Nokia Flexi EDGE BTS Commissioning

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1 Overview of Nokia Flexi EDGE BTS site commissioning

Purpose

This is an overview of how to commission Nokia Flexi EDGE BTS sites using the Commissioning Wizard in the Nokia Flexi EDGE BTS Manager software. The purpose of commissioning is to integrate the BTS as a part of the network.

Commissioning is part of the Implementation phase of the site roll-out process. It uses outputs from the Radio Network Planning and TRS Planning phases in the form of Site Configuration Files (SCF), templates and/or paper instructions that define the parameters required to make the BTS site operational.

Commissioning is required in order to make a site operational and is a key component of site acceptance. Commissioning is also required in order to test the basic functionality of the BTS as a 'stand-alone network element' to ensure a seamless integration and operation into a live GSM/EDGE network.

Nokia Flexi EDGE BTS commissioning uses a Site Configuration File (SCF), which is written in a standard RAML2.1 compliant XML format.

The use of the SCF allows configurations to be fully or partially specified off-site and to be distributed to commissioning engineers electronically.

You can select one of the following commissioning modes, depending on how much of the site information has been pre-generated:

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- *EasyWizard Template Commissioning*

  EasyWizard template commissioning is applicable for the majority of sites, and is a simple, fast and flexible way of commissioning Nokia Flexi EDGE BTS. This mode requires two SCF template files, which have been pre-generated offline using the EasyWizard template generation mode of the Nokia Flexi EDGE BTS Manager Commissioning Wizard:

  - one SCF template file for the hardware configuration, and
  - another SCF template file for transmission configuration.

  Once the correct templates have been loaded, the commissioner needs to enter those parameters that are specific to a site.

- *EasyWizard Complete SCF Commissioning*

  EasyWizard Complete SCF Commissioning can be used on any site. This mode requires that an SCF is created for each site beforehand. The commissioning engineer only needs to select the right file and send it to the BTS.

  Because the creation of the complete SCF allows the user to edit any and all commissioning parameters, it is comparable to pre-commissioning a specific unit off-site in a laboratory without the need to have any physical unit present.

  It is not possible to change any of the commissioning information on-site when EasyWizard Complete SCF Commissioning is used.

- *Manual Commissioning*

  Manual Commissioning can be used to commission any Flexi EDGE BTS site.

  There are no predefined SCF files required, but it is possible to use SCF files as a basis to reduce the number of parameters that needs to be entered during commissioning.

  Because of the number of available options and the technical knowledge required to set those options, Nokia recommends that only skilled, experienced commissioning engineers perform Manual Commissioning.

  During Manual Commissioning, the commissioning engineer has the flexibility to change any of the commissioning parameters before sending the SCF to the BTS.

For more information on the SCF and EasyWizard template files created by the BSS engineer or Network planner, see *Creating SCF or template files*.

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Steps

1. **Install the Nokia Flexi EDGE BTS Manager.**

   See *Installing Nokia Flexi EDGE BTS Manager*.

   If you need to change IP settings, see *Changing IP address settings for Windows XP.*

2. **Check the prerequisites for commissioning:**

   See
   - *Prerequisites for commissioning Nokia Flexi EDGE BTS*
   - *Preparing to commission the Nokia Flexi EDGE BTS*

3. **Go to one of the following sections, depending on the commissioning mode used:**
   - *EasyWizard Template Commissioning*
   - *EasyWizard Complete SCF Commissioning*
   - *Manual Commissioning*

4. **View the commissioning progress and commissioning result.**

   See *Viewing the commissioning progress and the commissioning result.*

   If commissioning fails, see the following troubleshooting instructions:
   - *Handling alarms*
   - *Checklist for troubleshooting*

5. **If you want to run manual tests, see *Running manual tests.***

6. **Save the commissioning report, see *Commissioning report*.**

Further information

If you want to change commissioning settings or undo commissioning, see

- *Changing the settings of a commissioned BTS*
- *Undo commissioning*

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2 Preparing for commissioning

2.1 Prerequisites for commissioning Nokia Flexi EDGE BTS

- Before commissioning, the physical installation of the BTS (modules, cabling, antennas and radios) must be complete.
- Make sure you have a PC with Nokia Flexi EDGE BTS Manager installed, see Appendix *Installing Nokia Flexi EDGE BTS Manager*.
- Make sure you have a 10/100 Mbit/s Ethernet cable available for the connection between the BTS and your PC.0
- You need to have the parameter values available that need to be entered during commissioning. The parameter values are provided by the network planning process.
- *BSC settings:* the BTS site must already be created at the BSC for commissioning to be successfully completed. For instructions on how to create a BTS site at the BSC, see *Radio Network Administration* in *BSC/TCSM Product documentation*.
- *Transmission network setup:* the transmission link(s) between the BSC and the BTS must already be set up so that there is a transmission path from the BSC to the BTS for all the Abis channels.

  If there are any intermediate transmission hubs between the BSC and the BTS, the cross connections in the hubs should either be set up at the E1/T1 link level, or at the n x 64 kbit/s level for all the channels to the BTS in an E1/T1 link.

  With the Flexi transmission interface Flexbus sub-module (FIFA), the transmission link will be established during commissioning.

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These instructions are based on the assumption that the user knows how to use basic computer software. At least the following actions are needed: installing SW and uninstalling SW. Nokia also recommends that the user has the relevant knowledge of base station systems and equipment.

Note

Screenshots included are representations and should be considered as examples only. The current release of the Nokia Flexi EDGE BTS Manager software may differ slightly from the shots depicted.

Visual checks and inspection

Perform the first part of the visual check before powering on the BTS at the power system.

Check the equipment visually to see that there are no fatal installation errors, which might lead to equipment damage during the power on.

When all is proven to be OK, perform the 'Power on' check and verify the LED status. For more information, see Appendix *LED statuses*.

Check the following items:

- the grounding
- power cabling and supply voltage
- other cables and fibres
- LED status during power up
- TX/RX/antenna connector torque check
- Flexbus cables (used with FIFA)
- LAN cable (used with the E1 transmission card)

2.2 Changing IP address settings with Windows XP

Before you start

Consult your System Administrator or IT Helpdesk for instructions on how to modify the IP address settings for your PC.

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Changes to your IP address settings may affect your ability to connect to other networks. It is recommended that you make a note of your settings before changing them so that they can be restored later if required.

The following instructions show how to modify IP address settings for Windows XP only and assume that no changes have been made to the default Windows XP start menu contents. If you have changed the used menu style as it is in earlier versions of Windows, select Start → Settings → Network Connections, and continue to step 3.

Steps

1. Select Start → My Network Places.

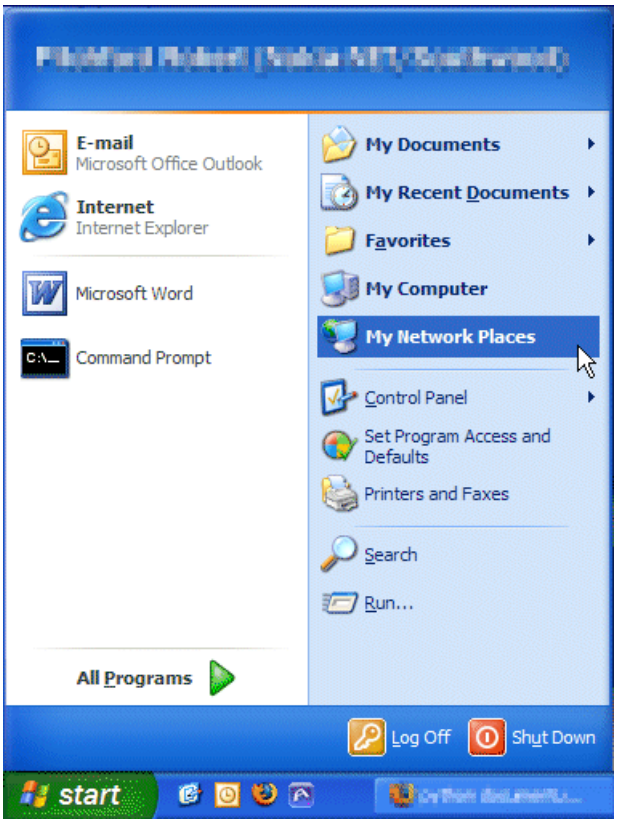

Figure 1. Selecting My Network Places

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This will open up a Windows Explorer view with a list of known network places for your PC. The contents of this view will vary from PC to PC, but on the left hand side there should be a list of tasks. If these are not visible, make sure that the 'Folders' button in the toolbar is not selected.

2. **Select Network Tasks → View network connections.**

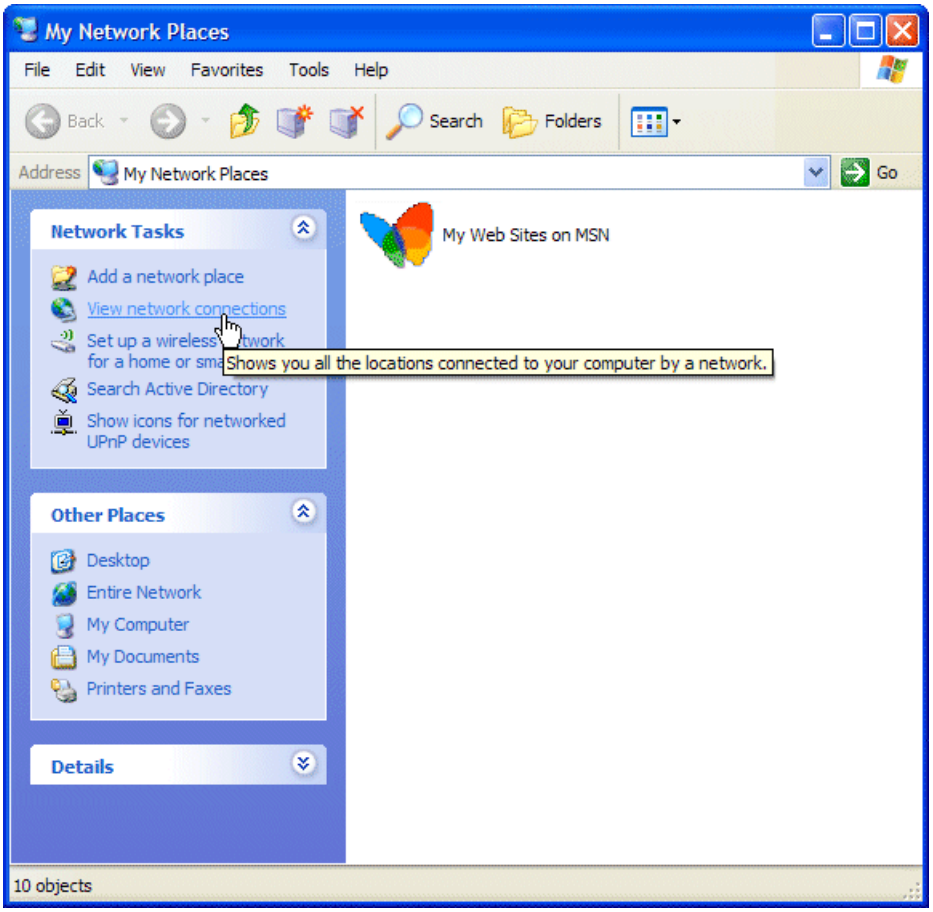

Figure 2. Selecting network connections

This will change the view to show the network connections that are available on your PC. The number and type of connections available will vary from PC to PC. It is necessary to identify the connection that will be used to connect to Nokia Flexi EDGE BTS. The specific name of this connection will vary from PC to PC, but the connection name will not contain 'wireless' or 'bluetooth'.

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If you are unsure which connection will be used, consult your System Administrator or IT Helpdesk.

3. **Choose the connection that will be used to connect to Nokia Flexi EDGE BTS and select Network Tasks → Change settings of this connection.**

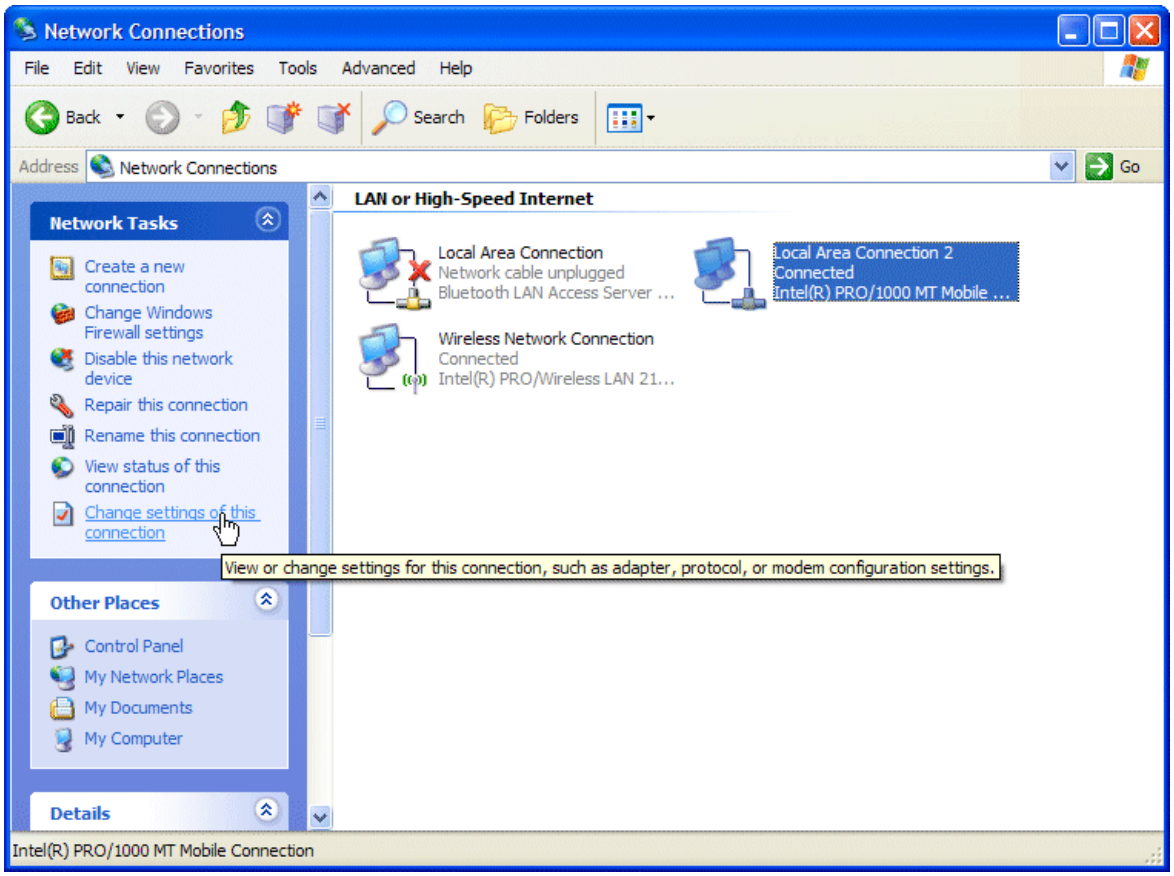

Figure 3. Selecting Change settings

This will display the properties page for the connection.

4. **Scroll down the list of items, and select Internet Protocol (TCP/IP). Then select the Properties button.**

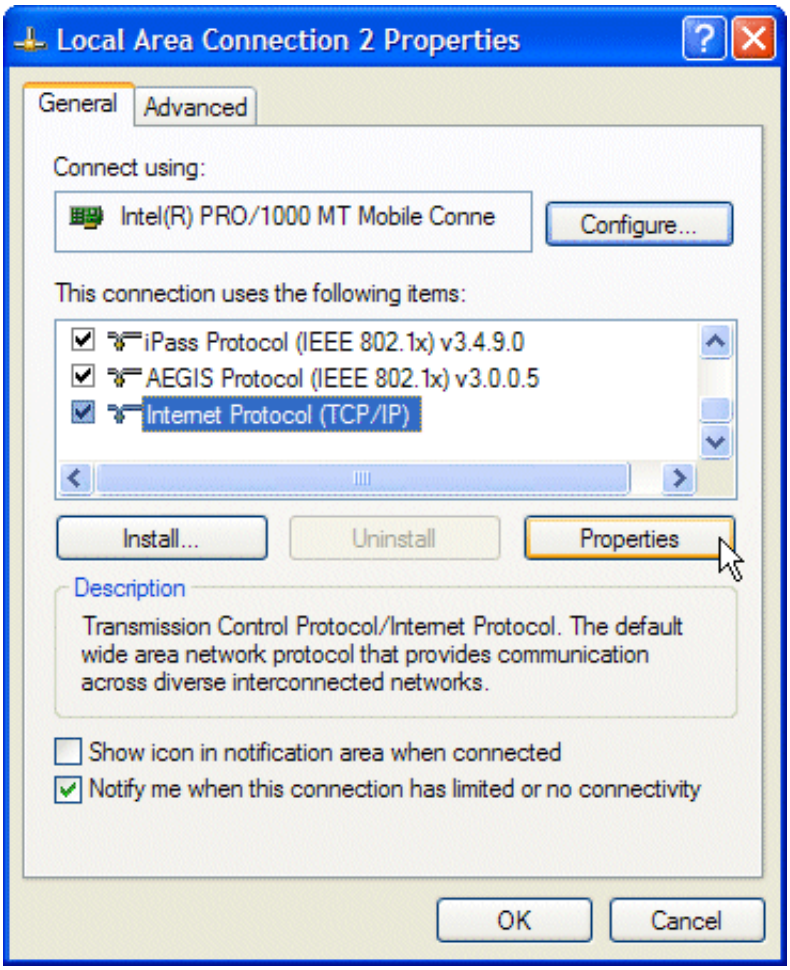

Figure 4. Selecting Properties

This will display the Internet Protocol (TCP/IP) Properties page within which the IP address settings can be changed.

5. Ensure that the 'Use the following IP address' radio button is selected, and enter the IP Address, Subnet mask and Default gateway according to the following figure.

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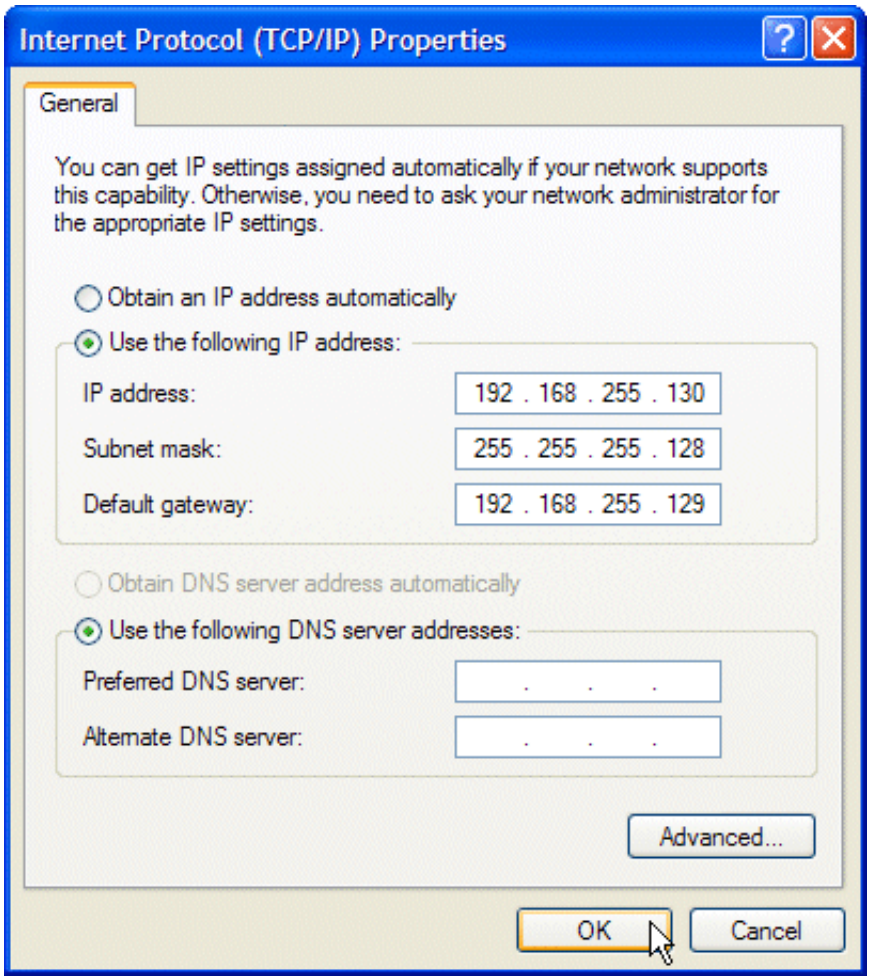

Figure 5. Setting IP address

6. **Select OK on the Internet Protocol (TCP/IP) Properties page and then OK again on the connection Properties Page to effect the changes to the IP address settings.**

2.3 Preparing to commission Nokia Flexi EDGE BTS

Steps

1. **Connect the Ethernet cable.**

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Nokia Flexi EDGE BTS supports MDI/MDIX, therefore both a straight-through and a cross-over Ethernet cable can be used.

2. **Check and connect E1/T1 or Flexbus cables to the transmission card.**

3. **Launch the Nokia Flexi EDGE BTS Manager.**

4. **Choose the Connection | Connect menu item to connect to the BTS locally.**

   The **Local Connection** dialog box opens. Define the BTS IP address and BTS port number, and click **Connect** to establish the connection.

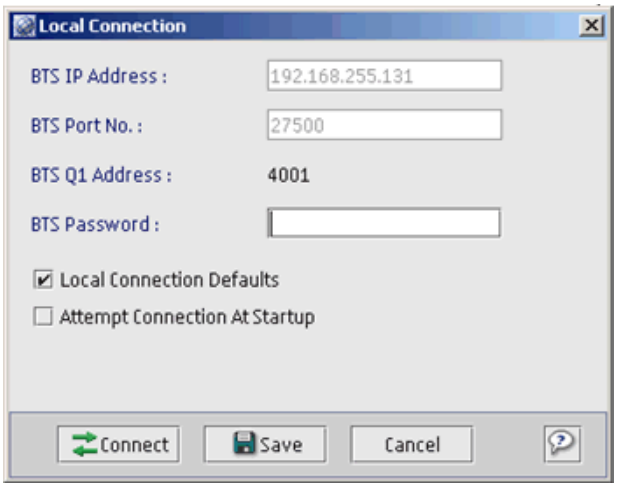

Figure 6. Local Connection dialog box

If the connection fails, see instructions in the *Trouble Management of Nokia Flexi EDGE BTS* document.

5. **Update the BTS SW if necessary.**

   In order to prevent errors in commissioning and reduce the time required to commission and integrate the BTS into the network, it is recommended to download the latest BTS SW locally using the BTS Manager (see the *Installing Nokia Flexi EDGE BTS Software* document).

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If the BTS Manager reports a mismatch between the Management Interface Version of the BTS and the BTS Manager, Nokia strongly recommends downloading the latest BTS SW using the BTS Manager.

