

Alcatel-Lucent GSM

9130 BSC Evolution Maintenance Handbook

BSC & TC Document

Procedural Handbook

Release B10



Status RELEASED

Short title

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Preface

Purpose This Maintenance Handbook describes how to replace units and cables in the subracks and how to install, configure and change 9130 BSC Evolution software.

What's New **In Edition 13**

Description improvement in following sections:

- ▶ *Insert JBXSSW (Section 3.5.5.2)*
- ▶ *IP Assignment Rules in 9130 BSC Evolution with the 1 LAN Solution (Section 6.3.1.2).*

In Edition 12

Description improvement in following sections:

- ▶ *Insert JBXSSW (Section 3.5.5.2)*
- ▶ *Insert JAXSMM (Section 3.6.3.2)*
- ▶ *Insert JBXPEM (Section 4.3.2).*

In Edition 11

Description improvement in the following sections:

- ▶ *Modify BSC IP Configuration from 1 LAN to 2 LANs (Section 6.3.3)*
- ▶ *Modify BSC IP Configuration from 2 LANs to 1 LAN (Section 6.3.4).*
- ▶ *Tool collecting On-Demand Traces/Logs (Section 6.4)*

3BKA20FBR226586 Restriction removed from *Replace JBXTP (Section 3.5.2)*

In Edition 10

Update for new equipment naming.

Description improvement in:

- ▶ *Replace JBXPS (Section 3.6.4)*
- ▶ *Modify 9130 BSC Evolution IP Configuration (Section 6.3).*

In Edition 09

3BKA20FBR226586 Restriction introduction in *Replace JBXTP (Section 3.5.2)*

3BKA20FBR229377 Restriction introduction in *Replace JBXOMCP (Section 3.5.3)*

In Edition 08

Description improvement in *Replace JBXOMCP (Section 3.5.3)*.

In Edition 07

The following sections were added:

- ▶ *Modify BSC IP Configuration from 1 LAN to 2 LANs (Section 6.3.3)*
- ▶ *Modify BSC IP Configuration from 2 LANs to 1 LAN (Section 6.3.4)*.

Description improvement in:

- ▶ *Insert JBXTP (Section 3.5.2.2)*
- ▶ *Update the NE10E Firmware for the New JBXTP or JBXMUX Boards (Section 3.5.2.3)*
- ▶ *Insert JBXMUX (Section 4.4.2)*.

Section “Check Firmware Version for the New JBXTP or JBXMUX Board” was removed.

In Edition 06

Description update in *ATCA Subrack Presentation (Section 3.2)*.

In Edition 05

Description improvement in *Replace Battery on JBXOMCP/JBXCCP (Section 3.7)*.

In Edition 04

Section *Replace Battery on JBXOMCP/JBXCCP (Section 3.7)* was added.

In Edition 03

Restriction introduction 3BKA20FBR209413.

In Edition 02

Description improvement in:

- ▶ *Remove JBXSSW (Section 3.5.5.1)*
- ▶ *Remove JBXOMCP (Section 3.5.3.1)*
- ▶ *Board/Area/Slot/SBL Mapping (Section 1.3)*.

In Edition 01

First release of the document.

Audience This Maintenance Handbook is intended for:

- ▶ Maintenance engineers
- ▶ System support engineers
- ▶ Network technicians
- ▶ Network operators.

Assumed Knowledge You must have a basic understanding of the following:

- ▶ Alcatel-Lucent operations and maintenance concepts for the BSC
- ▶ BSC hardware configurations
- ▶ Telecommunications engineering
- ▶ Anti-static procedures
- ▶ Windows environment
- ▶ Linux environment.

1 Hardware Presentation

This section provides a short equipment and interconnections presentation.

1.1 Front and Rear Views of the 9130 BSC Evolution

The following figure shows the front view for a standalone 9130 BSC Evolution Evolution.

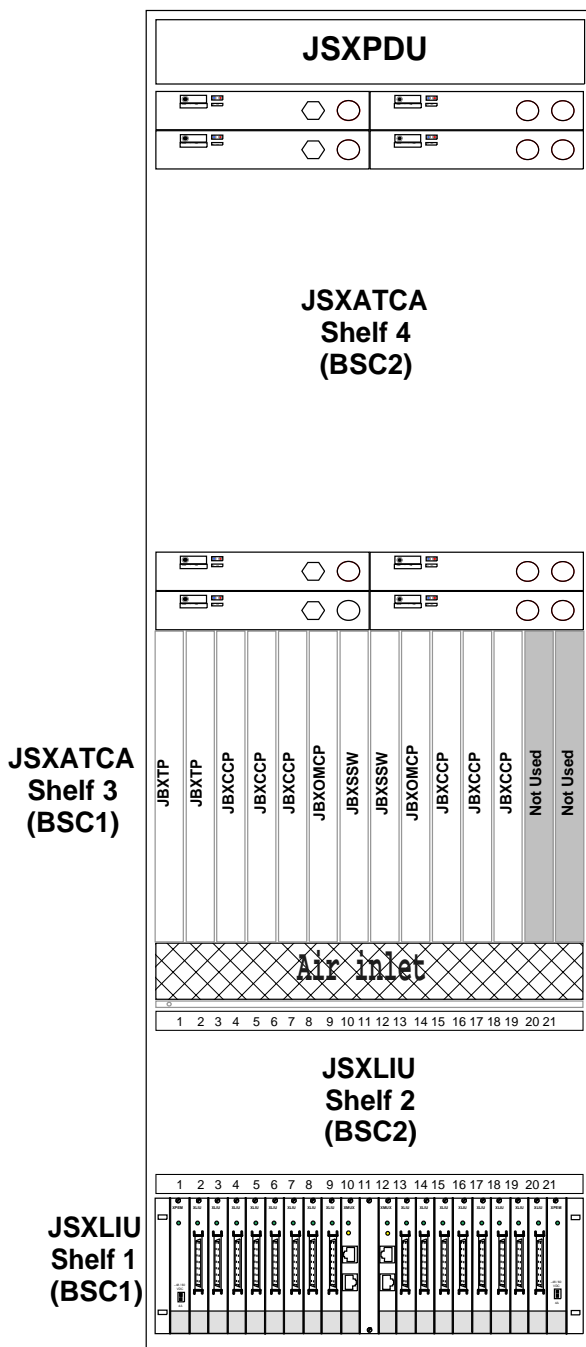


Figure 1: Front View of a Standalone 9130 BSC Evolution

The following figure shows the rear view for a standalone 9130 BSC Evolution Evolution.

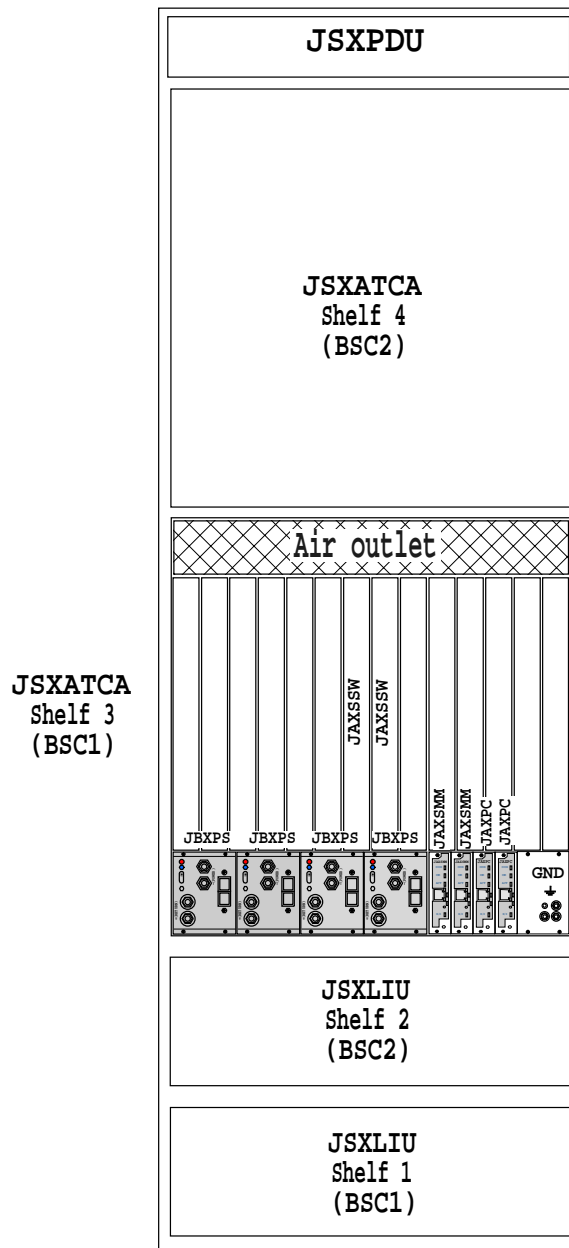


Figure 2: Rear View of a Standalone 9130 BSC Evolution

1.2 9130 BSC Evolution Interconnections

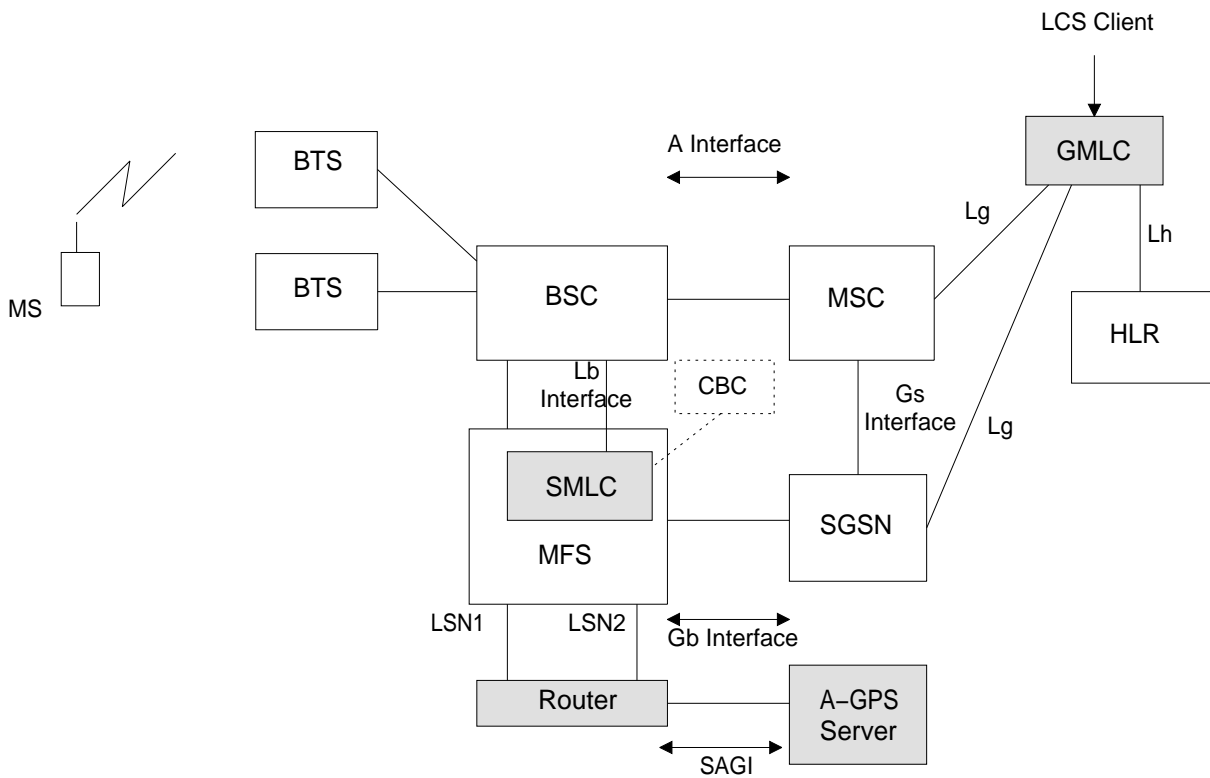


Figure 3: 9130 BSC Evolution Interconnections

The BSC is connected with the following network elements for telecom functions:

- ▶ MFS, TC: Atermux interface
- ▶ MSC: A interface
- ▶ BTS: Abis interface.

1.3 Board/Area/Slot/SBL Mapping

The following tables give the Board/Area/Slot/SBL mapping for the modules used in 9130 BSC Evolution.

		JBXFAN area	
Board		JBXFAN1	JBXFAN2
Slot number		81	82
SBL		FAN1	FAN2
Board		JBXFAN3	JBXFAN4
Slot number		83	84
SBL		FAN3	FAN4

		Slot area													
Board		J B X T P 1	J B X T P 2		J B X C C P 4	J B X C C P 1	J B X O M C P 1	J B X S S W 1	J B X S S W 2	J B X O M C P 2	J B X C C P 3				
Physical slot number		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Logical slot number		13	11	9	7	5	3	1	2	4	6	8	10	12	14
SBL		T P - H W 1	T P - H W 2		C P - H W 6	C P - H W 3	C P - H W 1	S S W - H W 1	S S W - H W 2	C P - H W 2	C P - H W 4	C P - H W 5			

Table 1: ATCA Shelf Front View Board-Area-Slot-SBL Mapping

Board	Rear area					
		...	JAXSSW2	JAXSSW1	...	
Physical slot number	14	...	8	7	...	1
Logical slot number	30	...	24	23	...	17
SBL			SSW-HW2	SSW-HW1		

Board	JBXPS area				JAXSMM area		JAXPC area	
	JBXPS1	JBXPS2	JBXPS3	JBXPS4	JAXSMM2	JAXSMM1	JAXPC2	JAXPC1
Physical slot number	1	2	3	4	1	2	1	2
Logical slot number	33	34	35	36	66	65	50	49
SBL	PEM1	PEM2	PEM3	PEM4	SMM2	SMM1	BSC ENV3	BSC ENV2

Table 2: ATCA Shelf Rear View Board-Area-Slot-SBL Mapping

Board	J	J	J	J	J	J	J	J	J	J		J	J	J	J	J	J	J	J	J	J	
	B	B	B	B	B	B	B	B	B	B		B	B	B	B	B	B	B	B	B	B	B
Slot Nb.	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	
	P	L	L	L	L	L	L	L	L	M		M	L	L	L	L	L	L	L	L	L	P
SBL	E	I	I	I	I	I	I	I	I	U		U	I	I	I	I	I	I	I	I	I	E
	M	U	U	U	U	U	U	U	U	X		X	U	U	U	U	U	U	U	U	U	M
	1	1	2	3	4	5	6	7	8	1		2	9	10	11	12	13	14	15	16	2	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
	P	E	E	E	E	E	E	E	E	E		E	E	E	E	E	E	E	E	E	P	
	E	T	T	T	T	T	T	T	T	C		C	T	T	T	T	T	T	T	T	E	
	M	U	U	U	U	U	U	U	U	U		U	U	U	U	U	U	U	U	U	M	
	5	1	2	3	4	5	6	7	8	1		2	9	10	11	12	13	14	15	16	6	

Table 3: LIU Shelf Board-Slot-SBL Mapping

2 Safety Rules and Precautions

This section contains the following information:

- ▶ Safety rules for equipment under power
 - ▶ Electrostatic precautions.
-

2.1 Safety Rules for Equipment Under Power



Injury from Equipment

Possible death or serious physical harm to personnel and damage to equipment may result from mishandling.

While performing any maintenance tasks or procedures, you must follow any local safety requirements, and those mentioned in this chapter.

For maintenance purposes, field operators may have to work on equipment under power (-48 VDC or -60 VDC). This means that it is possible to touch some parts under power that are only protected by heavy fuses. Maintenance activities must be carried out carefully to avoid short circuits and to prevent serious personal injury.

Conductive Objects: Remove all conductive objects from hands and arms such as rings, bracelets, metallic wrist watches or similar. Use appropriate insulated tools for maintenance activities.

Mobile Telephone: Do not use a mobile telephone when the BSC doors are open. It can interfere with the operation of the BSC.

Uncommon Replacements: Alcatel-Lucent will perform a case-by-case study and, if necessary, prepare a special replacement procedure. Any such procedure is handled solely by Alcatel-Lucent.

2.2 Electrostatic Precautions

2.2.1 Environment

You must observe the following electrostatic precautions:

- ▶ Ensure that work benches, tools, and floor mats have a conducting surface connected to ground. Before handling static-sensitive components and assemblies, ground yourself to the conducting surface by using an anti-static wrist strap.
- ▶ When handling static-sensitive components and assemblies, do not wear or use clothes made of wool, nylon or any other synthetic material. Such fabrics are major sources of static build-up.
- ▶ When handling static-sensitive components and assemblies, do not use gloves and finger covers, unless they are made of cotton.

2.2.2 Tools

You need the following tools to perform the procedures described in this handbook:

- ▶ An anti-static wrist strap
- ▶ A serviceable replacement unit
- ▶ A Torx screwdriver
- ▶ A Flathead screwdriver
- ▶ A Philips crosshead screwdriver.

