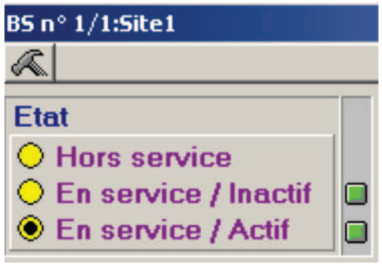
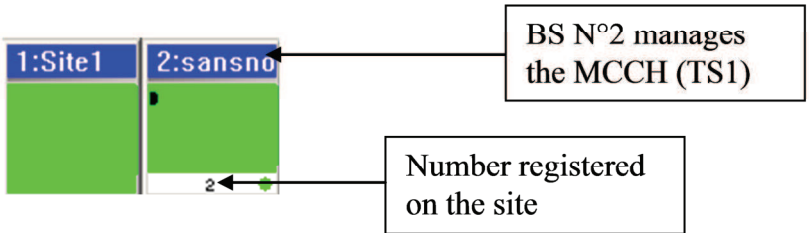
The first reflex is to assign the MCCH to BS n° 2 using one of several methods:

-Deactivate BS N°1 :



Then wait for the synopsis to be refreshed

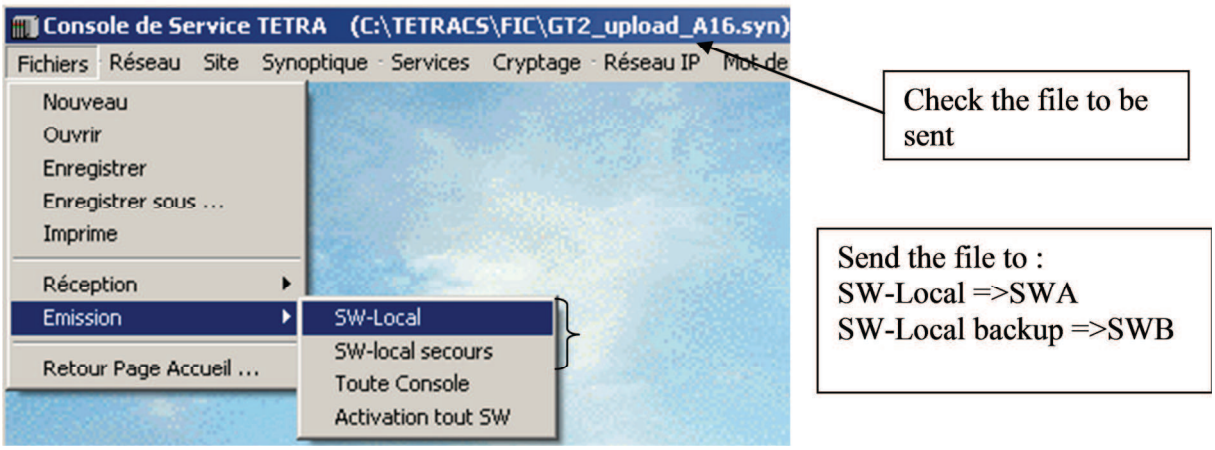


Activate BS N°1

Two possible cases:

=> The number of registrations is no longer nil, showing that BS 1 has a fault
=> If the number of registrations is still nil:

- Check the antenna system (coupling + antennas)
- Check the receiver chain (Preamplifier distributor, DCTR)
- The configuration parameters for the base stations may be incorrect (frequencies, network code, access mode). Download the correct equipment configuration file.



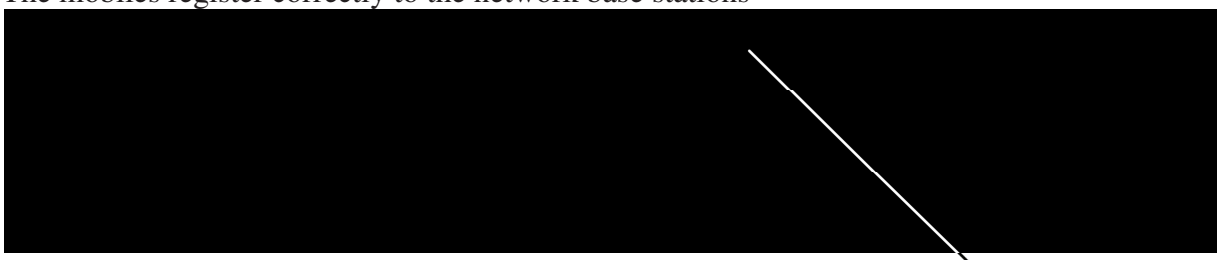
-Switch BS N° 1 off and on again: Same as the previous case for analysis and results

-Reboot the BS N° 1 CPU board: Same as the previous case for analysis and results

4.5 Mobiles register correctly to the network but are unable to communicate

The base stations reply normally to a 'zoom' request from the service network management terminal

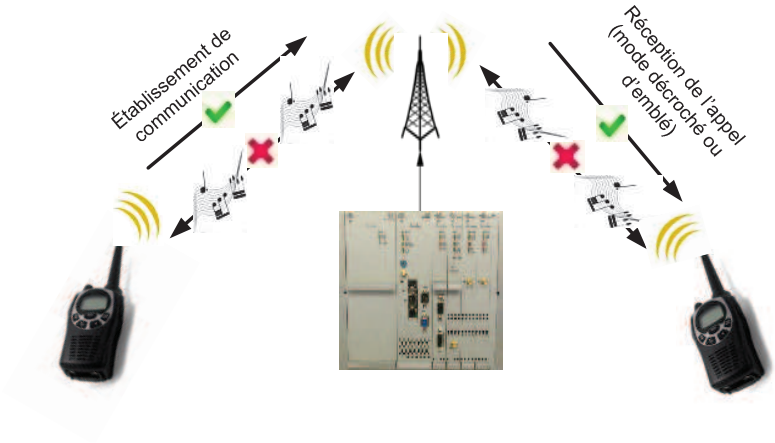
The mobiles register correctly to the network base stations



In the event file, the registrations progress normally

23-02-11	15:04:27	A	Inscr MS:00175051 BS:sansnom/02 accepté (démarrage)
23-02-11	15:04:28	A	AssGr MS:00175051

4.5.1 THERE IS NO OPERATIONAL PHONING BETWEEN THE TERMINALS

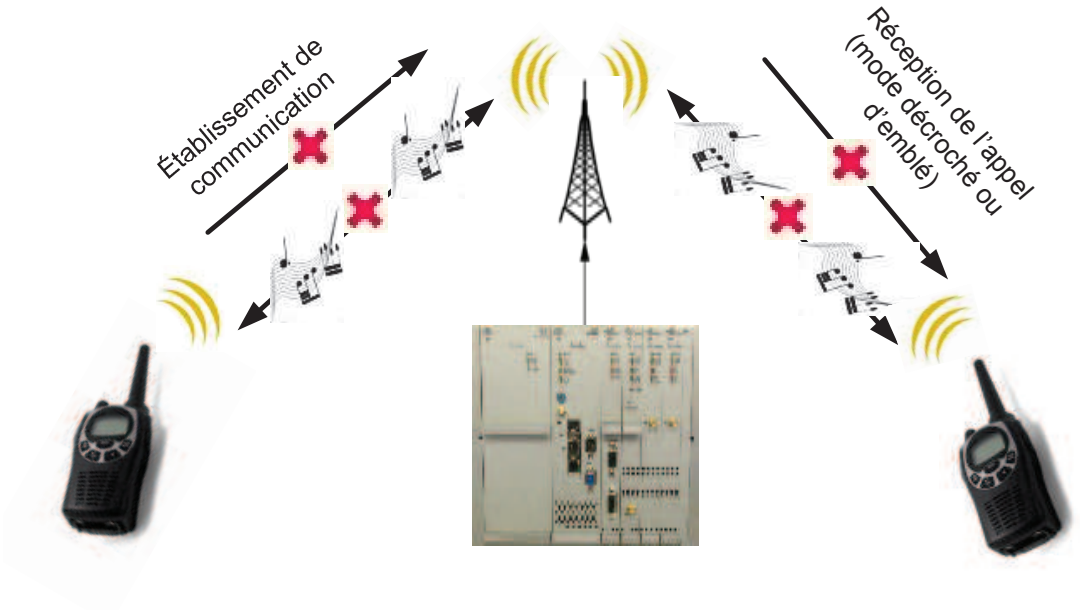


Administration network management terminal (History/Tickets)

Phone problems are not shown in the history.
Here we can confirm that the establishment of communications is correct until they are freed.