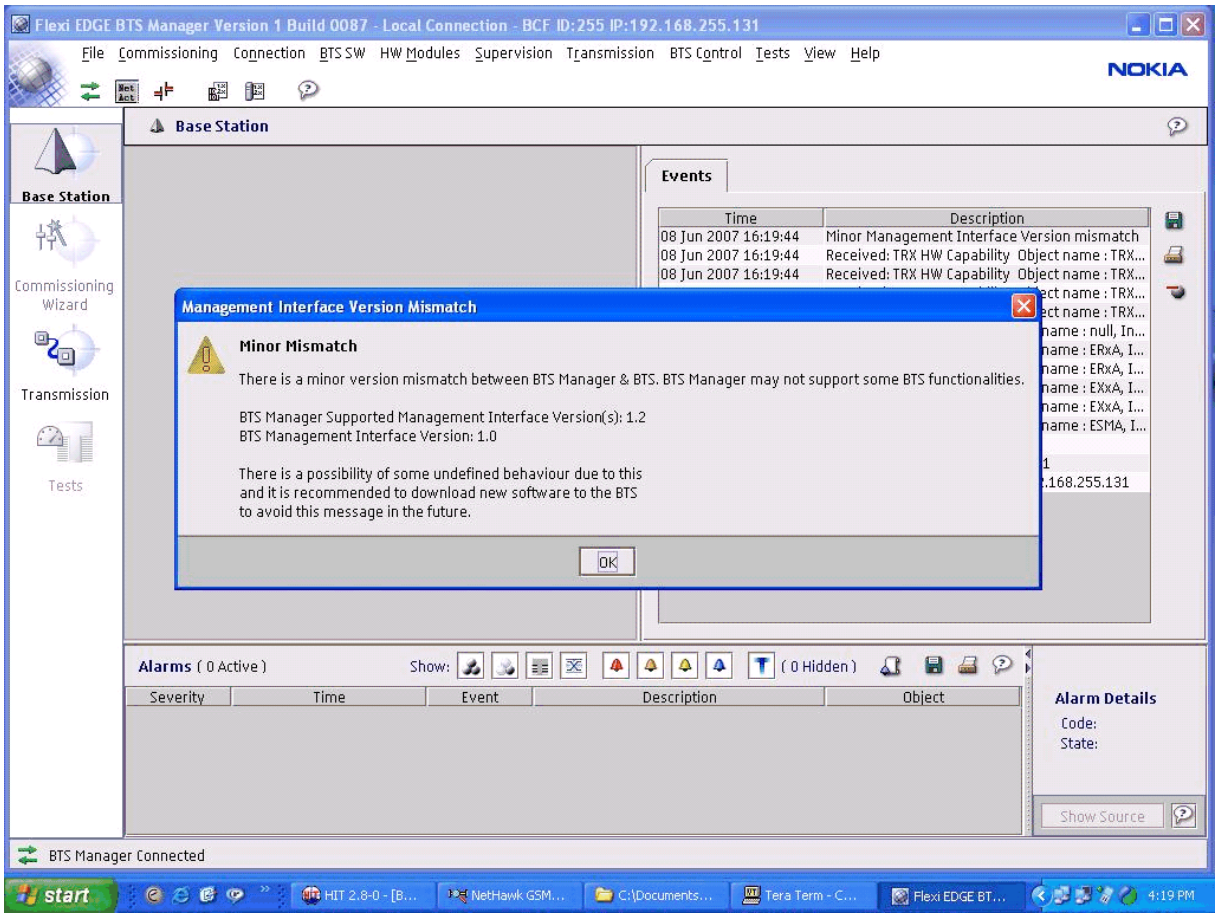

Figure 7. Management Interface Version Mismatch

6. If you need to commission FIFA and microwave radios, choose the Transmission - Launch FlexiHub Manager menu item.

The **Nokia FlexiHub Manager** main window opens.

Follow the instructions described in *Establishing transmission link*.

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3 Establishing transmission link

3.1 Establishing a connection to the node

3.1.1 Starting Nokia FlexiHub Manager

Before you start

This section assumes that:

- Nokia FlexiHub Manager has been installed on your computer (for installation instructions, see *Installing Nokia FlexiHub Manager from CD-ROM* and *Installing Nokia FlexiHub Manager from NOLS* in *Installing FIFA Flexbus Transmission Sub-module for Nokia Flexi EDGE BTS*).
- You have read the Release Note, which contains important last minute information.

Note

Screenshots included in this document are representations and should be considered as examples only. The current release of the Nokia FlexiHub Manager software may differ slightly from the shots depicted.

Steps

1. **Start the computer and Windows.**
2. **In the Start menu, select Programs → Nokia → Nokia FlexiHub Manager.**

   There may be several versions of Nokia FlexiHub Manager installed. Select the path to the appropriate version.

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Expected outcome

Nokia FlexiHub Manager is started.

3.1.2 Connecting locally

Before you start

When Nokia FlexiHub Manager is used for local management, the computer must be connected to the local management port (LMP) of the Nokia Flexi EDGE BTS System Module (ESMA) through an Ethernet cable.

The IP address of the PC should be set to 192.168.255.130 and the Netmask to 255.255.255.128.

Note that in most cases you need administrator rights on the PC to change these settings. If a personal firewall is installed on the PC, it must be configured to allow communication between the PC and FIFA (IP address 192.168.255.253).

Steps

1. **Connect your computer to the LMP of the BTS System Module through an Ethernet cable.**
2. **Start the Nokia FlexiHub Manager program.**
3. **Select File → Connect.**
4. **Uncheck Connect to Remote Host.**
5. **Select Flexi EDGE FIFA as Connection Type.**
6. **Enter Login Information.**

   Factory defaults:

   User name: PAM; Password: PAM
7. **Click Connect.**

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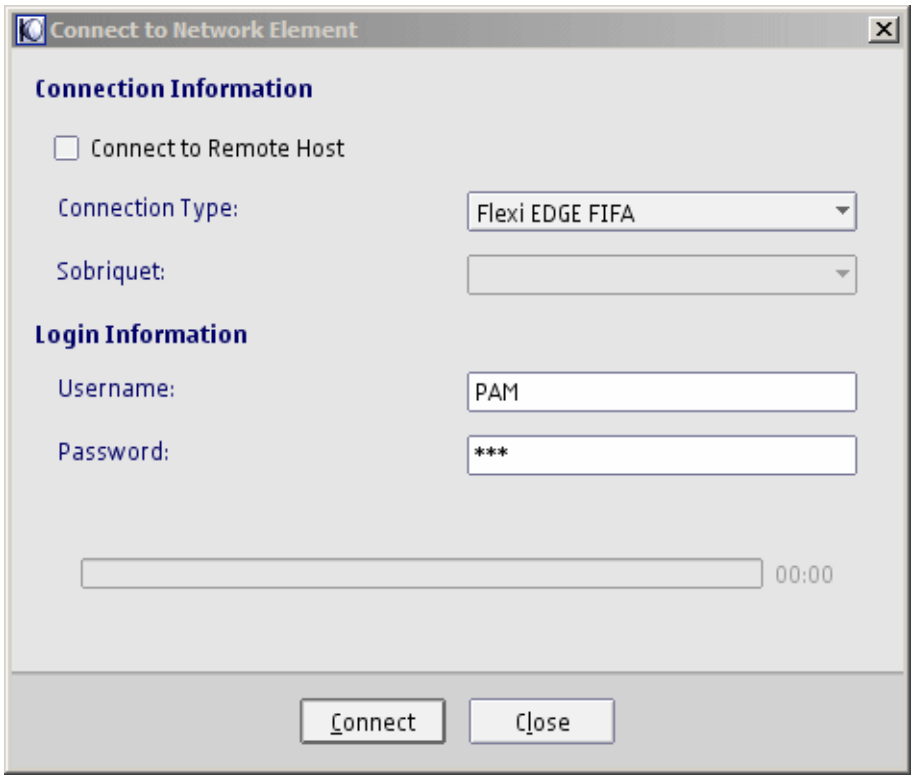

Figure 8. **Connect to Network Element** window

3.1.3 Connecting remotely

Steps

1. **Start Nokia FlexiHub Manager.**
2. **Select File → Connect.**
3. **Check Connect to Remote Host.**
4. **Select Q1 as Connection Type.**
5. **Select an existing GCS Sobriquet from the list or enter a new one for FIFA.**

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The sobriquet is the name of the node in the GCS database, which is used for getting the connection parameters needed for the remote connection to the node. The sobriquet must be previously defined in the GCS database, and each sobriquet must be unique in the database.

6. Click Connect.

Expected outcome

Nokia FlexiHopper Manager is connected to the network element.

3.1.4 Closing the connection to a node

Before you start

Nokia FlexiHub Manager is running on your computer and a connection to the node has been established.

Steps

1. If necessary, save the changes you have made.

2. In the Nokia FlexiHub Manager menu, select File → Disconnect.

Expected outcome

The connection to the node is closed.

3.2 Commissioning FIFA, Nokia FlexiHopper, and Nokia MetroHopper

3.2.1 Overview of commissioning with the Commissioning Wizard

Summary

The Commissioning Wizard contains several parts. Some parts may not be visible depending on the equipment structure present in the network element or the way the Wizard is used. If multiple targets are selected for commissioning, the wizard will proceed through each part in turn. There is a brief hint on each page; more information is available by clicking the **Help** button on each page.

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The Commissioning Wizard defines the minimum number of settings required for an operational network element. To access identification information and other settings, select the appropriate item in the **Hardware** view in Nokia FlexiHub Manager.

Steps

1. **Start the Commissioning Wizard and select the commissioning targets.**

   For instructions, see *Starting the Commissioning Wizard*.

2. **Proceed with the Commissioning Wizard.**

   If you are commissioning a new site, proceed with *Commissioning the network element* and continue with either *Commissioning a single hop for Nokia FlexiHopper* or *Commissioning a single hop for Nokia MetroHopper*, or *Commissioning a protected hop*.

   If you are converting the site from single mode to protected mode, proceed with steps 1 and 2 in *Commissioning the network element* and continue with *Commissioning a protected hop*.

3. **Complete the commissioning.**

   Follow the instructions in *Completing the Commissioning Wizard*.

4. **Configure any additional settings.**

   See *Configuring properties and settings* in *Administering FIFA Flexbus Transmission Sub-module for Nokia Flexi EDGE BTS*.

5. **Create the 2M-level cross-connections.**

   See *Adding cross-connections*.

6. **Verify the commissioning.**

   Monitor the hop as described in *Monitoring the hop*.

Expected outcome

FIFA Flexbus Transmission Sub-module for Nokia Flexi EDGE BTS is commissioned after the above steps are completed.

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Further information

Tip

If you want to adjust the settings on the previous pages, you can go back by clicking **Back**.

The **Next** button is disabled until you have filled in all the mandatory fields (indicated by a yellow marker).

All settings in the wizard are given default values and you should check them carefully before clicking **Next**.

3.2.2 Starting the Commissioning Wizard

Before you start

1. Verify that the BTS power is switched on.
2. Connect the local management port (LMP) cable between the PC and the indoor unit (for instructions, see *Connecting the LMP cable* in *Administering FIFA Flexbus Transmission Sub-module for Nokia Flexi EDGE BTS*).
3. Start Nokia FlexiHub Manager by selecting **Programs** → **Nokia** → **Nokia FlexiHub Manager** in the **Start** menu.

Steps

1. Set up the connection to the network element.

For instructions, see *Connecting the LMP cable* in *Administering FIFA Flexbus Transmission Sub-module for Nokia Flexi EDGE BTS*.

2. Establish the connection in Nokia FlexiHub Manager.

Click the button or select **File** → **Connect**.

For instructions, see *Establishing a connection to the node* in *Administering FIFA Flexbus Transmission Sub-module for Nokia Flexi EDGE BTS*.

3. On the Nokia FlexiHub Manager's View Bar, select Commissioning to start the Commissioning Wizard.

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The Commissioning Wizard is launched.

3.2.3 Commissioning the network element

Purpose

If you are commissioning a new site, you should commission the network element and either the single hop or the protected hop. Follow the steps in this section first and proceed then with either *Commissioning a single hop for Nokia FlexiHopper*, *Commissioning a single hop for Nokia MetroHopper*, or *Commissioning a protected hop*.

If you are converting the site from single mode to protected mode, follow steps 1 and 2 below and continue with *Commissioning a protected hop*.

Before you start

Start the Commissioning Wizard as instructed in *Starting the Commissioning Wizard*.

Tip

If you want to adjust the settings on the previous pages, you can go back by clicking **Back**.

The **Next** button is disabled until you have filled all the mandatory fields (indicated by a yellow marker).

All settings in the wizard are given default values. Check them carefully before clicking **Next**.

Steps

1. **Select the network element and radio hop(s) to be commissioned. Click the Configure Hardware button, if it is available.**

   If you are commissioning a new site, select the network element and either the single hop(s) or the protected hop as the commissioning targets.

   Note that Nokia MetroHopper does not support a protected hop. For Nokia MetroHopper it is only possible to select single hop(s).

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If you are converting the site from single mode to protected mode, you only need to select the protected hop for commissioning.

Clicking **Configure Hardware** turns the Flexbus power on and searches for the necessary hardware for commissioning. You are shown the progress of hardware scanning.

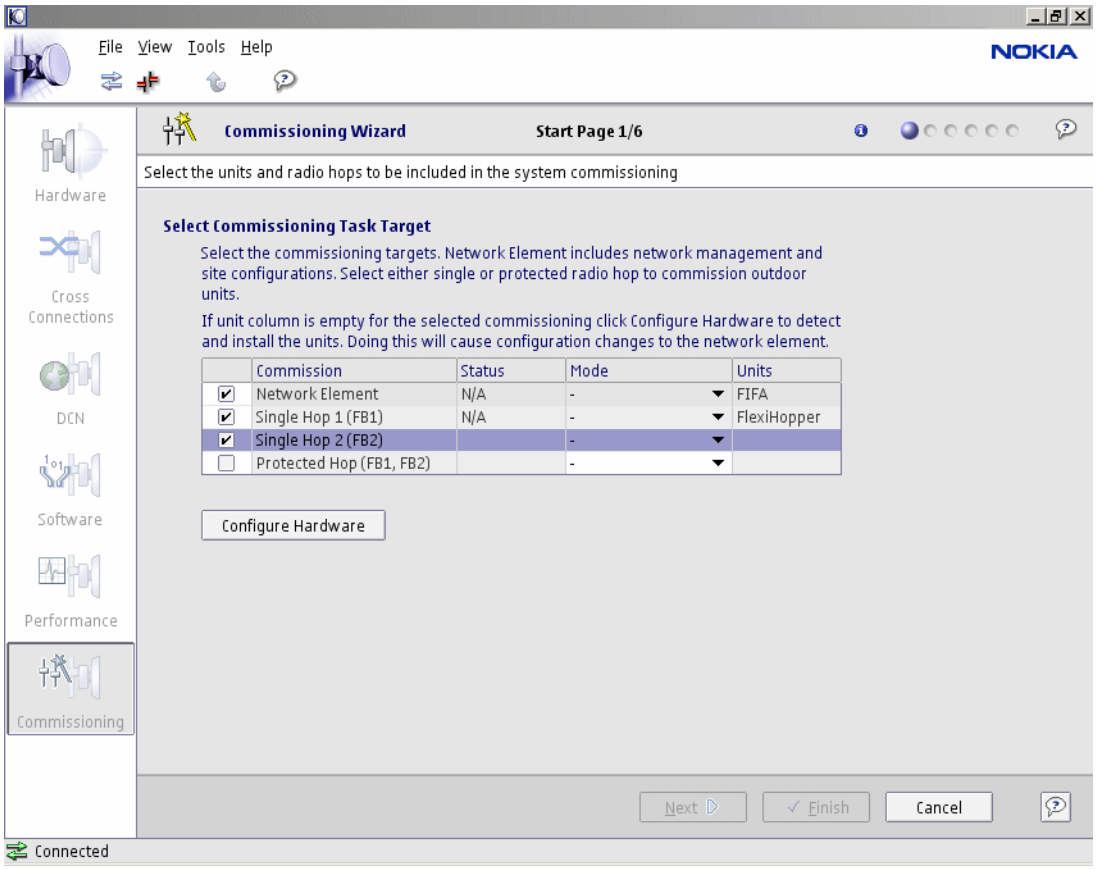

Figure 9. Selecting commissioning targets, the **Units** column indicates Nokia FlexiHopper (Plus) microwave radio connected to FIFA

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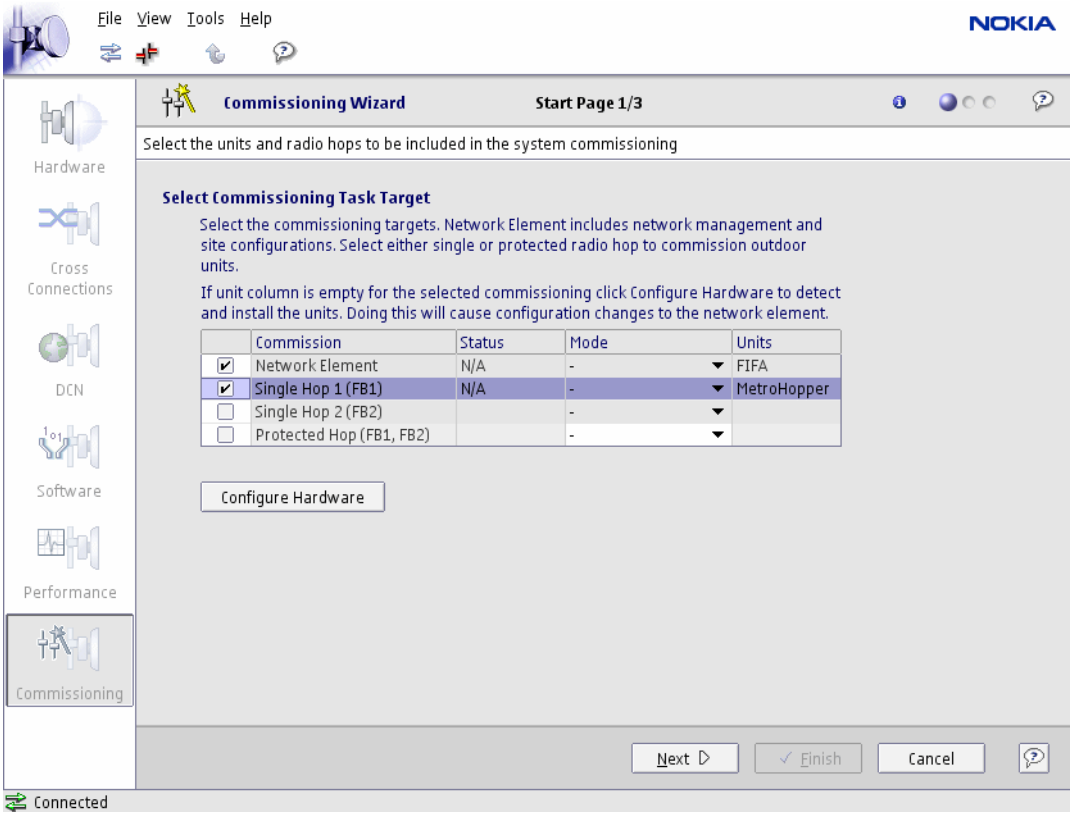

Figure 10. Selecting commissioning targets, Nokia MetroHopper radio connected to FIFA

Expected outcome

Once Nokia FlexiHub Manager finds a unit, its type is shown in the table.

Unexpected outcome

The units are not found. Check the cable connections and start over.

2. **Click Next.**

3. **In case of Nokia FlexiHopper (Plus), if you are converting an existing site from single mode to protected mode, proceed directly to Commissioning a protected hop.**

   Otherwise: Continue commissioning the network element.

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4. Enter the following site information (all fields marked with yellow are mandatory), and click Next:

- Equipment name
- Group name
- Site name
- Site location
- Name of the installer
- Installation date
- Installation time
- Notes

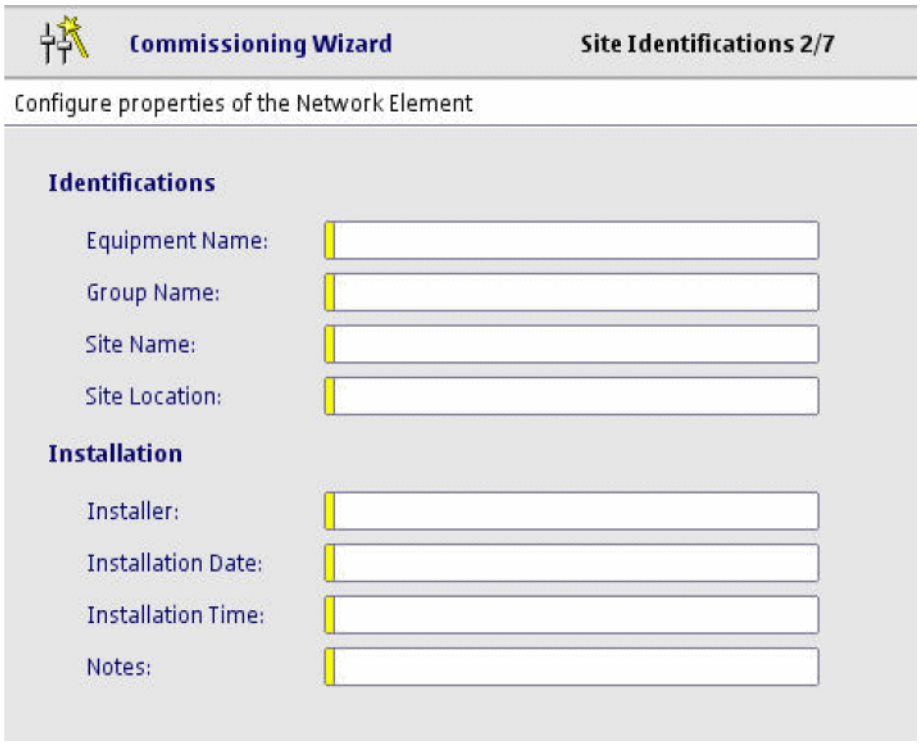

Figure 11. Configuring properties of the network element

5. Fill in Q1 management information for remote network management, and click Next.

Enter the following Q1 management information:

- Q1 port speed
- Q1 address
- Q1 Branching Bridge

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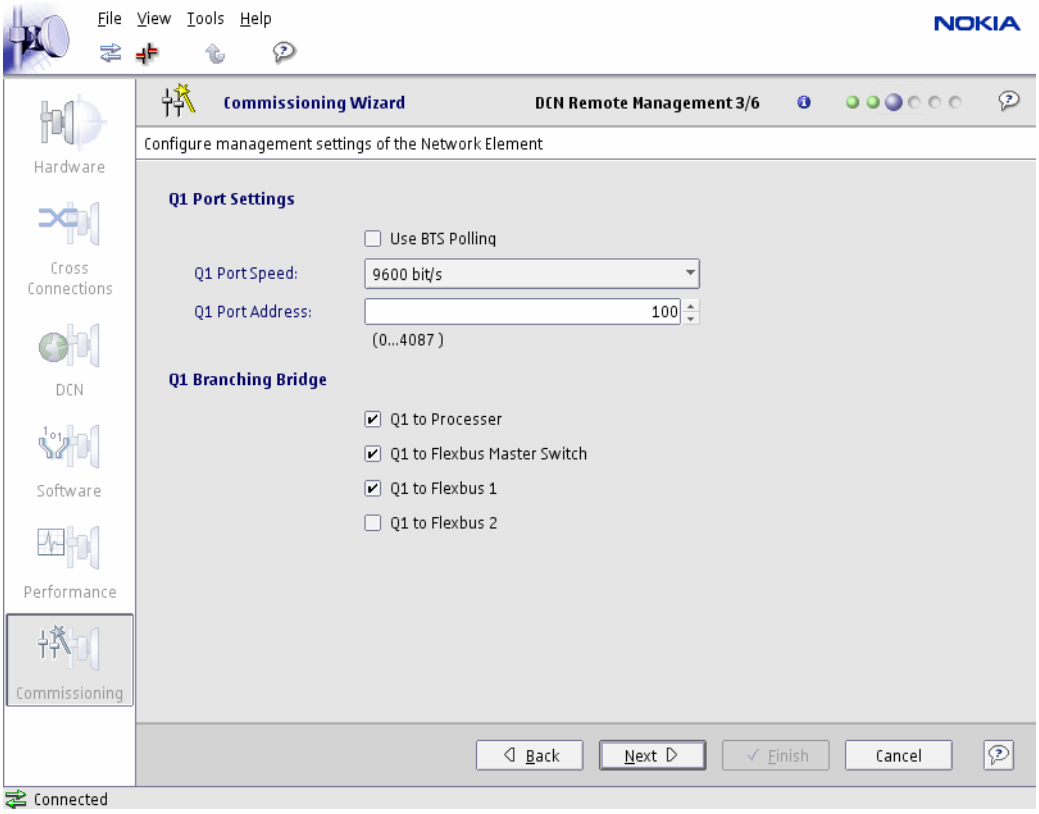

Figure 12. Configuring management settings of the network element

6. Set the real time clock settings, and click Next.

Set the real time clock during commissioning by selecting the **Set Network Element Time from PC Time** check box.

