The first reflex is to assign the MCCH to BS n° 2 using one of several methods: -Deactivate BS $N^\circ 1$:

85 n° 1/1:Site1	
<u> </u>	
Etat	
O Hors service	
O En service / Inactif	
En service / Actif	

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.



Fichiers Réseau Site Syr	RA (C:\TETRACS\FIC	\GT2_upload_A16.syn) tage · Réseau IP Mot de	
Nouveau Ouvrir Enregistrer Enregistrer sous			Check the file to be sent
Réception		-	Send the file to : SW-Local =>SWA
Emission 🕨	SW-Local		SW Local backup ->SWD
Retour Page Accueil	SW-local secours Toute Console Activation tout SW	ľ	Sw-Local backup ->SwB

-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



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.





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



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







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

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.





BS n° 1/1:Bs121					
R.				×R.	
Etat Hors service En service / Inactif En service / Actif	Mode d'émiss Type Continue Partage por	euse Pur faible	ES Acquit	Télécommande	
Freq Ix 423.587500 MHz Freq Bx 4112.587500 MHz Canal 943 Version 8.00/g Qualité du lien 9	Attenuation	Liaison SV	re V		 The BS sends its configuration correctly: In service,
Réponse 58 Réflexion 0 (0.0 %) Reflexion 0 (0.0 %)		Horloge	Présence	×	frequency, link quality, field levels,
Titre Uplink State Downlink State Nombre de mobile inscrit	TS1 CCCH CCCH 1	TS2 UP UP	TS3 UP UP	TS4 UP UP	alarms etc
	-118 dBm	-116.5 dBm	-115.5 dBm	-117.5 dBm	L
UpLoadRate	0%	0%	0%	0%	
CPU1 BDT21		Pres Pres	tre tre	144 ₀	





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



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------ 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	Card address
Netmask	255.255.255.0	Network mask
Network	0.0.0.0	Network address
Broadcast Gateway	192.168.1.255	Network broadcast
·		Network gateway address

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: ~ 40 s

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

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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 0.0.00 Broadcast 192.168.1.255 Gateway 0.0.00

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 telm_______ NeTIS MAINTENANCE GUIDE – Version 1.1 56/139

Network	0.0.0
Broadcast	192.168.1.255
Gateway	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.

ategory:		
E-Session Logging ⊡-Terminal Keyboard Bell Features	Basic options for your PuTTY se Specify your connection by host name or Host Name (or IP address) [192.168.1.3] Protocol:	ession IP address Port 22
Window Appearance Behaviour Translation Selection Colours Connection Proxy Telnet Rlogin SSH Auth	Load, save or delete a stored session Saved Sessions	Load Save Delete
About	Close window on exit: C Always C Never C Only on C Open	clean exit

telm

____ NeTIS MAINTENANCE GUIDE – Version 1.1 58/139

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"

192.168.1.3 - РиТТҮ]	
PuTTY Se	curity Alert 🔀
1	The server's host key is not cached in the registry. You have no guarantee that the server is the computer you think it is. The server's rsa2 key fingerprint is: ssh-rsa 1024 15:06:4b:91:b5:36!0:b4:86:5f:26:7a:2b:07:52:36 If you trust this host, hit Yes to add the key to PUTTY's cache and carry on connecting. If you want to carry on connecting just once, without adding the key to the cache, hit No. If you do not trust this host, hit Cancel to abandon the connection. Oui Non Annuler

If a security message appears, press on "Yes"

192.168.1.3 - PUTTY	
login as: root	A
	*



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



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

telm

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



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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:

_telm___

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

 Session Sessions sauvées Environnement 	Nom d'hôte Numéro de port
SSH Préférences	Nom d'utilisateur Mot de passe
	Protocole C SCP © SFTP (SCP si pas de SFTP) © SFTP
Options avancées	

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

Sauvegarder la session sous :	? ×
Sauvegarder la session sous :	
root@192.168.1.3	•
ОК	Annuler
Then OV	

Then OK

Choose the connection root@192.168.1.3

WinSCP Login		<u>? ×</u>
 Session Sessions sauvées Environnement Répertoires SSH Préférences 	root@192.168.1.3	Nouveau Charger Effacer Par défaut Icône session
Options <u>avancées</u>		Outils
A propos Languag	es <u>S</u> auver Connecter	Fermer

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.