23-02-11	19:04:03	A	Appel:003 MS:00175030 vers MS:00175051 Type:normal/Simplex/Point à point BS:sansnom/02
23-02-11	19:04:03	A	Etabl Com:003 MS:00175030 vers MS:00175051 Type:normal/Simplex/Point à point BS:sansnom/0
23-02-11	19:04:15	A	Liber Com:003 : Déconnexion demandé par le SW

4.5.2 NO COMMUNICATIONS BETWEEN TERMINALS



Administration network management terminal (History/Tickets)

*Station cannot be reached

23-02-11	18:58:13	A	Appel:001 MS:00175030 vers MS:00175051 Type:normal/Simplex/Point à point BS:sansnom/02
23-02-11	18:58:13	A	Liber Com:001 : Non joignable

*Call to a number unknown to the administrative database
Terminal N° 52 is not in the database

23-02-11	19:00:27	A	Appel:002 MS:00175030 vers MS:00000052 Type:normal/Simplex/Point à point BS:sansnom/02
23-02-11	19:00:27	A	Liber Com:002 : Identité TETRA inconnu

*Call to an engaged radio station

23-02-11	19:10:35	A	Appel:005 MS:00175051 vers GRP:01180017 Type:normal/Simplex/Groupe BS:sansnom/02
23-02-11	19:10:35	A	Etabl Com:005 MS:00175051 vers GRP:01180017 Type:normal/Simplex/Groupe BS:sansnom/02
23-02-11	19:10:41	A	Appel:006 MS:00175030 vers MS:00175051 Type:normal/Simplex/Point à point BS:sansnom/02
23-02-11	19:10:41	A	Liber Com:006 : Poste occupé
23-02-11	19:10:54	A	Liber Com:005 : Déconnexion demandé par le SW

4.6 There is normal traffic between mobiles but not with their dispatching (operator stations)

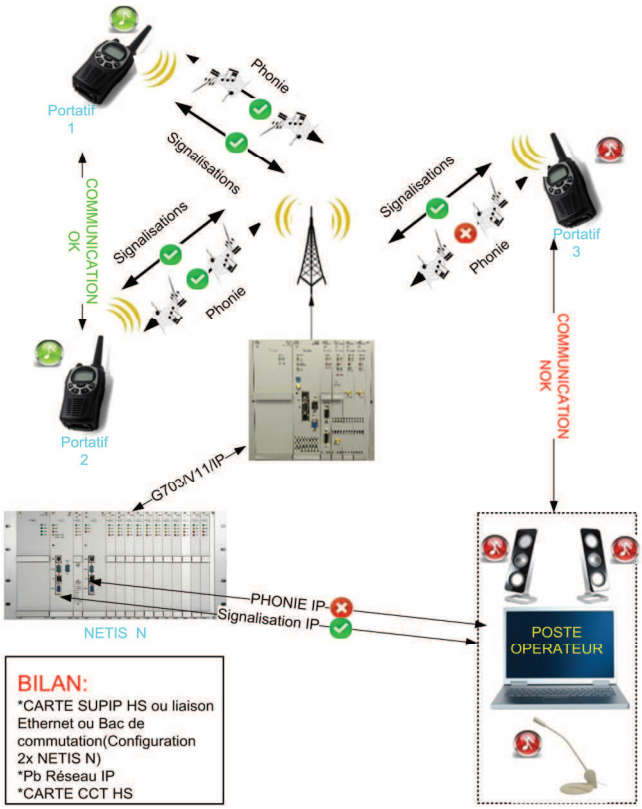
Initial conditions:

- The base stations reply normally to a 'zoom' request from the service network management terminal
- The mobiles register correctly to the network base stations
- The mobile/mobile calls are correctly forwarded Definitions:

Definitions:

Signalling: Launching of calls, establishment of calls, liberation, alternate management etc…
Phone: conservation, voice, VOIP

4.6.1 NO PHONES BETWEEN DISPATCHING AND THE TERMINALS



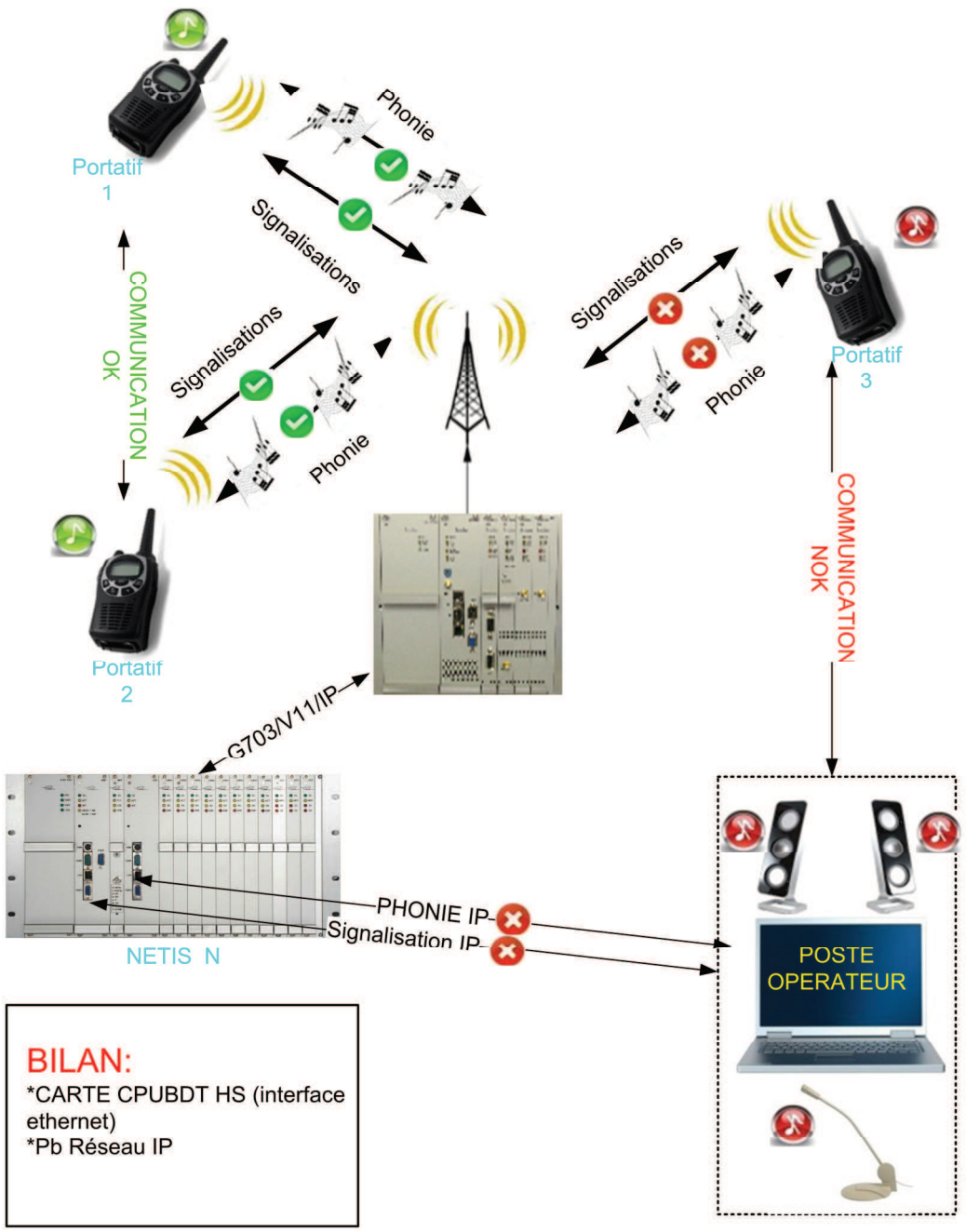
4.6.2 NO MORE SIGNALLING BETWEEN DISPATCHING AND THE TERMINALS

Initial conditions:

- The base stations reply normally to a 'zoom' request from the service network management terminal
- The mobiles register correctly to the network base stations
- The mobile/mobile calls are correctly forwarded

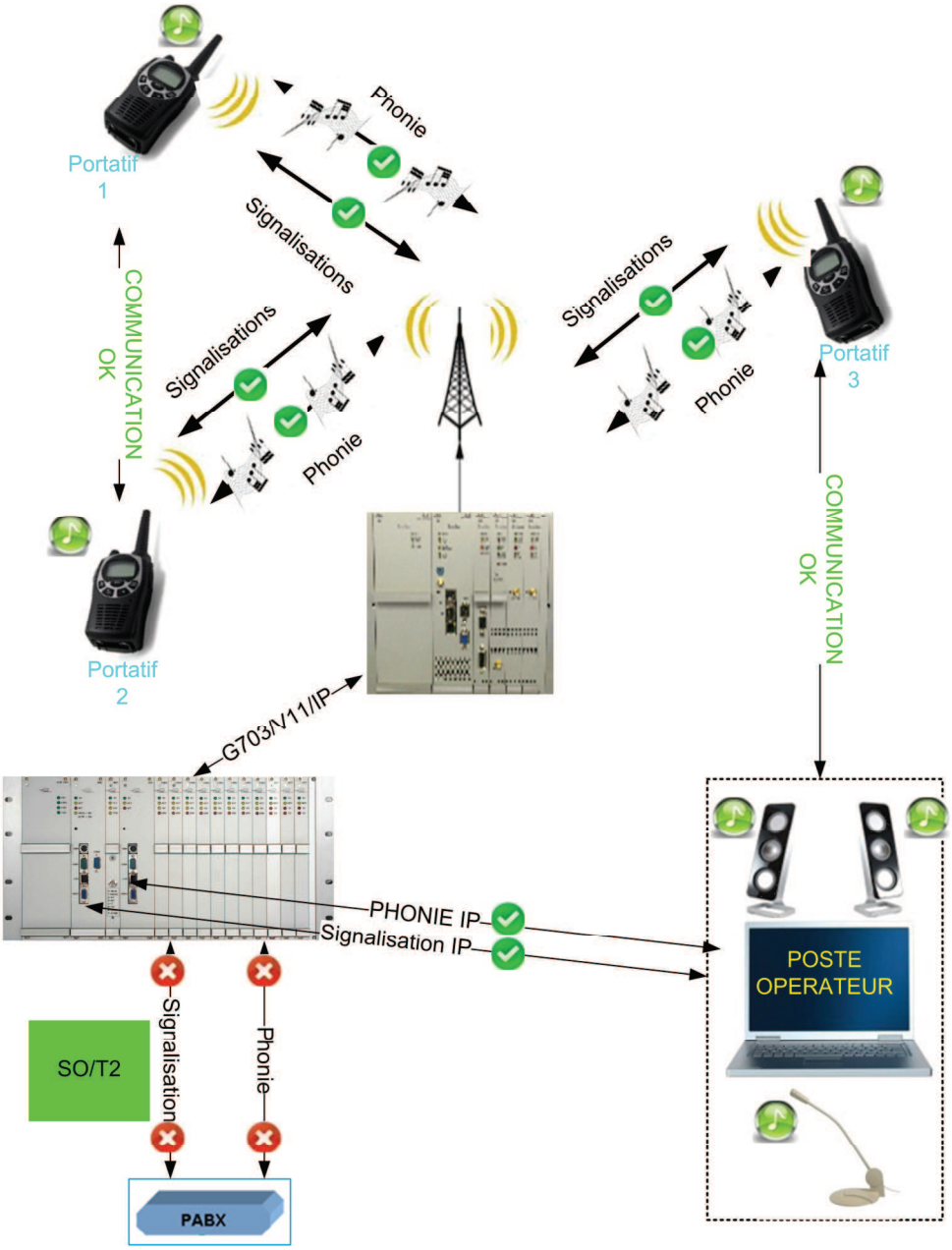
Definitions:

Signalling: Launching of calls, establishment of calls, liberation, alternate management etc…
Phone: conservation, voice, VOIP



4.7 PABX link problem

4.7.1 SIGNALLING AND PHONE OUT OF ORDER



BILAN:
*Pb côté PABX
*Pb Interface COMS (Gestion S0)
*Pb Interface COM (Gestion T2)

4.7.2 PHONE OUT OF ORDER

The base stations reply normally to a 'zoom' request from the service network management terminal
The mobiles register correctly to the network base stations
The mobile/mobile calls are correctly forwarded

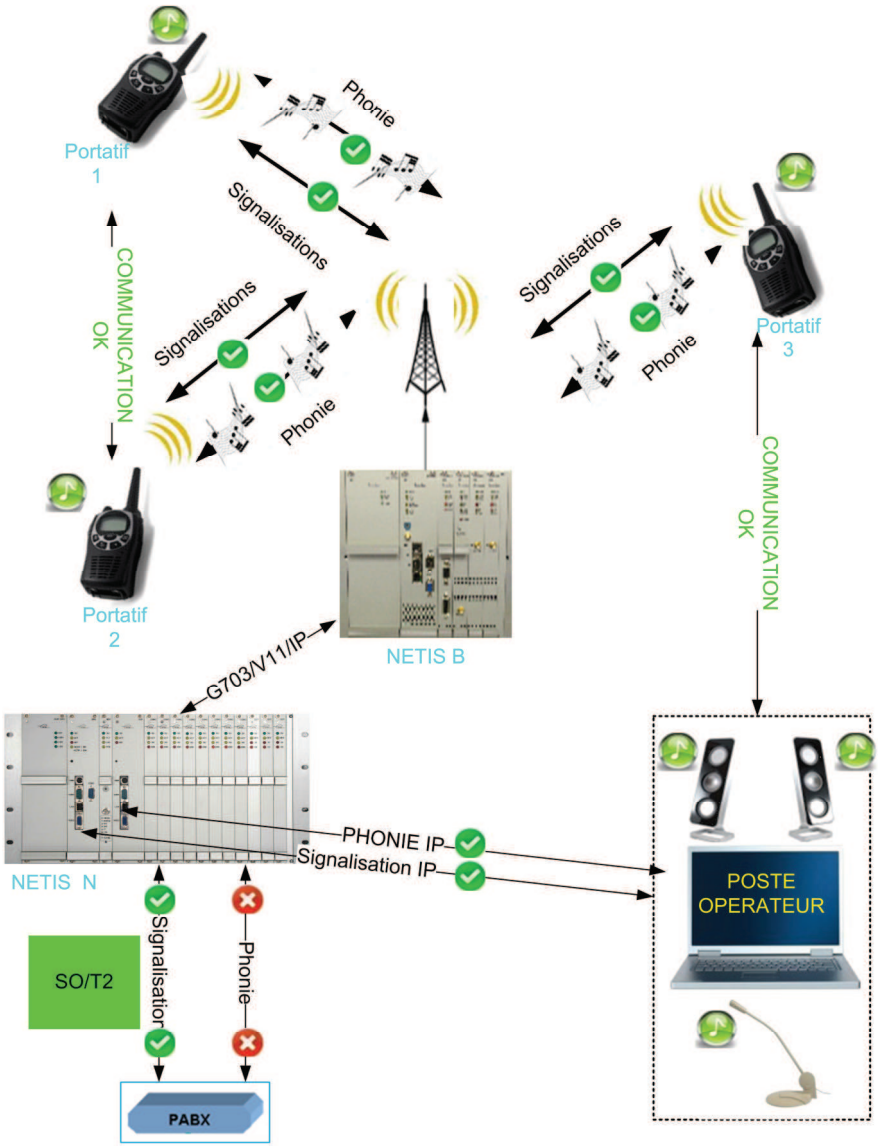
Check that the SUPIP board is operational:

- The NT indicators flash and ACT is active during communications
- Alarms are sent from the SUP boards to the SWITCH resources on the network management terminal
- Connection of a screen + keyboard to the SUPIP:
  *check that the supip.exe application is launched. To do this press the "Escape" key on the keyboard in order to display the software version.
  *check board detection on the PHONE (U_ plane) bus. If necessary reset the application by rebooting the SUPIP board or by disconnecting the PABX link interface board and reconnecting it to observe its detection as: "COM OK"

Check that the CCT board is operational:
- The ACT indicators flash and D1 or D2 is active during communications

ASSESSMENT:

*If the SUPIP and CCT boards seem to be operational then:
=>The T2 or SO link interface board is out of order
*If the SUPIP board does not respond to the above conditions, then:
=>change the SUPIP board
*If the CCT board(s) do(es) not respond to the above conditions, then:
=> change the CCT board(s) in question


Portatif 1
Phonie
Signalisations
COMMUNICATION OK
Signalisations
Phonie
Signalisations
Phonie
Portatif 3
Portatif 2
NETIS B
COMMUNICATION OK
G703/V11/IP
NETIS N
PHONIE IP
Signalisation IP
POSTE OPERATEUR
SO/T2
Signalisation
Phonie
PABX

5. NeTIS-B & NeTIS-N software

A compact Flash board plays the role of the hard drive and equips the CPUBDT and SUPIP boards
The installed operating system is DEBIAN LINUX.

5.1 NeTIS-B

5.1.1 GENERAL

The 'Niveau2.exe" software is the ETELM application operating in a NeTIS-B.

As for all computers, the board boots the operating system and loads niveau2.
Total load time: ~40s

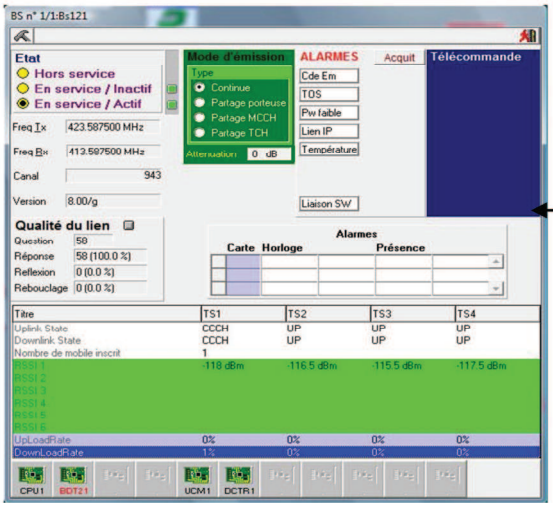
5.1.2 LAUNCHING THE « NIVEAU 2.EXE » APPLICATION

As described in the three following chapters, there a several simple methods to make sure that the software is operational

5.1.2.1 Network management terminal monitoring

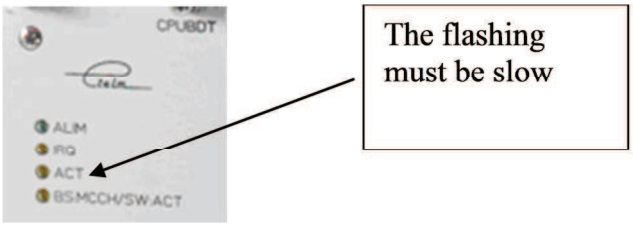
The base station niveau2 is launched if the network management terminal displays the information below in a stable and durable manner.

The green background indicates that the BS is communicating with the SWITCH



The BS sends its configuration correctly: In service, frequency, link quality, field levels, alarms etc ...

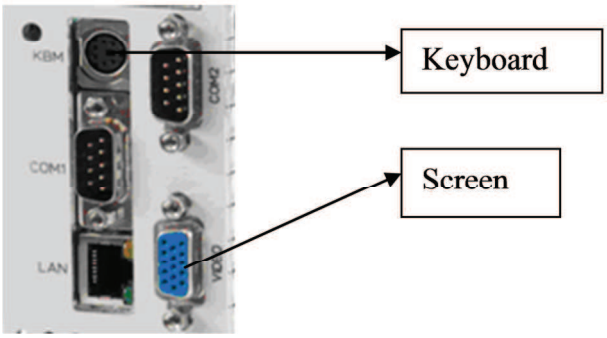
5.1.2.2 Rhythm of the ACT indicator on the CPUBDT board



The slow rhythm of the ACT indicator shows that the niveau2.exe application is running

5.1.2.3 Display of the NeTIS-B software version

Connect a screen and keyboard



Then press the "Escape" key on the keyboard and eventually stop the screen from scrolling in order to find the following line:

********* TETRA BS L2P LINUX SOFTWARE FOR PC V 7.04/b (C) ETELM 2008 DJ ***72*******

Here the niveau2 version is: 7.04/b
The display of the software version indicates that the niveau2.exe application is running and has not abounded.