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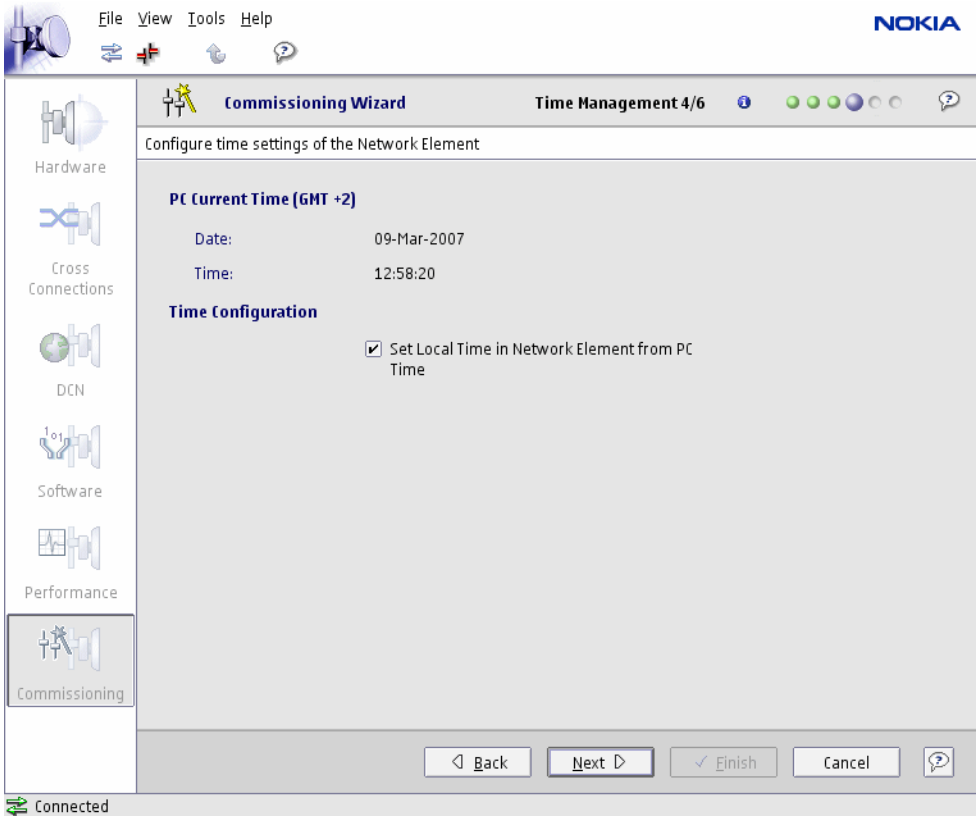

Figure 13. Configuring time settings for the network element

Expected outcome

The network element part of the commissioning wizard has been completed.

7. Continue with commissioning radio hops or proceed to completing the wizard.

- If you are commissioning a single hop, proceed with *Commissioning a single hop for Nokia FlexiHopper* or *Commissioning a single hop for Nokia MetroHopper*.
- If you are commissioning a protected hop, proceed with *Commissioning a protected hop*.
- If you want to complete the wizard, proceed with *Completing the Commissioning Wizard*.

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3.2.4 Commissioning a single hop for Nokia FlexiHopper

Purpose

If you are commissioning a new site, you should commission the network element and either the single hop or the protected hop. Follow the steps in *Commissioning the network element* first and proceed then with either the steps below or with *Commissioning a protected hop*.

Before you start

Follow the instructions given in *Starting the Commissioning Wizard* and *Commissioning the network element*.

Steps

1. Perform the antenna fine alignment.

If you are not going to perform the outdoor unit antenna fine alignment now, continue commissioning by clicking **Next** and skip Step 2.

2. Configure the outdoor unit settings and click Apply.

If you are aligning the near-end antenna, select **Flexbus Capacity**, enter the **TX Frequency** value and click **Apply**. The transmitter power can be off.

If you are aligning the far-end antenna, select **Flexbus Capacity**, enter the **TX Frequency** and **Maximum TX Power** values, select the **TX Power** check box, and click **Apply**.

3. When the antenna alignment is finished, click Next.

The modifications made will take effect immediately when you click **Apply**.

The incoming signal level can be viewed from the **Outdoor unit status** box at the bottom of the window.

If you are going to continue working at the other end of the radio hop, the alignment settings can be made now and the commissioning can be completed when the other end of the hop is also operating. Configure the settings and then cancel the wizard if this is the case.

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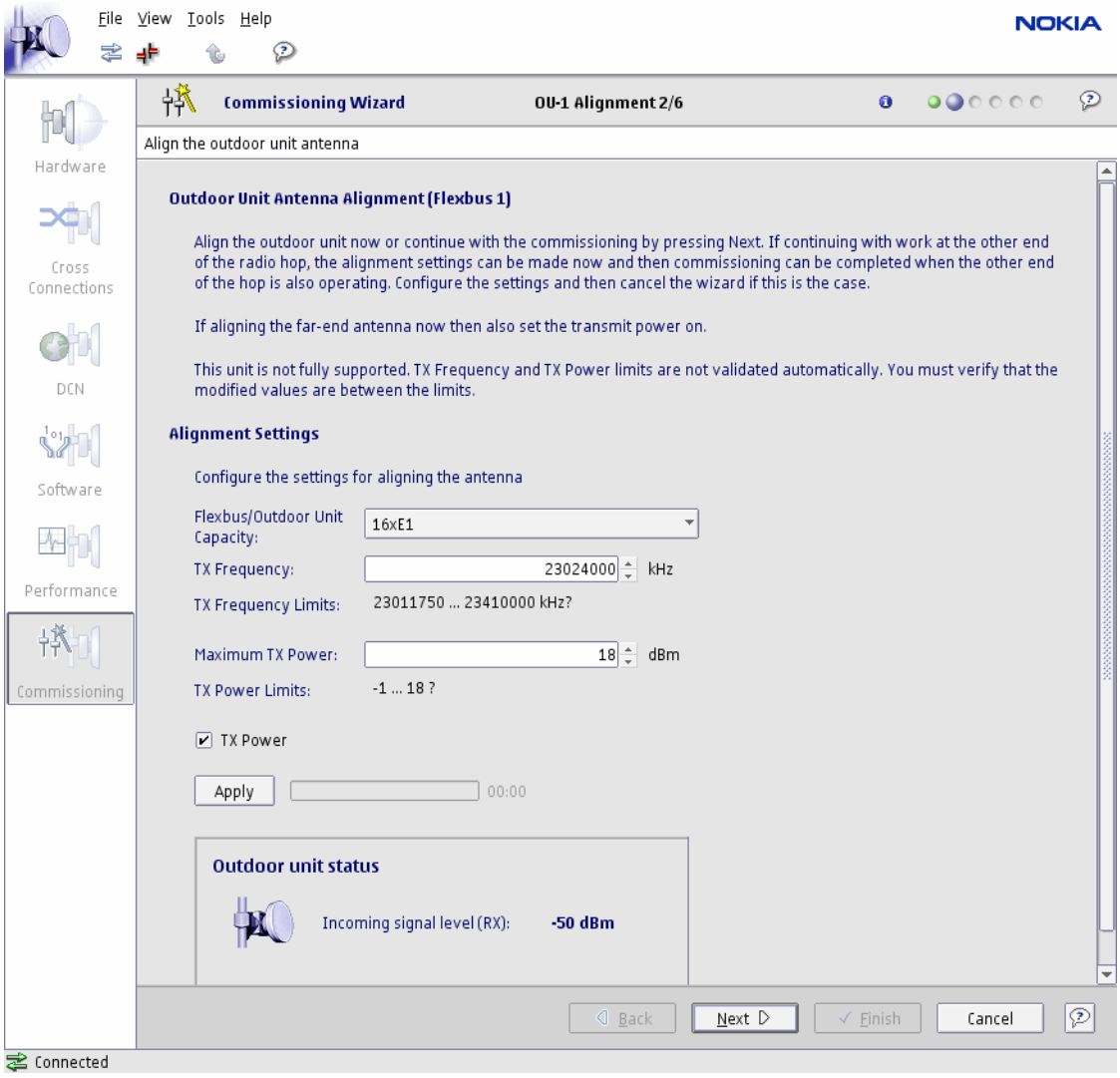

Figure 14. Aligning the outdoor unit antenna with Nokia FlexiHopper (Plus)

4. Enter the radio interface settings and click Next.

Enter the radio interface settings according to the network plan.

Note that **Unit Name**, **Installer** and **Notes** are mandatory fields.

Select whether the transmitter power should be on.

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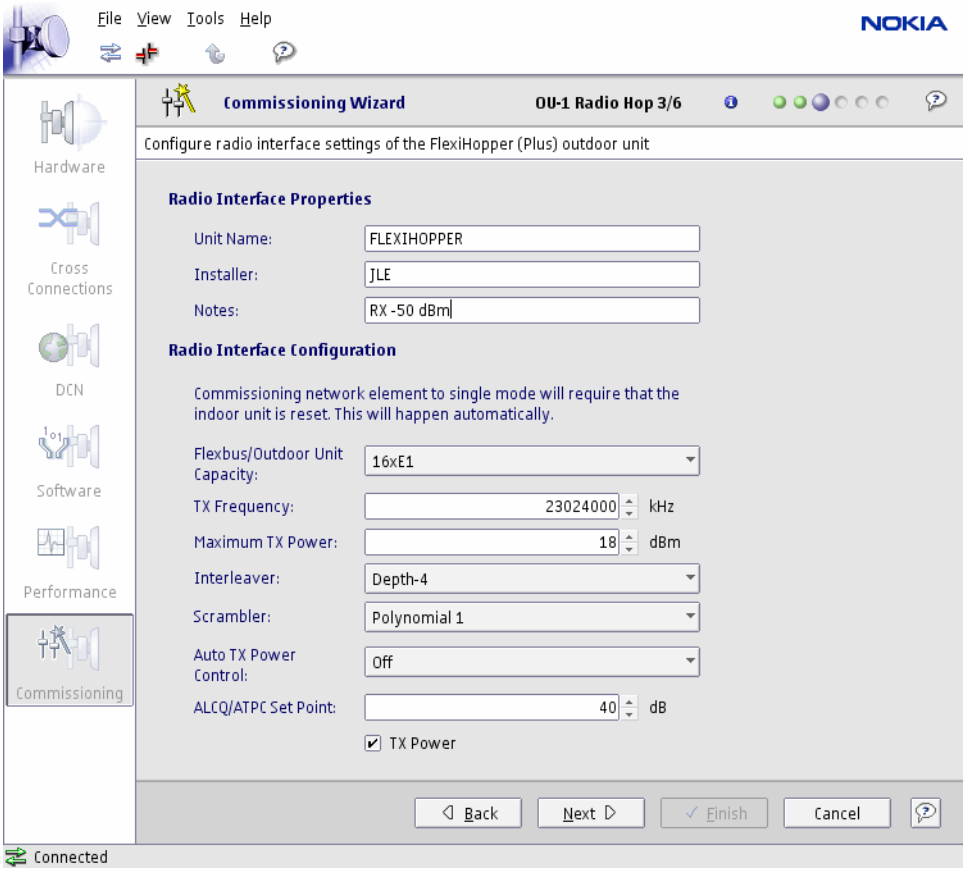

Figure 15. Configuring radio interface settings of the Nokia FlexiHopper (Plus) outdoor unit

Expected outcome

The single hop commissioning part of the Commissioning Wizard has been completed. Click **Next** to continue the wizard.

5. *If* there is a second hop

   Then

   Repeat the steps above.

   Else

   Continue with Completing the Commissioning Wizard.

3.2.5 Commissioning a single hop for Nokia MetroHopper

Purpose

If you are commissioning a new site, you should commission the network element and the single hop. Follow the steps in *Commissioning the network element* first and then proceed with the steps below.

Before you start

Follow the instructions given in *Starting the Commissioning Wizard* and *Commissioning the network element*.

When commissioning Nokia MetroHopper, it is recommended that you commission the Slave radio before the Master.

Note that Nokia MetroHopper does not support protected configuration. For Nokia MetroHopper it is only possible to select the single hop.

Steps

1. Perform the antenna fine alignment.

If you are going to perform the outdoor unit antenna fine alignment using AGC voltage, select the appropriate **Antenna Alignment** option and choose **Commissioning Mode**, then click **Next**.

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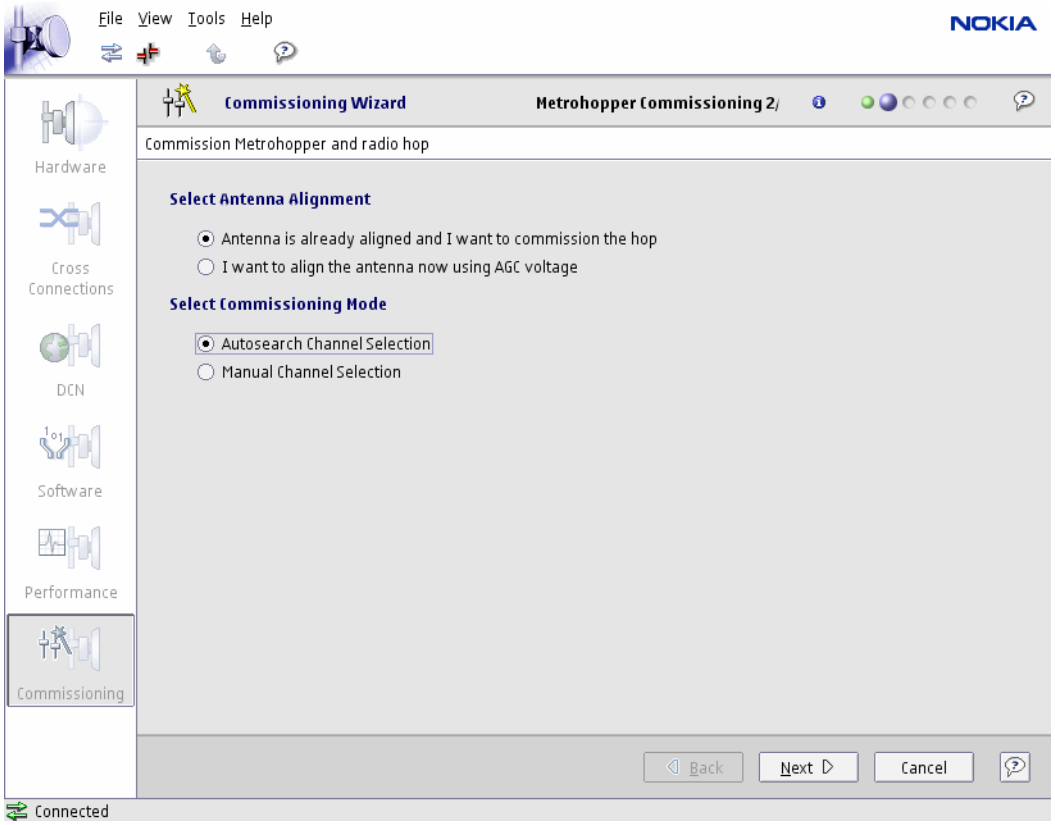

Figure 16. Selecting commissioning mode for Nokia MetroHopper

2. *If* aligning the antenna using AGC voltage

   Then

   Select the required channel spacing and channel number. Choose whether aligning the near-end or far-end antenna. Click Start Alignment.

3. **When the antenna alignment is finished, click Next.**

   The modifications made will take effect immediately when you click **Start Alignment**.

   The incoming signal level can be viewed from the **Outdoor unit status** box at the bottom of the window.

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If you are going to continue working at the other end of the radio hop, the alignment settings can be made now and the commissioning can be completed when the other end of the hop is also operating. Configure the settings and then cancel the wizard if this is the case.

4. Enter the radio interface settings and click Next.

Enter the radio interface settings according to the network plan.

Note that **Unit Name**, **Installer** and **Notes** are mandatory fields.

When commissioning a new hop, the same temporary hop ID must be entered in the **Hop ID** field at both ends of the hop. This will be replaced with a permanent hop ID once the commissioning has been completed.

In manual commissioning, select the channel to be used.

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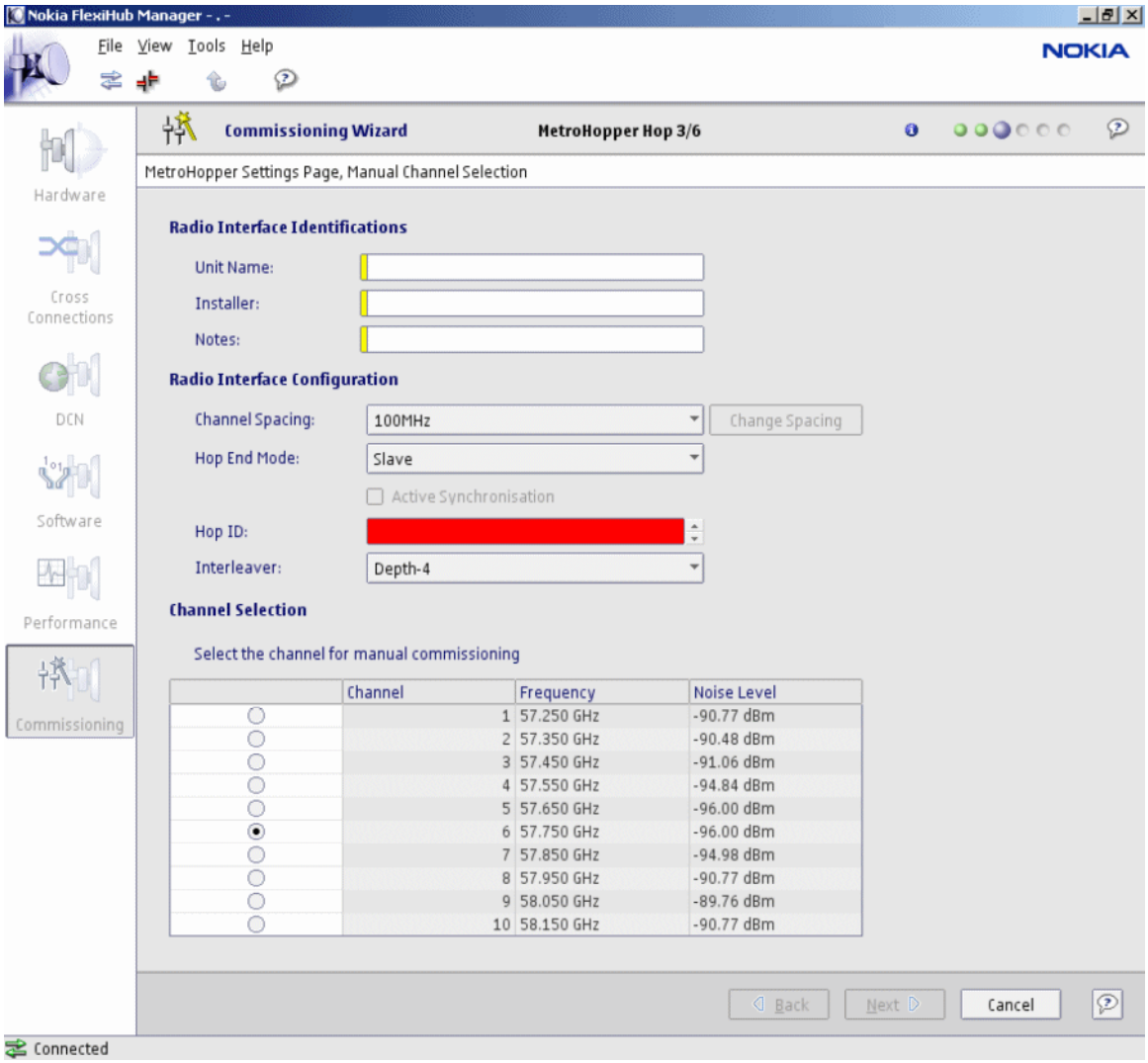

Figure 17. Configuring radio interface settings of the Nokia MetroHopper outdoor unit manually

In autosearch commissioning, select the channels that may be used. The MetroHopper units will choose one of the channels from the list automatically.