You must respect the following rules:

- ▶ Ensure that all the tools which come into contact with static-sensitive components are at the same voltage level as the conducting work surfaces and floor mats.
These tools include soldering irons, oscilloscopes, power supplies, and metal parts of tools and fixtures that are used to hold, assemble or test PBAs.
- ▶ Do not use rough cleaners or erasers to clean the gold-plated contacts on PBAs
- ▶ Do not mark a PBA with a lead pencil or any other writing instrument
- ▶ Do not use synthetic brushes to clean equipment, and do not use dry cleaning methods.

2.2.3 Transportation and Storage

You must respect the following rules:

- ▶ Pack all containers used to transport and store static-sensitive components, and use aluminum container tubes if possible. If not, insert the component terminations into electrically conductive foam
- ▶ Before shipping a PBA, wrap it in a conducting synthetic bag or in aluminum foil. Also pack the PBA in a polyethylene transport box
- ▶ Before shipping a PBA which has metal oxide semiconductor components, ensure that an appropriate warning symbol is displayed on the package
- ▶ Store spare PBAs in their appropriate polyethylene boxes. Keep the boxes closed except when access to their contents is required
- ▶ Do not store PBAs in an area where the air is polluted with smoke, dust, dangerous gases or other airborne particles that may cause damage
- ▶ Do not stack PBAs side-by-side or on top of each other with the board surfaces or components in contact with one another
- ▶ Before cleaning a PBA, remove or disconnect the damage protection, such as protective foam, to allow the PBA to be cleaned thoroughly. Replace the damage protection upon completion of the task.

2.2.4 Components and PBAs

You must respect the following rules:

- ▶ Components and PBAs not in protective containers must only be handled by trained personnel in static-controlled work areas
- ▶ Before removing a PBA from an equipment rack, discharge any static by touching the metal frame of the rack with your hand
- ▶ Always handle a PBA by the edges
- ▶ Do not handle or carry a PBA by any of the mounted components
- ▶ Do not handle a PBA by the gold-plated contact terminals and do not apply direct pressure to the components
- ▶ Do not touch PBA connection pins or conductor paths
- ▶ Do not touch PBAs with wet hands
- ▶ Place PBAs that have been removed during maintenance with the soldered side downwards on a conductive surface
- ▶ Do not scratch or rub the soldered side of a PBA with a sharp or rough object
- ▶ Do not repair PBAs in the switch room
- ▶ Do not handle components and assemblies by their leads
- ▶ Do not use excessive force when inserting connection boards.

3 Maintain the ATCA Subrack

This section covers replacement of the following ATCA Subrack RITs:

- ▶ Fan Unit
 - Upper Fan tray
 - Lower Fan tray.

- ▶ Front RITs:
 - JBXOMCP - O&M control board
 - JBXSSW - Gigabit Ethernet Switch board
 - JBXTP - GPRS radio processing board
 - JBXFILL - Front filler
 - Air Filter.

- ▶ Rear RITs:
 - JAXPC - Personality card
 - JAXSSW - Gigabit Ethernet Switch Rear Transition Module
 - JBXPEM - Power Entry Module
 - JAXSMM - Shelf manager
 - JAXFILL - Rear filler.

In addition to the RITs replacement, in this chapter it is described how to perform a ATCA subrack extension in order to increase the BSC capacity.

3.1 Before You Start

Read this section before you start the procedures in this chapter.

Impact on System: As long as only one unit is removed and replaced at any one time, there is no impact on the system. This is because redundancy is built into the components of the ATCA Subrack.

In a standard configuration, the upper ATCA Subrack is empty. In a pre-equipped configuration, the lower subrack contains a full set of units. The procedures described here apply to both subracks.

Preventive Maintenance: Only replace RITs on the ATCA Subrack, if the BSC terminal displays alarm signals for them.

3.2 ATCA Subrack Presentation

The following figure shows the ATCA subrack front view in case of 9130 BSC Evolution 1000 TRX configuration.

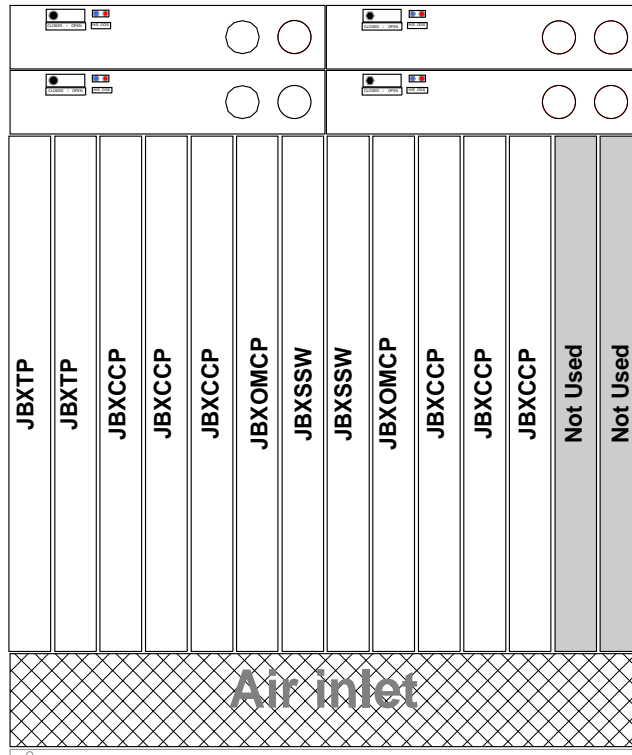


Figure 4: The ATCA Subrack, Front View

The following figure shows the ATCA subrack rear view in case of 9130 BSC Evolution for any configuration.

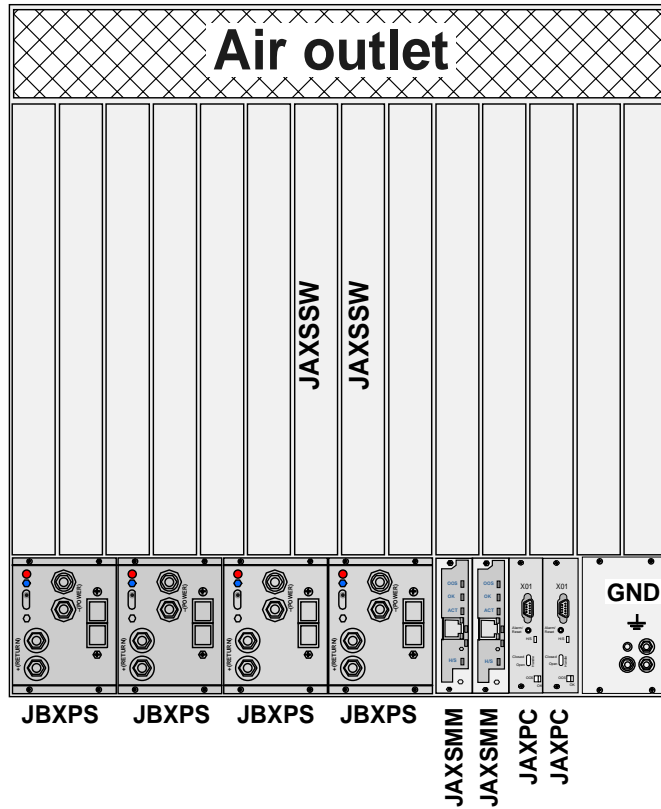


Figure 5: ATCA Subrack, Rear View

Unused slots, front and rear, must be equipped with fillers.



3.3 Fan Tray

An alarm is sent to the OMC-R if a fan unit fails. Although the traffic is not interrupted, you must replace the fan as soon as possible, to prevent the system from overheating.



Running the system longer than 30 seconds with less than three blowers damages the system.

If you exchange a fan tray in a running system ensure that the exchange procedure is finished within 1 minute.

A fan cover in a running system can not be removed more than 3 minutes. Operating the system without cooling causes overheating of system components.

3.3.1 Prerequisites



Inserting tools or fingers into operational fans may cause injuries. When removing a fan tray, pay attention to rotating fans. Fans become exposed when the fan tray is pulled. Keep clear of the fans as long as they are rotating.

Note: If the system overheats:

- ▶ Telecommunication functions are affected
- ▶ There could be a station switchover.

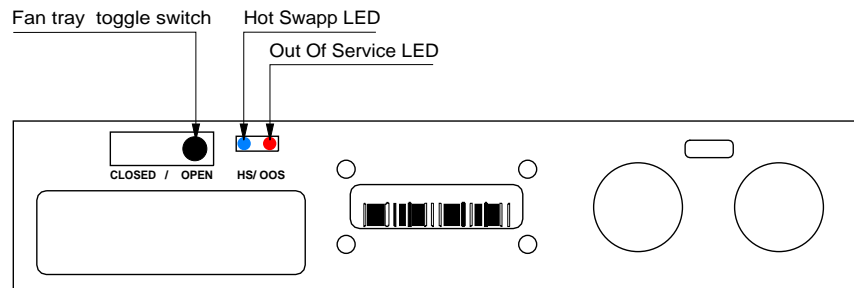


Figure 6: Front Fan Unit

The system is equipped with four fan trays:

- ▶ Two front fan trays
- ▶ Two back fan trays with handle.

A fan replacement procedure may be necessary if:

- ▶ The fan is faulty
- ▶ A maintenance operation must be performed.

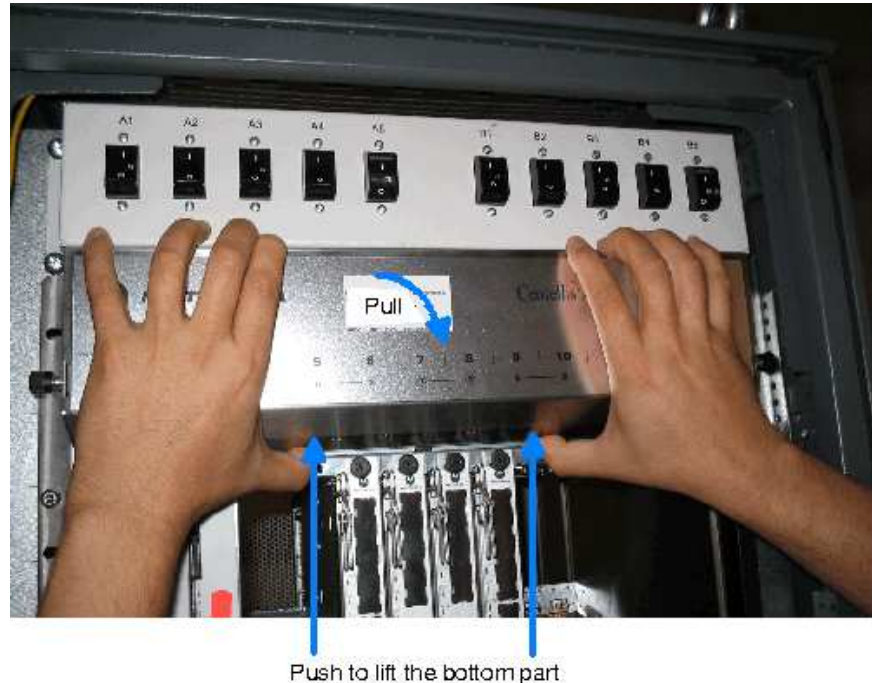
3.3.2 Replace Fan Tray

To replace the fan tray:

1. Open the front doors of the BSC, and connect the anti-static wrist strap.

2. Remove the top front cover.

In case of ATCA shelf 4 remove the cover as shown in the following figure.



Push to lift the bottom part

Figure 7: Fan Unit Cover

3. If it is the case, identify the faulty fan tray:

- ▶ The "OOS" LED is lit red, or
- ▶ The exhaust flap is closed (visible at the rear of the chassis).

4. Switch the toggle switch of the faulty fan tray to "open".
The blue H/S LED will blink and then remain lit steadily.

5. Unplug the faulty fan tray from its location.

6. If the replacement fan should be installed in front position, remove the screw fixing the handle to the fan unit and remove the handle.

7. Plug the replacement fan tray into its location.

The "OOS" LED is lit red for a short time
The blue H/S LED is lit steadily.

After 15 seconds the blower will automatically start and go to 70% speed.

Fans speed will be decreased in several minutes depending on configuration and ambient temperature.

8. Check that the exhaust flap is open (visible at the rear of the chassis).

9. Check that the "OOS" LED is switched OFF.

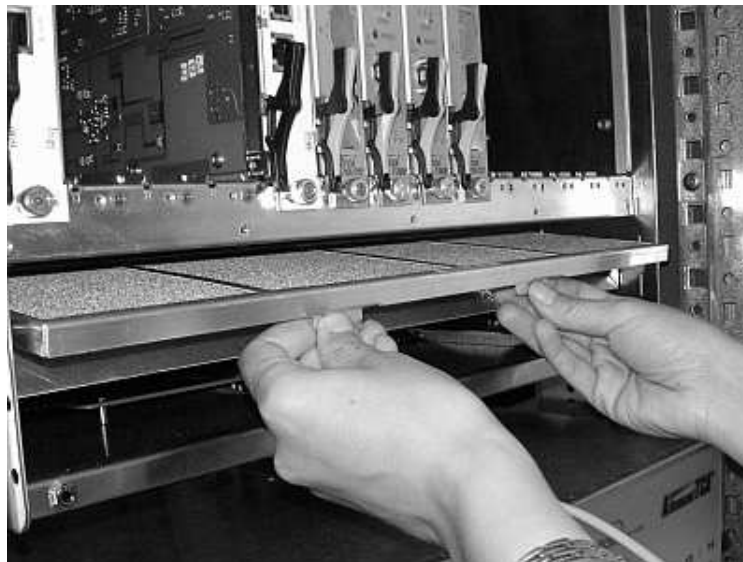
10. Switch the "handle" switch to "closed".

The blue H/S LED will blink and then turn OFF.

11. Close the top front cover and secure it with the side screws.

3.4 Air Filter

The air filter is located in the lower part of the shelf and it guarantees that the system operates in good condition.



The following maintenance operations can be performed:

- ▶ Air Filter Cleaning
- ▶ Air Filter Replacement.

3.4.1 Air Filter Cleaning

The Air Filter must be removed before cleaning.

There are the following possibilities to clean the Air Filter:

- ▶ Vacuum clean: A few passes of a vacuum cleaner can remove accumulated dust and dirt
- ▶ Oil free compressor Air: Point the compressed air nozzle in the opposite direction of the filter's operating airflow
- ▶ Cold Water Rinse: Collected dirt is washed away using just a standard hose nozzle with plain water. Let stand till completely dry before returning to service
- ▶ Immersion in warm soapy water: Dip the filter in a solution of warm water and mild detergent. Then rinse the filter in clear water and let stand until completely dry before returning to service.

3.4.2 Air Filter Replacement

1. Locate the two tabs on the lower front of the filter frame
The two tabs symmetric to the center of the shelf.
2. Push the tabs to rear of the shelf and pull the filter down

3. Pull the filter to the front of the shelf to remove it
4. Insert the new filter (with filter frame tabs in forward position and pointing down)
5. Using the tabs, push the filter into the shelf
6. Raise the filter up and into the lower card guide tray and release.

3.5 Front RITs

This section covers the replacement of the following RITs:

- ▶ JBXTP
- ▶ JBXOMCP/JBXCCP
- ▶ JBXSSW.

Note: Two handles secure the Front RITs in place.

3.5.1 Tips for Inserting ATCA Front RITs

The following sections contain figures showing how to insert ATCA front RITs.

3.5.1.1 First Step to Remove a Board

To remove a board:

1. Unfasten screws of front plate until board is detached from shelf.
2. Move the ejector handles outwards. The blue LED blinks indicating that the board power OFF process is on-going.

The following figure shows the first step to perform when removing a board.

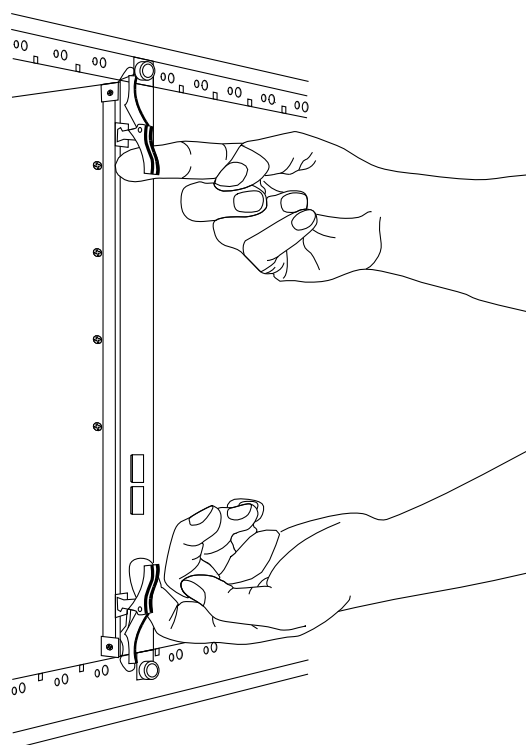


Figure 8: ATCA Front Board Handles - First Step to Remove a Board

3.5.1.2 Second Step to Remove a Board

The following figure shows the second step to perform when removing a board.