5.1.3 NETIS-B IP CONFIGURATION

Once the application is running you can check the settings for the network board. This is useful for updating versions or remotely controlling the board using PUTTY, WinSCP (See chapters)

Press the ALT+F2 keys to scroll pages

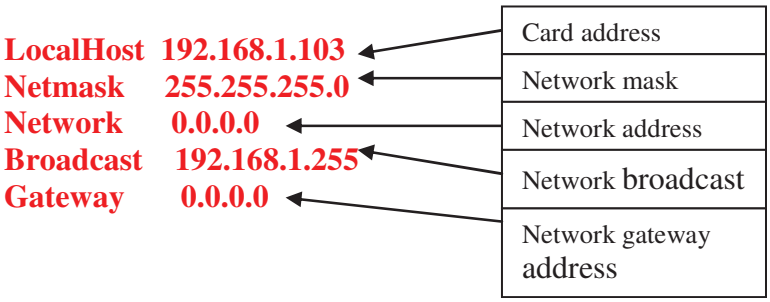
The data on the Ethernet interface board are displayed in red below

----
--------- ETELM 2008-------Tetra SOCK------LINUX-------V1.2------DP

WSOCK/LINUX module
Version 1.2 Date :03/07/2006 P.DEVOS(ETELM)

Type 'h' for viewing options

Thread_Time_event :OK
Thread_SockScrut :OK
The file '/etc/network/interfaces' was opened



5.2 NeTIS-N

5.2.1 GENERAL

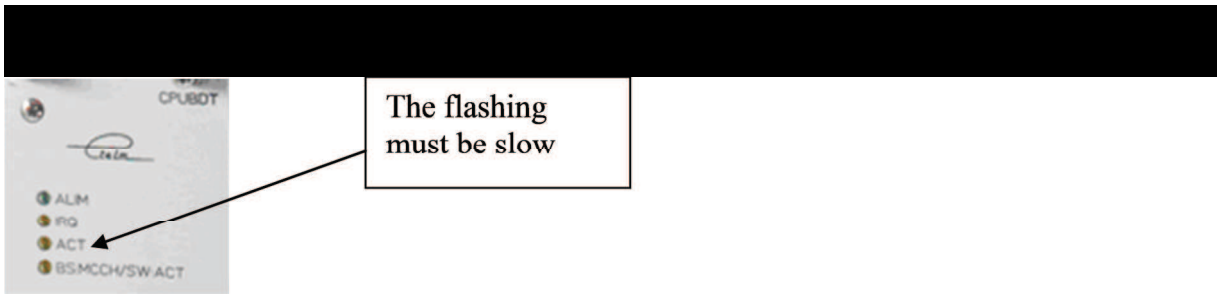
The 'Niveau3.exe" software is the ETELM application operating in the CPUBDT.
The "Supip.exe" software is the ETELM application operating in the SUPIP.

As for all computers, the board boots the operating system and loads the application
Total load time: ~40s

5.2.2 LAUNCHING THE NETIS –N APPLICATION

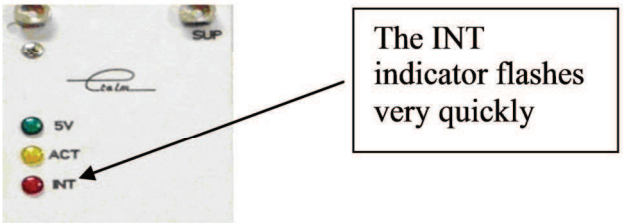
As described in the two following chapters, there a several simple methods to make sure that the software is operational

5.2.2.1 Rhythm of the ACT indicator on the CPUBDT board



The slow rhythm of the ACT indicator shows that the application is running

5.2.2.2 Rhythm of the INT indicator on the SUPIP board



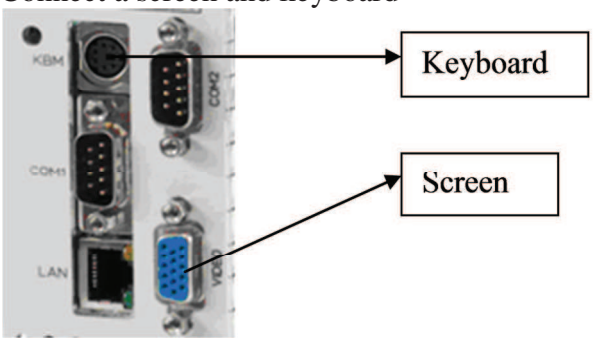
The fast rhythm of the INT indicator does not indicate that the application is running. The real time module is only running but not necessarily the SUPIP.exe application

Warning: The "ACT" indicator does not show application activity

Only an alarm visible on the network management terminal or a direct check on the board (screen + keyboard connection) can guarantee that the software is operating normally (See next chapter)

5.2.2.3 Display of the CPUBDT software version

Connect a screen and keyboard



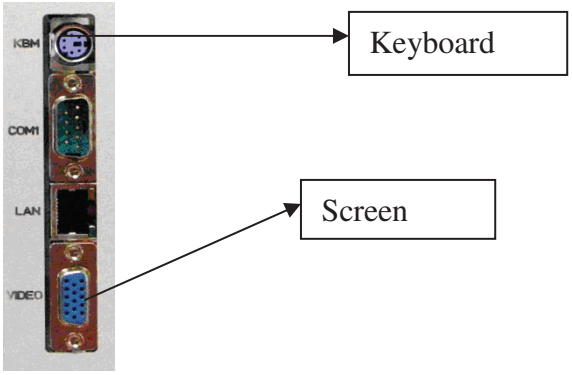
Then press the "Escape" key on the keyboard and eventually stop the screen from scrolling in order to find the following line:

----- ETELM 2007 ---------- L3P TETRA ---------- V1.65/a ----- DJ ----

Here the Niveau3 version is: 1.65/a
The display of the software version indicates that the Niveau3.exe application is running and has not abounded

5.2.2.4 Display of the SUPIP software version

Connect a screen and keyboard



Then press the "Escape" key on the keyboard and eventually stop the screen from scrolling in order to find the following line:

--------- ETELM 2008 ---------- SUPIPV4 -----LINUX------ V0.79 ---- DJ ----

Here the SUPIP application version is: 0.79
The display of the software version indicates that the Supip.exe application is running and has not abounded.

5.2.3 NETIS-N IP CONFIGURATION

5.2.3.1 IP SUPIP

Once the application is running you can check the settings for the network board. This is useful for updating versions or remotely controlling the board using PUTTY, WinSCP (See chapters).

Press the ALT+F2 keys to scroll pages.

The data on the Ethernet interface board are displayed in red below.

--------- ETELM 2008-------Tetra SOCK------LINUX-------V1.2------DP

WSOCK/LINUX module
Version 1.2 Date :03/07/2006 P.DEVOS(ETELM)

Type 'h' for viewing options

Thread_Time_event :OK
Thread_SockScrut :OK
The file '/etc/network/interfaces' was opened

LocalHost 192.168.1.103
Netmask 255.255.255.0
Network 0.0.0.0
Broadcast 192.168.1.255
Gateway 0.0.0.0

5.2.3.2 IP CPUBDT

Once the application is running you can check the settings for the network board. This is useful for updating versions or remotely controlling the board using PUTTY, WinSCP (See chapters)

Press the ALT+F2 keys to scroll pages

The data on the Ethernet interface board are displayed in red below

.
.
.
LocalHost 192.168.1.103
Netmask 255.255.255.0

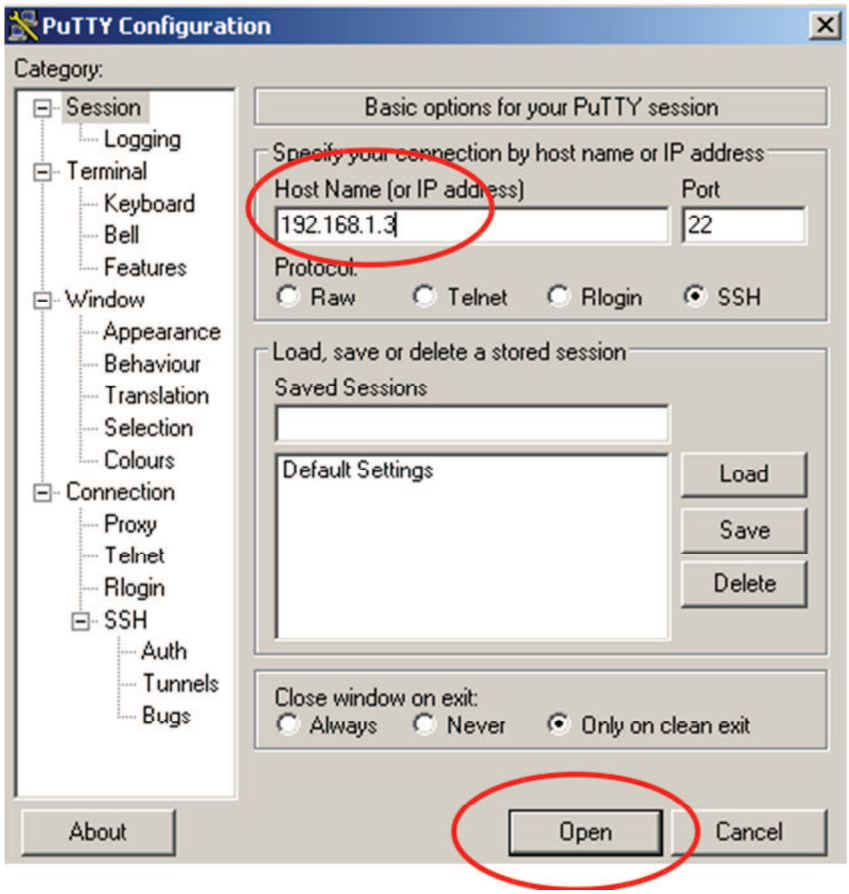
Network 0.0.0.0
Broadcast 192.168.1.255
Gateway 0.0.0.0

.
.
.