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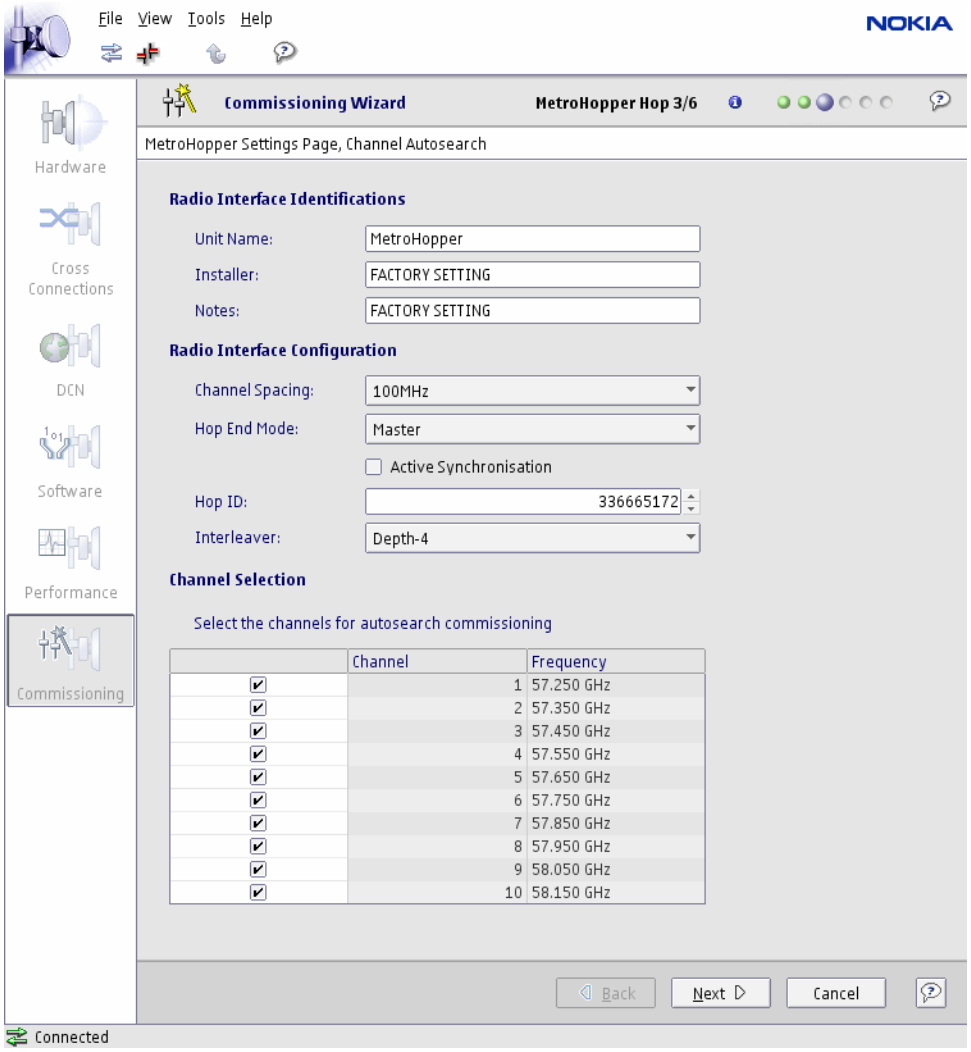

Figure 18. Configuring radio interface settings of the Nokia MetroHopper outdoor unit automatically

Expected outcome

The single hop commissioning part of the Commissioning Wizard has been completed. Click **Next** to continue the wizard.

5. *If* there is a second hop

   Then

   Repeat the steps above.

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Else

Continue with Completing the Commissioning Wizard.

3.2.6 Coarse aligning an integrated 20, 30 or 60 cm antenna

Purpose

The antenna can be coarse aligned (pre-aligned) before the installation of the outdoor unit. Horizontal adjustment is carried out by turning the alignment unit around the pole.

Note that coarse alignment is done only when fine alignment is not sufficient.

The following instructions are for alignment unit which can be used with integrated 20, 30 or 60 cm antennathe parabolic antenna.

Steps

1. **Loosen the vertical adjustment nuts (*V*) to set the vertical adjustment to +25° or -25°.**

   At the factory, the vertical adjustment on the integrated alignment unit is set to the middle position.

2. **Take off the coarse vertical adjustment bolt (*V adj. bolt*).**

3. **Turn the mounting plate +25° or -25° and reinstall the bolt.**

   See figure *Locking nuts of the alignment unit*.

4. **When the antenna is not installed, aim the far-end along the side surface of the main support.**

3.2.7 Fine aligning an integrated 20, 30 or 60cm antenna

Before you start

Fine aligning is done after commissioning Nokia FlexiHopper (Plus)

Align the antenna after the transmit frequency, transmit power, and capacity have been set according to the plan. The outdoor unit at the other end of the hop must be pre-aligned to this station and must be sending a signal on the correct frequency.

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The antenna is aligned on the basis of the monitoring voltage (AGC). The best signal is achieved using the minimum value of AGC.

Summary

The fine horizontal adjustment range is ±15°. The fine vertical adjustment ranges are +45° to 0°, ±25°, or 0° to −45°, depending on the coarse vertical adjustment.

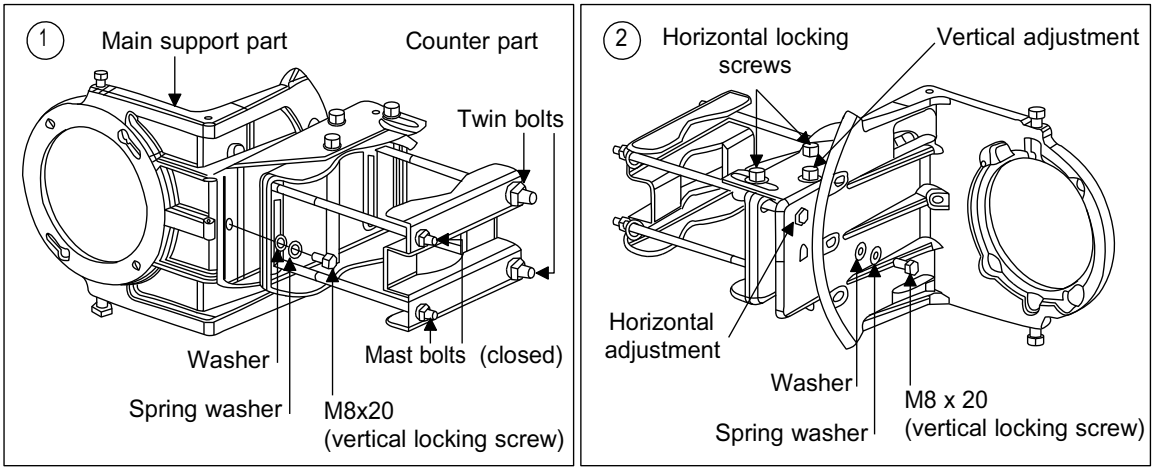

Figure 19. Locking nuts of the alignment unit

The following instructions are for fine aligning an antenna mounted on the integrated alignment unit.

Steps

1. **Connect the DC voltage meter to the monitoring connector (AGC) through an adapter or a cable with a BNC connector (male).**

2. **Turn the vertical and horizontal adjustment screws (13 mm) with a box or fork spanner.**

   See *Installing and mounting an integrated alignment unit*.See *Installing and mounting an integrated alignment unit*. One full turn equals 0.5°.

3. **Find the *minimum* value for the monitoring voltage by vertical and horizontal adjustment of the adjustment screws.**

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4. **When the right alignment has been found, lock the moving parts together and lock the adjustment screws.**

   See the figure above. The torque is 20 Nm.

5. **Check the monitoring meter.**

   Alignment should not move during locking.

6. **Remove the DC voltage meter and the adapter.**

3.2.8 Commissioning a protected hop

Purpose

If you are commissioning a new site, you should commission the network element and either the single hop or the protected hop. Follow the steps in *Commissioning the network element* first and proceed then with either the steps below or with *Commissioning a single hop for Nokia FlexiHopper*.

If you are converting the site from single mode to protected mode, you must follow steps 1 and 2 in *Commissioning the network element* and then proceed with the steps below.

Note that Nokia MetroHopper does not support protected configuration.

FIFA supports four types of protected configurations with Nokia FlexiHopper (Plus): Hot stand-by (HSB), hot stand-by with space diversity, frequency diversity, and polarisation diversity.

Note that when commissioning hot stand-by (HSB) or hot stand-by with space diversity, all radio settings except TX Power will be common to both outdoor units. With frequency diversity protection, however, the TX frequency must be set differently in each outdoor unit. With polarisation diversity protection, the scrambling polynomial must be different in each outdoor unit.

Before you start

Follow the instructions given in *Starting the Commissioning Wizard* and *Commissioning the network element*.

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Steps

1. *If* you are not going to perform the outdoor unit antenna fine alignment now

   Then

   Continue commissioning by clicking Next.

   Else

   Configure the first outdoor unit settings and click Apply.

   If you are aligning the near-end antenna, select **Flexbus Capacity**, enter the **TX Frequency** value and click **Apply**. The transmitter power can be off.

   If you are aligning the far-end antenna, select **Flexbus Capacity**, enter the **TX Frequency** and **Maximum TX Power** values, then select the **TX Power** check box and click **Apply**.

   The modifications made will take effect immediately when you click **Apply**.

   The incoming signal level can be viewed from the **Outdoor unit status** box at the bottom of the window.

   If you are going to continue working at the other end of the radio hop, you can make the alignment settings now, and you can complete commissioning when the other end of the hop is also in operation. If this is the case, configure the settings and then cancel the wizard.

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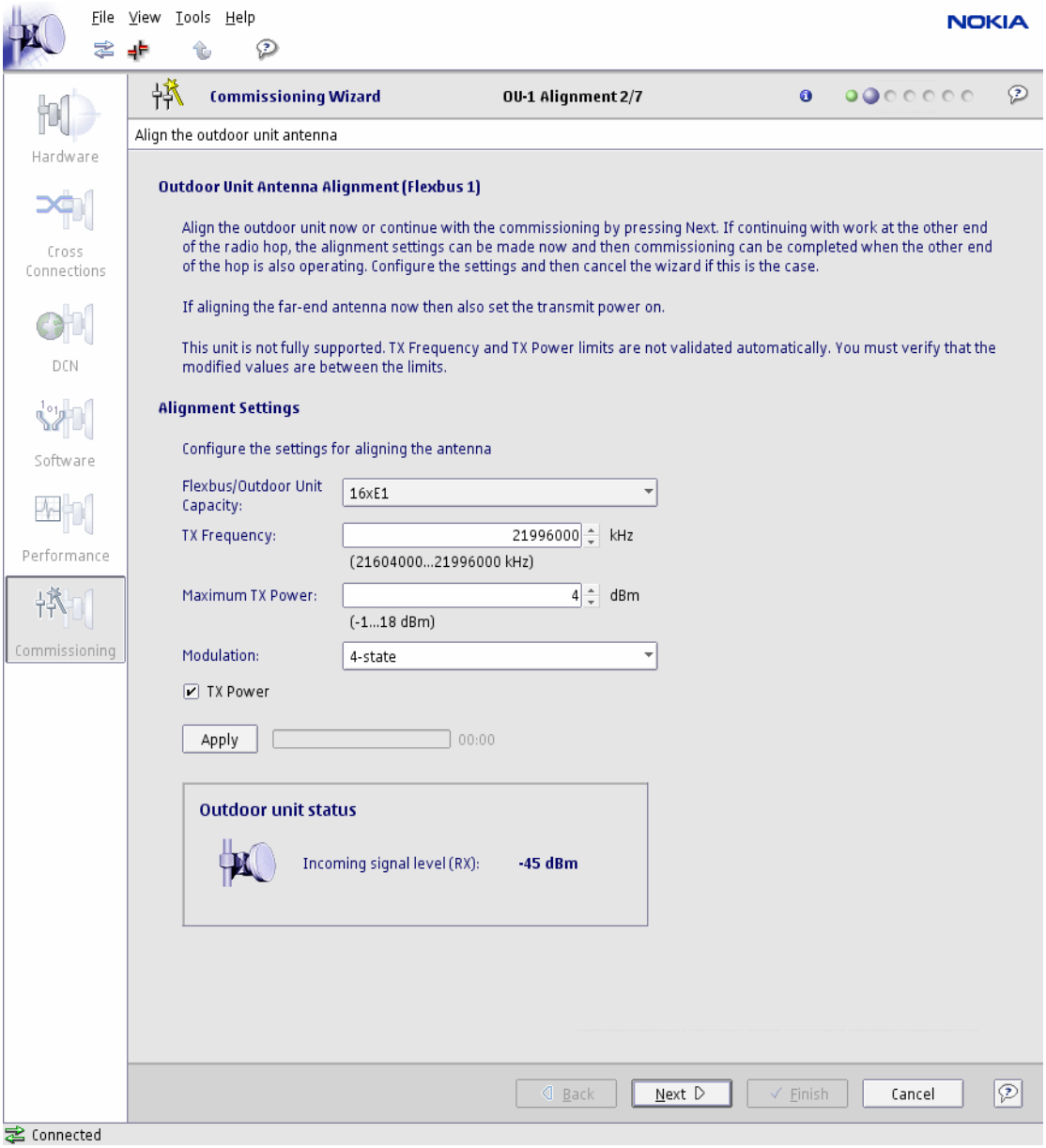

Figure 20. Aligning the first outdoor unit antenna

2. Click Next.

3. Configure the second outdoor unit settings and click Apply.

Repeat the same procedure as you did for the first outdoor unit.

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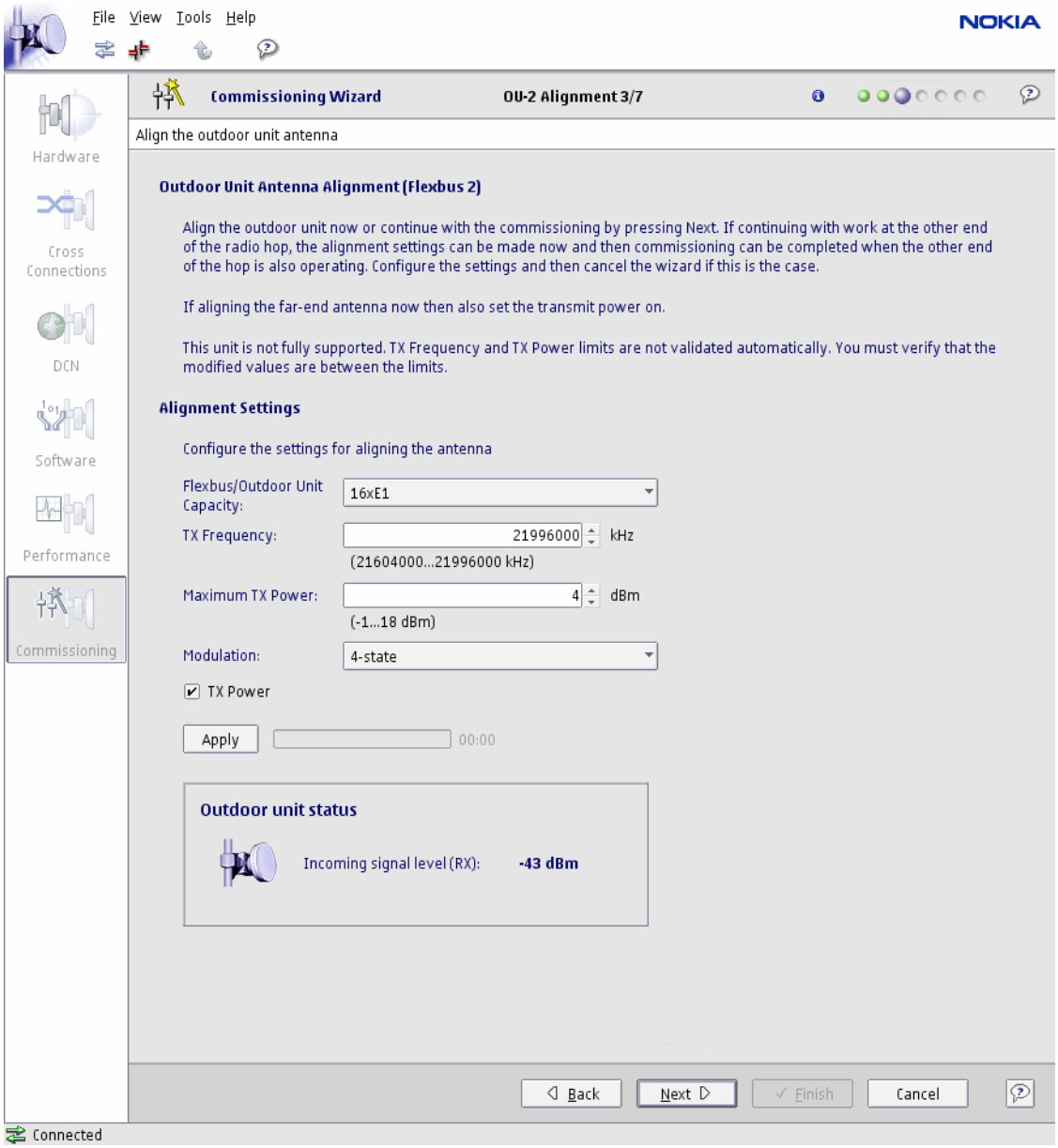

Figure 21. Aligning the second outdoor unit antenna

4. Click Next.

5. Enter the radio interface settings for both outdoor units and click Next.

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Enter the radio interface settings according to the network plan.

Note that **Unit Name**, **Installer** and **Notes** are mandatory fields.

Select whether the transmitter power should be on.

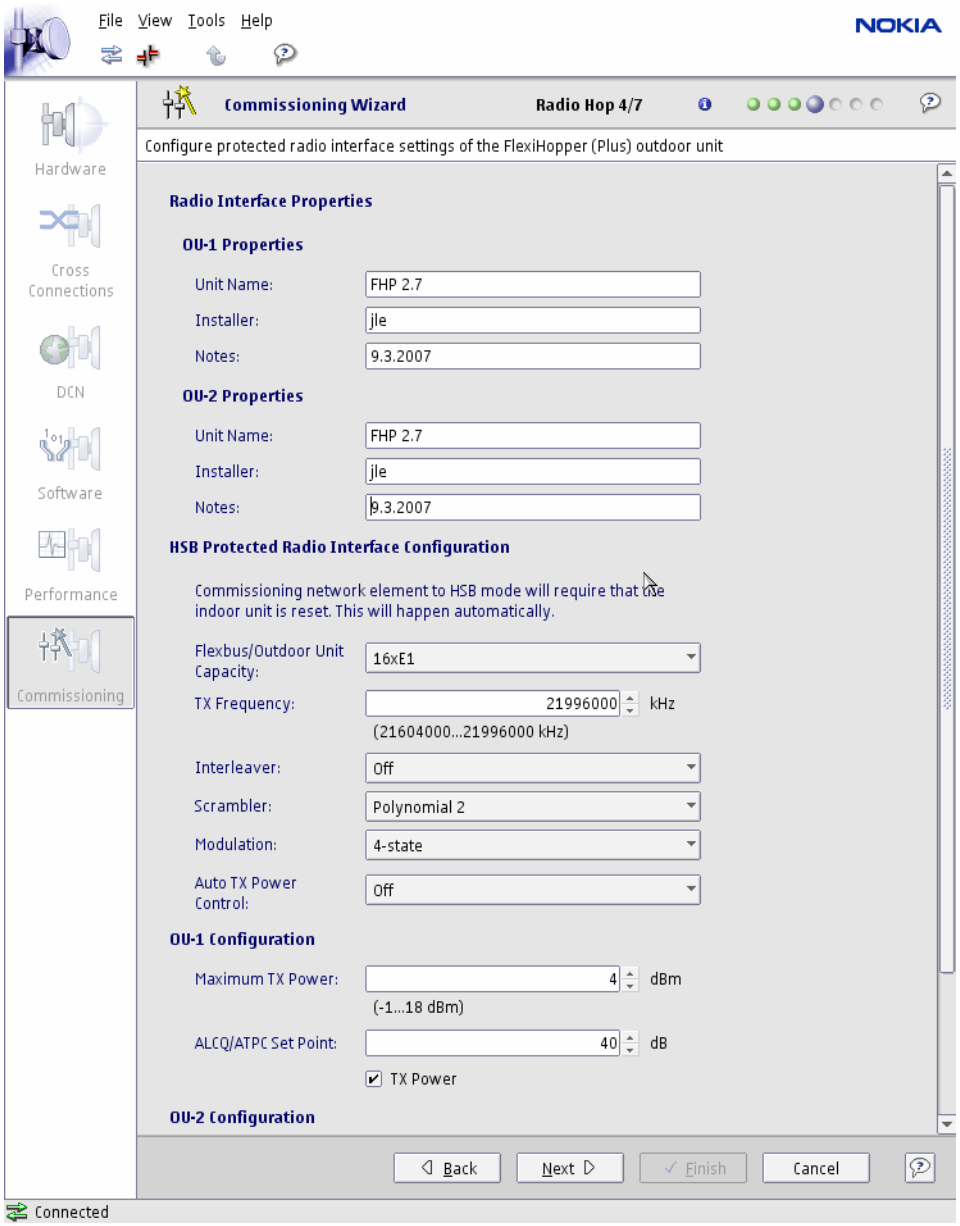

Figure 22. Example of a hot standby radio interface settings

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Expected outcome

The protected hop commissioning part of the Commissioning Wizard has been completed.

3.2.9 Completing the Commissioning Wizard

Purpose

Once you have completed the tasks instructed in *Commissioning the network element* and either *Commissioning a single hop for Nokia FlexiHopper*, *Commissioning a single hop for Nokia MetroHopper*, or *Commissioning a protected hop*, follow the steps below to complete the Commissioning Wizard.

Steps

1. Send the configuration to the node.

In the **Send Parameters** page, check that the settings are correct and click **Send Parameters** to send the settings to the node, then click **Next**.

After you have entered all the required settings, a summary of commissioning settings is displayed. It contains all the settings you have defined for the radio(s).

Verify the values before sending them to the node. If they are not correct, go back in the Wizard using the **Back** button and correct the settings.

You can use the two buttons above the list to expand and collapse all items in the list. You can also use the small arrows in title rows to expand and collapse individual parts of the list.

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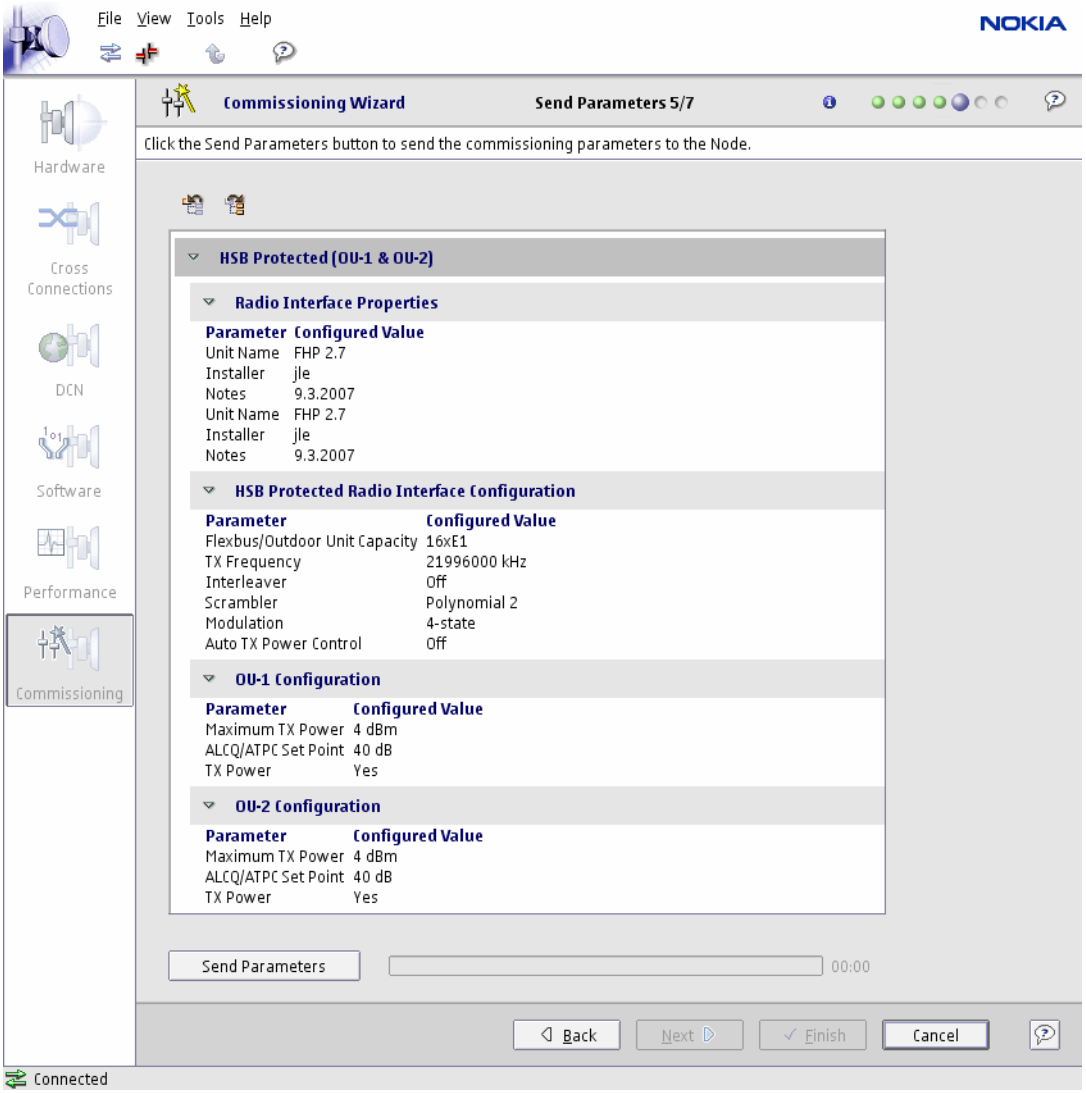

Figure 23. Sending Parameters

2. Check the Hop Status, then click Next to continue.

The page is only shown if you have commissioned a complete radio hop, not just the network element.