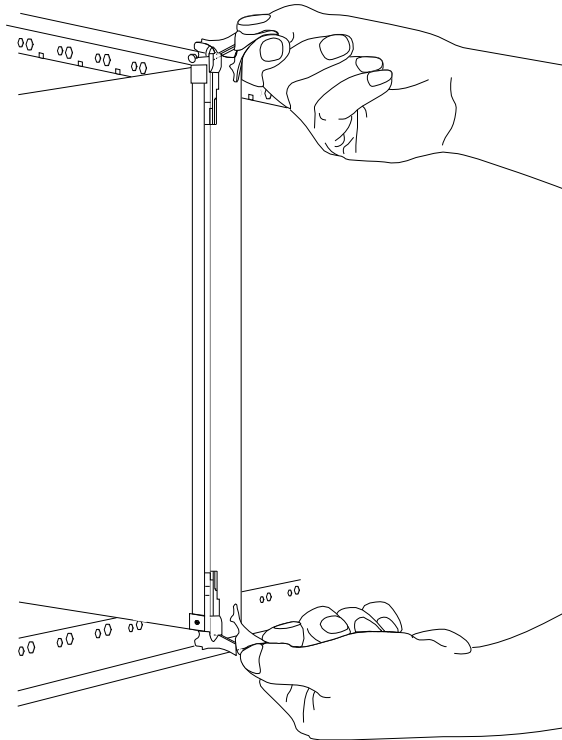


Figure 9: ATCA Front Board Handles - Second Step to Remove a Board

3.5.1.3 Remove or Insert Board

ATTENTION

During boards insertion/removal do not push/pull strongly on handles, but on the front plate.

The following figure shows how to open or close the handle.

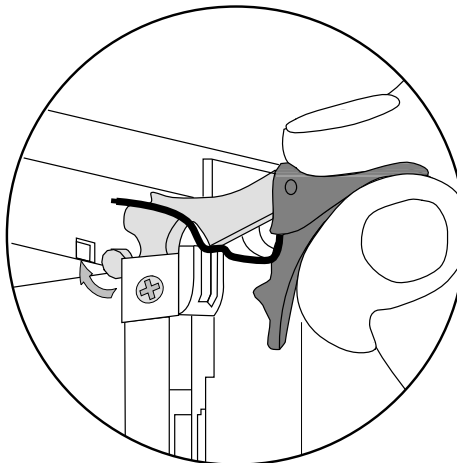


Figure 10: Board Handle - Remove or Insert Board

3.5.1.4 Guides for Board Insertion

The following figure shows the guides for board insertion.

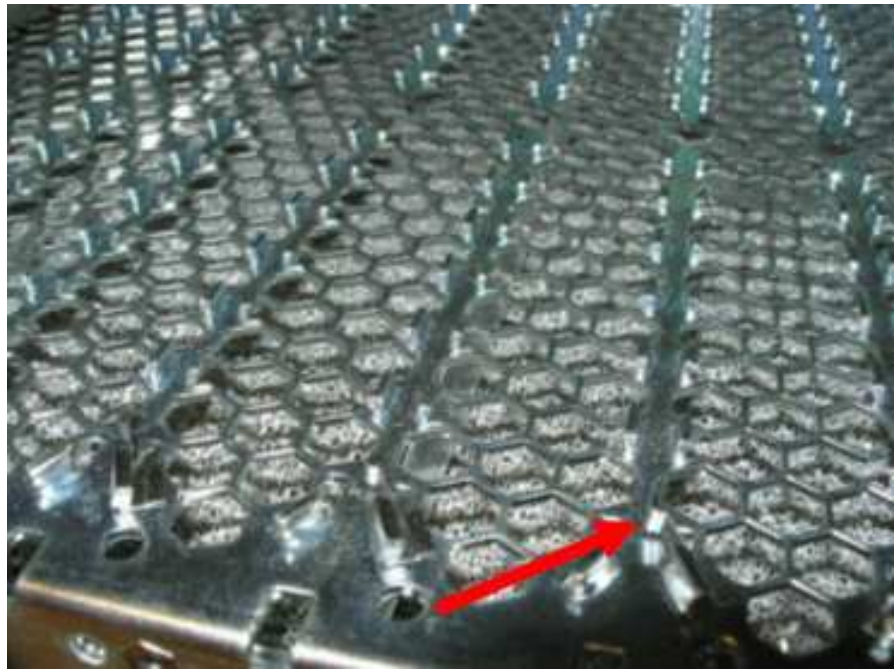


Figure 11: Guides for Board Insertion

3.5.1.5 Align Holes with Needles

The following figure shows how to align the holes with the needles.

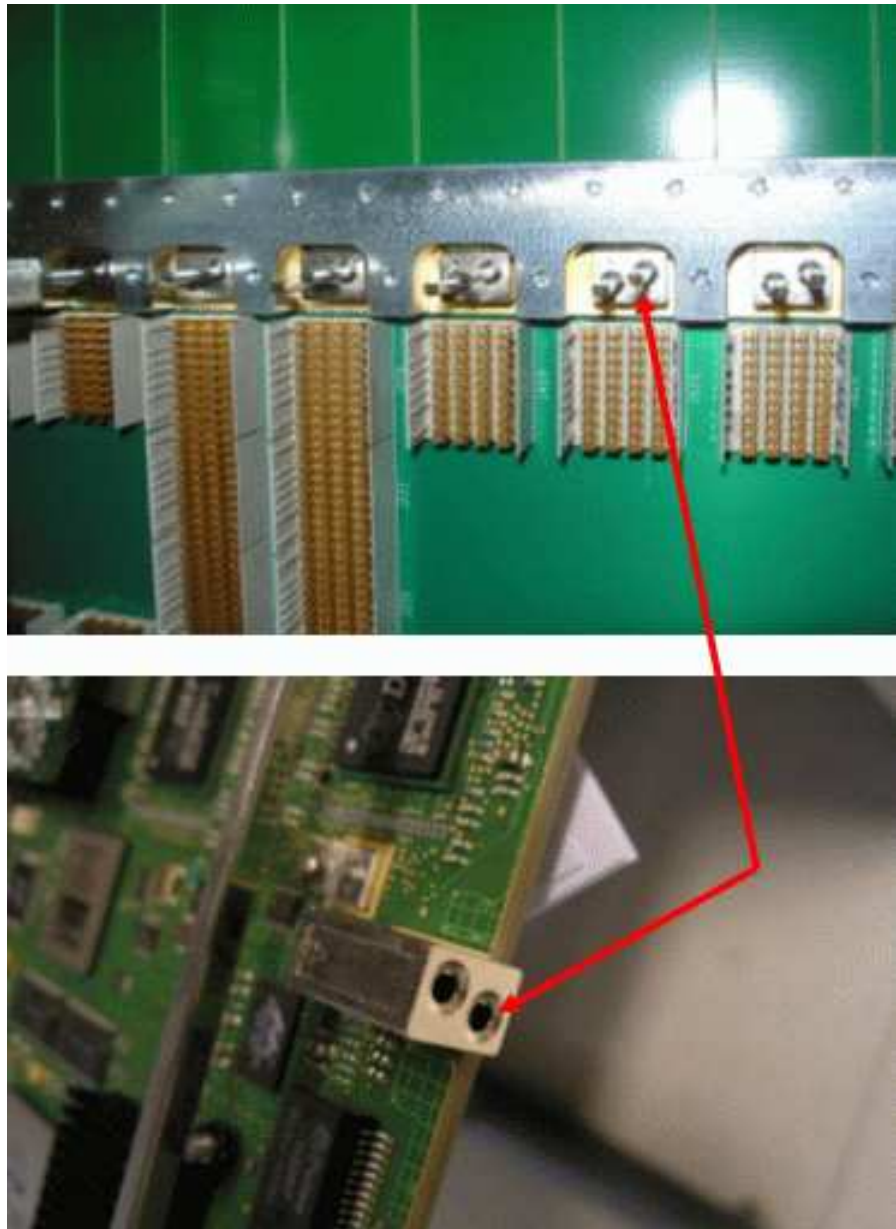


Figure 12: Align Holes with Needles

3.5.1.6 Protect EMI Stripes

The following figure shows how to protect the EMI stripes when inserting or removing boards.

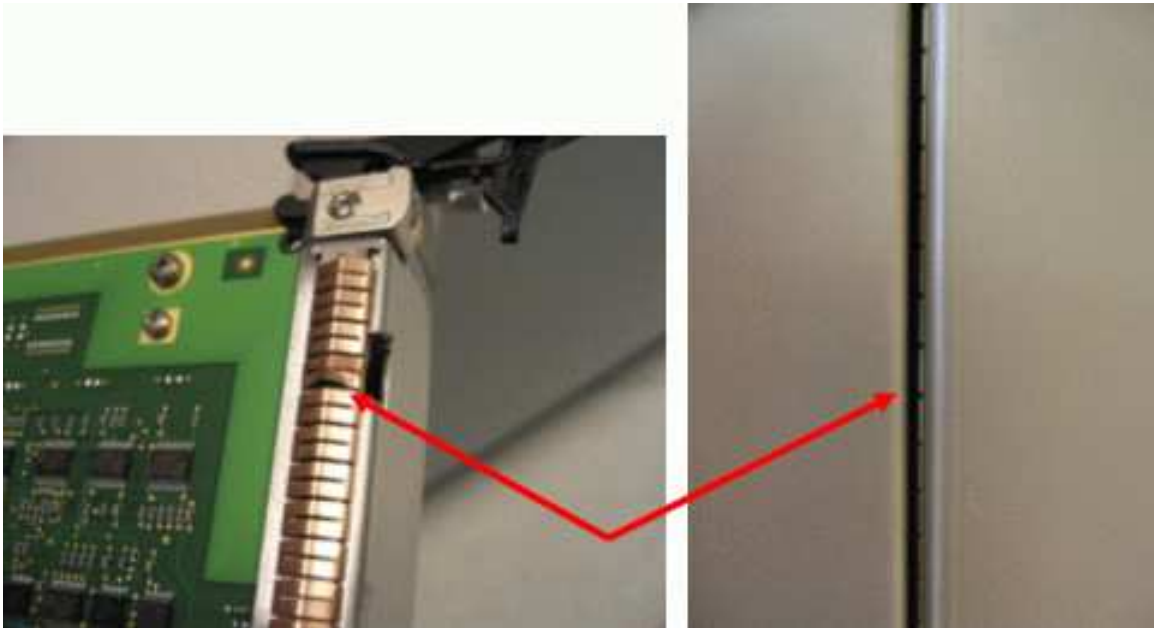


Figure 13: Protect EMI Stripes when Inserting / Removing the Boards

3.5.2 Replace JBXTP

ATTENTION

When insert/remove JBXTP wait at least 30 seconds before another insert/remove operation.

3.5.2.1 Remove JBXTP

To remove a JBXTP board:

1. Open the front doors of the BSC.
2. Connect the anti-static wrist strap.
3. Identify the board to be replaced. Refer to *Board/Area/Slot/SBL Mapping (Section 1.3)* for details.
4. Lock the JBXTP board.
Wait until the blue LED is illuminated permanently.
5. Unfasten screws of front plate.
6. Move slowly the ejector handles outwards until you feel resistance.
7. By moving the ejector handles outwards, remove board from shelf.
8. Disconnect the anti-static wrist strap.
9. Close the front doors of the BSC.

3.5.2.2 Insert JBXTP

To insert a JBXTP board:

1. Open the front doors of the BSC.
2. Connect the anti-static wrist strap.
3. Ensure that the top and bottom ejector handles are in the outward position.
4. Insert board into the shelf by placing the top and bottom edges of the board in the card guides of the shelf. Ensure that the guiding module of shelf and board are aligned properly.
5. Slide the board into the shelf until you feel resistance. The blue LED is illuminated.
6. Simultaneously move the top and bottom ejector handles to the inward position to lock the board to the shelf.
Wait one minute until the blue LED is illuminated permanently.
7. Unlock the JBXTP board.
8. Wait until the blue LED is switched OFF. The switched OFF blue LED indicates that the board is active.
9. Tighten the front plate screws which secure the board to the shelf.
10. Disconnect the anti-static wrist strap.
11. Using the BSC terminal check if the alarm "FIRMWARE-NOT-UP-TO-DATE" is reported for the replacement board.
 - ▶ If the alarm is present a firmware upgrade must be performed. Refer to *Update the NE10E Firmware for the New JBXTP or JBXMUX Boards (Section 3.5.2.3)* for details.
 - ▶ If the alarm is not present continue with the next step.

12. Close the front doors of the BSC.

3.5.2.3 Update the NE1OE Firmware for the New JBXTP or JBXMUX Boards

NOTICE

Firmware update must be performed on the standby board. Ensure the concerned board is not the active one.

To update the NE1OE for the new JBXTP or JBXMUX boards:

1. Connect on the active station:

```
▶▶ telnet 172.17.33.1
```

2. Check NE1OE package version

The following command gives the **<nE1OE package>** file name:

```
▶▶ cd /tftpboot
▶▶ ls |grep 'nE1OE_pkg'
◀◀ nE1OE_pkg_1_6_00-r01.tar.gz
nE1OE_pkg_1_6_00-r01.tar.gz (Example)
```

The following table gives the **FRU ID** module allocation.

FRU Name	FRU ID
JBXTP1	3/1.x.1
JBXTP2	3/1.x.2
JBXMUX1	6/1.y.10
JBXMUX2	6/1.y.12

Where:

- ▶ x is 3 for ATCA Shelf 3
- ▶ x is 4 for ATCA Shelf 4
- ▶ y is 1 for LIU Shelf 1
- ▶ y is 2 for LIU Shelf 2.

3. Launch the update script for the respective FRU:

```
▶▶ cd /usr/local/fw_upgrade/script
▶▶ ./transFw -single <FRU ID> -neloe <nE1OE package>
◀◀
```

```
.....
◀◀ FW Upgrade Warning started on FRU <FRU ID> <Ref nr.>
◀◀ Proceed to FW Upgrade of the selected FRUs ? [n]:
▶▶ y
◀◀ --> NE1OE FW Upgrade on FRU <FRU ID>(<nE1OE
package>). .
◀◀ NE1OE FW Upgrade request succesfully sent (Ref.:
<Ref nr.>, FRU <FRU ID>).
◀◀ NE1OE FW Upgrade ack received (Ref.: <Ref nr.>).
◀◀ NE1OE FW Upgrade ongoing on FRU <FRU ID>. Please
wait...
```

Operation takes around 20 minutes.

Wait for the update message:

```
◀◀ NE1OE FW Upgrade report received for FRU <FRU ID>.
```

```
◀◀ NE10E FW Upgrade succesfully performed on <FRU ID>.
◀◀ FW Upgrade Warning stopped on FRU <FRU ID> (Ref.:
    <Ref nr.>).
```

4. Reset the replaced board to take into account the new firmware version:

Click on **Start -> Programs -> WinBSC -> 9130BSC -> B10 -> Windows 9130 BSC BSC Terminal B10** to open the BSC terminal from the Local PC and introduce the Virtual IP address of the BSC.

The Virtual IP address is 172.17.33.1

From the BSC Terminal menu bar, follow the menu path: **Utilities->Switch User Mode** or press [F6] to switch to Master User Mode.

From the BSC Terminal menu bar, follow the menu path: **Commands->Equipment Handling->SBL Reset**.

The "SBL Reset" window opens.

- ▶ In the 'Object Class' field, select SBL
- ▶ In the 'Unit Type' field, select the unit type, BSC
- ▶ In the 'SBL Type' field, select:
 - 'TP-HW' if the replaced FRU is JBXTP
 - 'ECU' if the replaced FRU is JBXMUX.
- ▶ In the 'Unit Number' field, enter the unit number '1'
- ▶ In the 'Nbr' field, enter the SBL number:
 - '1' if the replaced FRU is JBXTP1 or JBXMUX1
 - '2' if the replaced FRU is JBXTP2 or JBXMUX2.
- ▶ In the 'SubNbr' field, enter the SBL sub-number '255'
- ▶ Click on [OK] to reset the SBL.
- ▶ Wait until the status in 'Job Result' field is `SUCCESSFUL`

5. At BSC Terminal check that the alarm "FIRMWARE-NOT-UP-TO-DATE" was cleared or the alarm end message is present.

6. Close "Windows BSC Terminal" window.

3.5.3 Replace JBXOMCP

RESTRICTION

3BKA20FBR229377

After OMCP replacement, the replaced board is displayed disabled in OMCR, but enabled at BSC side. Perform an Alarm/state audit, in order to get the OMCR and BSC in line

3.5.3.1 Remove JBXOMCP

IF the replacement of the board is not done due to a board hardware malfunction, and there is still possible to connect on the board (telnet session), then, before *Remove the Board* (in section 3.5.3.1), perform the following:

- ▶ *JBXOMCP Takeover* (in section 3.5.3.1), **only** if the board to be replaced is the **active** one
- ▶ *Erase HDD* (in section 3.5.3.1).