6. PUTTY (remote connection)

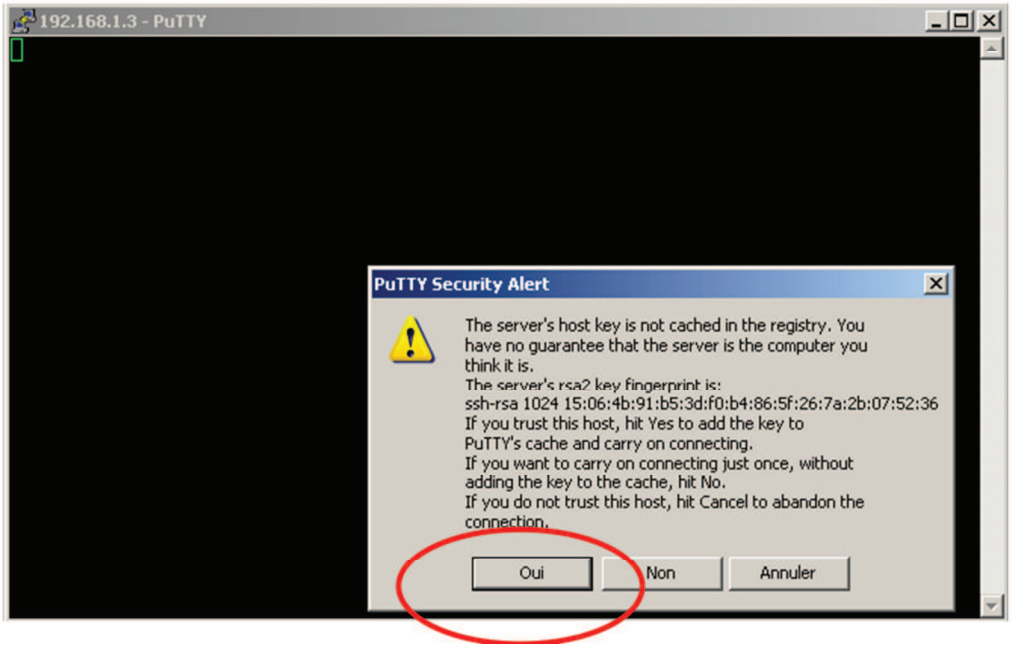
This “SSH” client can be used to obtain a secure connection from Windows to Linux servers.

It can be used to change the Network settings of the remote board, stop software, start software, reboot the PC, and remotely run software.

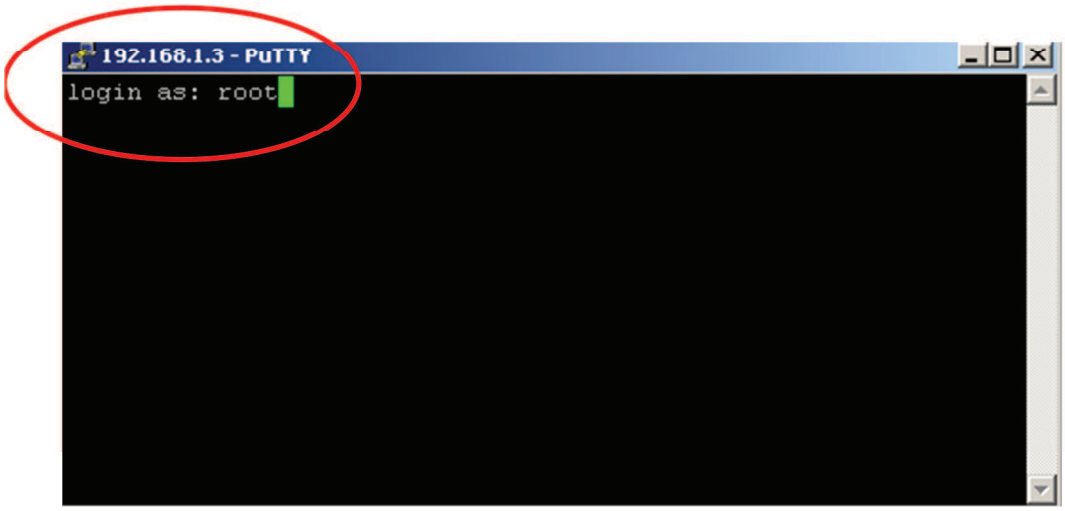


Launch putty.exe:

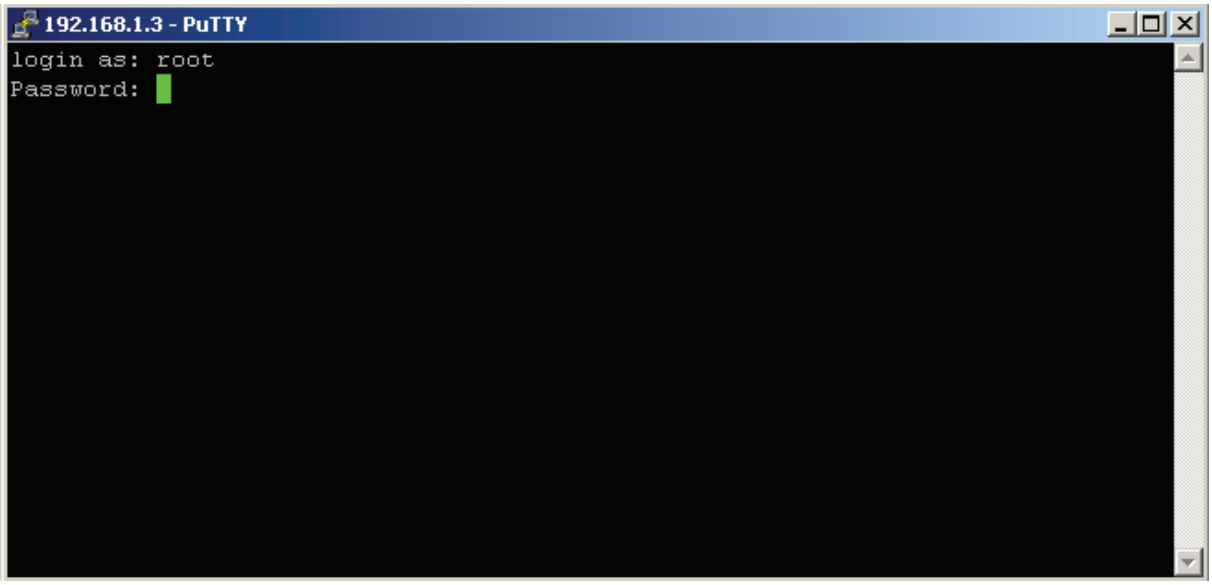
The factory setting for the Network board is 192.168.1.3, however, if this has been changed, use the new one.
Then type “Open”



If a security message appears, press on “Yes”