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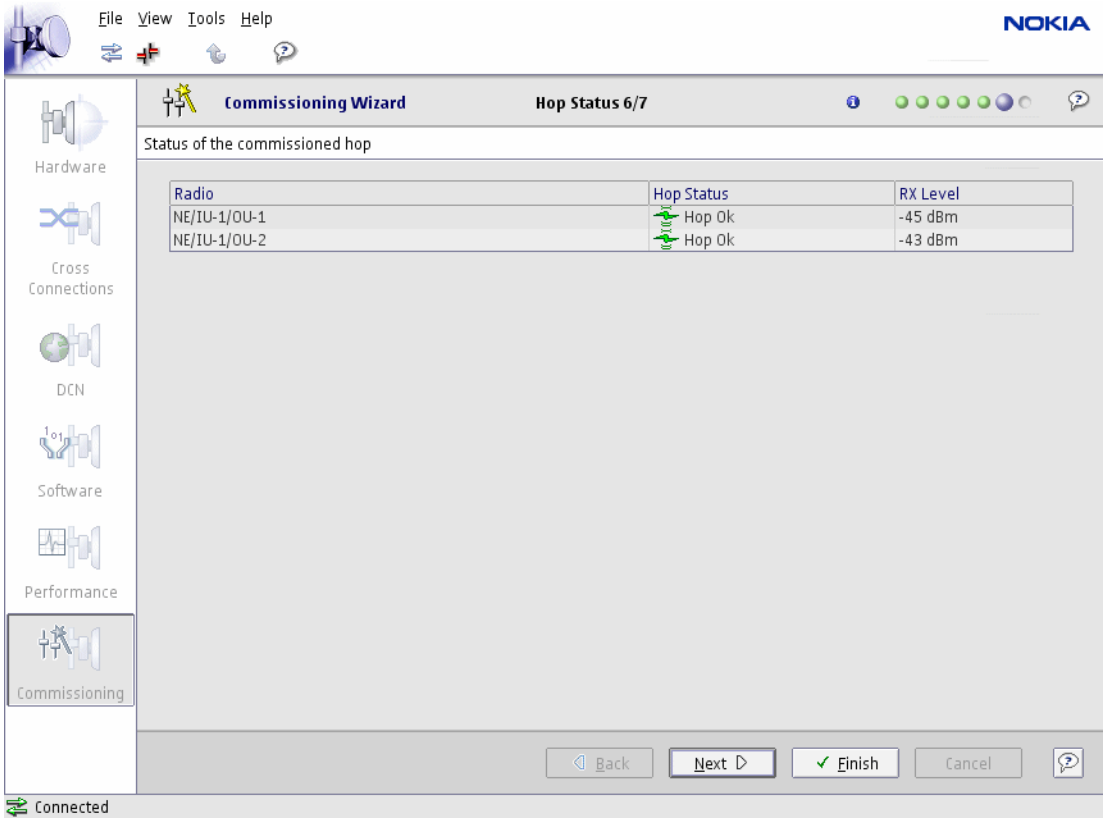

Figure 24. Checking Hop Status

3. Save the final commissioning report to the local drive by clicking Save to file, then click Finish.

You are shown the final commissioning report.

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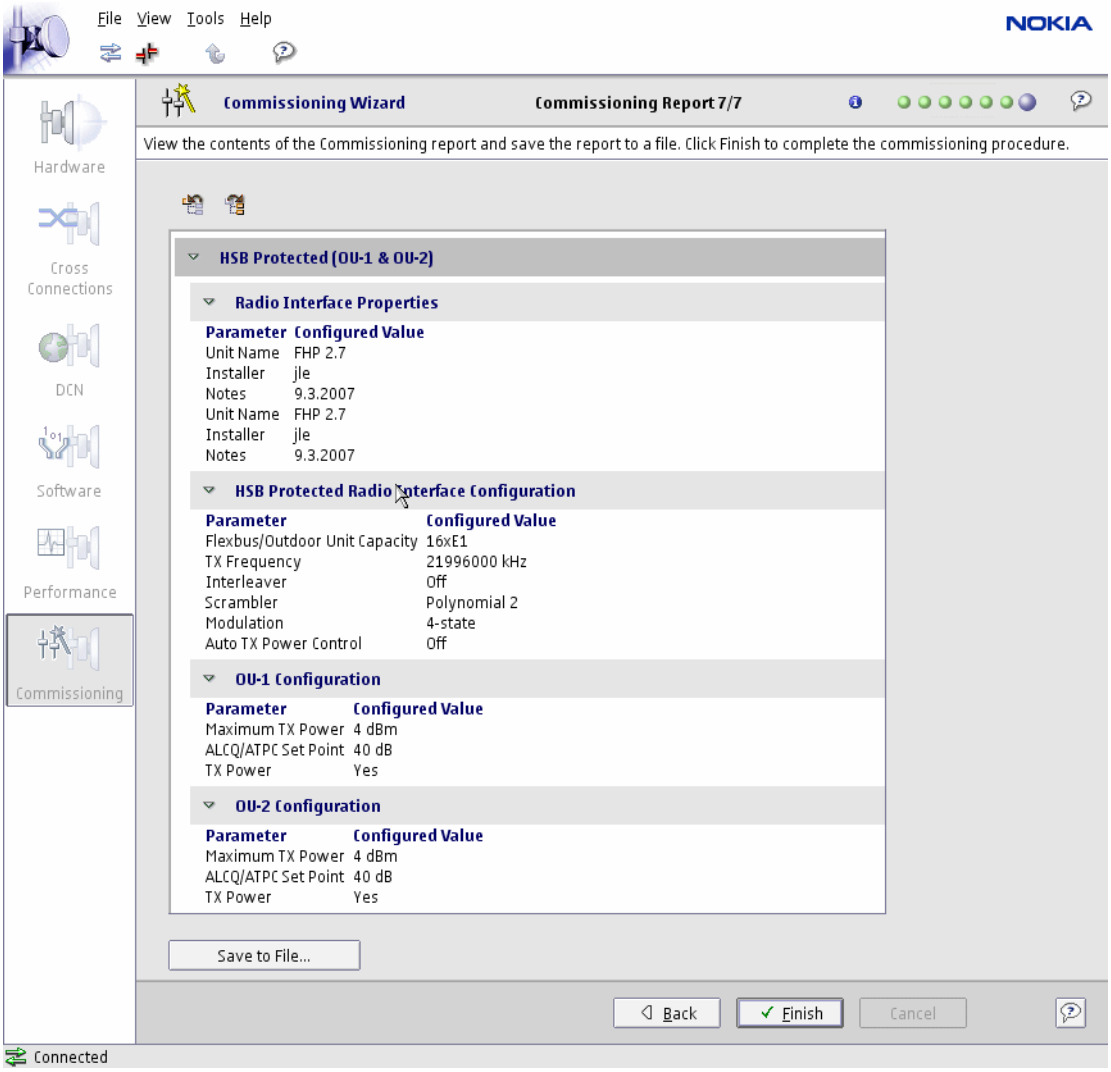

Figure 25. Saving the Commissioning Report

The commissioning report cannot be viewed later unless it has been saved.

Expected outcome

The commissioning report is saved and the Commissioning Wizard is completed.

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4 Commissioning Flexi EDGE BTS

4.1 EasyWizard Template Commissioning

Purpose

Follow these instructions if you are commissioning Nokia Flexi EDGE BTS using predefined EasyWizard hardware and transmission template files.

You need to fill in the fields shown in yellow, otherwise the site cannot be commissioned.

For explanations on what the icons on the navigation tree mean, see *Nokia Flexi EDGE BTS Manager Online Help*.

Note

UltraSite EasyWizard files are not compatible with the Flexi EDGE EasyWizard files.

Before you start

You need to have the parameter values available that need to be entered during commissioning. The parameter values are provided by the network planning process.

Steps

1. **Select the Commissioning → Wizard menu item or click the Commissioning button on the View Bar.**

   The **Commissioning** task selection page opens.

2. **Select the Commission from EasyWizard template file option.**

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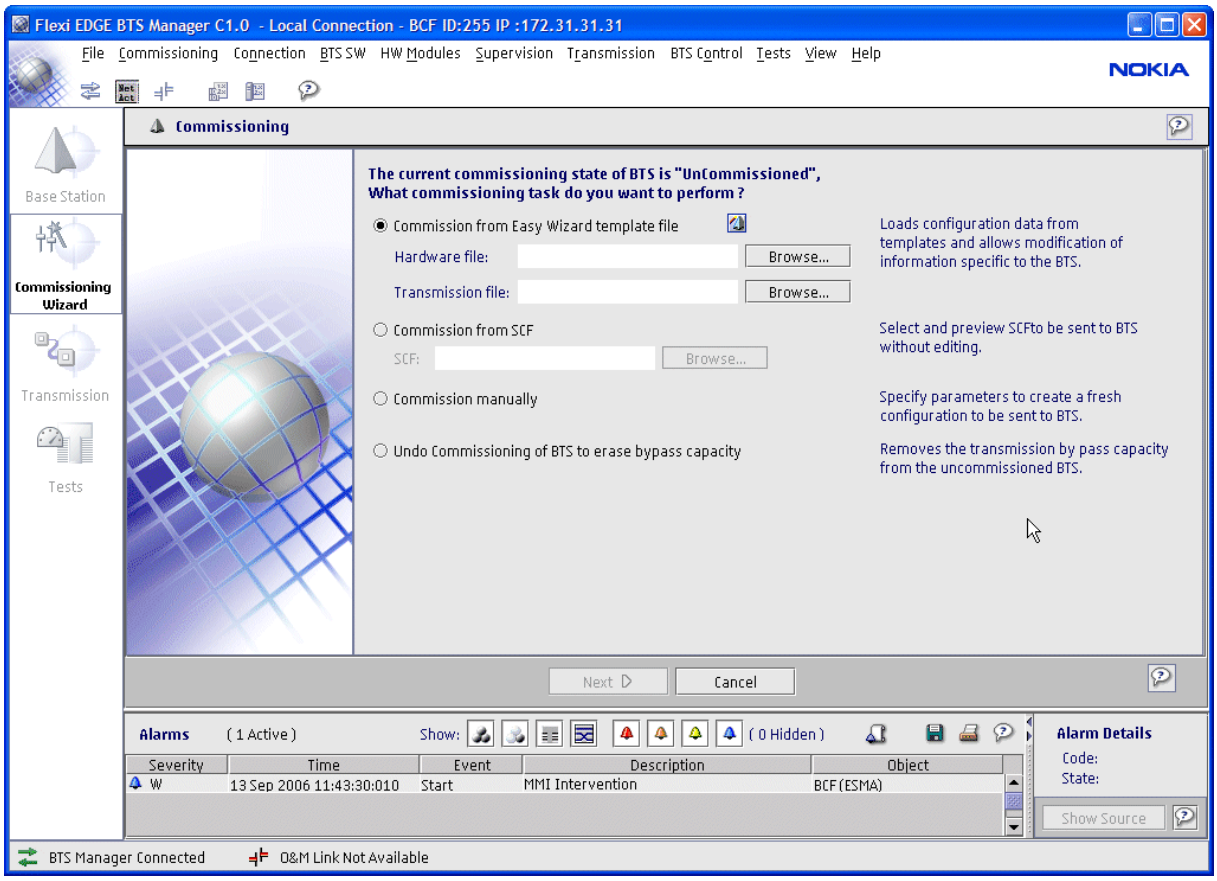

Figure 26. Commissioning task selection page

3. Select the Hardware file.

Browse for the hardware template file by selecting the **Browse** option.

4. Select the Transmission file.

Browse for the transmission template file by selecting the **Browse** option.

When the file is opened, all the fields in the wizard pages will be filled in automatically according to the parameters in the file.

5. Click Next to continue.

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6. **Enter the site-specific parameters.**
   - Site details:
     - BCF ID
     - Site name
     - Site location
     - Climate control profile
     - Installation details (who and when)
     - Notes
   - Antenna settings (may also be part of the template)
   - Battery backup settings (may also be part of the template)
   - Passive unit information

7. **Click Next to continue.**

   The **Site Commissioning File (SCF)** preview opens.

8. **Click Send SCF.**

Further information

Next, go to section *Viewing the commissioning progress and the commissioning result*.

4.2 EasyWizard Complete SCF Commissioning

Purpose

Follow these instructions if you are commissioning Nokia Flexi EDGE BTS with a complete Site Commissioning File (SCF).

For explanations on what the icons on the navigation tree mean, see *Nokia Flexi EDGE BTS Manager Online Help*.

Before you start

You need to have the specific SCF for that site available. The SCF is provided by the network planning process.

Steps

1. **Select the Commissioning → Wizard menu item or click the Commissioning button on the View Bar.**

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The **Commissioning** task selection page opens.

2. **Select the Commission from SCF option.**

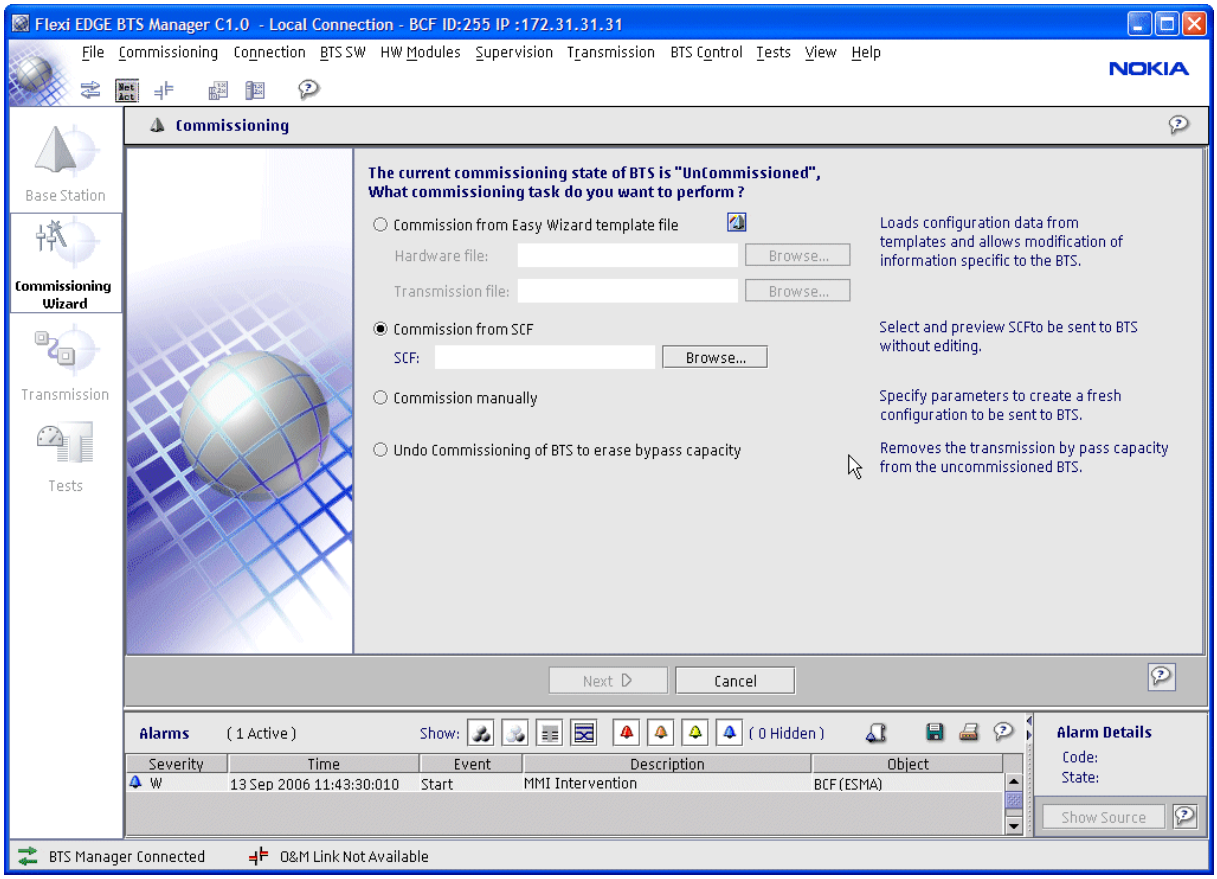

Figure 27. Commissioning task selection page

3. **Select the SCF file.**

Browse for the SCF file by selecting the **Browse** option.

All of the commissioning parameters are loaded from the SCF. There are no changes that you can make before sending it to the BTS.

4. **Click Next to continue.**

The **Site Commissioning File (SCF)** preview opens.

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5. **Click Send SCF.**

Further information

Next, go to section *Viewing the commissioning progress and the commissioning result*.

4.3 Manual Commissioning

Purpose

Follow these instructions if you are commissioning Nokia Flexi EDGE BTS manually.

You need to fill in the fields shown in yellow, otherwise the site cannot be commissioned.

To get more information on any of the commissioning pages, you can select the Help icon on that page.

For explanations on what the icons on the navigation tree mean, see *Nokia Flexi EDGE BTS Manager Online Help*.

Before you start

You need to have the parameter values available that need to be entered during commissioning. The parameter values are provided by the network planning process.

Note

At the moment the Commissioning wizard supports English alphabet only.

Steps

1. **Select the Commissioning → Wizard menu item or click the Commissioning button on the View Bar.**

   The **Commissioning** task selection page opens.

2. **Select the Commission manually option.**

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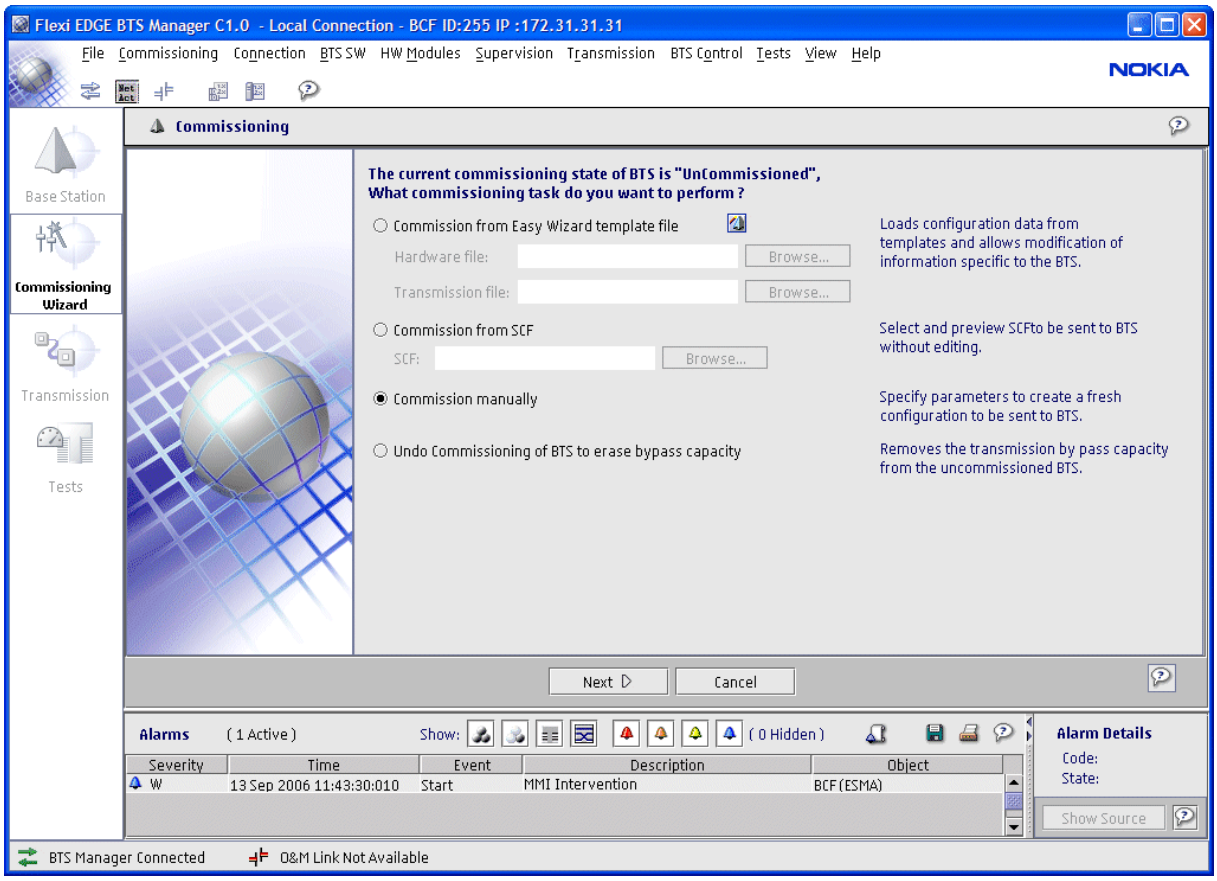

Figure 28. Commissioning task selection

3. Click Next to continue.

The **Site Specific Information** page opens.