TIP

The **active OMCP** is the one with the ACT LED ON.

JBXOMCP Takeover

To perform a JBXOMCP takeover, **only** if the board to be replaced is the **active** one

1. Start the 9130 BSC Evolution Terminal software. Refer to *Start the Terminal Software* section from *9130 BSC Evolution Terminal User Guide*.
2. Reset the SBL corresponding to the active OMCP.
For SBL resetting procedure refer to *Reset SBL* section from *9130 BSC Evolution Terminal User Guide*.
For identifying the corresponding SBL refer to *Board/Area/Slot/SBL Mapping* (Section 1.3).
The reset of the active OMCP will trigger an OMCP takeover.
Wait 5 minutes, until the takeover is complete.
3. After the takeover is done, check the ACT LED status on the OMCPs front panel.

Erase HDD

To erase the HDD of the board:

1. From a local terminal open a telnet session on the OMCP
 - ▶▶ `telnet 172.17.y.x`
 - where:
 - ▶ y is 3 for ATCA shelf 3
 - ▶ y is 4 for ATCA shelf 4
 - ▶ x is 30 for JBXOMCP1 (ATCA physical slot 6)
 - ▶ x is 40 for JBXOMCP2(ATCA physical slot 9).
2. Type the username:
 - ▶▶ `root`
 - and the password:
 - ▶▶ `alcatel`
3. Clean-up the HDD:
 - ▶▶ `cd /usr/local/bin`

```
▶▶ ./clean-disk-before-reuse.sh
```

4. Press [Enter].
When the command is completed the blue LED switches ON.
5. From BSC terminal check the status of the board. Remove the board only after the status is changed to `FAULT`. This takes around 15 minutes.

Remove the Board

To remove an JBXOMCP board:

1. Identify the board to be replaced. Refer to *Board/Area/Slot/SBL Mapping (Section 1.3)* for details.
2. From BSC terminal or OMC-R disable/lock the corresponding JBXOMCP board.
If the disable/lock operation is finished without success, continue with the next step.
3. Unfasten screws of front plate until board is detached from shelf.
4. Move the ejector handles outwards
5. Remove board from shelf.

3.5.3.2 Insert JBXOMCP

To insert an JBXOMCP board:

1. Ensure that the top and bottom ejector handles are in the outward position.
2. Insert board into the shelf by placing the top and bottom edges of the board in the card guides of the shelf. Ensure that the guiding module of shelf and board are aligned properly.
3. Slide the board into the shelf until you feel resistance.
4. Wait until the blue LED is illuminated.
5. Simultaneously move the top and bottom ejector handles to the inward position.
The blue LED blinks. After some seconds the blue LED is switched OFF.
6. If the disable/lock operation was successful during JBXOMCP board removal, wait until the blue LED is illuminated again then continue with next step.
If the disable/lock operation was unsuccessful during JBXOMCP board removal, continue with next step.
7. Connect the Ethernet cable from the Local PC to the JAXSSW1 port ETH 8 in corresponding ATCA shelf.
8. Open a DOS console window. Connect to the new JBXOMCP board through SHMC as follows:

▶ Under Windows 2000, the connection is done as follows:

```
▶▶ telnet
▶▶ set term vt100
▶▶ open 172.17.y.8 450x
```

▶ Under Windows XP, the connection is done as follows:

```
▶▶ telnet 172.17.y.8 450x
```

where:

- ▶ y is 3 for ATCA shelf 3
- ▶ y is 4 for ATCA shelf 4

- ▶ x is 3 for JBXOMCP1
- ▶ x is 4 for JBXOMCP2.

9. If the disable/lock operation was successful during JBXOMCP board removal, from BSC terminal or OMC-R initialize/unlock the corresponding JBXOMCP board.

The blue LED is switched OFF.

If the disable/lock operation was unsuccessful during JBXOMCP board removal, continue with step 11.

10. With the new OMCP terminal window connection through SHMC selected, press [**F12**] several times from the Local PC keyboard. This action will force the new JBXOMCP board to boot from the existing JBXOMCP board and it must be done during the new JBXOMCP board booting sequence.

Help: If this forced boot by pressing [**F12**] doesn't work and you have to enter in the BIOS settings of the new JBXOMCP board.

To enter in the BIOS settings, press [**ESC**] + [**2**] several times from the keyboard during the new JBXOMCP booting sequence.

To force the new JBXOMCP board to boot from the existing JBXOMCP board:

- ▶ From "BIOS Setup Utility" window, use the arrow keys to navigate to the **Boot** menu.
- ▶ From **Boot** menu, use the arrow keys to select 'Hard Drive' then press [!] to disable hard disk drive option.
- ▶ Press [**F10**] and then press [**Enter**] to save the changes you made and exit the BIOS.

When the new JBXOMCP board is starting to boot up from the existing JBXOMCP board the following message should appear:

```
◀ CLIENT IP: 172.17.3.x MASK: 255.255.0.0 DHCP IP:
  172.17.3.y
```

```
◀ PXELINUX 2.05 2003-07-16 Copyright <C> 1994-2003 H.
  Peter Anvin
```

when new JBXOMCP board is JBXOMCP1:

- ▶ x is 160
- ▶ y is 40.

when new JBXOMCP board is JBXOMCP2:

- ▶ x is 161
- ▶ y is 30.

Harddisk Installation will take about 10 minutes.

11. In the terminal window connection through SHMC the following messages should appear:

```
◀◀ Harddisk Installation Complete
◀◀ The Blade is going to reboot
◀◀ Do not forget to disable the network boot
◀◀ Option in the Bios settings if needed.
◀◀ Type "go" and press "return" key to continue.
▶▶ go
```

Press [Enter].

Help: The new JBXOMCP board is rebooting. If the boot sequence was modified do not forget to restore it.

To enter in the BIOS settings, press [**ESC**] + [**2**] several times from the keyboard during the new JBXOMCP rebooting sequence.

To restore the boot sequence for the new JBXOMCP board:

- ▶ From "BIOS Setup Utility" window navigate to **Boot** menu.
- ▶ From **Boot** menu select 'Hard Drive' then press [!] to enable hard disk drive option.
- ▶ Press [F10] and then press [Enter] to save the changes you made and exit the BIOS.

The new JBXOMCP board is rebooting from its disk. This sequence will take about 5 minutes.

12. In the terminal window connection through SHMC, press [Enter] , then:

Type the username:

▶▶ root

Type the password:

▶▶ alcatel

The following message should appear: *Installation successful.*

13. Close the terminal window connection through SHMC.

14. Tighten the front plate screws which secure the board to the shelf.

3.5.4 Replace JBXCCP

3.5.4.1 Remove JBXCCP

To remove a JBXCCP board:

1. Identify the board to be replaced. Refer to *Board/Area/Slot/SBL Mapping (Section 1.3)* for details.
2. Unfasten screws of front plate until board is detached from shelf
3. Lock the JBXCCP if it is the active one
Wait until the blue LED is illuminated permanently.
4. Move the ejector handles outwards
5. Remove board from shelf.

3.5.4.2 Insert JBXCCP

To insert a JBXCCP board:

1. Ensure that the top and bottom ejector handles are in the outward position
2. Insert board into the shelf by placing the top and bottom edges of the board in the card guides of the shelf. Ensure that the guiding module of shelf and board are aligned properly.
3. Slide the board into the shelf until you feel resistance
4. Wait until the blue LED is illuminated
5. Simultaneously move the top and bottom ejector handles to the inward position to lock the board to the shelf
6. Unlock the JBXCCP board.
7. Wait until the blue LED is switched OFF
8. The switched OFF blue LED indicates that the board is active
9. Tighten the front plate screws which secure the board to the shelf.

3.5.5 Replace JBXSSW

The following figure shows the JBXSSW front view.

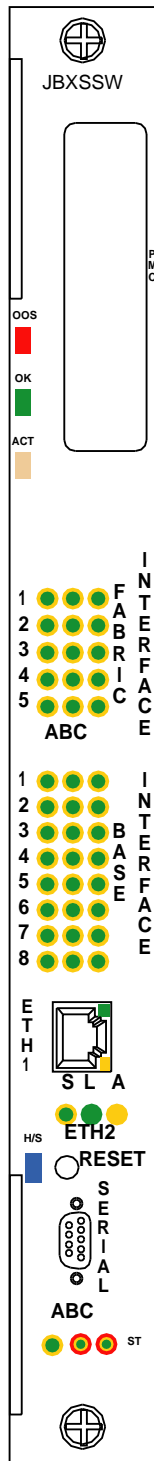


Figure 14: JBXSSW Board

3.5.5.1 Remove JBXSSW

To remove a JBXSSW board:

1. Identify the board to be replaced. Refer to *Board/Area/Slot/SBL Mapping (Section 1.3)* for details.
2. Remove front plate cable, if applicable
3. Depending on the JBXSSW to be replaced, perform one of the following:
 - ▶ **If JBXSSW1 must be replaced:**
 - Reset the JAXSMM1 from BSC terminal (or OMC-R)
 - Power OFF (lock) the JBXSSW1 from BSC terminal (or OMC-R)
 - Wait for the end of the power OFF process
 - ▶ **If JBXSSW2 must be replaced:**
 - Reset the JAXSMM2 from BSC terminal (or OMC-R)
 - Power OFF (lock) the JBXSSW2 from BSC terminal (or OMC-R)
 - Wait for the end of the power OFF process
4. Unfasten screws of front plate until board is detached from shelf
5. Move the ejector handles outwards
6. Remove board from shelf.

3.5.5.2 Insert JBXSSW

To insert a JBXSSW board:

1. Ensure that the top and bottom ejector handles are in the outward position.
2. Insert board into one of the hub slots of the shelf by placing the top and bottom edges of the board in the card guides of the shelf. Ensure that the guiding module of shelf and board are aligned properly.
3. Slide the board into the shelf until you feel resistance.
4. Simultaneously move the top and bottom ejector handles to the inward position to lock the board to the shelf.
5. Tighten the front plate screws which secure the board to the shelf.
6. Wait for the blue LED to remain ON.
7. Connect the ethernet cable between LMT to the operational JAXSSW on port 8.
The IP address for LMT is 172.x.0.251 and subnet mask is 255.255.0.0 where:
 - ▶ x is 17 if the replaced JBXSSW is JBXSSW2
 - ▶ x is 18 if the replaced JBXSSW is JBXSSW1.
8. Power ON (unlock) the JBXSSW from BSC terminal (or OMC-R).

9. Open a telnet session on shelf manager, using Putty application:

- ▶ Launch `putty.exe`
A 'PuTTY Configuration' window is open.
- ▶ In the 'Protocol' area select <Telnet>
- ▶ Complete the 'Host Name (or IP address)' field with `172.t.y.x`
where:
 - t is 17 if the replaced JBXSSW is JBXSSW2
 - t is 18 if the replaced JBXSSW is JBXSSW1
 - x is 8 if the replaced JBXSSW is JBXSSW2
 - x is 9 if the replaced JBXSSW is JBXSSW1
 - y is 3 for ATCA shelf 3
 - y is 4 for ATCA shelf 4.
- ▶ Click on [Open] to start session.

10. Enter the user name and password:

- ▶ Username:
 - ▶▶ `root`
- ▶ Password:
 - ▶▶ `root`

11. Check the SMM status:

- ▶▶ `sv_status`
If the SMM is the active one continue with the next steps.
If the SMM is the standby one, activate it using the following command:
 - ▶▶ `sv_activate`and continue with the next steps.

12. On the active SMM enter:

- ▶▶ `cd /usr/bin`

13. To synchronize the boards:

- ▶ If the shelf ID is 3, enter:
 - ▶▶ `./hpishaddr -e "{RACK,0}{ADVANCEDTCA_CHASSIS,3}"`
- ▶ If the shelf ID is 4, enter:
 - ▶▶ `./hpishaddr -e "{RACK,0}{ADVANCEDTCA_CHASSIS,4}"`

14. Close the connection on the shelf manager.**15. Open a telnet session on the active JBXOMCP**

- ▶▶ `# telnet 172.t.y.x`

where:

- ▶ t is 17 if the replaced JBXSSW is JBXSSW2
- ▶ t is 18 if the replaced JBXSSW is JBXSSW1
- ▶ y is 3 for ATCA shelf 3
- ▶ y is 4 for ATCA shelf 4

- ▶ x is 30 for JBXOMCP1
- ▶ x is 40 for JBXOMCP2.

16. Configure the VLAN of the new JBXSSW

- ▶▶ root@OMCP_x:~# cd /root
- ▶▶ root@OMCP_x:~/mx_setVlan -fs SSWx

where:

- ▶ x is 1, if SSW1 was replaced
- ▶ x is 2, if SSW2 was replaced.

17. The VLAN configuration is finished when the following message is displayed

- ◀◀ SSWx F300 Vlan configuration done and persisted.
VLAN configuration is also displayed.

18. Close the terminal window.

19. Connect all the cables to the JAXSSW in the initial position.

3.5.6 Remove / Insert JBXFILL

ATTENTION

Unused slots (front and rear) must be equipped with fillers.

The ATCA front fillers are used to create the appropriate air flow within the subrack.

3.5.6.1 Remove JBXFILL

To remove the ATCA front filler (JBXFILL):

1. Unfasten screws of front plate until board is detached from the shelf.
2. Remove the JBXFILL from the shelf.

Note: Fillers do not have handles. Use a metallic blade or a flat head screwdriver for extracting fillers, as shown in the following figure.



Figure 15: Extraction of Front Fillers

3.5.6.2 Insert JBXFILL

To insert the ATCA front filler (JBXFILL):

1. Slide the JBXFILL into the shelf until you feel resistance.
2. Tighten the front plate screws which secure the board to the shelf .

3.6 Rear RITs

This section covers the replacement of the following ATCA Subrack Rear RITs:

- ▶ JAXPC: Personality Card
- ▶ JAXSSW: Rear Transition Module
- ▶ JAXSMM : Shelf Management Controller
- ▶ JBXPS: Power Entry Modules

ATTENTION

A large number of cables run at the rear of the BSC. While working on a RIT, ensure you do not accidentally disconnect cables from other RITs.

3.6.1 Replace JAXPC

Help: The two JAXPC boards slots, located on the right side of the JAXSMMs, are numbered from 1 on the right to 2 on the left, on the back side of each side of the subrack chassis.

The SBL number for the JAXPC1 (from the right side - logical slot 49) is 2, while the SBL number of the JAXPC2 (from the left side - logical slot 50) is 3, therefore the alarms for the unplugged boards will be displayed at BSC terminal for the BSC-ENV SBL with number 2 or 3.

The following figure shows the front view for JAXPC board.

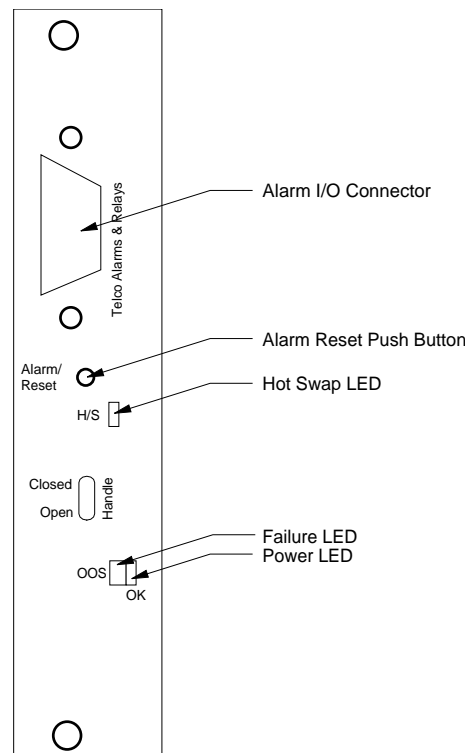


Figure 16: JAXPC Board Front View

The following figure shows the location of the rotary switches on JAXPC board.