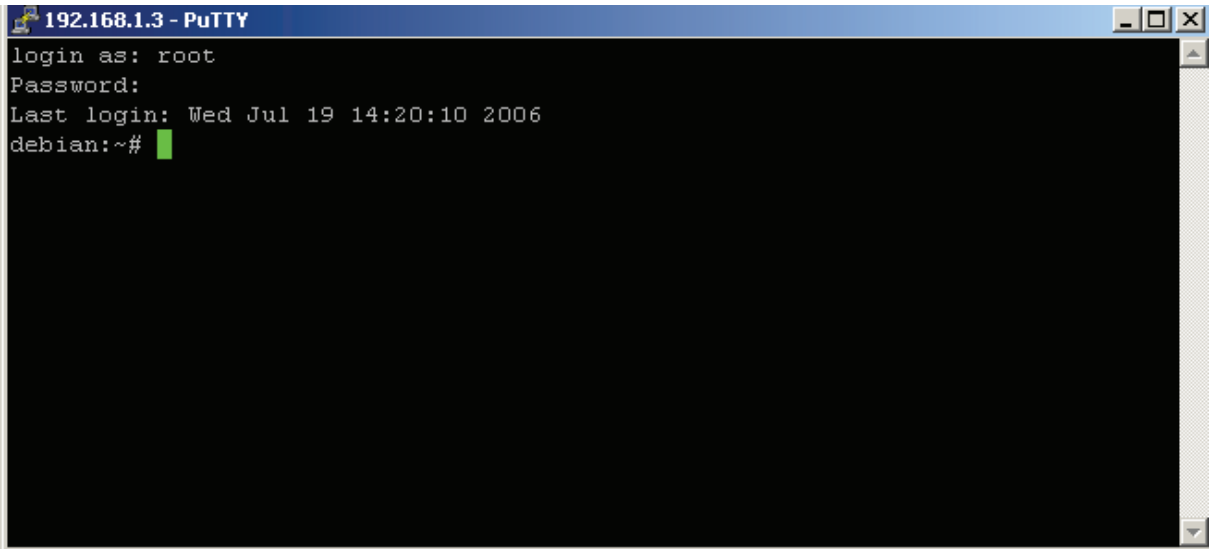


To the login request as: type **root** (in lower case) then Enter



To the password request: type **root** (in lower case) then Enter

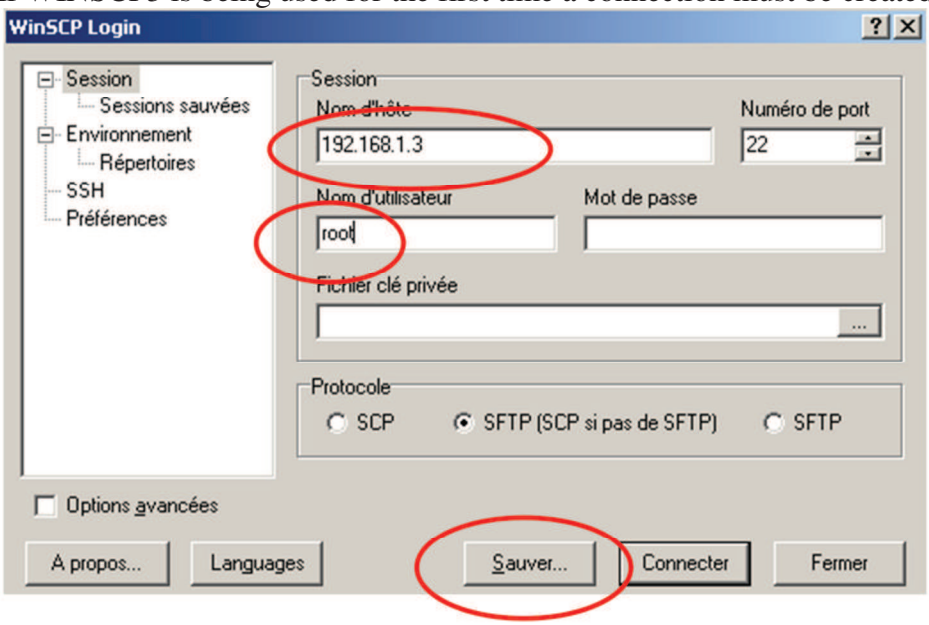
You are now connected to the remote board and can run LINUX commands:
See chapter 7



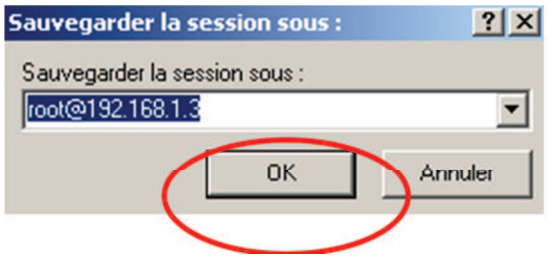
7. WINSCP – SOFTWARE UPDATE

*See also the "Authentication" chapter which only covers NeTIS-Bs.
Use the "WINSCP3" software.
This software is used for the secure transfer of files (version 2 of the SSH protocol) between a Windows station and a Linux server. It is used to update the versions of BS, SWITCH end LINUX SUPIP.
Connection via Ethernet link and CPUBDT board.
The factory setting for the Network board is 192.168.1.3, however, if this has been changed, use the new one:
To do this note down the network board configuration by installing a screen and keyboard on the CPUBDT board, the ETELM application running (ACT indicator flashing on the CPUBDT board) then press the [ALT] [F2] keys (Warning, a reset of the CPUBDT board may be needed to detect the screen.)

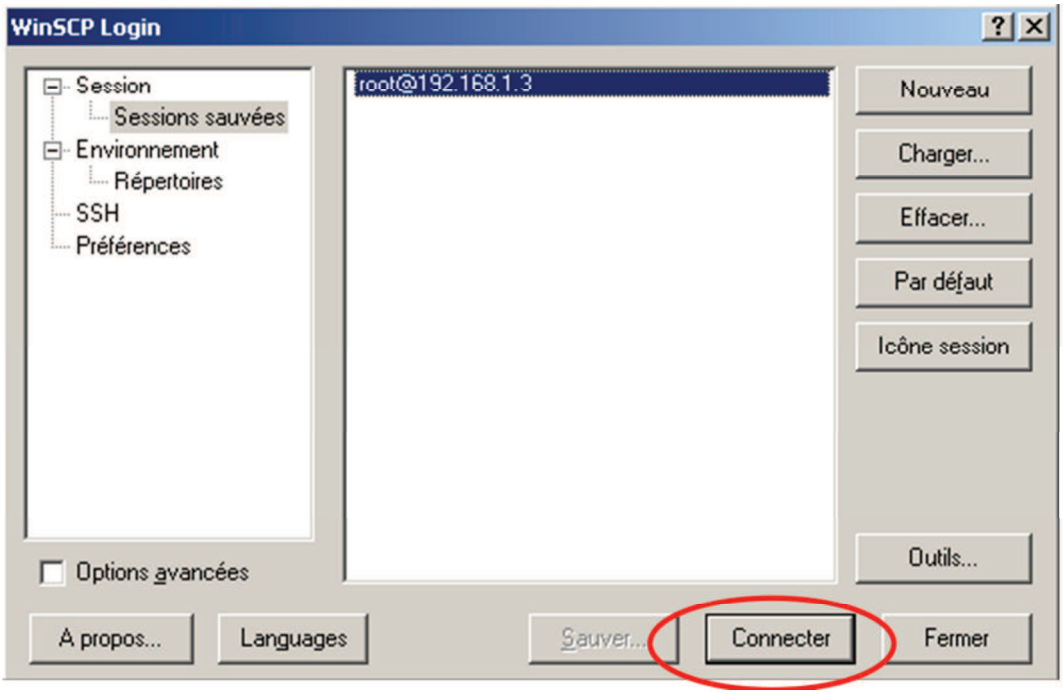
Launch WINSCP3:
If WINSCP3 is being used for the first time a connection must be created:



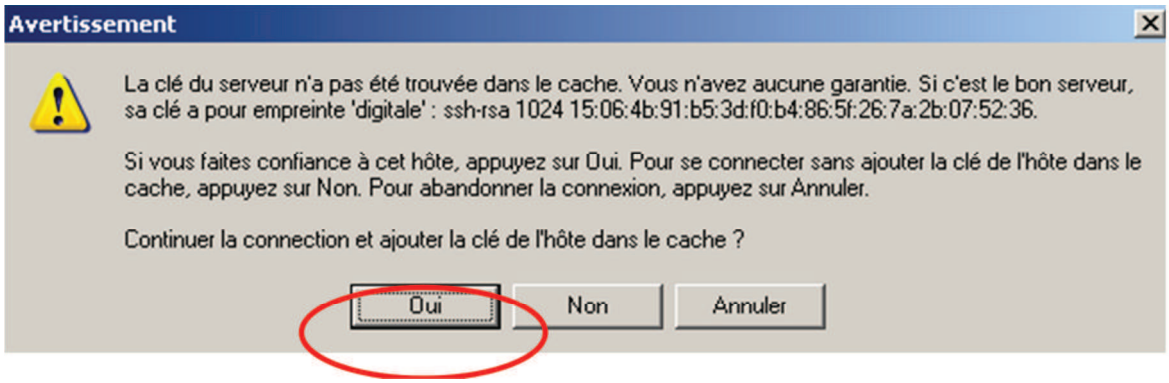
To save the WINSCP configuration for the 192.168.1.3 address press on Save.



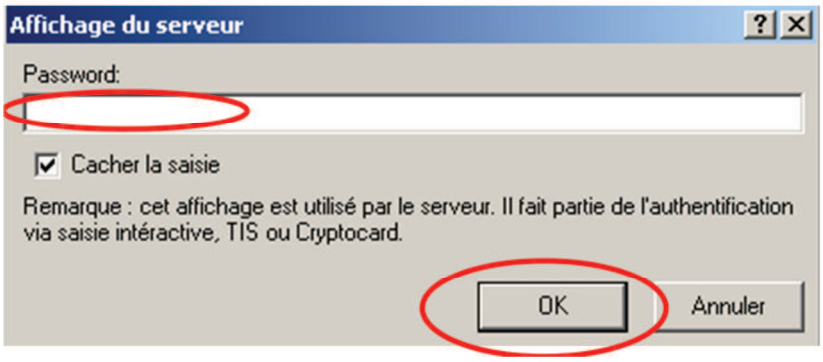
Then OK
Choose the connection root@192.168.1.3



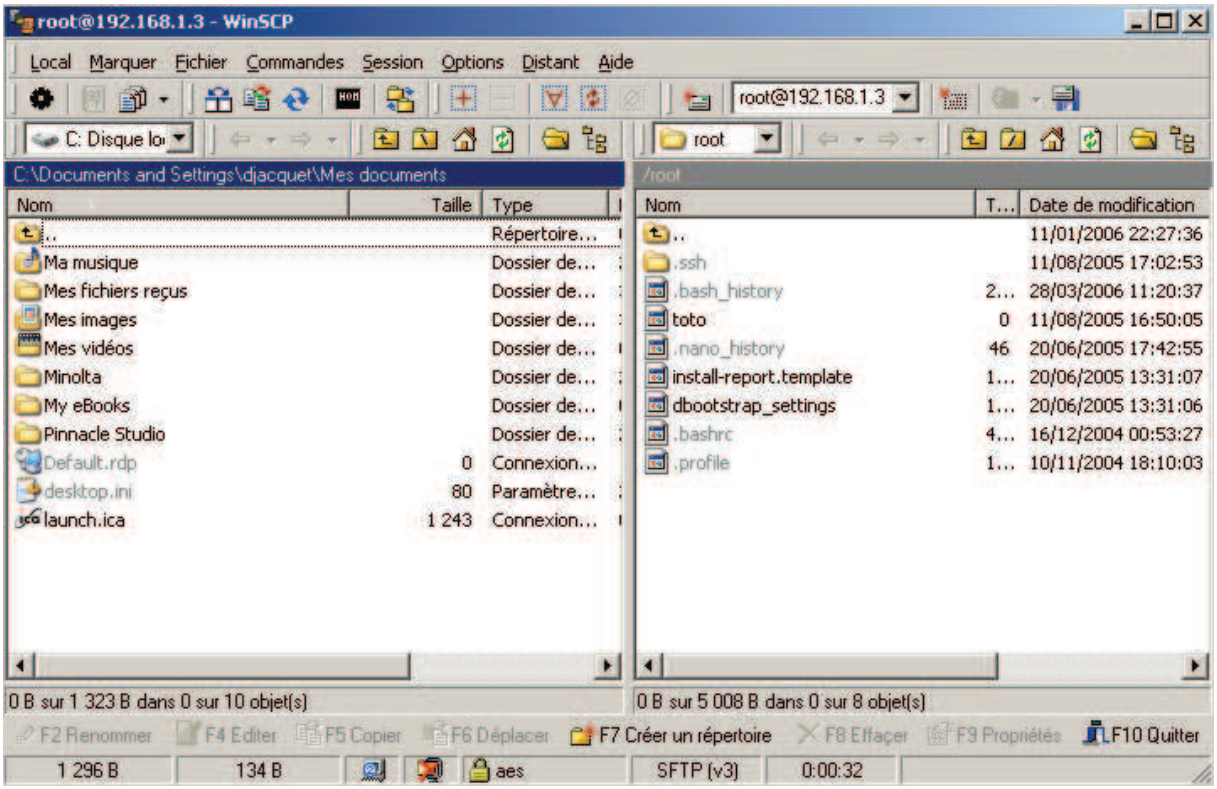
Click on Connect:
If it is the first connection, the following message is shown:



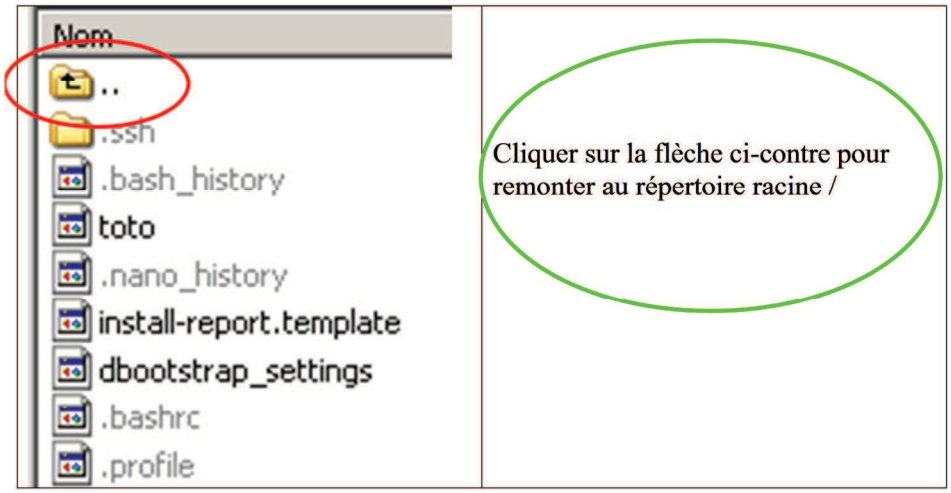
Answer Yes, a password is then requested

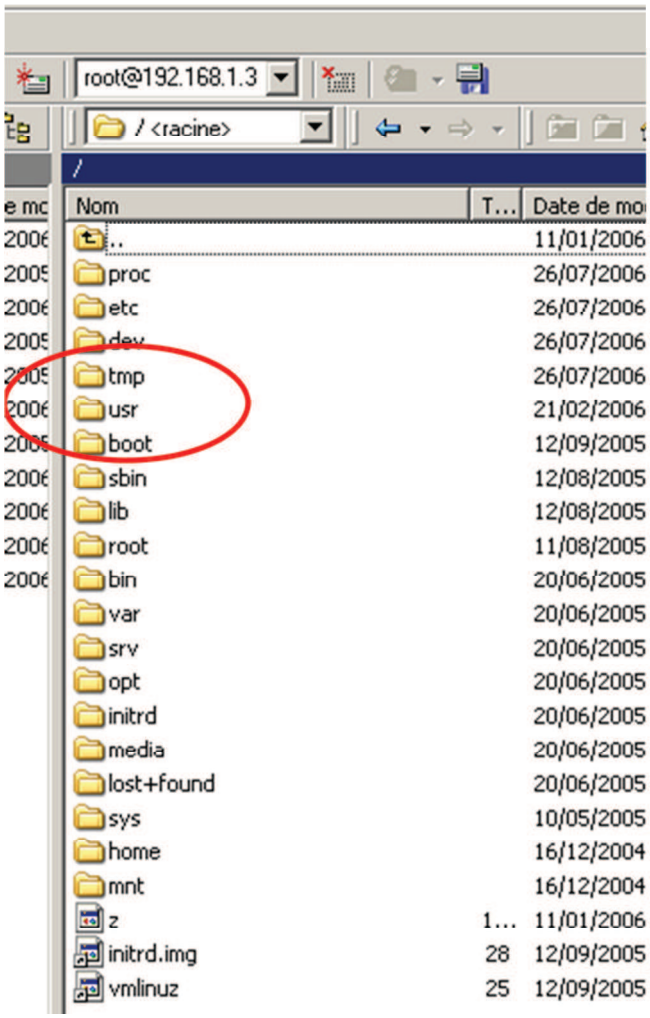


Type **root** (in lower case) then press OK.
You are now connected.

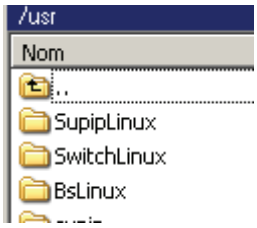


The left side corresponds to your local machine and the right side corresponds to the remote machine, i.e. one of the following boards: CPU BS, CPU SWITCH or SUPIP SWITCH.



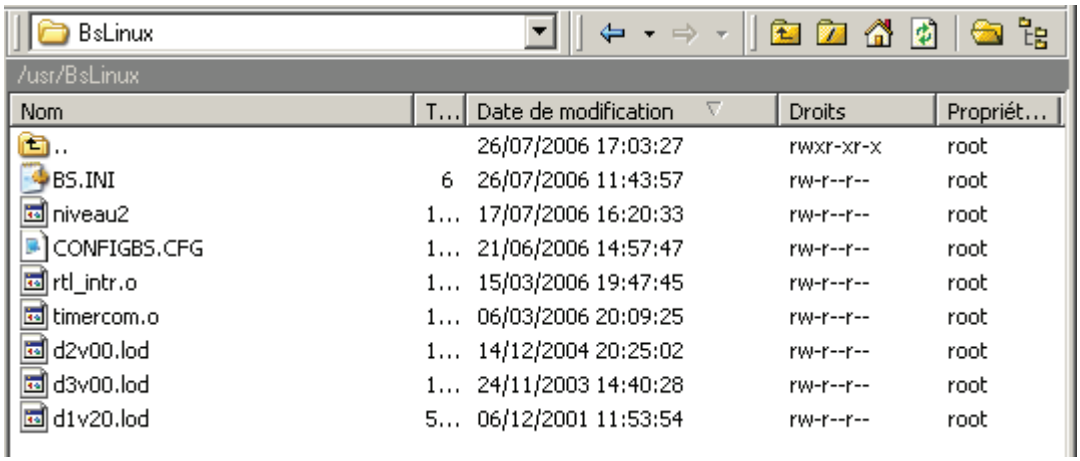


Click on the **usr** directory



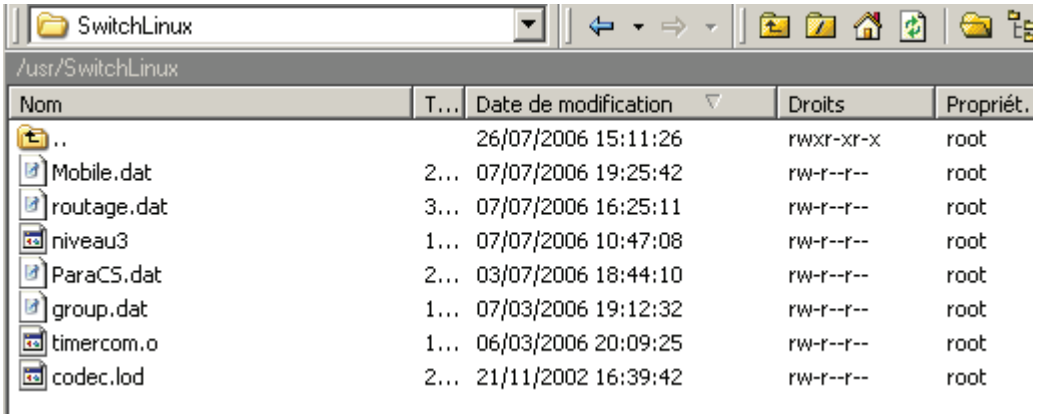
Next choose the directory that corresponds to the board's current operation:

If you are connected to a BS CPU board, select the BsLinux directory.