4. Enter the site-specific parameters.

- BCF ID
- Site name
- Site location
- Climate control profile
- Installation details (who and when)
- Notes

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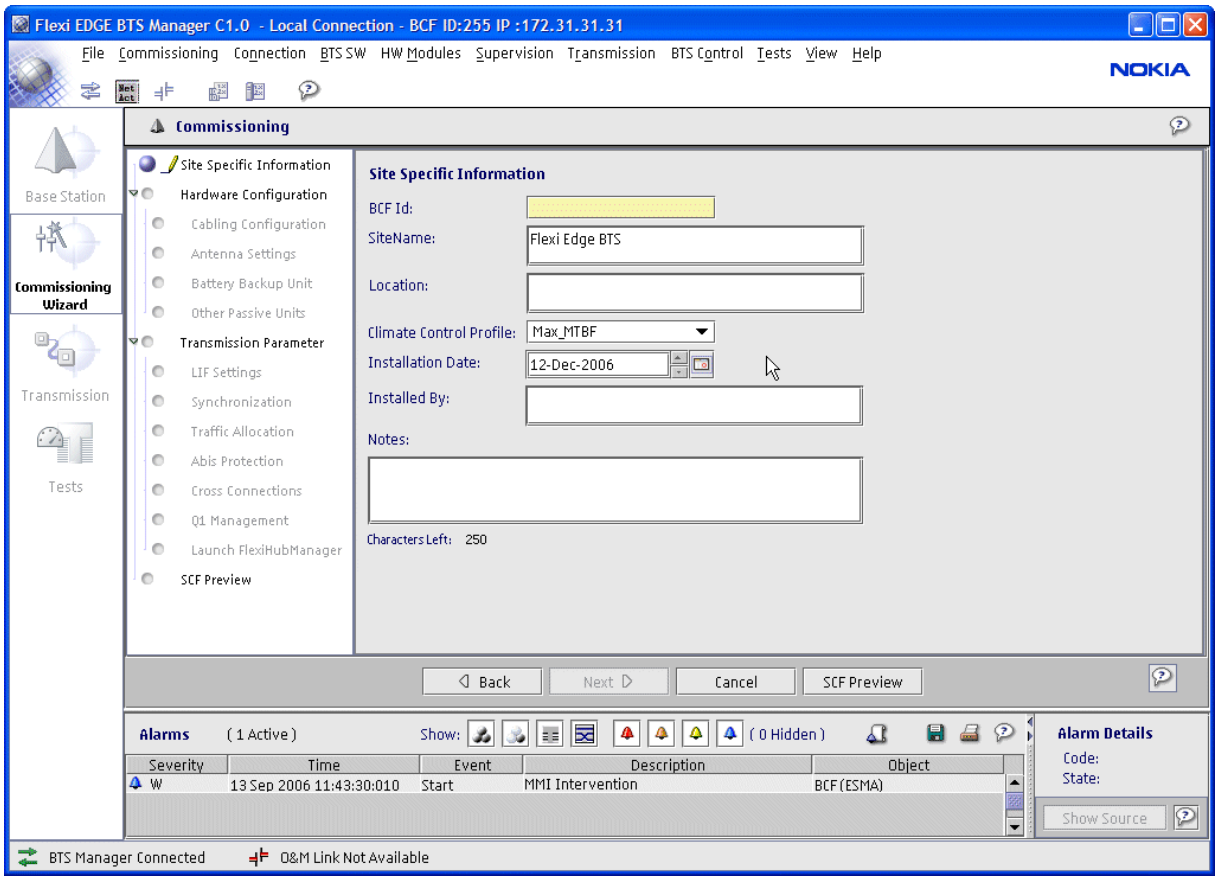

Figure 29. Site Specific Information

5. Click Next to continue.

The **Hardware Configuration** page opens.

6. Select one of the following options: Specify manually or Specify from file.

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- To specify hardware configuration settings based on an existing SCF, select **Specify from file**, then select **Browse**.
- To specify hardware configuration settings based on a configuration predefined by Nokia, select **Specify from file**, and click the folder icon.

  This will show the configuration picker from which you can select the configuration you want. You can filter the configurations shown according to the number of sectors, the carriers per sector and/or the combining method.

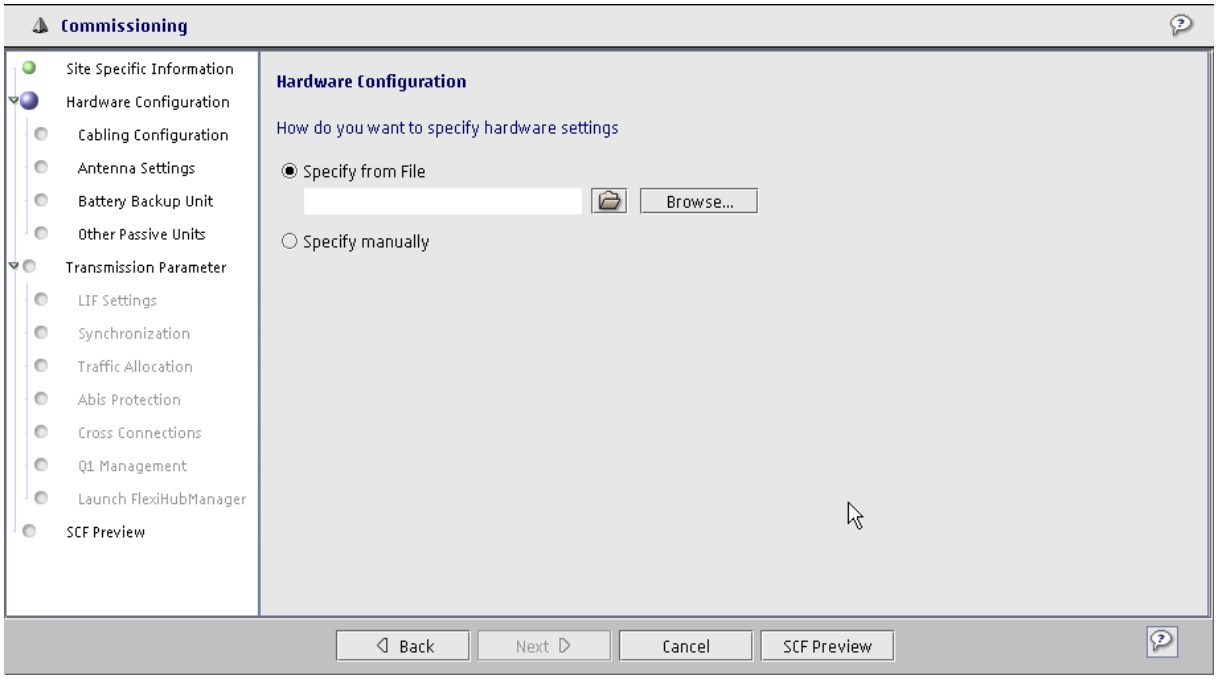

Figure 30. Hardware configuration settings

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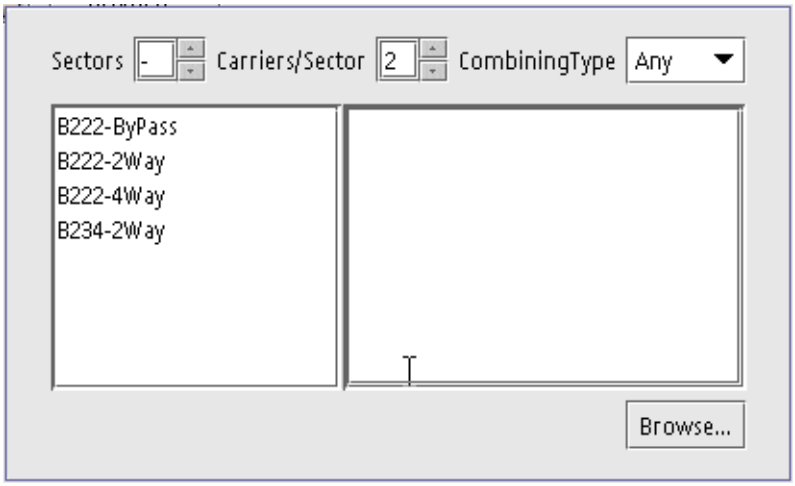

Figure 31. Hardware configuration settings - specify from a predefined configuration

- To specify hardware configuration from the start, select **Specify manually**.

7. Click Next to continue.

The **Cabling Configuration** page with tabs opens.

8. Enter the cabling configuration parameters.

The cabling screen displays the current cabling configuration. You can modify the values specified on each tab to meet your requirements:

- **Antenna Cabling**: provide antenna cabling information for each antenna.

  In the **Antenna Settings** page (step 10) you can configure only those antennas that have cables specified in the **Antenna Cabling** table.

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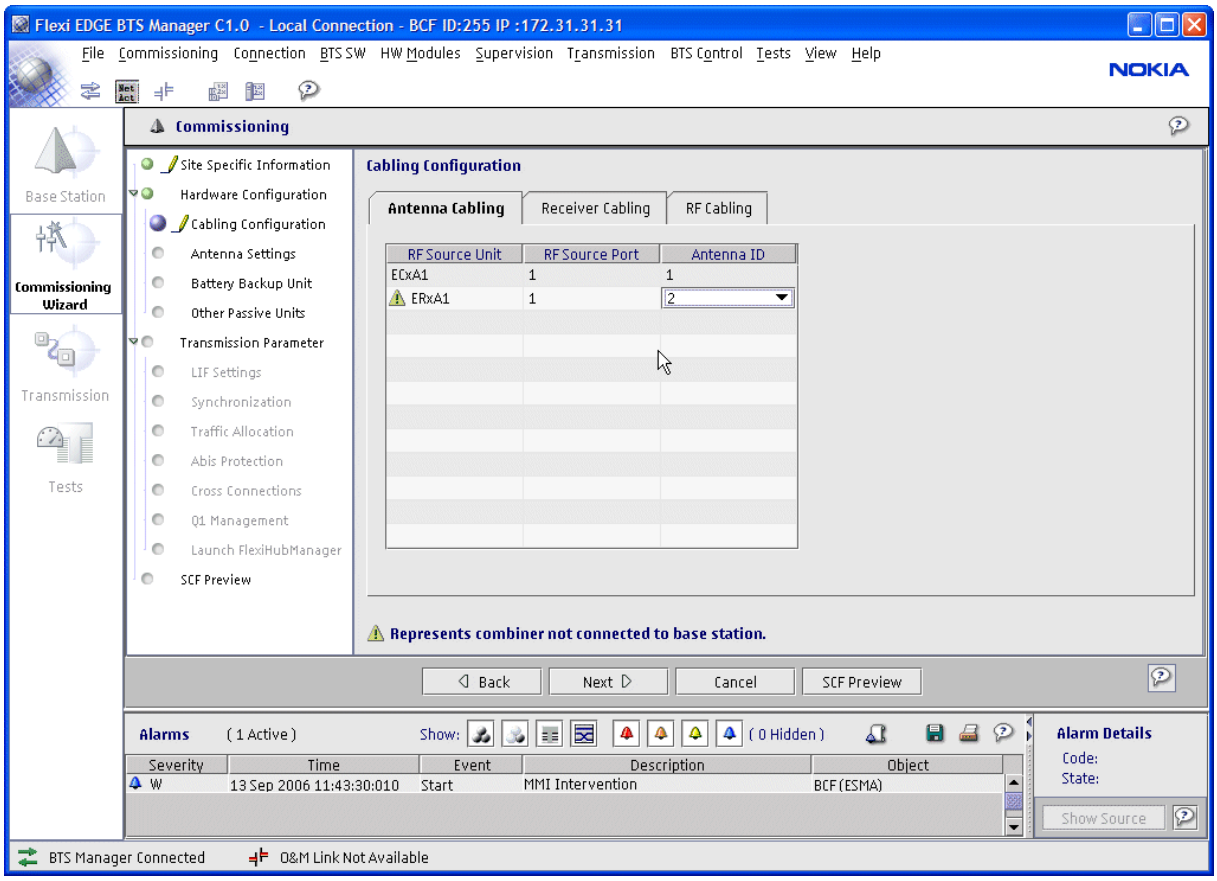

Figure 32. Cabling configuration - Antenna Cabling

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- **Receiver Cabling**: information for providing connections between receivers

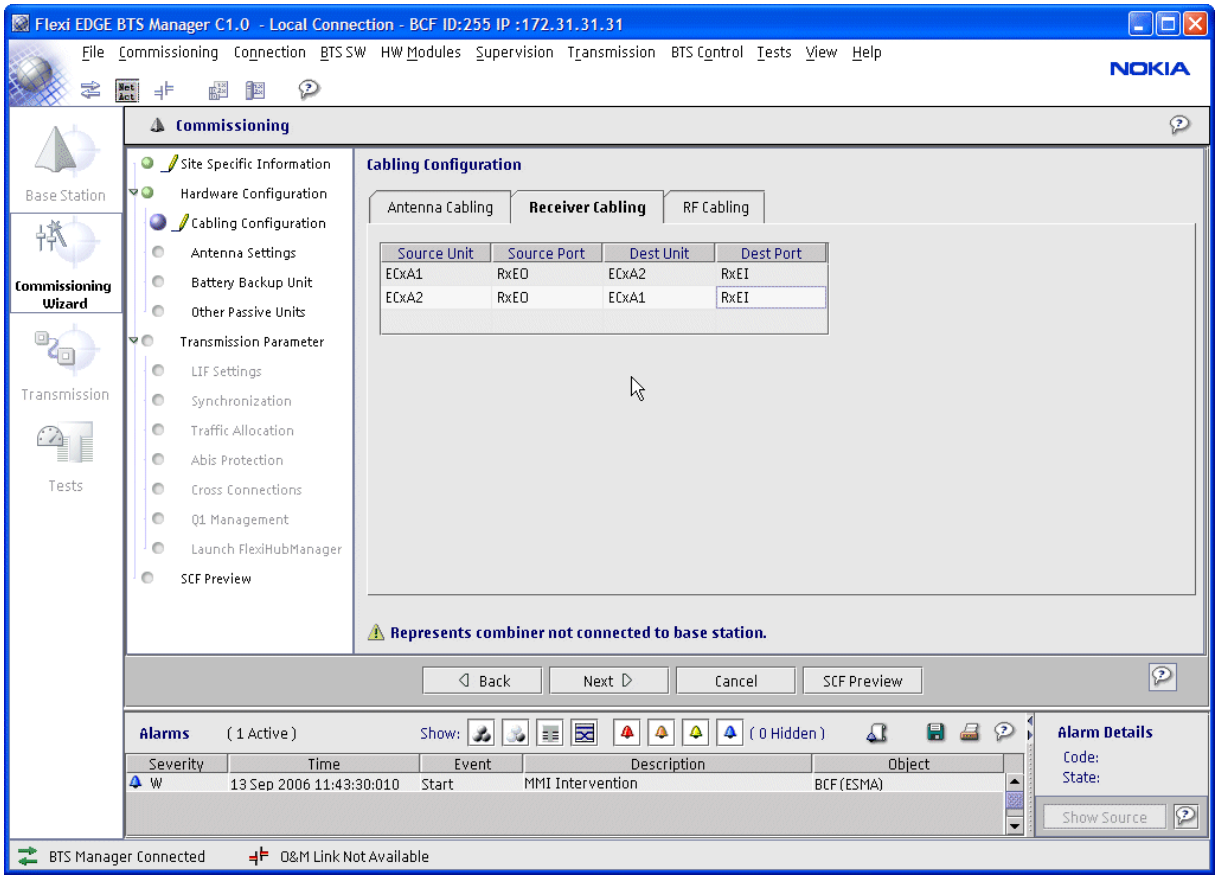

Figure 33. Cabling configuration - Receiver Cabling

- **Manual RF Cabling**: You need to select **Specify cabling manually** to enter RF cabling information. Selecting manual cabling turns off automatic cabling detection, and you must then specify *all* RF cables. If wrong RF cabling is defined manually, configuration might not work or alarm handling could work incorrectly as BTS O&M does not check RF-cabling when manually defined. If the HW Configuration supports automatic RF cabling detection, it is not necessary to manually specify the cables. For detailed information on the configurations, see *RF auto-detection supported configurations*.

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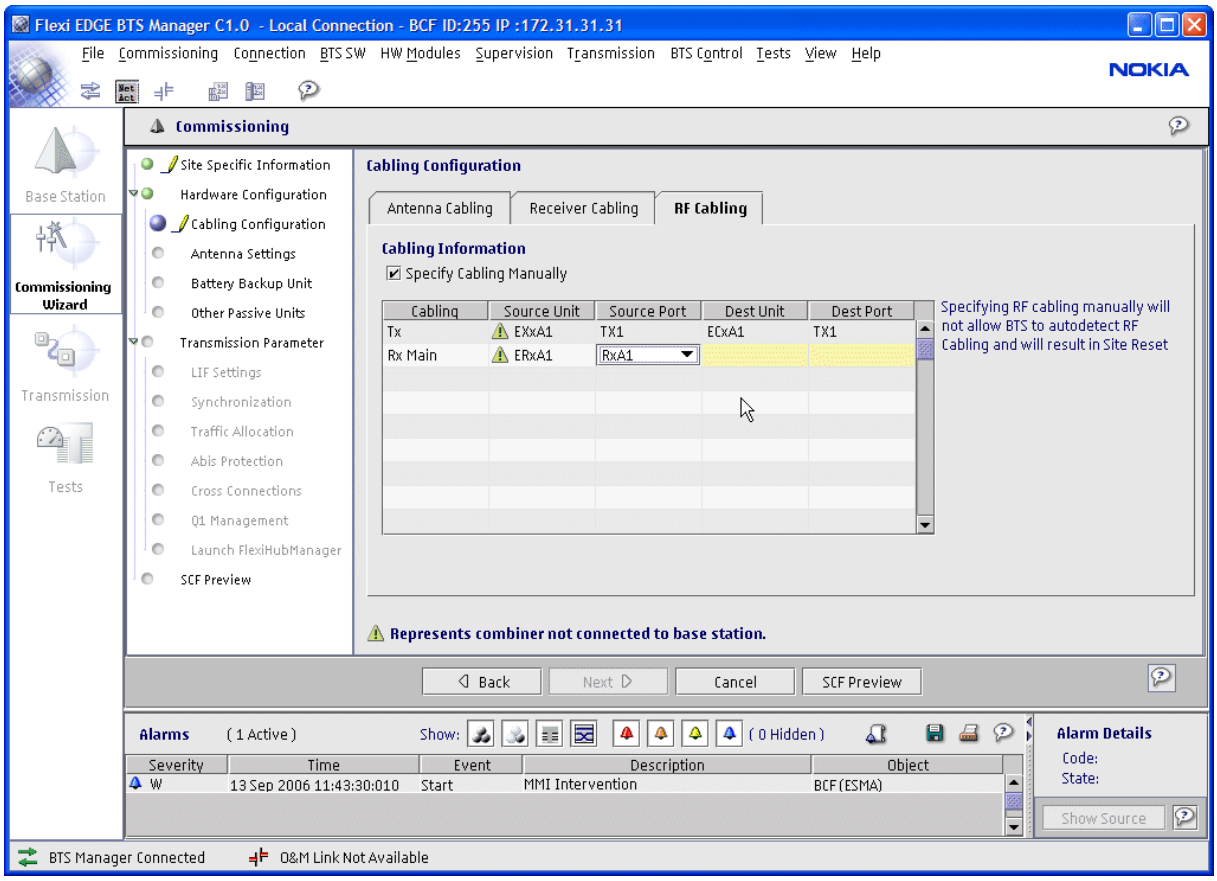

Figure 34. Cabling configuration - RF Cabling

9. Click Next to continue.

The **Antenna Settings** page opens.

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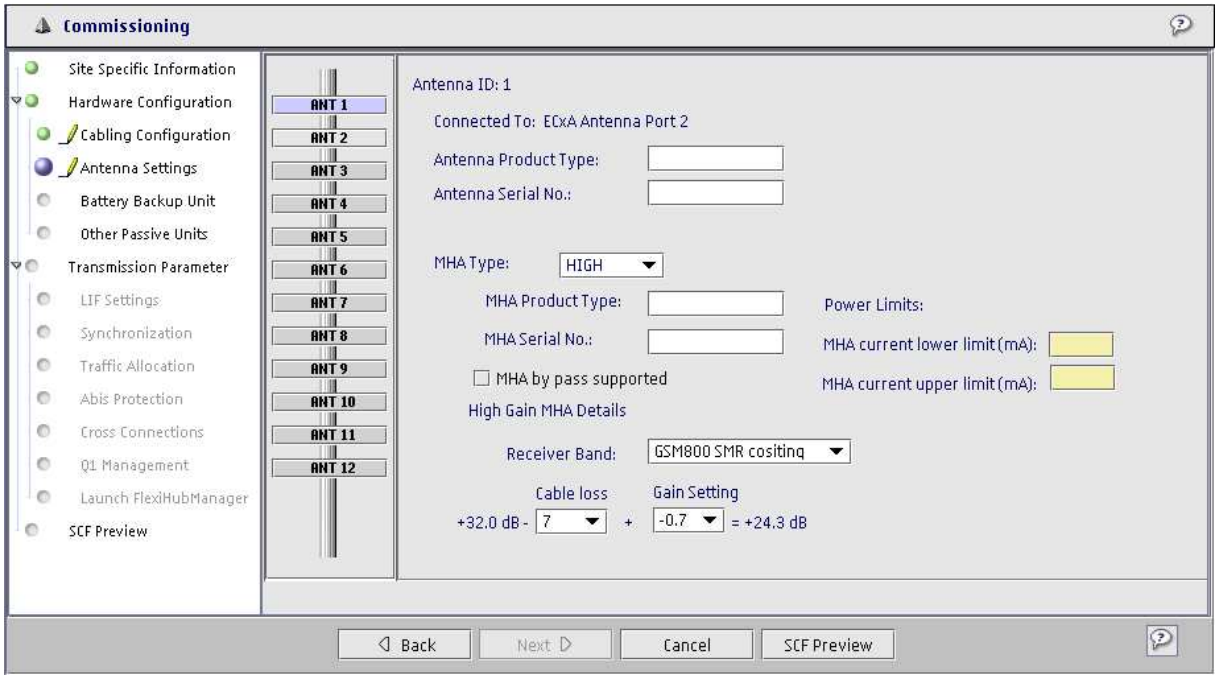

Figure 35. Antenna settings

10. Enter the antenna setting parameters.

You need to enter the antenna settings for each antenna present in the configuration. Select each antenna on the antenna graphic in turn, and enter the settings for that antenna until all antennas are configured.

MHA settings are disabled unless an MHA type is selected (see the figure below).

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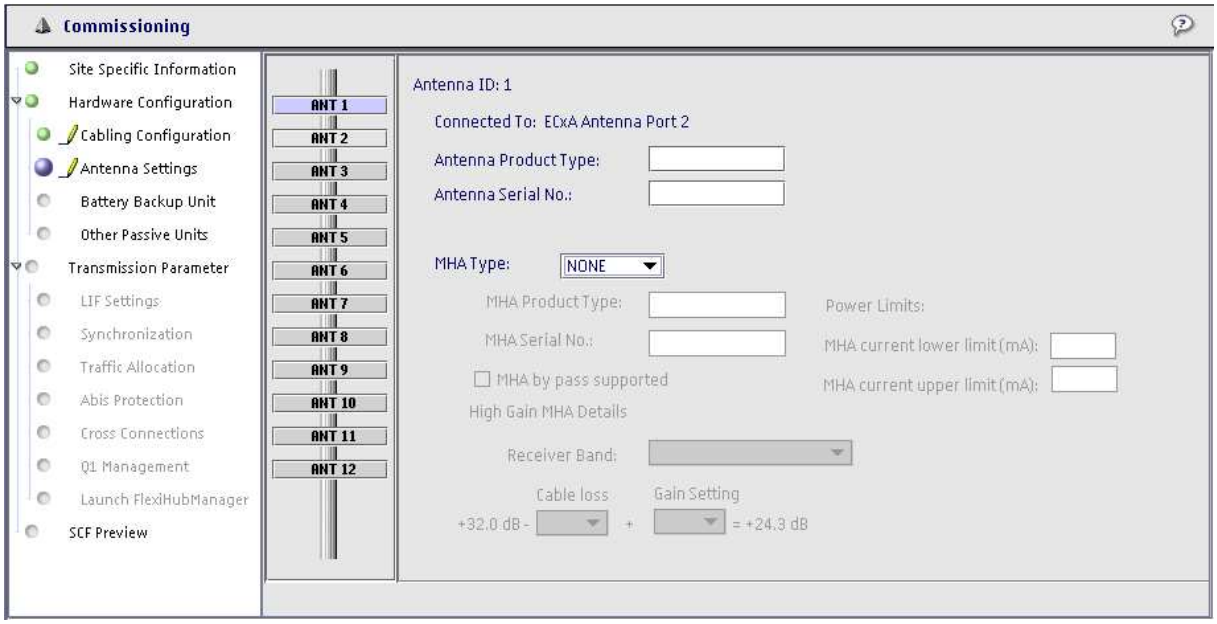

Figure 36. Antenna settings - MHA type not selected

Low Gain MHA settings are disabled unless a Low Gain MHA type is selected (see the figure below).