*	root@192.168.1.3 💌 🎽 🍘 🗸	1	
28	🎦 / <racine> 💌 🛛 🖨 👻 =</racine>	~	
	7		
e mc	Nom	T	Date de mo
2006	 		11/01/2006
2005	Coproc		26/07/2006
2006	Center		26/07/2006
2005	Codev		26/07/2006
2005	🗀 tmp		26/07/2006
2006	🚞 usr 🔰		21/02/2006
2005	boot		12/09/2005
2006	🚞 sbin		12/08/2005
2006	🗀 lib		12/08/2005
2006	Corot		11/08/2005
2006	6 bin		20/06/2005
	🚞 var		20/06/2005
	Srv		20/06/2005
	C opt		20/06/2005
	🚞 initrd		20/06/2005
	amedia		20/06/2005
	Colost+found		20/06/2005
	C sys		10/05/2005
	Dome		16/12/2004
	mnt		16/12/2004
	🕶 z	1	11/01/2006
	🗐 initrd.img	28	12/09/2005
	🔊 vmlinuz	25	12/09/2005

Click on the **UST** directory

telm

/usr
Nom
È
🚞 SupipLinux
🚞 SwitchLinux
🚞 BsLinux
<u> </u>

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.

🛛 🗀 BsLinux	🖻 🗖 🚮 🔮	🖻 🔁		
/usr/BsLinux				
Nom	T	Date de modification $-\nabla$	Droits	Propriét
a		26/07/2006 17:03:27	rwxr-xr-x	root
BS.INI	6	26/07/2006 11:43:57	rw-rr	root
🖬 niveau2	1	17/07/2006 16:20:33	rw-rr	root
CONFIGBS.CFG	1	21/06/2006 14:57:47	rw-rr	root
🖬 rtl_intr.o	1	15/03/2006 19:47:45	rw-rr	root
🖬 timercom.o	1	06/03/2006 20:09:25	rw-rr	root
🖬 d2v00.lod	1	14/12/2004 20:25:02	rw-rr	root
🖬 d3v00.lod	1	24/11/2003 14:40:28	rw-rr	root
d1v20.lod	5	06/12/2001 11:53:54	rw-rr	root

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

📗 🗁 SwitchLinux		▼	-	2 🗖 🚮 💈) 🔤 🗄
/usr/SwitchLinux					
Nom	T	Date de modification	∇	Droits	Propriét.
🛅		26/07/2006 15:11:26		rw×r-×r-×	root
🕑 Mobile.dat	2	07/07/2006 19:25:42		rw-rr	root
🕑 routage.dat	3	07/07/2006 16:25:11		rw-rr	root
🗖 niveau3	1	07/07/2006 10:47:08		rw-rr	root
🕑 ParaCS.dat	2	03/07/2006 18:44:10		rw-rr	root
🕑 group.dat	1	07/03/2006 19:12:32		rw-rr	root
🗖 timercom.o	1	06/03/2006 20:09:25		rw-rr	root
🗖 codec.lod	2	21/11/2002 16:39:42		rw-rr	root
1					



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

8	🛛 🗀 SupipLinux		▼ ↓ ⇔	-] 🛙	🖣 🗖 🖉	🗎 🔤
	/usr/SupipLinux					
A	Nom	Т	Date de modification	∇	Droits	Propriét
r	@		26/07/2006 15:25:56		rwxr-xr-x	root
r	🖬 supip	1	07/06/2006 11:43:32		rw-rr	root
	🖬 rtl_intr.o	5	21/02/2006 11:35:58		rw-rr	root
r						
r						

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:

C:\Temp DJ\Linux					/usr/BsLinux			
Nom 🛆	Taille	Туре	Date de modification	۱ I	Nom	T	Date de	
🖻		Répertoire	26/07/2006 16:21:	53	💼		26/07/2	
🖬 niveau2	1 698 813	Fichier	17/07/2006 16:20:	33 .	BS.INI	6	26/07/2	
					🕑 Group.dat	1	21/07/2	
					Mobile.dat 🔜 piyeau2	2	21/07/2	
					niveau2v611	1	17/07/2	
					CONFIGBS.CFG	1	21/06/2	
					🖬 rtl_intr.o	1	15/03/2	
					🖬 timercom.o	1	06/03/2	
					🖬 d2v00.lod	1	14/12/2	
					🖬 d3v00.lod	1	24/11/2	
					🖬 d1v20.lod	5	06/12/2	

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

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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.