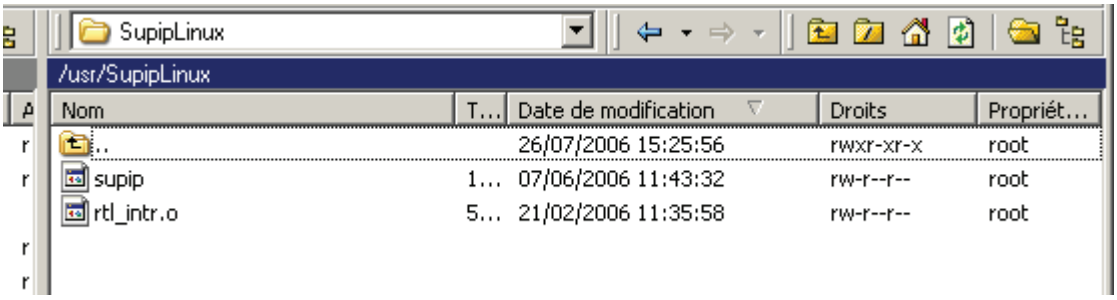
Nom	T...	Date de modification	Droits	Propriét...
..		26/07/2006 17:03:27	rwxr-xr-x	root
BS.INI	6	26/07/2006 11:43:57	rw-r--r--	root
niveau2	1...	17/07/2006 16:20:33	rw-r--r--	root
CONFIGBS.CFG	1...	21/06/2006 14:57:47	rw-r--r--	root
rtl_intr.o	1...	15/03/2006 19:47:45	rw-r--r--	root
timercom.o	1...	06/03/2006 20:09:25	rw-r--r--	root
d2v00.lod	1...	14/12/2004 20:25:02	rw-r--r--	root
d3v00.lod	1...	24/11/2003 14:40:28	rw-r--r--	root
d1v20.lod	5...	06/12/2001 11:53:54	rw-r--r--	root

If you are connected to a SWITCH SUP board, select the SupipLinux directory.



Nom	T...	Date de modification	Droits	Propriét.
..		26/07/2006 15:11:26	rwxr-xr-x	root
Mobile.dat	2...	07/07/2006 19:25:42	rw-r--r--	root
routage.dat	3...	07/07/2006 16:25:11	rw-r--r--	root
niveau3	1...	07/07/2006 10:47:08	rw-r--r--	root
ParaCS.dat	2...	03/07/2006 18:44:10	rw-r--r--	root
group.dat	1...	07/03/2006 19:12:32	rw-r--r--	root
timercom.o	1...	06/03/2006 20:09:25	rw-r--r--	root
codec.lod	2...	21/11/2002 16:39:42	rw-r--r--	root

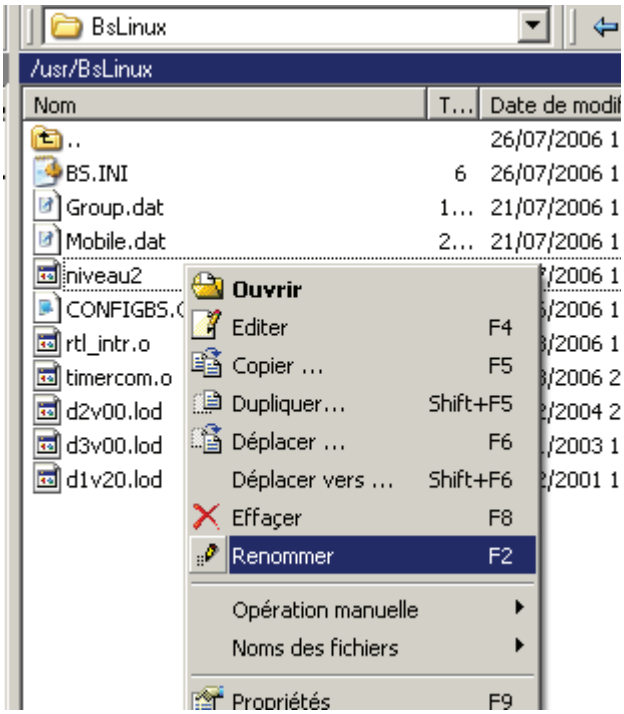
If you are connected to a SWITCH SUP board, select the SupipLinux directory.



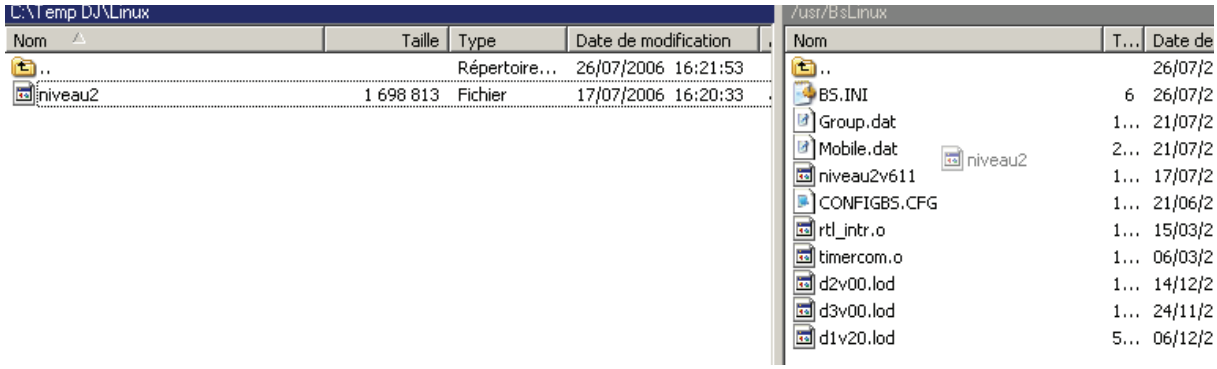
Next it is possible to run all the classical Windows Explorer commands Rename, delete ... using a right mouse click on the file to be modified.

7.1.1.1 Example of the update of a Bs Linux version:

Navigate to the directory usr/BsLinux as shown above:



Right mouse click the niveau2 file, the scroll down to rename:
Change the file name to niveau2v611 for example, if the BS version is a 6.11
Then select the new niveau2 file and drag it from left to right, i.e. from your local hard drive to the remote usr/BsLinux directory:

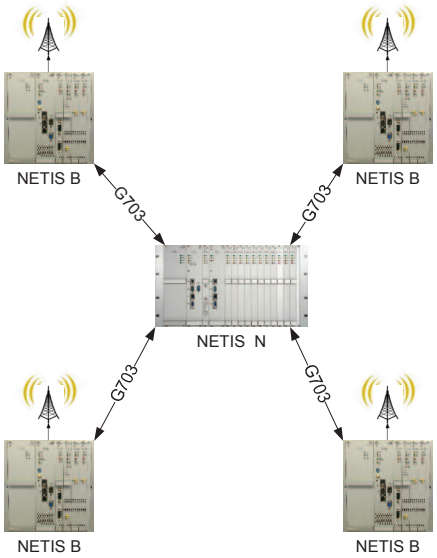


To activate this version you must either turn off the BS (Front Face Reset for example), or using a software method using the putty software that we will examine in the second part of this document.

8. NETWORKS

The objective of this chapter is to describe the configuration of the links between NeTIS equipment as well as fault diagnosis.
There can be 3 types of link:
G703
Ethernet
V11
A network can have a single type of link or several different types.

8.1 « Stars » network



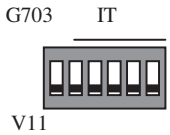
8.1.1 SETTINGS

Communications between the NeTIS-N SWITCH and the NeTIS-B BSs are carried out on the ITs.
The IT number is configured identically on both sides of the link and must be between 1 and 30.

8.1.1.1 IT configuration on the BS

On the BS side you declare the IT on a DIP switch placed behind the BS:

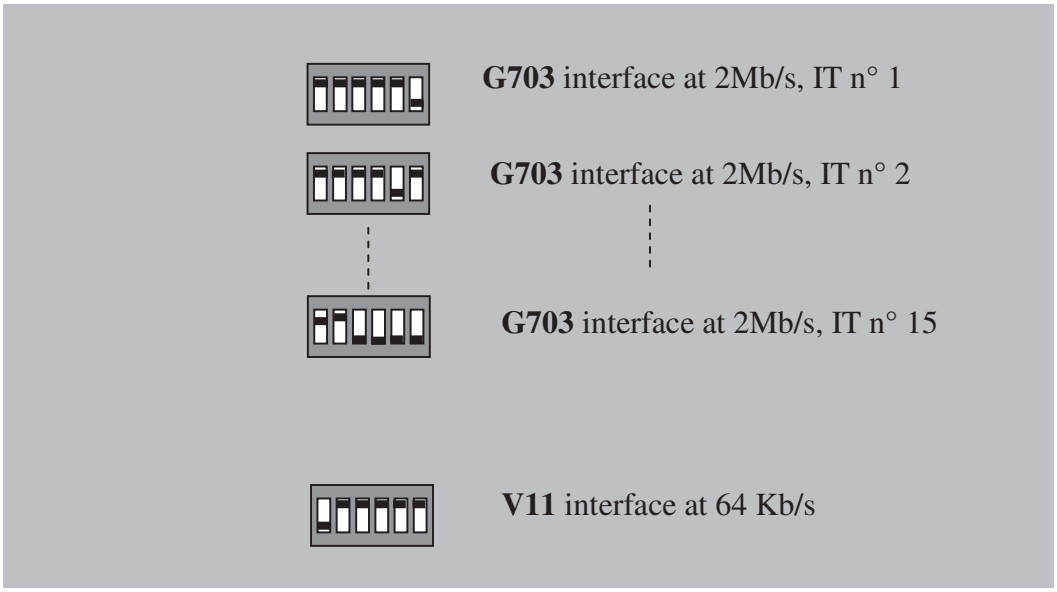
They make it possible to define the type of link with the switch and the time slot number used for a G703 link



The left switch is used to select the type of link:

- G703 link at 2Mb/s in the top position
- V11 link in the bottom position

The 5 switches to the right are used to select the IT number used by the base station on the 2Mb/s channel **(lower weight to the right, level '1' at the bottom).**



The IT 0 for the 2Mb/s channels is not accessible (synchronisation IT)
IT 16 can be used if the link operator authorises.