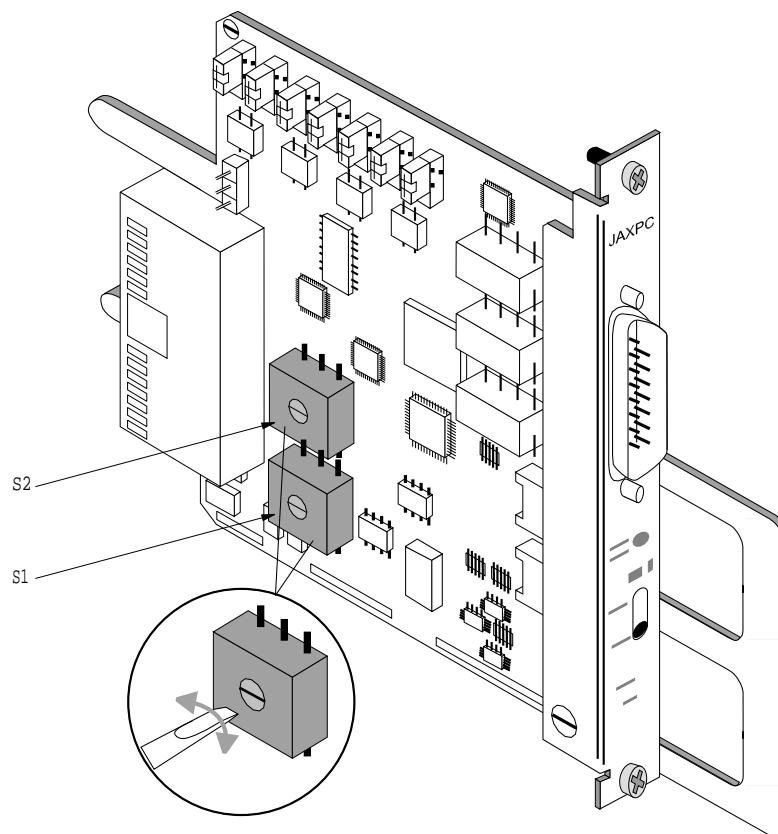


Figure 17: JAXPC: Shelf Geographic Address Rotary Switches

3.6.1.1 Remove JAXPC

To remove the JAXPC:

1. Identify the board to be replaced. Refer to *Board/Area/Slot/SBL Mapping* (Section 1.3) for details.
2. Set the handle toggle switch to the "Open" position.
The blue H/S LED will flash and then turn on steadily.
Wait until the blue LED is permanently lit.
3. Unfasten the front plate screws.
4. Remove the board from the shelf using the ejector ring.

3.6.1.2 Insert JAXPC

To insert the JAXPC:

1. Set the rotary switches according to your needs (*JAXPC: Shelf Geographic Address Rotary Switches (17)*):

- ▶ S1:
 - On the shelf 3 (bottom ATCA) set S1 to 3
 - On the shelf 4 (top ATCA) set S1 to 4.
- ▶ S2: always set to "0".

Note: Two JAXPC boards in the same shelf must always be set to the same Shelf Geographic Address (SGA).

Two JAXPC in different shelves must always be set to different SGAs.

2. Back out the two screws until they engage the threads in the front panel. This makes insertion easier.
3. Set the handle toggle switch to the "Open" position.
4. Insert board into the shelf by placing the top and bottom edges of the board in the card guides of the shelf. Ensure that the guiding module of shelf and board are aligned properly.
5. Wait until the blue H/S LED is lit. The red OOS LED is blinking.
6. Set the handle toggle switch to the "Closed" position. The blue H/S LED starts flashing and then turns OFF.
7. Wait until the blue H/S LED is switched OFF. The switched OFF blue H/S LED indicates that the board is running. The red OOS LED is blinking.
8. Fasten the two front panel screws.
9. Connect the Ethernet cable to the JAXSSW1 (port ETH8)
10. Open a telnet session on the active JBXOMCP
 - ▶▶ # telnet 172.17.y.x
 - where:
 - ▶ y is 3 for ATCA shelf 3
 - ▶ y is 4 for ATCA shelf 4
 - ▶ x is 30 for JBXOMCP1
 - ▶ x is 40 for JBXOMCP2
11. From the active OMCP open a telnet session on the active JAXSMM
 - ▶▶ # telnet <IP adress of the active JAXSMM>
 - where the IP adress of the active JAXSMM is:
 - ▶ 172.17.y.8 if JAXSMM1 is active
 - ▶ 172.18.y.9 if JAXSMM2 is active
 - ▶ y is 3 for ATCA shelf 3
 - ▶ y is 4 for ATCA shelf 4.

12. Copy the shelf information to the replaced JAXPC

- ▶ If the replaced board is JAXPC1 enter:
 - ▶▶ ipmitest /READFRU 0 0 0x16 1 shelf.txt
 - The following message is displayed:
 - ◀◀ V1.60 - Copyright 2001 Force Computers
 - ◀◀ FRU size is 2048
 - ▶▶ ipmitest /WRITEFRU 0 0 0x14 1 shelf.txt
 - The following message is displayed:
 - ◀◀ V1.60 - Copyright 2001 Force Computers
 - ◀◀ FRU size is 2048
 - ◀◀ Command 12H return with Status C9H=Parameter out of range.
- ▶ If the replaced board is JAXPC2
 - ▶▶ ipmitest /READFRU 0 0 0x14 1 shelf.txt
 - The following message is displayed:
 - ◀◀ V1.60 - Copyright 2001 Force Computers
 - ◀◀ FRU size is 2048
 - ▶▶ ipmitest /WRITEFRU 0 0 0x16 1 shelf.txt
 - The following message is displayed:
 - ◀◀ V1.60 - Copyright 2001 Force Computers
 - ◀◀ FRU size is 2048
 - ◀◀ Command 12H return with Status C9H=Parameter out of range

13. From the active JAXSMM open a telnet session on the standby JAXSMM

▶▶ # telnet 192.168.101.z

where:

- ▶ z is 8 if JAXSMM2 is active
- ▶ z is 9 if JAXSMM1 is active

14. On the standby JAXSMM check that the OK green LED is ON.**15. Activate the standby JAXSMM**

▶▶ # sv_activate

The red OOS LED on the replaced JAXPC is switched OFF.

16. Close the telnet session on the JAXSMM**17. Activate the current standby JAXSMM to return to the initial state**

▶▶ # sv_activate

18. Close the telnet session on the JAXSMM**19. Close the telnet session on the JBXOMCP.**

3.6.2 Replace JAXSSW

The following table gives the JAXSSW ports allocation.

Ethernet port	Main ATCA shelf	Second ATCA Shelf
1	Not used or Second ATCA shelf if rack shared	First ATCA shelf
2	LIU shelf	Not used
3	OMC-R + CBC	Not used
4	Not used	Not used
5	EAB	Not used
6	Not used	Not used
7	Not used	Not used
8	NEM	Not used

Table 4: JAXSSW Ethernet Connections

The following figure shows the JAXSSW front view.

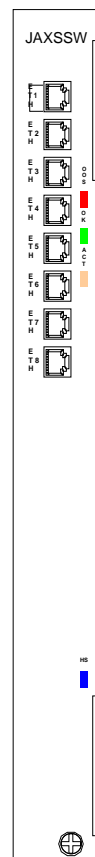


Figure 18: JAXSSW Rear Transition Module

NOTICE

The shelf management controller in the shelf where the JAXSSW is to be installed, treats the JBXSSW and the JAXSSW as one single unit. For this reason it is not possible to install the JAXSSW while the JBXSSW is powered up. Instead the JAXSSW must be installed while the JBXSSW is powered down and then both the JBXSSW and the JAXSSW have to be powered up together.

3.6.2.1 Remove JAXSSW

To remove a JAXSSW:

1. Identify the board to be replaced. Refer to *Board/Area/Slot/SBL Mapping (Section 1.3)* for details.
2. Perform the tasks listed in *Remove JBXSSW (Section 3.5.5.1)* for the related JBXSSW board, but do not unplug the corresponding JBXSSW front plate.
3. Verify the cable labels and note the position for each cable.
4. Remove interface cables from front plate connectors.
5. Loosen two front plate screws.
6. Open handles of the JAXSSW.
7. Remove JAXSSW from rails of slot.

3.6.2.2 Insert JAXSSW

To insert a JAXSSW:

1. Locate the slot the JAXSSW is to be installed into the shelf's rear which must be the same as that of the front blade.
2. From BSC terminal or OMC-R, disable the corresponding SSW_HW(JBXSSW) of the front blade in order to power down its payload. The blue LED on the front blade starts to flash. This indicates that the JBXSSW is informing the shelf manager about its desire to power down its payload.
3. Wait until the blue LED on the front blade is ON. This indicates that the JBXSSW payload is powered down.
4. Ensure that the top and the bottom handles of the JAXSSW are in outward position.
5. Insert the JAXSSW into the shelf by placing the top and bottom edges in the card guides of the slot. When plugging the JAXSSW in or removing it, do not press on the face plate but use the handles.
6. Slide the JAXSSW into the slot
7. Hook the lower and the upper handle into the shelf rail recesses.
8. Fully insert the RTM and lock it to the shelf by pressing the two components of the lower and the upper handles together and turning the handles towards the face plate.
The JAXSSW's blue hot swap LED is switched ON. This indicates that the JAXSSW's MMC is powered up.
9. From BSC terminal or OMC-R initialize/unlock the corresponding SSW_HW (JBXSSW);
The blue LEDs of both the JBXSSW and the JAXSSW start to flash. This indicates that the front blade is informing the shelf manager about its desire to power up the payload of both the front blade and the JAXSSW.

10. Tighten both face plate screws on the JAXSSW.
11. Wait until the blue LEDs of both the front blade and the JAXSSW are OFF.
A switched OFF blue LED indicates that the payload of the respective blade or JAXSSW has been powered up and is active.
12. Connect the Ethernet cable between LMT to the operational JAXSSW on port 8. The IP address for LMT is 172.x.0.251 where:
 - ▶ x is 17 if the replaced JBXSSW is JBXSSW2
 - ▶ x is 18 if the replaced JBXSSW is JBXSSW1.
13. Open a telnet session on the active JBXOMCP
 - ▶▶ # telnet 172.t.y.x
 where:
 - ▶ t is 17 if the replaced JBXSSW is JBXSSW1
 - ▶ t is 18 if the replaced JBXSSW is JBXSSW2
 - ▶ y is 3 for ATCA shelf 3
 - ▶ y is 4 for ATCA shelf 4
 - ▶ x is 30 for JBXOMCP1
 - ▶ x is 40 for JBXOMCP2.
14. Configure the VLAN of the new JBXSSW
 - ▶▶ root@OMCP_x:~# cd /root
 - ▶▶ root@OMCP_x:~/mx_setVlan -fs SSWx
 where:
 - ▶ x is 1, if SSW1 was replaced
 - ▶ x is 2, if SSW2 was replaced.
15. The VLAN configuration is finished when the following message is displayed
 - ◀◀ SSWx F300 Vlan configuration done and persisted.
 VLAN configuration is also displayed.
16. Close the terminal window.
17. Connect all the cables to the JAXSSW in the initial position.

3.6.3 Replace JAXSMM

Prerequisites: The following prerequisites must be available in order to perform the scenario:

- ▶ Screwdriver
- ▶ Wrist strap.

The two Shelf Manager Cards slots, located on the right side of the PEMs, are numbered from 1 on the right to 2 on the left on the back side of each side of the subrack chassis.

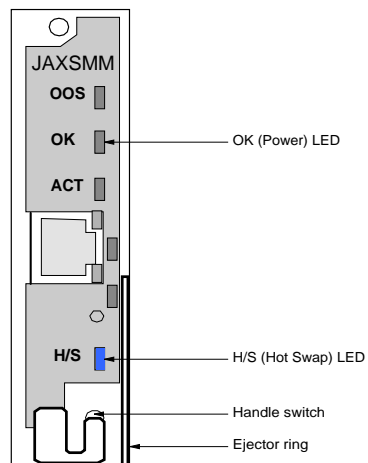


Figure 19: Shelf Manager Board

3.6.3.1 Remove JAXSMM

To remove a JAXSMM card:

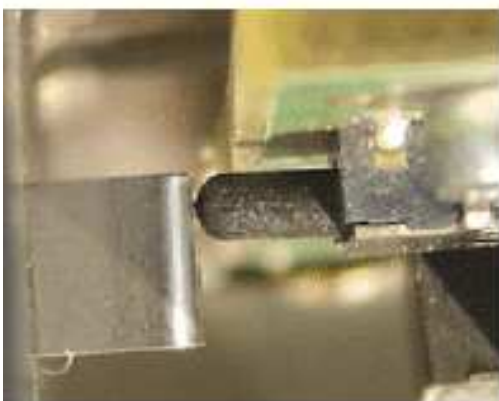
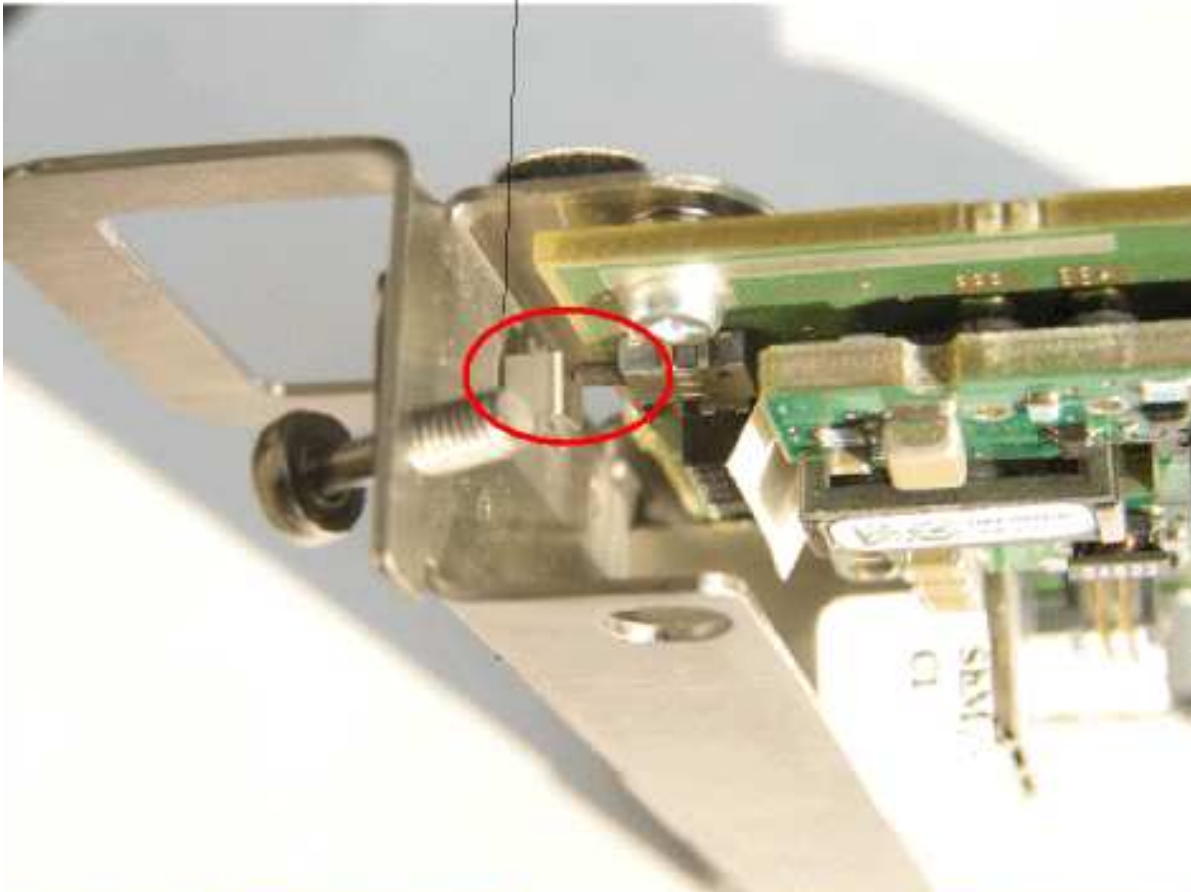
1. Identify the board to be replaced. Refer to *Board/Area/Slot/SBL Mapping* (Section 1.3) for details.
2. Check if the JAXSMM which should be removed is in stand-by
3. Lock the JAXSMM if it is active
4. The blue LED blinks indicating that the board power down process is ongoing
5. Wait until the blue LED is ON permanently
6. Unfasten screws of front plate until handle switch is detached from front plate of the board
7. Remove board from shelf using the ejector ring.

3.6.3.2 Insert JAXSMM

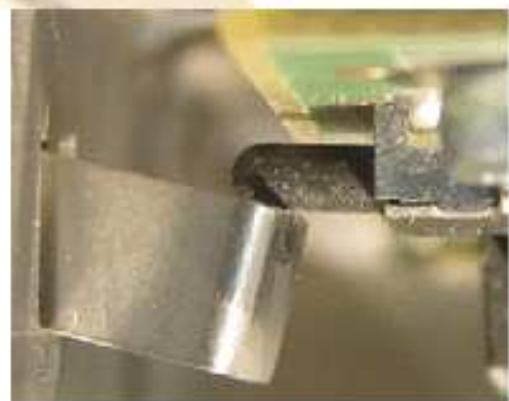
ATTENTION

When inserting the board make sure that the handle switch is in the correct position (see figure 20).