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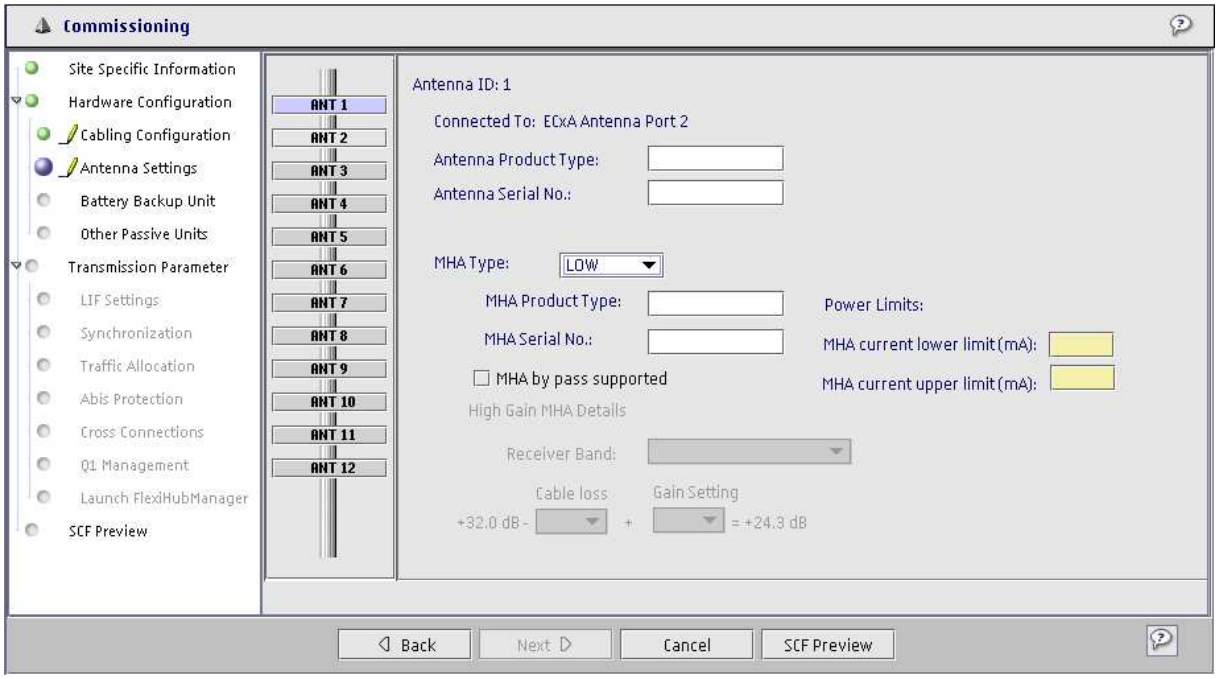

Figure 37. Antenna settings - Low Gain MHA

11. Click Next to continue.

The **Battery Backup Unit** page opens.

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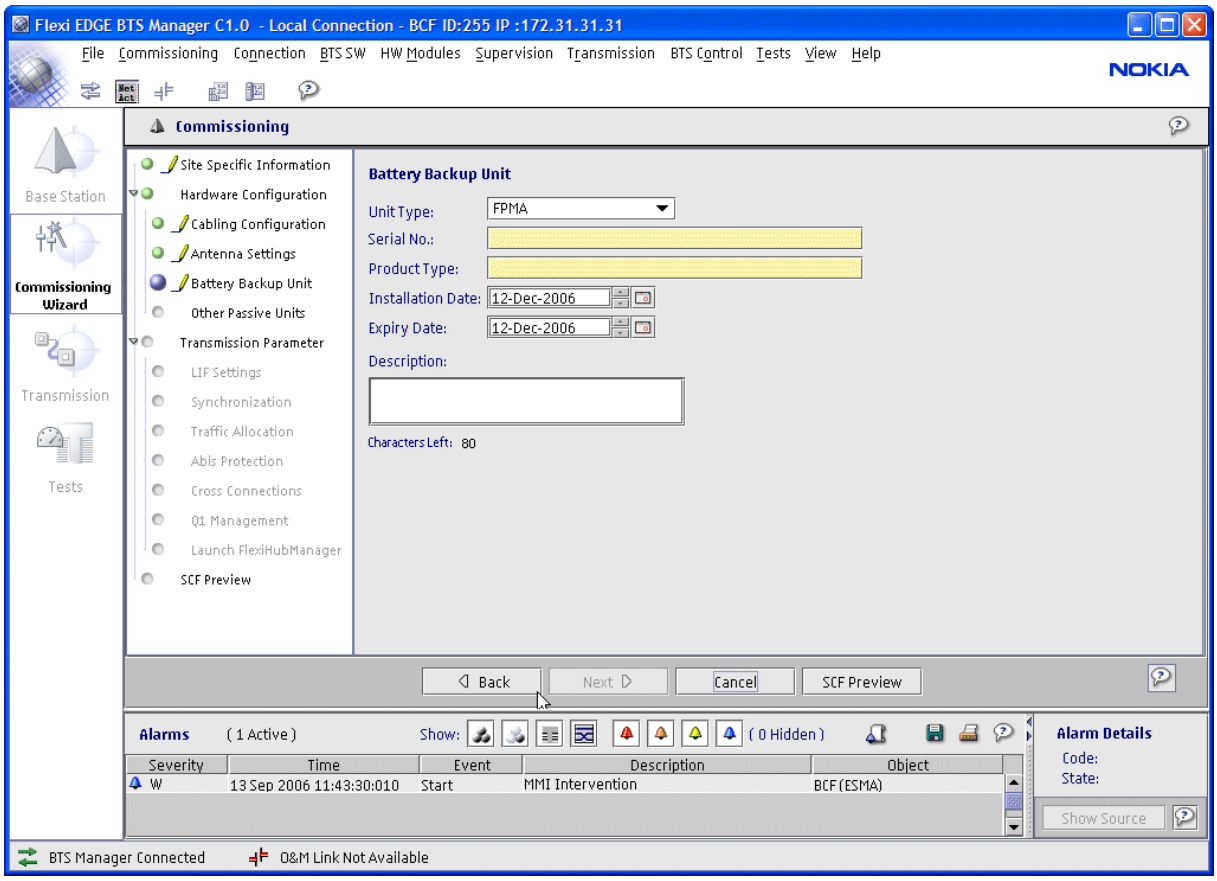

Figure 38. Battery backup unit

12. Enter the battery backup unit parameters.

13. Click Next to continue.

The **Other Passive Units** page opens.

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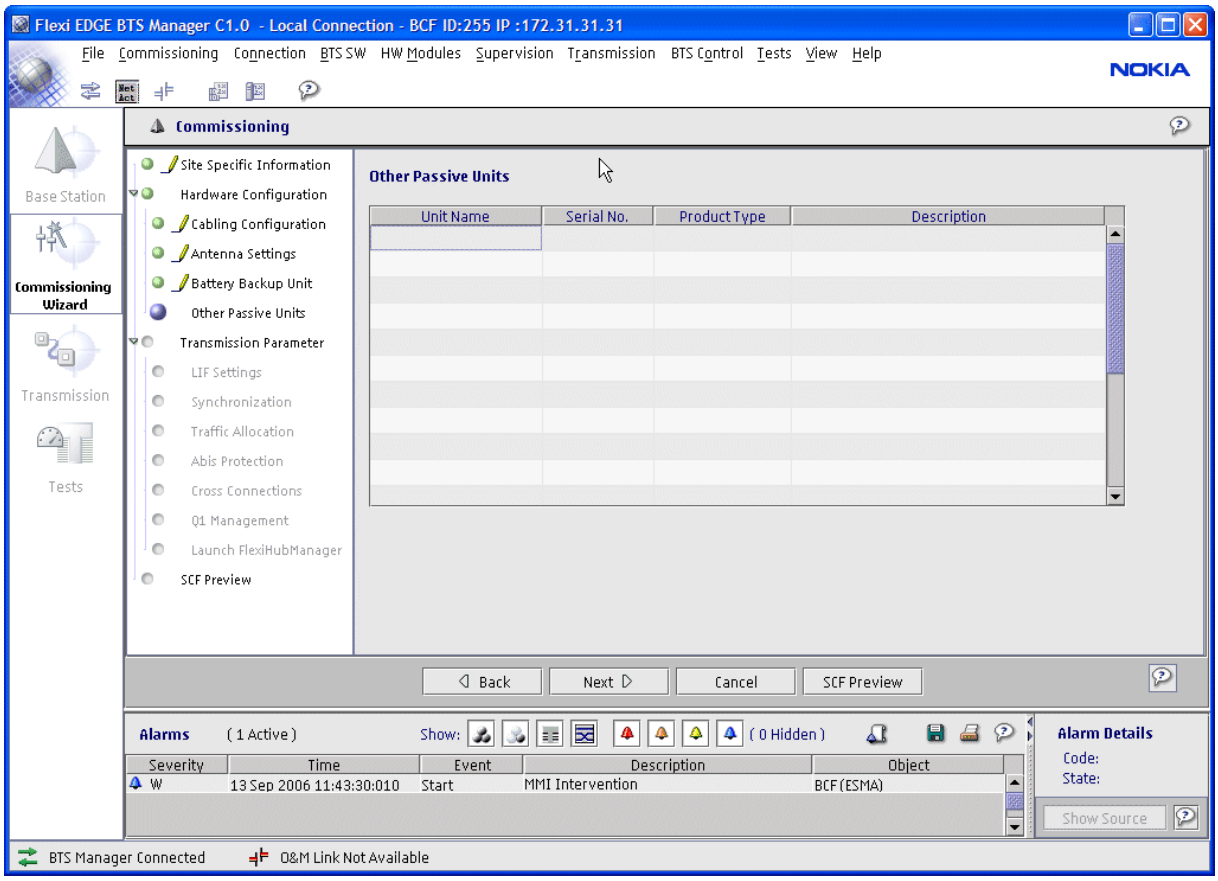

Figure 39. Other passive units

14. Enter the passive unit parameters.

You can provide information for the existing passive units in the list:

- FSEA Flexi System External Alarm
- EWxA EDGE Wideband Combiner
- FCIA Flexi Indoor Cabinet
- FCOA Flexi Outdoor Cabinet
- Other Cabinet
- FCFA Flexi Cabinet Air Filter
- FCDA Flexi Cabinet Smoke Detector
- FCSA Flexi Cabinet Site Support
- FPMA Flexi Power Module

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- FPAA Flexi Power AC/DC sub-module
- FPBA Flexi Power Battery sub-module
- FPDA Flexi Power DC/DC Module
- EMTA 2HU Case
- EMHA 3HU Case
- FMCB 2HU Cover
- FMFA Flexi Mounting Kit
- WMPB Pole Mounting Kit

You can also add more passive units to the list by typing the name of the unit the Unit Name box. You can specify information for a maximum of 20 passive units.

15. Click Next to continue.

The **Transmission Parameters** page opens.

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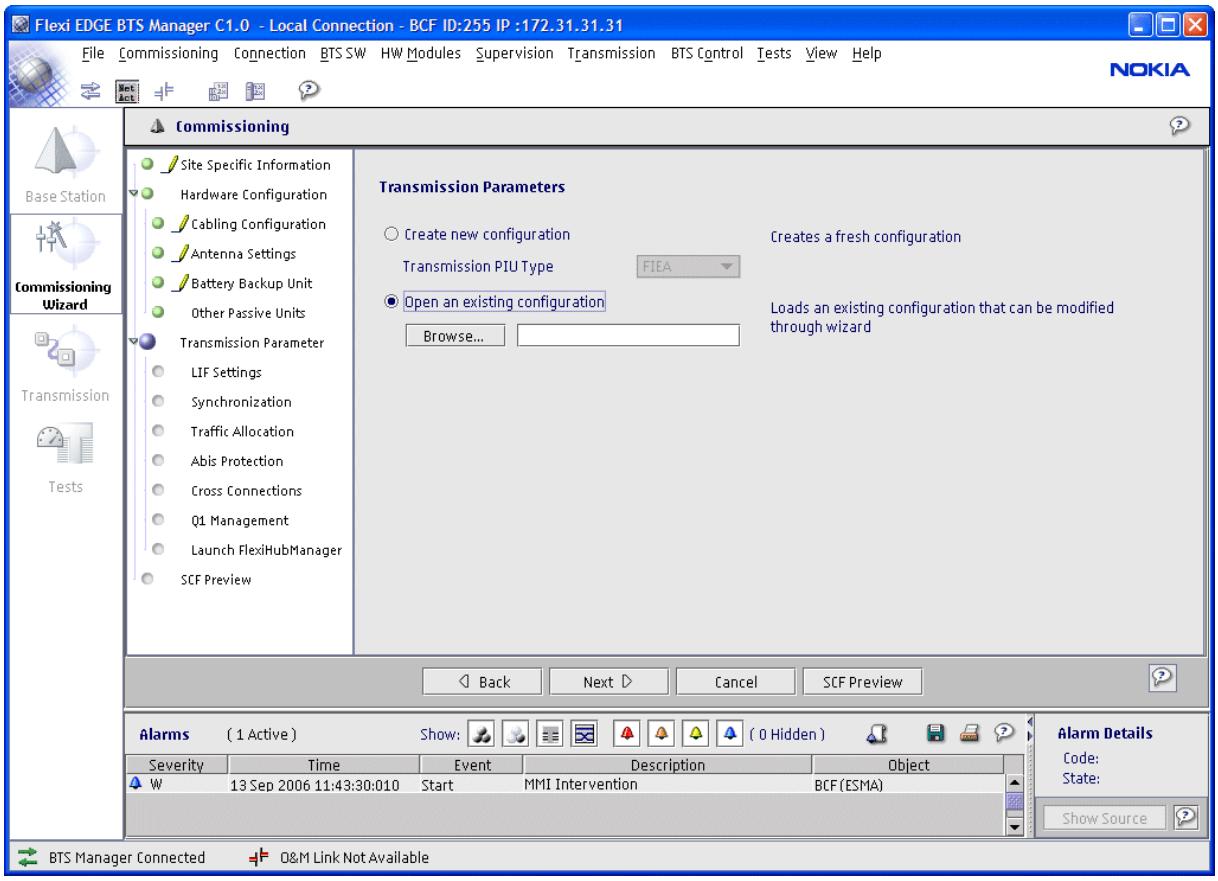

Figure 40. Transmission parameters

16. Select either the Create new configuration or the Open an existing configuration option, depending on which files are available.

- If an existing configuration is available, select the **Open an existing configuration** option.
- With the **Create new configuration** option you can create a new configuration for a transmission PIU type used. The following PIUs are supported: Flexi transmission interface E1 asymmetrical sub-module (FIEA), Flexi transmission interface E1/T1 symmetrical sub-module (FIPA), and Flexi transmission interface Flexbus sub-module (FIFA).

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Caution

New transmission plug-in units (PIU) may be damaged if the plug-in units are replaced when the base transceiver station (BTS) power is switched on. Switch off the Nokia Flexi EDGE BTS before replacing the transmission PIUs.

Note

In case the transmission plug-in unit (PIU) module type changes, recommission the Nokia Flexi EDGE BTS to configure it to use the new transmission PIU module type.

17. Click Next to continue.

The **Line Interface (LIF) Settings** page opens.

18. Enter the line interface parameters.

You can configure line interface settings for the interface used.

a. Select an interface from the list displayed in the Transmission equipment view on the left pane. For FIPA, select also the mode (E1 or T1).

b. Specify if the interface is in use and its name.

The subsequent fields displayed depend on the interface mode.

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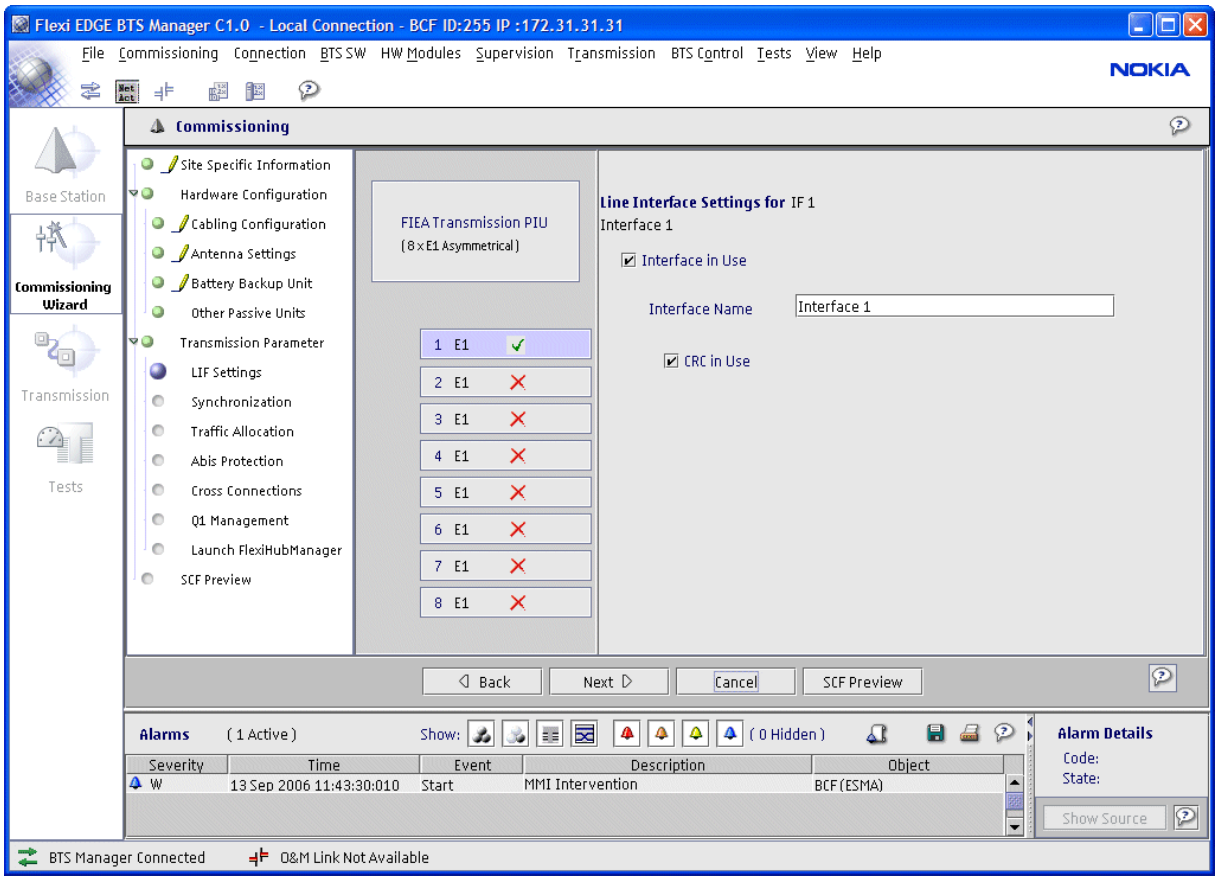

Figure 41. LIF settings - FIEA E1 interface

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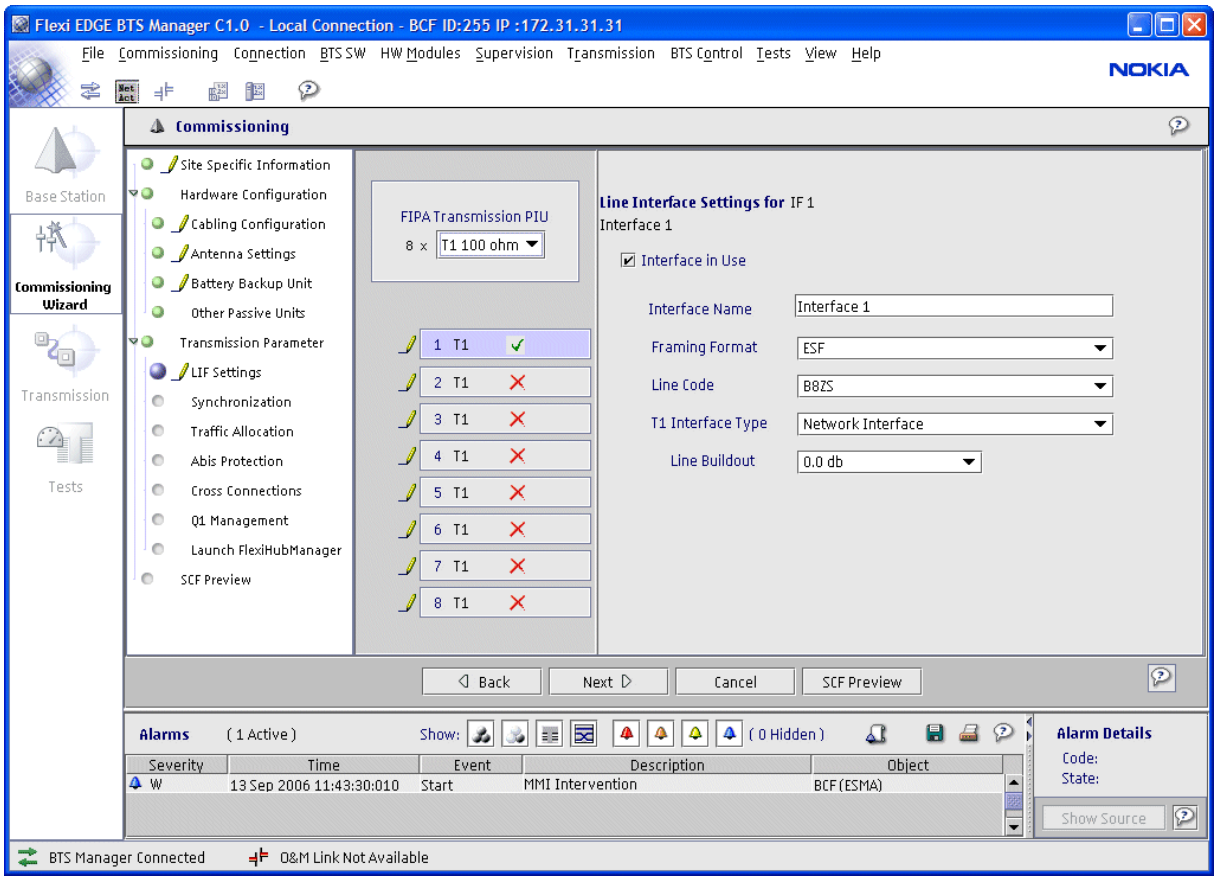

