

New NT operational state will be set from DISABLE to ENABLE after the software automatic update.

7.4 – On-site interventions

7.4.1 – Change of frequency in a different sub-band or band



Check with reference to the table in § whether the new frequency belongs to the same sub-band:

- if the sub-band has changed, follow the procedure described below;
- if the new frequency belongs to the same sub-band, follow the procedure described in § *7.3.11 – Change of frequency in the same sub-band*.

A change of frequency in a different sub-band or a modification of the duplex spacing requires a change of X-Pol RBS and RT.

The change of frequency requires, in both cases, the **on-site intervention** of a technician both for the BS and the TS, for carrying out modifications to the hardware configuration. Furthermore, the software configuration needs to be modified. This is carried out on site for BS and TS.

Concerning the **TS**, follow the stages discribed in section "Changing a RT unit" of the chapter "Operation and maintenance" of the TS user manual ref. 3CC11774 Axxx.

Concerning the **BS**, the operations described below must be carried:

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Disconnection	Disconnect the DBS/X-Pol RBS connection DBS side	
II	Changing the equipment	Modify the outdoor part with respect to the new configuration (exchange of transceivers and, where applicable, antenna(s)), with reference to chapter 6.5.3 –	6.5.3 –
III	Reconnection	Connect the DBS/X-Pol RBS connection DBS side	

Once the hardware configuration change is done on TS and BS, follow the steps below:

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Commissioning	Repeat the commissioning operations by programming the new operational parameters, as indicated in § 5 – , steps VII and VIII	5 –
II	Checking the absence of alarms	In the **Current *Alarms List***: - check the absence of alarms on AMD, IBS boards and X-Pol RBS, - wait for disappearance of all NT alarms (ten minutes approximately)	4.10.1.3 –
III	Updating the BS and TS "installation record"	- note the new data for the BS and the TS in the respective installation record. (TS installation record in Appendix A.1 of the TS User guide - ref. 3CC12423 AAxx)	Appendix 1 –

7.4.2 – Addition of a radio sector

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Installation of the new X-Pol RBS	Follow the installation procedures for the X-Pol RBS.	3.3 – , 3.4 – , 3.5.5 –
II	Inserting the AMD	Insert the board in one of the locations reserved for it (see component type/slot number table) and follow the procedures defined in the chapter "Operation".	3.5.6 – 6.5.1 – II
III	Checking the AMD board version	Follow the procedures defined in the chapter "Operation".	6.5.1 – III
IV	Inserting the IBS board	Insert the board in one of the locations reserved-for it (see component type /slot number table) and follow the procedures defined in the chapter "Operation".	3.5.6 – 6.5.1 – II
V	Adjusting the frequencies	- adjust the radio frequencies in accordance with the procedure defined in the chapter "Operation".	6.2.2 –
VI	Configuration of the X-Pol RBS	- configure the new X-Pol RBS in accordance with the procedures defined in the chapter "Operation".	6.2.4 –
VII	Checking	In the **Current *Alarms List***: - check that there is no alarm from the AMD-IBS-X-Pol RBS group - wait for the disappearance of the alarms (approximately 10 minutes). - if the alarms persist, see § 6	4.10.1.3 –
VIII	Updating the instal-lation record	Note the changes in the BS installation record	Appendix 1 –

7.4.3 – Network interface

7.4.3.1 – Addition of a network interface

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Inserting the TNT board	- insert the TNT board in one of the locations reserved for it (see component type/slot number table) - connect it to the DBS sub-rack the system is immediately operational.	3.5.6 – 3.4.3 –
II	Checking the TNT board version	Follow the procedures defined in the chapter "Operation".	6.5 – III

7.4.3.2 – Change of a network interface (34 to 155 Mbit/s)