Handle Switch Area



Handle Switch in Correct Position



Handle Switch in Incorrect Position

Figure 20: JAXSMM - Handle Switch Positions

To insert the JAXSMM:

1. Insert the board into the shelf by placing the top and bottom edges of the board in the card guides of the shelf. Ensure that the guiding module of shelf and board are aligned properly. The alignment protrusion facilitates the insertion and prevents bent pins.
2. Slide the board into the shelf until you feel resistance.
3. Wait until the blue LED is lit.
4. Tighten the screws at the top and the bottom of the board. In this way the ejector handle is closed and the board can be powered. The blue LED blinks.
5. Unlock the JAXSMM board.
6. Wait until the blue LED is switched OFF. The switched OFF blue LED indicates that the board is activated.
7. Connect the Ethernet cable to the JAXSSW1 (port ETH8)
8. Open a telnet session on the active station
 - ▶▶ # telnet 172.17.y.x
 - where:
 - ▶ y is 3 for ATCA shelf 3
 - ▶ y is 4 for ATCA shelf 4
 - ▶ x is 30 if JBXOMCP1 is active
 - ▶ x is 40 if JBXOMCP2 is active.
9. From the telnet session window, open a connection on the active JAXSMM
 - ▶▶ # telnet 172.z.y.x
 - where:
 - ▶ z is 17 for JAXSMM1
 - ▶ z is 18 for JAXSMM2
 - ▶ y is 3 for ATCA shelf 3
 - ▶ y is 4 for ATCA shelf 4
 - ▶ x is 8 for JAXSMM1
 - ▶ x is 9 for JAXSMM2.
10. Type the username:
 - ▶▶ root
 - and the password:
 - ▶▶ root
11. Get the resource number:
 - ▶▶ hpiupgrade | grep M100
 - Below is given an output example for this command:
 - ◀◀ resource: 30, {RACK,0}{ADVANCEDTCA_CHASSIS,3}
 {SHELF_MANAGER_SLOT,1}
 {SHELF_MANAGEMENT_CONTROLLER,8},
 ATCA-M100
 - ◀◀ resource: 58, {RACK,0}{ADVANCEDTCA_CHASSIS,3}
 {SHELF_MANAGER_SLOT,2}


```
{SHELF_MANAGEMENT_CONTROLLER,9},
ATCA-M100
```

12. Reboot the replacement JAXSMM:

```
▶▶ hpireset3 -r <Resource>
◀◀ reset resource <Resource>: rv = 0
```

where Resource is given in bold by the output in the previous step as follows:

- ▶ First resource number (**30** in the given example) is for the active JAXSMM
- ▶ Second resource number (**58** in the given example) is for the standby JAXSMM.

13. Check the shelf address:

```
▶▶ hpishaddr <Shelf Geographical Address>
◀◀ 03 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
    00 00 00
◀◀ shelf address: <Shelf Geographical Address>
◀◀ shelf entity path:
    {RACK,0}{ADVANCEDTCA_CHASSIS,<Shelf Geographical
    Address>}
```

where the Shelf Geographical Address is:

- ▶ 3 for shelf 3
- ▶ 4 for shelf 4

14. Close the telnet session.

3.6.4 Replace JBXPS

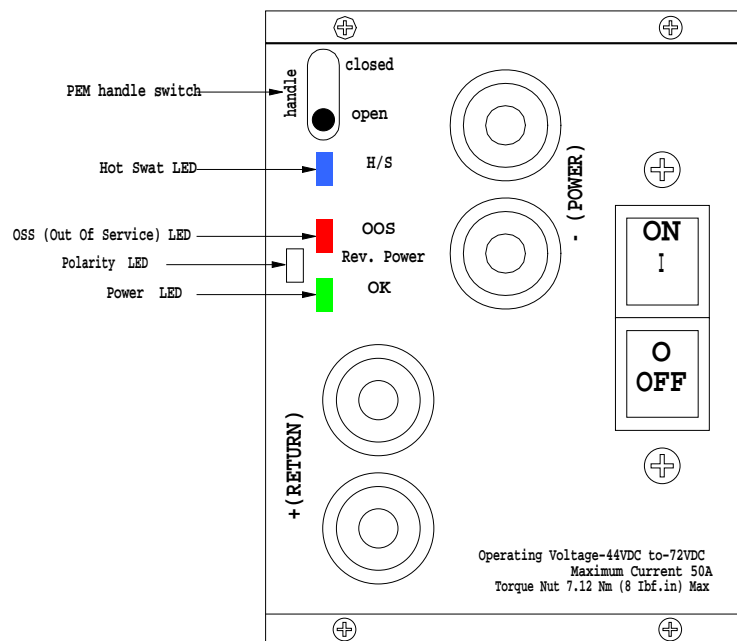


Figure 21: Power Entry Module

The Power Entry Modules are numbered from 1 on the left to 4 on the right of the rear view of the subrack chassis.

3.6.4.1 Remove JBXPS

To remove a JBXPS:

1. Identify the board to be replaced. Refer to *Board/Area/Slot/SBL Mapping (Section 1.3)* for details.
2. Switch the “handle” switch to “open”.
The blue H/S LED will blink (short intervals) and then illuminate steadily
3. Switch the breaker on JBXPS to “OFF”
4. Switch OFF the breaker on Power Distribution Unit (PDU) corresponding to the faulty JBXPS
The following table gives the breaker on PDU corresponding to each JBXPS in JSXATCA shelves.

	JBXPS1 (left)	JBXPS2	JBXPS3	JBXPS4 (right)
Shelf 3	A3	B3	A3	B3
Shelf 4	A1	B1	A1	B1

5. Remove the JBXPS studs rubber protective caps
6. Unfasten the power cables (POWER then RETURN) from the JBXPS studs



Ensure that the power lugs are not energized before removing the screws. If the power lugs are energized you should: remove the JBXPS carefully without touching the lugs, nuts, and lockwashers. Then loose the screws. Be careful with the used tools in order to prevent a short circuit. Power down the system and then remove the JBXPS.

Since the JBXPS can be hot, let it cool down before pulling it out with bare hands.

7. Unfasten the four JBXPS screws.
8. Unplug the faulty JBXPS from its location.

3.6.4.2 Insert JBXPS

To insert a JBXPS:

1. Make sure that “handle” switch of the new JBXPS is “open”
2. Make sure that the breaker of the new JBXPS is “OFF”
3. Plug the replacement JBXPS into its location
The blue H/S LED will illuminate steadily.
4. Fasten the 4 JBXPS screws
5. Fasten the power cables (RETURN then POWER) to the JBXPS studs
6. Install the JBXPS studs rubber protective caps
7. Switch ON the power distribution feeding the JBXPS with the breaker located on the PDU.
8. Check that the “Rev. Power” LED is OFF. If Rev. Power LED is ON switch OFF the corresponding breakers and check power polarity on JBXPS terminals.

9. Switch ON the breaker of the new JBXPS.
10. Using a long and thin screwdriver, switch the "handle" switch to "closed".
The blue H/S LED will blink (long intervals) and then turn OFF.
11. Check that the "OK" LED is ON.

3.6.5 Replace JAXFILL

Unused slots, front and rear, must be equipped with fillers.

The JAXFILL are used to create the appropriate air flow within the subrack.

3.6.5.1 Remove JAXFILL

To remove an ATCA rear filler:

1. Unfasten screws of front plate until board is detached from shelf
2. Remove JAXFILL from shelf.

3.6.5.2 Insert JAXFILL

To insert an JAXFILL:

1. Slide JAXFILLr into the shelf until you feel resistance
2. Tighten the front plate screws which secure the board to the shelf.

3.7 Replace Battery on JBXOMCP/JBXCCP

NOTICE

If the impacted board is the active one start with *Board Takeover* (Section 3.7.1), otherwise go to *Remove Board* (Section 3.7.2).

3.7.1 Board Takeover

To perform a board takeover, **only** if the impacted board is the **active** one:

1. Start the 9130 BSC Evolution Terminal software. Refer to *Start the Terminal Software* section from *9130 BSC Evolution Terminal User Guide*.
2. Reset the SBL corresponding to the active board.
For SBL reset procedure refer to *Reset SBL* section from *9130 BSC Evolution Terminal User Guide*.
For identifying the corresponding SBL refer to *Board/Area/Slot/SBL Mapping* (Section 1.3).
The reset of the active board will trigger a board takeover.
Wait 5 minutes, until the takeover is complete.
3. After the takeover is done, check the ACT LED status on the boards front panel.
4. *Remove the Board* (in section 3.5.3.1).

3.7.2 Remove Board

To remove a board:

1. Identify the board to be replaced. Refer to *Board/Area/Slot/SBL Mapping (Section 1.3)* for details.
2. From BSC terminal or OMC-R disable/lock the corresponding board.
3. Unfasten screws of front plate until board is detached from shelf.
4. Move the ejector handles outwards.
5. Remove board from shelf.

3.7.3 Replace Battery

To replace the battery:

1. Remove the board from its slot.
2. Remove old battery.



PCB and battery holder damage

Removing the battery with a screw driver may damage the PCB or the battery holder.

To prevent this damage, do not use a screw driver to remove the battery from its holder.

3. Locate the '+' sign on the new battery. It indicates the positive terminal of the battery.
4. Insert the battery into the blade's battery holder in such a way that the '+' on top of the battery is face up.
5. Insert the board in the initial slot.

3.7.4 Insert Board

To insert a board:

1. Ensure that the top and bottom ejector handles are in the outward position.
2. Insert board into the shelf by placing the top and bottom edges of the board in the card guides of the shelf. Ensure that the guiding module of shelf and board are aligned properly.
3. Slide the board into the shelf until you feel resistance.
4. Wait until the blue LED is illuminated.
5. Simultaneously move the top and bottom ejector handles to the inward position.
The blue LED blinks. After some seconds the blue LED is switched OFF.
6. Wait until the blue LED is illuminated again.
7. From BSC terminal or OMC-R initialize/unlock the corresponding board.
The blue LED is switched OFF.
8. Tighten the front plate screws which secure the board to the shelf.

4 Maintain the LIU Subrack

This section describes how to replace the following LIU subrack RITs:

- ▶ JBXLIU boards
 - ▶ JBXMUX boards
 - ▶ JBXPEM modules
 - ▶ JBXDUM fillers.
-

4.1 Before You Start

ATTENTION

Impact on System

As long as only one JBXPEM or JBXMUX is removed and replaced at any one time, there is no impact on the system. This is because the RITs work in hot-standby mode. If a RIT fails, the standby RIT takes over the tasks of faulty one. In case of failure, a replacement must be organized as soon as possible to prevent traffic interruption.

When the LIU board is replaced there is a traffic outage. In case of failure, a replacement must be organized as soon as possible to minimize traffic interruption.

The LIU subrack is equipped with:

- ▶ Line Interface Unit boards (JBXLIU)
- ▶ Power Entry Modules (JBXPEM)
- ▶ Multiplexing boards (JBXMUX).

The following figure shows the front view of the LIU subrack.

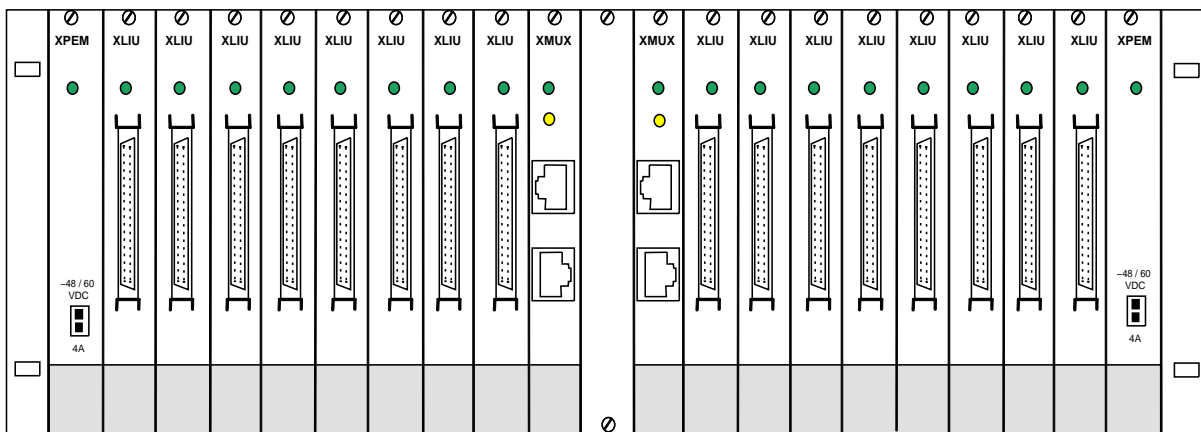


Figure 22: Front View of the LIU Subrack

4.2 Replace LIU Board

The following figure shows the 120 Ohm and 75 Ohm LIU boards.

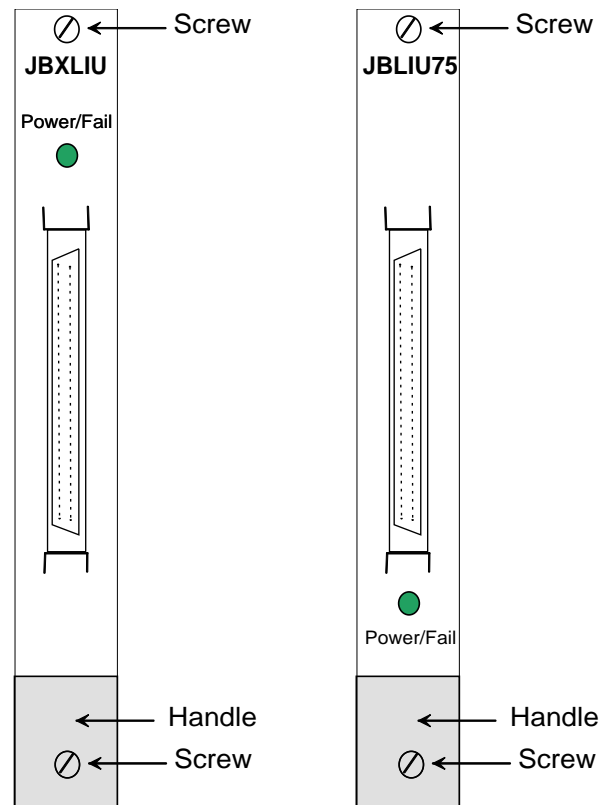


Figure 23: LIU Board



In case of failure, a replacement must be organized as soon as possible to minimize traffic interruption.

When the LIU board is replaced there is a traffic reduction for about 4 minutes.

When replacing a LIU board the replacement board must support the same impedance as the replaced one.

Impact on System Note the following impact on the system:

- ▶ In case of LIU board connected to Abis interface:
The telecommunications links for corresponding BTS connected to replaced board are lost.
- ▶ In case of LIU board connected to AterMux interface:
The telecommunication links are reduced.

4.2.1 Remove LIU Board

To remove LIU board:

1. Identify the board to be replaced. Refer to *Board/Area/Slot/SBL Mapping (Section 1.3)* for details.
2. Unplug the cable connector.
3. Unfasten the top screw with the screwdriver.
4. Unfasten the bottom screw with the screwdriver.
The bottom screw is located under the handle.
5. Remove the board from the shelf using the board handle.

4.2.2 Insert LIU Board

To insert the LIU board:

1. Insert using handle the board into the shelf until you feel resistance.
2. Fasten the top screw with the screwdriver.
3. Fasten the bottom screw with the screwdriver.
The bottom screw is located under the handle.
4. Plug in the cable connector.

ATTENTION

In the LIU shelf, each slot unused by a board must be closed by a filler front panel.

4.3 Replace JBXPEM

The following figure shows the JBXPEM.

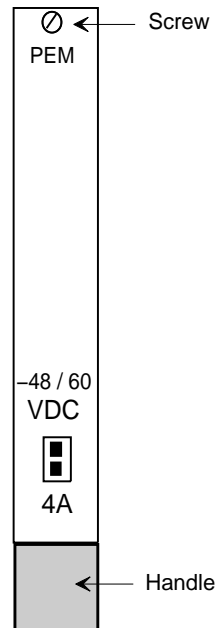


Figure 24: JBXPEM Board

4.3.1 Remove JBXPEM

To remove JBXPEM:

1. Identify the board to be replaced. Refer to *Board/Area/Slot/SBL Mapping (Section 1.3)* for details.
2. Switch OFF the corresponding breaker on Power Distribution Unit (PDU).
The following table gives the breaker on PDU corresponding to each JBXPEM in JSXLIU shelves.

	JBXPEM A (left)	JBXPEM B (right)
Shelf JSXLIU1	A4	B4
Shelf JSXLIU2	A2	B2

3. Unfasten the top screw with the screwdriver.
4. Unfasten the bottom screw with the screwdriver.
The bottom screw is located under the handle.
5. If necessary, cut the cable ties fixing the power cable.
6. Remove the board with the power cable attached from the shelf using the board handle.
7. Disconnect the power cable.