Note: *1. The system must be already with release 2.2.b.*

Note: *2. The laptop is necessary for the change.*

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	**Back up** the configuration	Go to ***Backup / Restore Management*** screen: - give the name of the file and start the Backup.	4.14.2 – 6.2.4 –
II	**Replace** the ANT(s) boards and the CPL board.	- switch "off" the BS, - replace the 34 ANT(s) boards by the 155 ANT(s) boards. - replace the 34 CPL board by the 155 CPL board.	
III	Connect the PC.	Connect laptop PC to DBS rack using a dedicated cable.	5.1.2 – V, VI, VII
IV	**Connection**	- start the LT and connect it to the BS by using the BS default IP address (192.168.99.1), - switch "on" DBS.	
V	**Initializing** the RAM ANT board	- go to ***ANT Ram initialisation*** screen and - validate by clicking on «*OK*» button.	4.5.6 –
VI	**Restore** the configuration	Go to ***Backup / Restore Management*** screen: - give the name of the file (see backup procedure 4.14.2.1 – , steps 1) and - start the restore.	6.2.27 –
VII	**Check** the system	Check that the board and NT(s) become operational.	

7.4.4 – Updating the 7390LT software

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Disconnection of the software	From the ***7390 LT (Craft Terminal)*** screen: - scroll down the Management menu - select the close item - confirm exit from the 7390 LT	4.2.3 –
II	Disconnection of the Ethernet cable	- disconnect the cable connecting the DBS to the laptop computer	5.1.2 –
III	Updating the software	- install the disk (the CD-ROM) containing the update in the appropriate reader of the laptop computer used for system management. - from Windows, launch software installation on the computer hard disk.	Appendix 2 –

7.4.5 – Setting ANT board redundancy

	**THE BACKUP ANT BOARD MUST NOT COMPRISE A NR2.0 SOFTWARE (A NR2.0 ANT BOARD MUST BE UPDATED ON ANOTHER TEST RACK).**

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Checking the cabinet version	On the ***BS Details*** screen: - check that the BS version is 2.1 - if the cabinet is in version 2.0: first perform a download to upgrade the equipment to version 2.1. (see § 7.3.12 –)	4.5 –
II	Inserting the ANT board	- insert the board in slot number 2 of the DBS - during initialization, the red "F" LED is lit and also the green "ON" LED - the "F" LED goes off on completion of the initialization phase - check that the "on line" LED is not lit (redundancy)	
III	Checking the version of the ANT board inserted	Follow the procedures defined in the chapter "Operation".	6.5.2.3 –
IV	Checking the absence of alarm	On the **Current *Alarms List*** screen: - check the absence of alarm linked to this ANT board - wait for the disappearance of the alarms (approximately 10 minutes) -confirm at the ***BS Details*** screen level	4.10.1.3 – 4.5 –
V	Updating the installation record	- fill in the sections concerning the ANT 2 board in the BS installation record.	Appendix 1 –

7.4.6 – Radio sector redundancy corresponding to the addition of AMD/IBS and backup X-Pol RBS boards

⚠	**THE SERVICE WILL BE SHUT DOWN DURING RADIO SECTOR REDUNDANCY INSTALLATION.**

Order number of steps	Designation	Comments	Refer to screens or paragraphs concerned
I	Checking the cabinet version	On the ***BS Details*** screen: - check that the BS is not version 2.0. If the cabinet is in version 2.0: first perform a download to upgrade the equipment to version 2.2a.	4.5 – 7.3.12 –
II	Installation of the redundant X-Pol RBS	- remove the current X-Pol RBS - perform the installation of the new X-Pol RBS - implement both X-Pol RBSs with the 2 pole mounting attachment kit - link both X-Pol RBSs to the DBS - point both X-Pol RBSs in the same direction	3.3.5 – 3.4 – 3.3.3.2 – 3.5 – 3.3.6 –
III	Configuration of the X-Pol RBS	Follow the stages defined in the chapter "Operation".	6.2.4 –
IV	Inserting the AMD	Insert the redundant board in the location reserved for it: board slot number + 4 (see component type/ slot number table) and follow the procedures defined in the chapter "Operation".	4.5.8 – 6.5.1 – II
V	Checking the AMD board version	Follow the procedures defined in the chapter "Operation".	6.5.1 – III
VI	Inserting the IBS board	- insert the redundant board in the location reserved for it: board slot number + 4 (see component type/lot number table) and follow the procedures defined in the chapter "Operation".	4.5.8 – 6.5.1 – II
VII	Checking the absence of alarm	On the **Current *Alarms List*** screen: - check the absence of alarm linked to this redundancy - check at the ***BS Details*** screen level.	4.10.1.3 – 4.5 –