4.3.2 Insert JBXPEM

ATTENTION

Before inserting the new JBXPEM check the new board ICS.

Depending on new board ICS apply the appropriate case:

- ▶ *Insert JBXPEM in Case of ICS 01 (Section 4.3.2.1)*
 - ▶ *Insert JBXPEM in Case of ICS 02 or Newer (Section 4.3.2.2).*
-

4.3.2.1 Insert JBXPEM in Case of ICS 01

To insert the LIU PEM:

1. Connect the power cable to the board.
2. Insert using handle the board with the power cable attached into the shelf until you feel resistance.
3. Fasten the top screw with the screwdriver.
4. Fasten the bottom screw with the screwdriver.
The bottom screw is located under the handle.
5. Switch ON the corresponding breaker on PDU.

4.3.2.2 Insert JBXPEM in Case of ICS 02 or Newer

To insert the LIU PEM:

1. Partially insert the board into slot rails, back connectors are not reached yet.
2. Connect the power cable to the board.
3. Switch ON the corresponding breaker on PDU.
4. Insert using handle the board with the power cable attached into the shelf until you feel resistance.
5. Fasten the top screw with the screwdriver.
6. Fasten the bottom screw with the screwdriver.
The bottom screw is located under the handle.

4.4 Replace JBXMUX Board

The following figure shows the JBXMUX board.

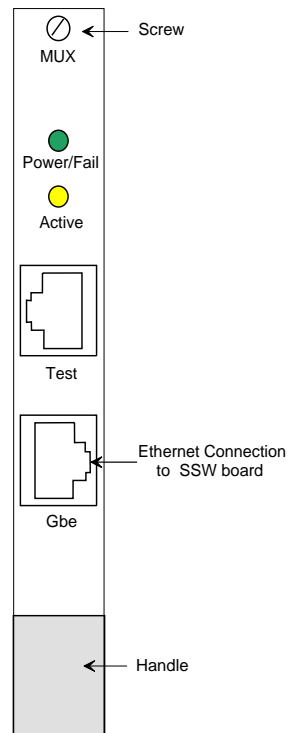


Figure 25: JBXMUX Board

4.4.1 Remove JBXMUX

RESTRICTION

3BKA20FBR209413

When the standby JBXMUX board is unplugged from the JSXLIU shelf, the following alarms are displayed on the 9130 BSC Evolution Terminal:

- ▶ BSC 1 ECU 2 LIU-SHELF 001 MUX-TAKEOVER
- ▶ BSC 1 ECU 1 LIU-SHELF 001 MUX-TAKEOVER

It is the consequence of a double JBXMUX takeover.

NOTICE

In case of removing the active board, the board must be **reset** before removing it.

To remove the JBXMUX:

1. Identify the board to be replaced. Refer to *Board/Area/Slot/SBL Mapping (Section 1.3)* for details.
2. Disconnect the Ethernet cable.
3. Unfasten the top screw with the screwdriver.
4. Unfasten the bottom screw with the screwdriver.
The bottom screw is located under the handle.

ATTENTION

Removing the JBXMUX with the Ethernet cable connected leads to loss of the telecom traffic for up to 10 minutes.

5. Remove the board from the shelf using the board handle.

4.4.2 Insert JBXMUX

To insert the JBXMUX:

1. Insert the board, using the handle, into the shelf until you feel resistance.
2. Fasten the top screw with the screwdriver.
3. Fasten the bottom screw with the screwdriver.
The bottom screw is located under the handle.
4. Connect the Ethernet cable from the corresponding JBXSSW:
 - ▶ JBXMUX1 is connected to JBXSSW1
 - ▶ JBXMUX2 is connected to JBXSSW2.
5. Using the BSC terminal check if the alarm "FIRMWARE-NOT-UP-TO-DATE" is reported for the replacement board.
 - ▶ If the alarm is present a firmware upgrade must be performed. Refer to *Update the NE10E Firmware for the New JBXTP or JBXMUX Boards (Section 3.5.2.3)* for details.
 - ▶ If the alarm is not present the replacement procedure is finished.

4.5 Replace LIU Front Filler

The following figure shows the JBXDUM filler.

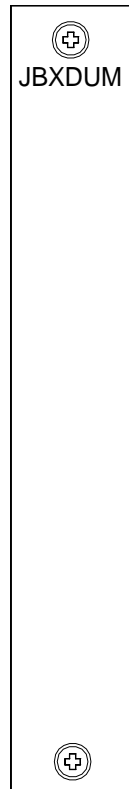


Figure 26: JBXDUM Filler

4.5.1 Remove JBXDUM

To remove JBXDUM filler:

1. Unfasten the top screw with the screwdriver.
2. Unfasten the bottom screw with the screwdriver.
3. Remove the JBXDUM filler.

4.5.2 Replace JBXDUM

To replace JBXDUM filler:

1. Fit the filler into position.
2. Fasten the top screw with the screwdriver.
3. Fasten the bottom screw with the screwdriver.

5 9130 BSC Evolution Cables

This section lists all cables used in the BSC. It includes cable lists and connector position schematics for:

- ▶ Telecommunications Subrack
 - ▶ Control Station Server.
-

5.1 Intervention Levels

The following figure shows the 9130 BSC Evolution rack intervention levels.

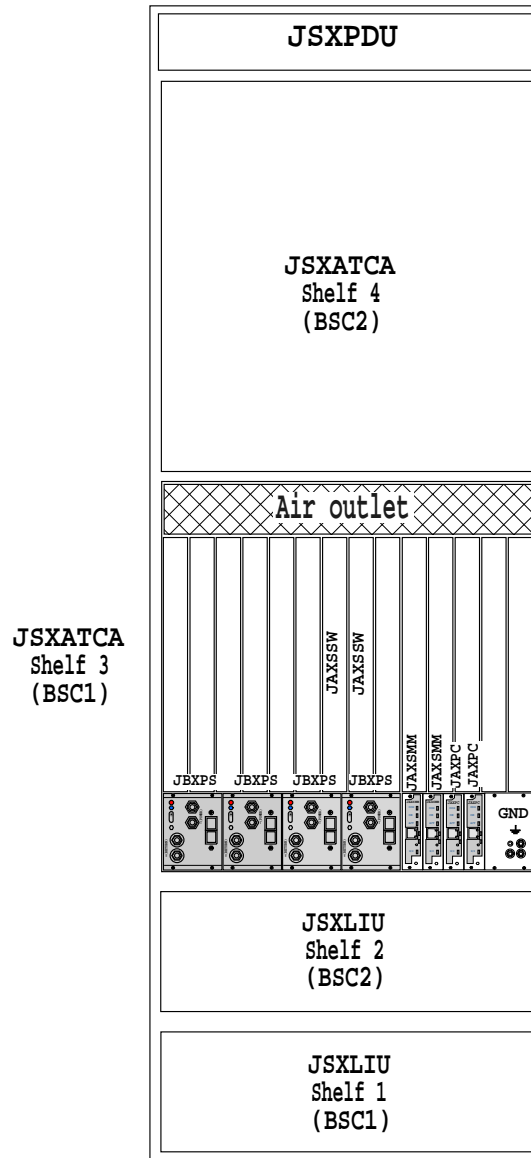


Figure 27: 9130 BSC Evolution Rack Intervention Levels

There are some cables with the ends marked with labels accordingly to the place where this end should be placed. Consequently, pay attention to this labels when connect the cables.

For example, for cables interconnecting 2 different subracks, each end (may have) a label on which is written:

- ▶ Subrack's corresponding intervention level *or/and*
- ▶ Board's slot number *or/and or/and*
- ▶ Board's connector related information.

The following figure gives the intervention level for the front RITs.

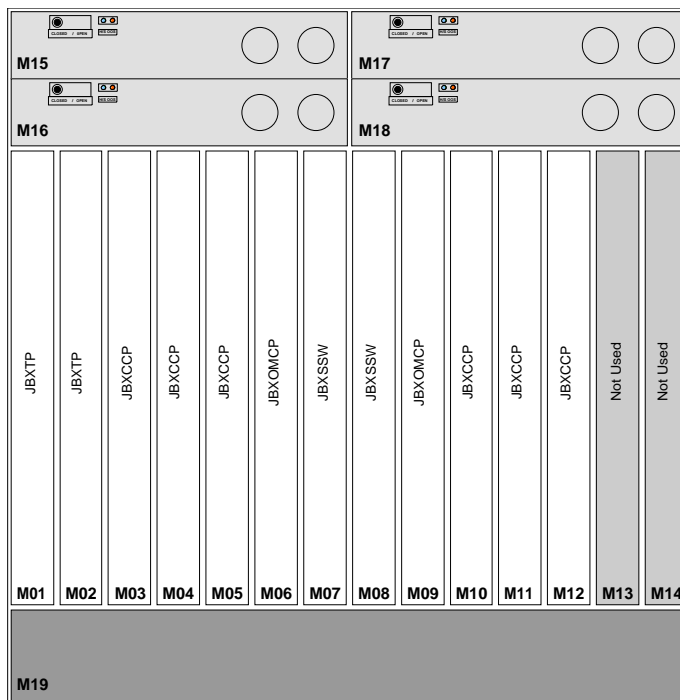


Figure 28: ATCA Front View (with Cable Positions)

The following figure gives the intervention level for the rear RITs.

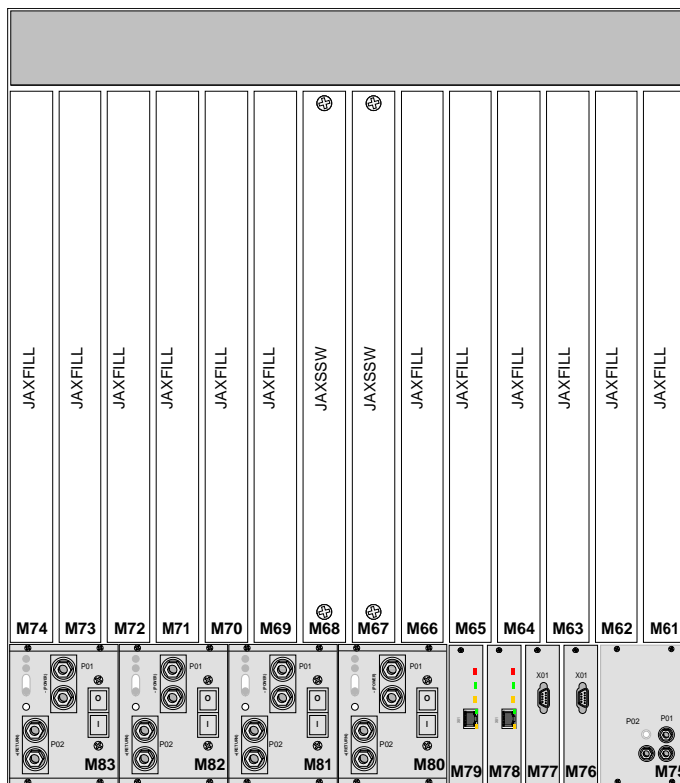


Figure 29: ATCA Rear View (with Cable Positions)

There are some cables with the ends marked with labels accordingly to the place where this end should be placed. Consequently, pay attention to this labels when connect the cables.

The following table gives the boards position in the ATCA shelf and part numbers.

Description of the platform		Position	Alcatel-Lucent part numbers
Shelf (chassis)			1AF 04442 AD
Switches	Board	M07 & M08	3BK 27237 AA
	ARTM	M67 & M68	1AF 04448 AA
JBXOMCP boards	Board	M06 & M09	1AF 04452 AC
	ARTM	M66 & M69	1AF 04451 AA
JBXCCP boards	Board	M64 - M65 & M70 - M71	3BK 27231 AA
JBXTP	Board	M01 & M02	3BK 26859 AA

Table 5: ATCA Configuration

5.2 ATCA Subrack Cables

Cable Mnemo	Item Reference	Cord	From (device, connector)	To (device, connector)
JL16H2M6 (CJ)		blue (-48V)	AB, M83/P01	Z (A), P11
		blue-black (0V)	AB, M83/P02	Z (A), P21
JL16H2M6 (CJ)		blue (-48V)	AB, M82/P01	Z (B), P15
		blue-black (0V)	AB, M82/P02	Z (B), P25
JL16H2M6 (CJ)		blue (-48V)	AB, M81/P01	Z (A), P12
		blue-black (0V)	AB, M81/P02	Z (A), P22

Cable Mnemo	Item Reference	Cord	From (device, connector)	To (device, connector)
JL16H2M6 (CJ)		blue (-48V)	AB, M80/P01	Z (B), P26
		blue-black (0V)	AB, M80/P02	Z (B), P16

Table 6: Power Cords for ATCA

5.3 LIU Subrack Cables

Cable Mnemo	Item Reference	From (rack, device, connector)	To (rack, device, connector)
ALETHC (CL)		LIU / MUX1	ATCA, M67 / X02
ALETHC (CL)		LIU / MUX2	ATCA, M68 / X02

Table 7: Cable List for GE Links between LIU and ATCA

6 Software Procedures

This section describes how to:

- ▶ Modify Community String Name
 - ▶ Software and Hardware Diagnosis
 - ▶ Modify BSC IP Subnetwork Address.
 - ▶ Tool collecting on-demand traces/logs
-

6.1 Modify Community String Name

To modify Community String name:

1. Connect on active OMCP using terminal

▶▶ telnet 172.17.y.x

Where:

- ▶ y is 3 for Shelf 3
- ▶ y is 4 for Shelf 4
- ▶ x is 30 for OMCP1
- ▶ x is 40 for OMCP2

2. Type the username:

▶▶ root

and the password:

▶▶ alcatel

3. In the terminal window 172.17.y.x corresponding to active OMCP, type the following command:

▶▶ cd /usr/local/bin/

▶▶ ./mpRumSetSnmpPasswd <OLD SNMP PASSWD> <NEW SNMP
PASSWD 1> <NEW SNMP PASSWD 2>

This command modifies the community string name in the **snmpd.local.conf** configuration file.

The <OLD SNMP PASSWD> must be known.

The <NEW SNMP PASSWD 1> must be equal to <NEW SNMP PASSWD 2>.

NOTICE

The **SNMP Password** is also known as **Community String**.
The **Community String** must be the same as the one defined at OMCR side.

4. Close the terminal window 172.17.y.x.

6.2 Software and Hardware Diagnosis

Note: It is recommended that this task to be performed for each OMCP board.

1. Connect on active OMCP board using terminal

```
▶▶ telnet 172.17.33.1
```

2. Type the username:

```
▶▶ root
```

and the password:

```
▶▶ alcatel
```

3. To start audit shelf script type:

```
▶▶ cd /usr/local/bin
```

```
▶▶ ./mx_chkSanity
```

Wait until the prompter is active.

4. Open generated **AuditMxBSC.log** file from **/var/log/MX/logs/** directory.

```
◀◀ **** CONCLUSION ****
```

```
◀◀ **** Number of Errors : 0 ****
```

```
◀◀ **** Number of TraceWarning : 0 ****
```

```
◀◀
```

```
◀◀ **** Log File : /var/log/MX/logs/AuditMxBSC.log ****
```

```
◀◀ **** Trace File :
```

```
    /var/log/MX/trace/files/AuditMxBSC.trace ****
```

Check that there are NO errors.

6.3 Modify 9130 BSC Evolution IP Configuration

6.3.1 General Information

6.3.1.1 IP Assignment Rules in 9130 BSC Evolution with the 2 LAN Solution

Short Name	IP Address	Assigned to
A1	Start_OAM_IP_addr_A	9130 BSC Evolution OMCP1 (for O&M traffic)
A2	Start_OAM_IP_addr_A + 1	9130 BSC Evolution OMCP2 (for O&M traffic)
A3	Start_OAM_IP_addr_A + 2	9130 BSC Evolution active OMCP (for O&M traffic)
A4	Start_OAM_IP_addr_A + 3	9130 MFS Evolution active OMCP (for O&M traffic)
A5	Start_OAM_IP_addr_A + 4	Reserved for spare
A6	Start_OAM_IP_addr_A + 5	External Alarm Box
A7	Start_OAM_IP_addr_A + 6	Reserved for spare

Table 8: IP Assignment in 9130 BSC Evolution External Subnet A

Short Name	IP Address	Assigned to
B1	Start_IP_addr_B	9130 BSC Evolution OMCP1 ETH0
B2	Start_IP_addr_B + 1	9130 BSC Evolution OMCP2 ETH0
B3	Start_IP_addr_B + 2	Reserved for spare
B4	Start_IP_addr_B + 3	9130 MFS Evolution active OMCP ETH0
B5	Start_IP_addr_B + 4	Reserved for spare
B6	Start_IP_addr_B + 5	External Router 1 or active TPGSM ETH0
B7	Start_IP_addr_B + 6	Reserved for spare

Table 9: IP Assignment in 9130 BSC Evolution External Subnet B

Short Name	IP Address	Assigned to
C1	Start_IP_addr_C	9130 BSC Evolution OMCP1 ETH1
C2	Start_IP_addr_C + 1	9130 BSC Evolution OMCP2 ETH1
C3	Start_IP_addr_C + 2	Reserved for spare
C4	Start_IP_addr_C + 3	9130 MFS Evolution active OMCP ETH1
C5	Start_IP_addr_C + 4	Reserved for spare
C6	Start_IP_addr_C + 5	External Router 2 or active TPGSM ETH1
C7	Start_IP_addr_C + 6	Reserved for spare

Table 10: IP Assignment in 9130 BSC Evolution External Subnet C

In 2 LAN configuration SubnetB +5 and SubnetC +5 are used as external router address.

6.3.1.2 IP Assignment Rules in 9130 BSC Evolution with the 1 LAN Solution

In case the one-LAN solution is chosen, Subnets B and C are no more used. The boards can be directly accessed through an IP address in Subnets A. No MLPPP on Ater is used in case of one-LAN.

Short Name	IP Address	Assigned to
A1-OAM1	Start_OAM_IP_addr_A	9130 BSC Evolution OMCP1 (for O&M traffic)
A2-OAM2	Start_OAM_IP_addr_A + 1	9130 BSC Evolution OMCP2 (for O&M traffic)
A3-OAM3	Start_OAM_IP_addr_A + 2	9130 BSC Evolution active OMCP (for O&M traffic)
A4-OAM4	Start_OAM_IP_addr_A + 3	9130 BSC Evolution IP address used for reachability test on the stand-by switch side.
A6-OAM6	Start_OAM_IP_addr_A + 5	External Alarm Box

Table 11: IP Assignment in 9130 BSC Evolution External Subnet A

Note: The recommended connection for the External Alarm Box is direct to the edge Switch / Router.

6.3.1.3 Parameters in 9130 BSC Evolution

The table below lists the parameters used to assign the external IP addresses to the 9130 BSC Evolution using the BSC terminal.

Parameter Name	Purpose	Comments
General Parameters		
IP_Ethernet_Topology	Indicates whether a one-LAN or two-LAN solution is used	Possible value: <ul style="list-style-type: none"> ▶ One-LAN ▶ Two-LAN Default value: two-LAN
Extraction_Point	Indicates whether the O&M traffic goes over MLPPP on Ater interface	Default value: Direct
For Subnet A		
Subnet_Mask_A	Gives the mask of the MxBSC external subnet A	Default value: A1/24
Start_OAM_IP_Addr_A	Defines the starting O&M IP address in Subnet A	Default value: NA
For Subnet B		
Subnet_Mask_B	Gives the mask of the MxBSC external subnets B	Default value: B/24
Start_IP_Addr_B	Defines the starting IP address in Subnet B	Default value: NA
For Subnet C		
Subnet_Mask_C	Gives the mask of the MxBSC external subnets C	Default value: C/24
Start_IP_Addr_C	Defines the starting IP address in Subnet C	Default value: NA
Static routes		
Gateway_IP_Addr_B	Defines the IP address of the gateway in Subnet B	Default value: NA Required in the two-LAN solution
Gateway_IP_Addr_C	Defines the IP address of the gateway in Subnet C	Default value: NA. Required in the two-LAN solution.

6.3.2 Modify BSC IP Subnetwork Address

To modify IP subnets address with BSC terminal:

1. Open the BSC terminal
From the Windows desktop, click on **Start -> Programs -> WinBSC -> 9130 BSC -> B10 -> Windows 9130 BSC BSC Terminal B10**, and enter the Virtual IP address of the BSC.
The Virtual IP address is 172.17.33.1
2. Switch to master user mode.
3. From the BSC Terminal menu bar, follow the menu path:
Commands -> BSS Operations -> Dis Declare BSC Peer Entities
The "Display Dec BSC Peer Entities" window opens.
4. Complete the following fields:
 - ▶ In 'Object Class', select **BSC**
 - ▶ In 'Unit Type', select **BSC**
 - ▶ In 'Unit Number', enter **1**.
5. Select the 'Get and Modify' option.
6. Click on [OK].
The "Declare BSC Peer Entities" window opens.
7. Click on the **Address - 2** tab and complete the fields as follows:
 - ▶ In the 'BSC IP SUB NET B:', type the new IP subnet address
 - ▶ In the 'BSC IP B MASK', type the new IP subnet B mask address of the BSC
 - ▶ In the 'BSC IP SUB NET C:', type the new IP subnet C address of the BSC
 - ▶ In the 'BSC IP C MASK', type the new IP subnet C mask address of the BSC
 - ▶ In the 'IP MLPP:', type the new IP MLPP (IP bandwidth) of the BSC. The 'IP MLPP:' parameter is used only for TC and MSC extraction mode configuration.
8. Click on the **Address - 3** tab and complete the fields as follows:
 - ▶ In the 'EXTERNAL ROUTER SUBNET B', type the new IP address for External Router interface connected to Subnet B.
 - ▶ In the 'EXTERNAL ROUTER SUBNET C', type the new IP address for External Router interface connected to Subnet C.
9. Click on [OK] to save the changes.
Wait for a DECLARE BSC PEER ENTITIES successful message in the "Compressed Report View" window.
10. Close BSC terminal.

6.3.3 Modify BSC IP Configuration from 1 LAN to 2 LANs

NOTICE

When the BSC IP configuration is changed from 1 LAN to 2 LANs there is a traffic outage for up to 15 minutes.

To modify BSC IP configuration from 1 LAN to 2 LANs with BSC terminal:

1. Open the BSC terminal From the Windows desktop, click on Start -> Programs -> WinBSC -> 9130 BSC -> B10 -> Windows 9130 BSC BSC Terminal B10, and enter the Virtual IP address of the BSC. The Virtual IP address is 172.17.33.1.
2. Switch to master user mode.
3. From the BSC Terminal menu bar, follow the menu path:
Commands -> BSS Operations -> Dis Declare BSC Peer Entities
The "Display Dec BSC Peer Entities" window opens.
4. Complete the following fields:
 - ▶ In 'Object Class', select **BSC**
 - ▶ In 'Unit Type', select **BSC**
 - ▶ In 'Unit Number', enter **1**.
5. Select the 'Get and Modify' option.
6. Click on [OK].
The "Declare BSC Peer Entities" window opens.
7. Select the Address - 3 tab.
8. In the 'IP ETHERNET TOPOLOGY' field select '2_LAN' The following fields become available:
 - ▶ 'EXTERNAL ROUTER SUBNET B'
 - ▶ 'EXTERNAL ROUTER SUBNET C'

The 'External Router OM 1 LAN' field is greyed (not available).
9. In the 'EXTERNAL ROUTER SUBNET B' and 'EXTERNAL ROUTER SUBNET C' fields enter the IP addresses of the external router accordingly.

ATTENTION

The BSC automatically resets at the end of this task.

10. Click on [OK] to save the changes.
Wait for a DECLARE BSC PEER ENTITIES successful message in the "Compressed Report View" window.
11. Open again the Address - 3 tab in "Declare BSC Peer Entities" window and check that the new configuration is reported.
12. Close BSC terminal.
13. Change addresses on external router from 1 LAN configuration to 2 LANs configuration.

6.3.4 Modify BSC IP Configuration from 2 LANs to 1 LAN

NOTICE

When the BSC IP configuration is changed from 2 LANs to 1 LAN there is a traffic outage for up to 15 minutes.

To modify BSC IP configuration from 2 LANs to 1 LAN with BSC terminal:

1. Open the BSC terminal From the Windows desktop, click on Start -> Programs -> WinBSC -> 9130 BSC -> B10 -> Windows 9130 BSC BSC Terminal B10, and enter the Virtual IP address of the BSC. The Virtual IP address is 172.17.33.1.
2. Switch to master user mode.
3. From the BSC Terminal menu bar, follow the menu path:
Commands -> BSS Operations -> Dis Declare BSC Peer Entities
The "Display Dec BSC Peer Entities" window opens.
4. Complete the following fields:
 - ▶ In 'Object Class', select **BSC**
 - ▶ In 'Unit Type', select **BSC**
 - ▶ In 'Unit Number', enter **1**.
5. Select the 'Get and Modify' option.
6. Click on [OK].
The "Declare BSC Peer Entities" window opens.
7. Select the Address - 3 tab.
8. In the 'IP ETHERNET TOPOLOGY' field select '1_LAN'
The 'External Router OM 1 LAN' field becomes available. The following fields are greyed (not available):
 - ▶ 'EXTERNAL ROUTER SUBNET B'
 - ▶ 'EXTERNAL ROUTER SUBNET C'
9. In the 'External Router OM 1 LAN' field enter the IP address of the external router accordingly.

ATTENTION

The BSC automatically resets at the end of this task.

10. Click on [OK] to save the changes.
Wait for a DECLARE BSC PEER ENTITIES successful message in the "Compressed Report View" window.
11. Open again the Address - 3 tab in "Declare BSC Peer Entities" window and check that the new configuration is reported.
12. Close BSC terminal.
13. Change addresses on external router from 2 LANs configuration to 1 LAN configuration.

6.4 Tool collecting On-Demand Traces/Logs

The script is under `/common/bsc/SCPRDISK/`, named `TCKN?????.???` (the `?????.???` is according to the package release). Only the one on the active OMCP can be launched.

The script has the following phases:

- ▶ *Backup/Restore/Stop Trace Selection (Section 6.4.1)*
- ▶ *Get Start/End Time of Trace Collection Period (Section 6.4.2)*
- ▶ *Get Problem Type: (OAM, CS, PS, ATRUNK) (Section 6.4.3)*
- ▶ *Get telecom trace collect period/id (For CS, PS, ATRUNK only) (Section 6.4.4)*
- ▶ *Send telecom trace config to TRF Master (For CS, PS, ATRUNK only) (Section 6.4.5)*
- ▶ *Wait enough time for telecom trace collection (For CS, PS, ATRUNK only) (Section 6.4.6)*
- ▶ *Trigger all VCE to dump the remaining trace (Section 6.4.7)*
- ▶ *Wait enough time for trace dumped to disk (Section 6.4.8)*
- ▶ *Get trace files from CCP boards (Section 6.4.9)*
- ▶ *Clean secure disk space & move required trace data into it on both OMCP (Section 6.4.10)*

6.4.1 Backup/Restore/Stop Trace Selection

The script will prompt a message for the operator to make a selection:

```
◀ Backup/Restore/Stop trace [B/R/S]
```

If the operator selects backup, the script will go through steps 6.4.2 to 6.4.9.

If the operator selects restore, the script restores all trace data in the secure space back to their original place. The restore function helps the operator to restore all secured data back to their original place. With this function, the operator can undo the previous trace backup command. If the partition disk usage is more than 50%, no restore is done on the disk.

If the operator selects stop trace, the script sends Message C to the TRF Master and exits immediately.

The trace data includes the following items:

- ▶ Realtime Trace
- ▶ MXPf Trace/logs
- ▶ DLS
- ▶ Core files
- ▶ BSC Version
- ▶ MXPf Version
- ▶ Patch Names

The folder structure in trace secure is as follows:

- ▶ save BSC, MXPf version & patch names:
/var/log/secured/BSC-General.txt
- ▶ save the total data size in a secure folder:
/var/log/secured/secure-size.txt
- ▶ save DLS file: /var/log/secured/DLS/
- ▶ save core files: /var/log/secured/core
- ▶ save mxpf common trace files: /var/log/secured/mxpf/common
- ▶ save mxpf common trace files that have not been merged yet:
/var/log/secured/mxpf/common/nomerged/
- ▶ save mxpf log files: /var/log/secured/mxpf/logs
- ▶ save mxpf log files that have not been merged yet:
/var/log/secured/mxpf/logs/nomerged
- ▶ save mxpf srp files: /var/log/secured/mxpf/srp
- ▶ save mxpf srp files that have not been merged yet:
/var/log/secured/mxpf/srp/nomerged
- ▶ save real time trace files: /var/log/secured/realtime/
- ▶ save real time trace files that have not been merged yet:
/var/log/secured/realtime/nomerged/

6.4.2 Get Start/End Time of Trace Collection Period

The script prompts:

- ◀ Enter the start time of trace data [YYYYMMDDHHMM]:
- ◀ Enter the end time of trace data [YYYYMMDDHHMM]:

The time is collected in hteformat of YYYYMMddHHmm. Notice that the time here represents the time of trace file generating.

6.4.3 Get Problem Type: (OAM, CS, PS, ATRUNK)

The script prompts:

- ◀ Enter the problem type [OAM|CS|PS|ATRUNK]:

There are 4 problem types:

- ▶ O&M related
- ▶ CS general
- ▶ PS general
- ▶ Atrunk related

If operator selects OAM, he can skip steps 6.4.4 to 6.4.6

6.4.4 Get telecom trace collect period/id (For CS, PS, ATRUNK only)

In this step of the script collects the necessary information for telecom trace collection.

First, it will prompt the operator to input the telecom trace collection duration like

```
« Please enter the duration time in seconds of telecom
   trace collection [120]:
```

The duration will be collected as a number. Format check is needed.

Then, for CS/PS problem, 2 cell-ids are collected:

```
« Enter the first LAC,CI [0,0]:
```

```
« Enter the second LAC,CI [0,0]:
```

If operator only wants to input 1 cellid, press [Enter] for the second input.

For Atrunk problem, 2 Atrunk numbers are collected:

```
« Enter first Atrunk Number [0]:
```

```
« Enter second Atrunk Number [0]:
```

6.4.5 Send telecom trace config to TRF Master (For CS, PS, ATRUNK only)

In this step of the script sends information for telecom trace collection to TRF Master via MsgQ. The information includes the problem type, cellid/Atrunk number and duration. It will reuse MSG 0150.

6.4.6 Wait enough time for telecom trace collection (For CS, PS, ATRUNK only)

In this step of the script waits the duration time set for telecom trace collection to be finished. For example, if operator input 120s as duration value, we need to wait two minutes. During this time, it will print out following message

```
« Wait 120 seconds for telecom trace collection. Press
   B, if you want to stop it.
```

```
« Waiting ..
```

One dot will be printed onto screen per second. If operator presses B at this period, the script will send a 'stop telecom trace collection' command to TRF Master. Either the time is finished or stopped by operator, the script will go to next step.

NOTICE

After press B, for stop telecom trace collection, you must immediately click [Enter] before the next dot appears.

6.4.7 Trigger all VCE to dump the remaining trace

In this step of the script sends a dump trace msg to TRF Master via MsgQ. It will reuse MSG 0150.

6.4.8 Wait enough time for trace dumped to disk

In this step of the script sleeps for 1 minute, and prints the following message:
◀◀ Waiting remaining trace to be saved to disk ..

Because, we can not get information from TRF Master, we do not know when previous step can be stopped. So we have to wait enough time before copying the files.

6.4.9 Get trace files from CCP boards

In this step of the script triggers the file transfer from CCP & TP boards to active OMCP board. It will remotely trigger script `script_tra_store.pl` on all CCP & TP boards. It waits until `script_tra_store.pl` on all boards stopped. Using of rsh is needed to do remote commands.

6.4.10 Clean secure disk space & move required trace data into it on both OMCP

In this step of the script removes the previous secured data. This step is executed on both OMCP board simultaneously . Before this step, the operator can stop the script without any impact on the secured data. But after this step, the secured folder is emptied.

In this step, the script first erases all data in the secured folder `/var/log/secured`. Next it saves the BSC version, MXPf version and Patch names into one file `/var/log/secured/BSC-General.txt`.

Next, the script moves all the trace data listed in *Tool collecting On-Demand Traces/Logs (Section 6.4)* to the secured folder. For all these data, we also have to filter the trace/log files based on the begin/end time inputed in step 6.4.2. If telecom trace collected, the latest collected trace are also moved. For the unmerged files, they need to be copy to a separate folder `/var/log/secured/xxx/nomerged/`. This is to speed up the trace collection. So when restored, the data in the nomerged folder do not need to be moved back.

6.4.11 File Transfer to 9153 OMC-R

For 9153 OMC-R file transfer, due to 9153 OMC-R security policy, the collecting is done on 9153 OMC-R and put into `/alcatel/var/maintenance/failure/` directory from `/var/log/secured/` directory on 9130 BSC Evolution.

1. At the UNIX command prompt, enter
 - ▶▶ `gftp`
 - The gftp window opens.
2. Input the IP address of 9130 BSC Evolution
3. Input the user: `mxadmin` and corresponding password
4. Input the port: `22`
5. Conect to 9130 BSC Evolution
6. You can transfer files by:
 - ▶ Double clicking on the required file. It will be added to the transfer queue and the transfer start automatically
 - ▶ Dragging the files from one side and dropping them on the other side.