Figure 42. LIF settings - FIPA T1 interface

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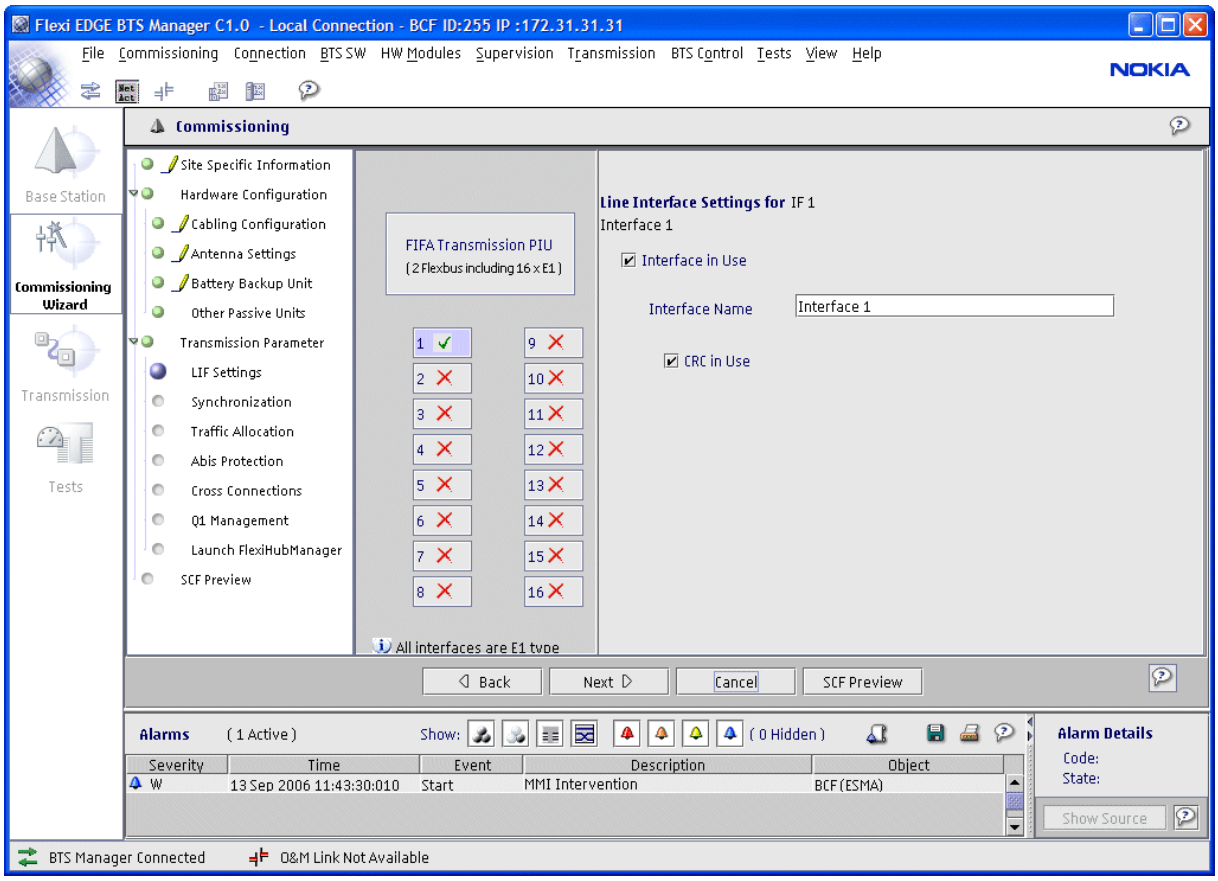

Figure 43. LIF settings - FIFA Flexbus

19. Click Next to continue.

The **Synchronization** view with two tabs opens.

20. Enter the synchronization parameters.

- On the **Active Sources** tab, you can
  - configure the clock Priority List from a list of available clock sources.
  - add or remove sources from the Priority List
  - increase or decrease the priority of a source in the list

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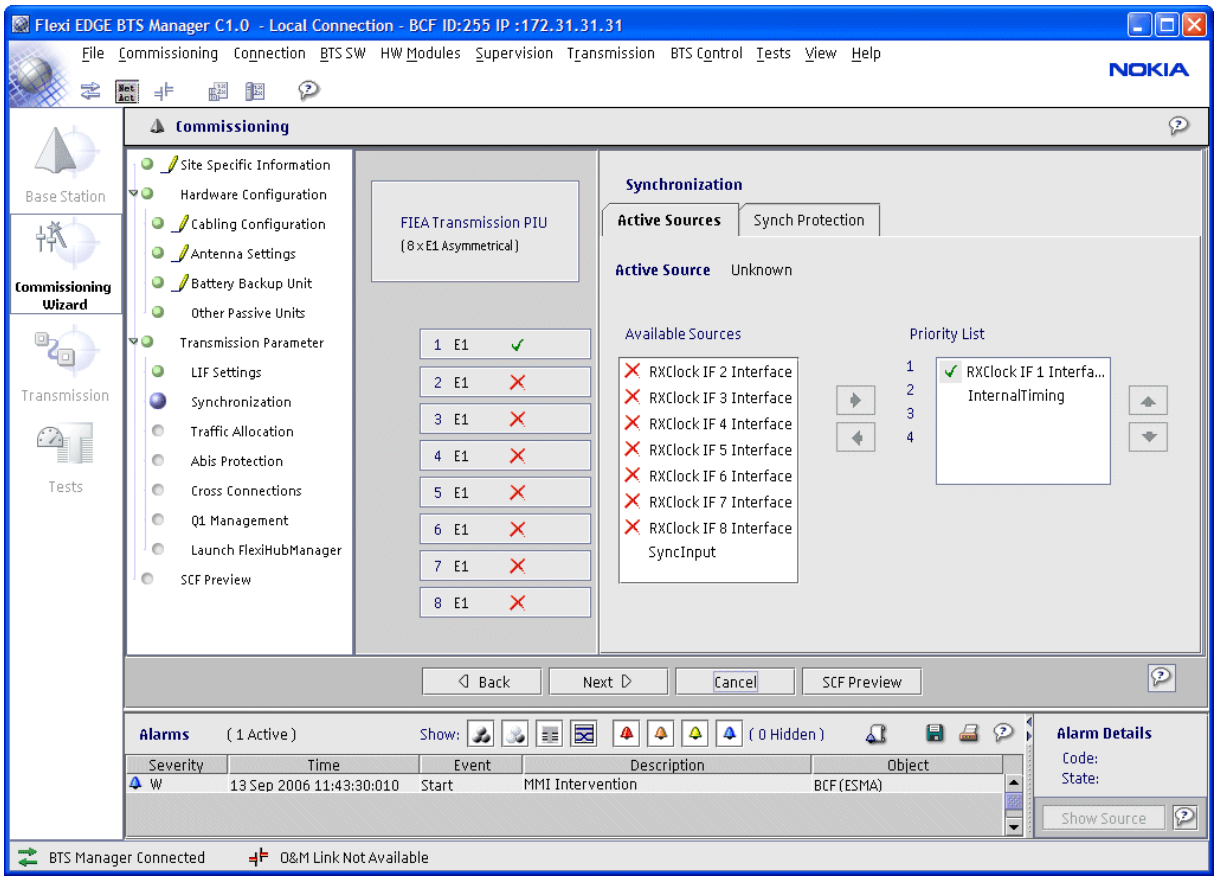

Figure 44. Synchronization - Active sources

- On the **Synch Protection** tab, you can define the synchronization protection.

  Nokia PDH Loop Protection is a function that provides instant recovery from transmission failures in a network of network elements, where each element is assigned two independent transmission routes. In the case of a fault in one route, traffic, synchronisation and Q1 management functions are switched by the system automatically to the intact route.

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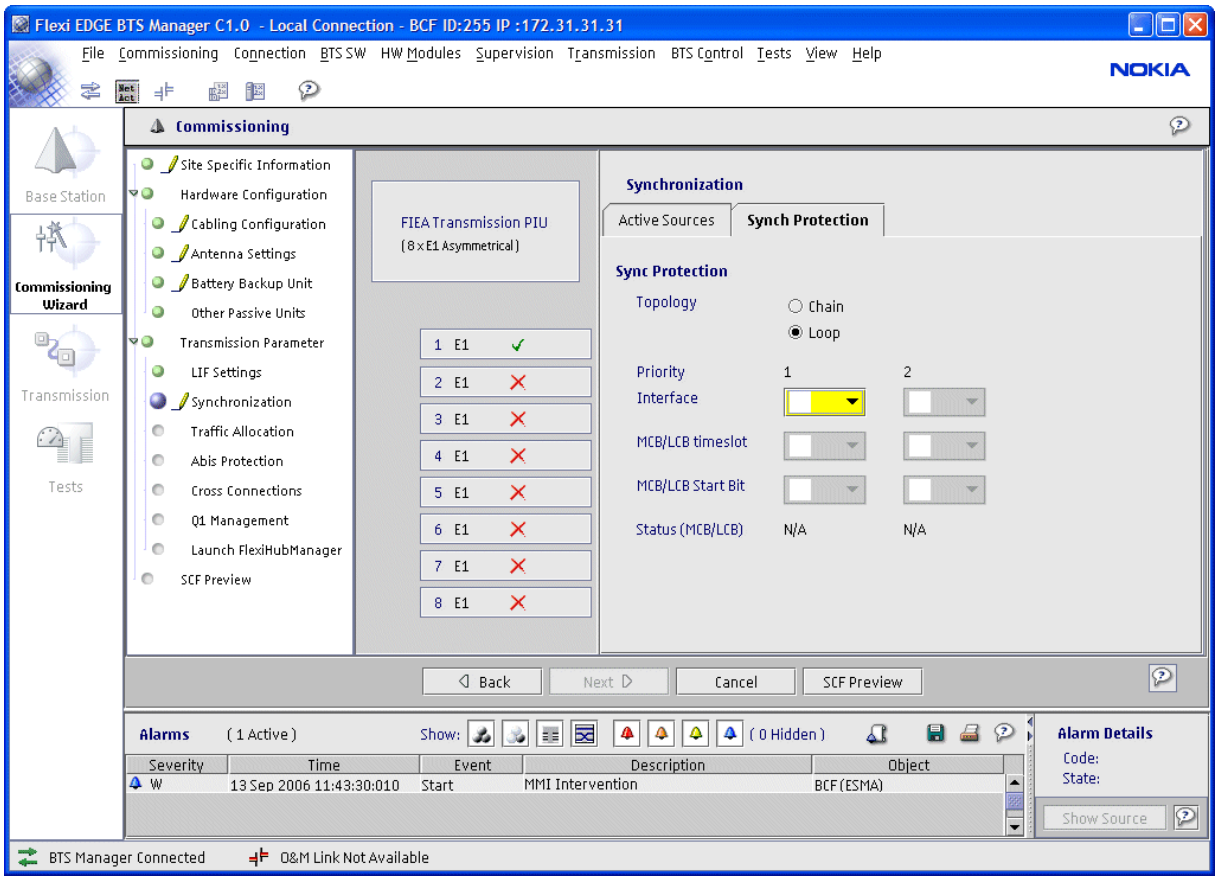

Figure 45. Synchronization - Synch Protection

21. Click Next to continue.

The **Traffic Allocation** view opens.

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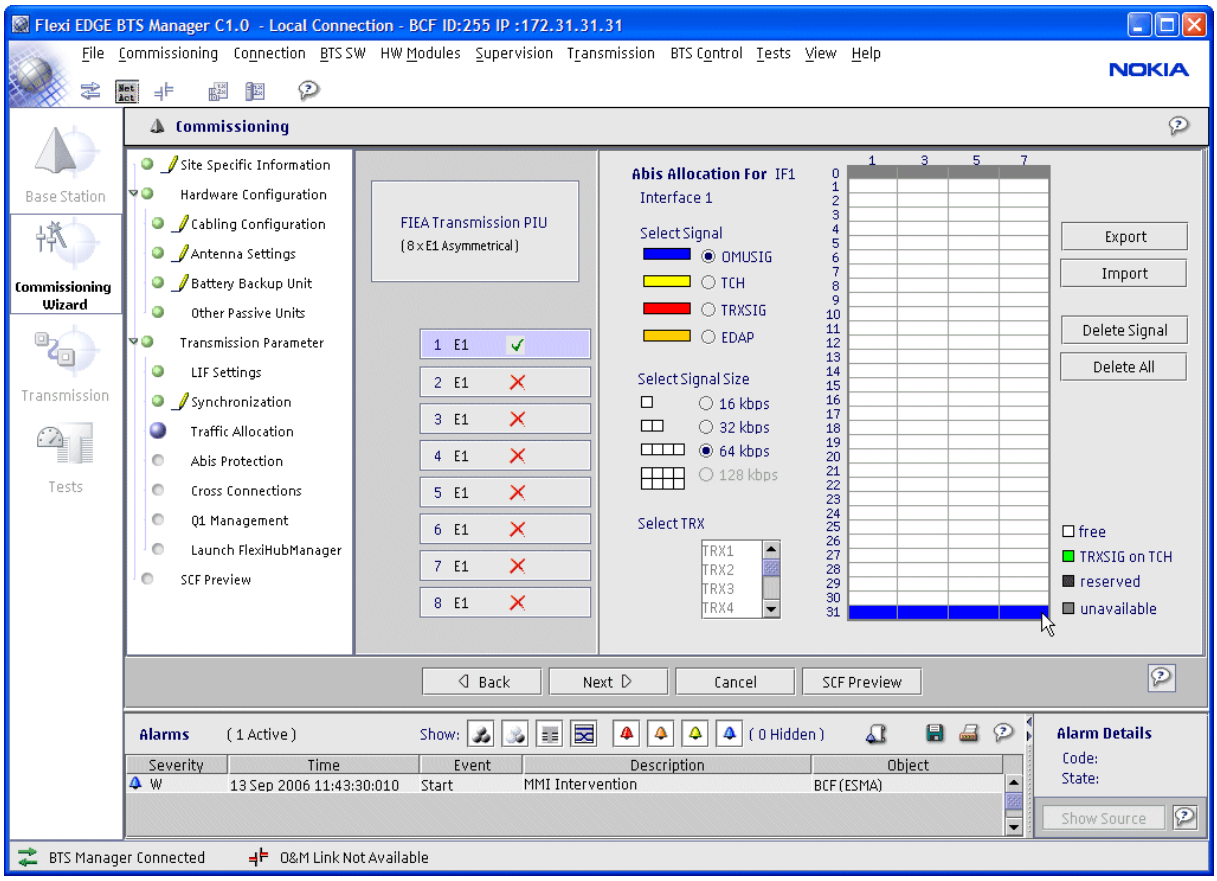

Figure 46. Traffic allocation

22. Enter the traffic allocation parameters.

The traffic frame displayed is based on the selected interface.

You can select

- the signal type: TRXSIG, TCH, OMUSIG and EDAP
- the size:16 kbps to 128 kbps
  For TCH, the only option is 128 kbps.
- the TRX number for which the signal is meant.
  For EDAP, you can select more than one TRX by holding the Control (Ctrl) key while left-clicking with the mouse on the TRX names.

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To add a signal to the allocation, click any cell on the table. The cells will be coloured corresponding to the signal selection and granularity.

TRXSIG and OMUSIG can be set on TCH. Configurations have to match with BSC's.

23. Click Next to continue.

The **Abis Protection** view opens.

24. Define the Abis protection.

If you want to use protection, select **Loop** and define the parameters and condition bits. Otherwise select **Chain**.

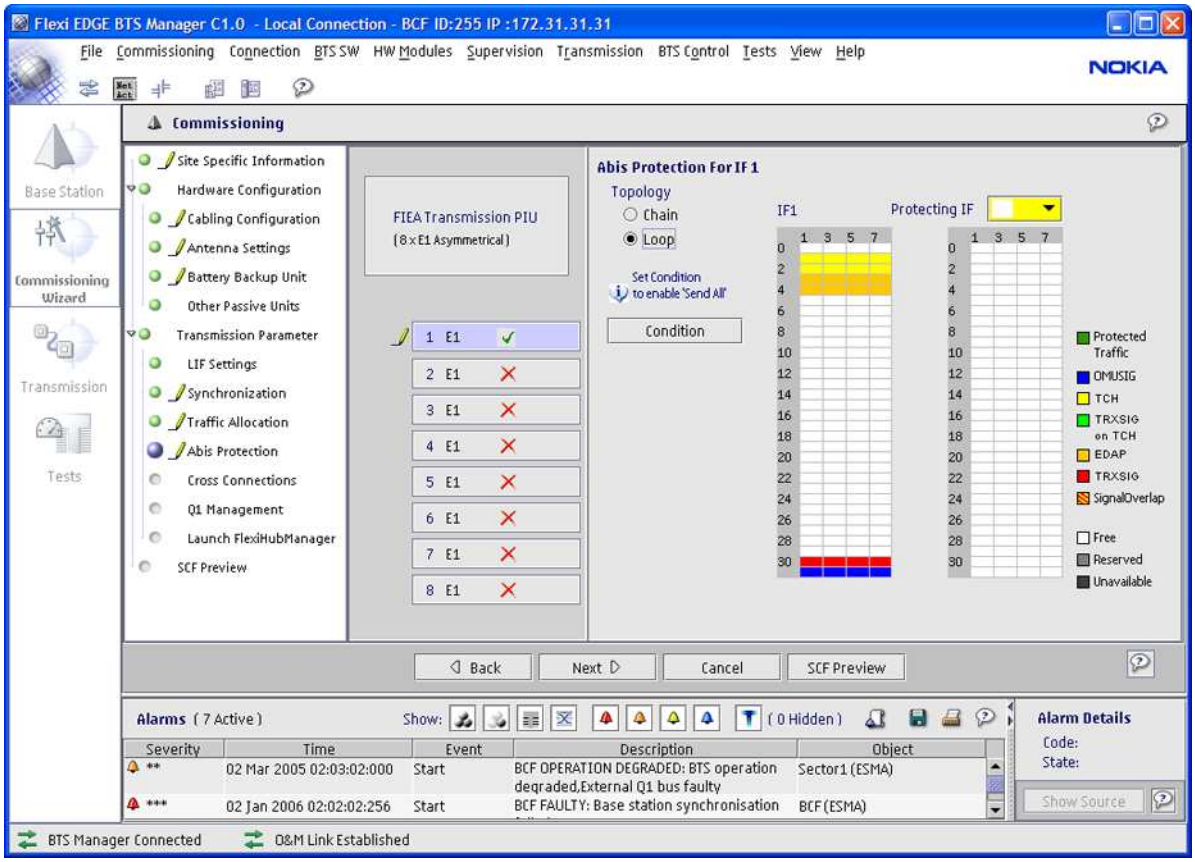

Figure 47. Abis Protection

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You need to set the condition bits for each protected interface. Set the condition bits by selecting the **Condition** button.

To add condition bits, first select the condition type, the interface number for the first condition and then its bit from the table on the right hand side. If the condition type is **Equal**, select the interface number and the corresponding bit in a similar way for the second condition. Select **Create Cross Connection(s) to Set Condition Bits** if needed.

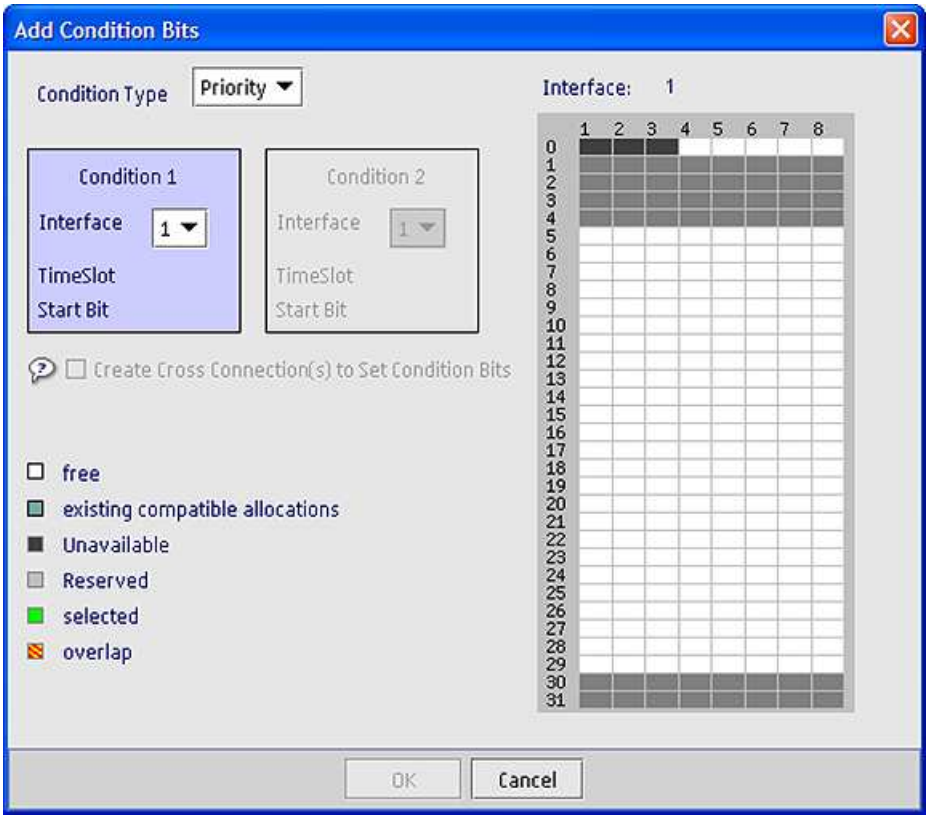

Figure 48. Abis Protection - Add Condition Bits

The Condition defines which bits of the loop protected routes should be checked to determine whether an interface is faulty. There are two types of condition: A Priority condition type can be used if one of the two routes is considered "better" than the other, as the BTS will

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switch back to the priority route after the faulty condition in the priority route is removed. An Equal condition type can be used when the two routes are of equal quality; no change-over to the previous route is performed unless the current route fails.

25. Click Next to continue.

The **Cross Connections** view opens.

26. Enter the Cross Connection parameters.

a. Add cross connections by selecting the **Add** button. Alternatively, you can load cross connections from an existing *.xcs file via the **Import** option.

Each cross connection requires a label, a type, a granularity and, in the case of n x 64k, the value of n.

b. To add a cross connection, click within the **Tx1/Rx1** box to select it, and select the interface number.

c. Select the timeslots on that interface by clicking on the allocations view on the right hand side. The number of timeslots selected is in accordance with the granularity settings.

d. Click within the **Tx1/Rx1** box to complete the cross connection. Select its interface number and timeslots in the same way as for Tx1/Rx1. If protection is required, a similar process is used for the **Protecting Tx/Rx** box.

The following Cross Connection types are supported:

Type B (Basic)	Bidirectional (B2) through connection Independent of the type of data (bit transparency) Granularities supported: 8k, 16k, 32k, 64k, and n x 64k
Type M (Connecting and Masking)	Bidirectional (M2) with granularities of 16k, 32k, and 64k-modifies masked bits by a logical AND function
Type D (Fixed Bit Pattern)	Unidirectional (D1) with granularities of 8k, 16k, 32k, and 64k which transmits a set pattern

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Type PB (Protected Condition Switch)	Bidirectional (PB2) conditional connection Used in configuring channel protection Granularities supported: 16k, 32k, 64k, and n x 64k Requires a condition, available in two switchover modes (types): priority and equal

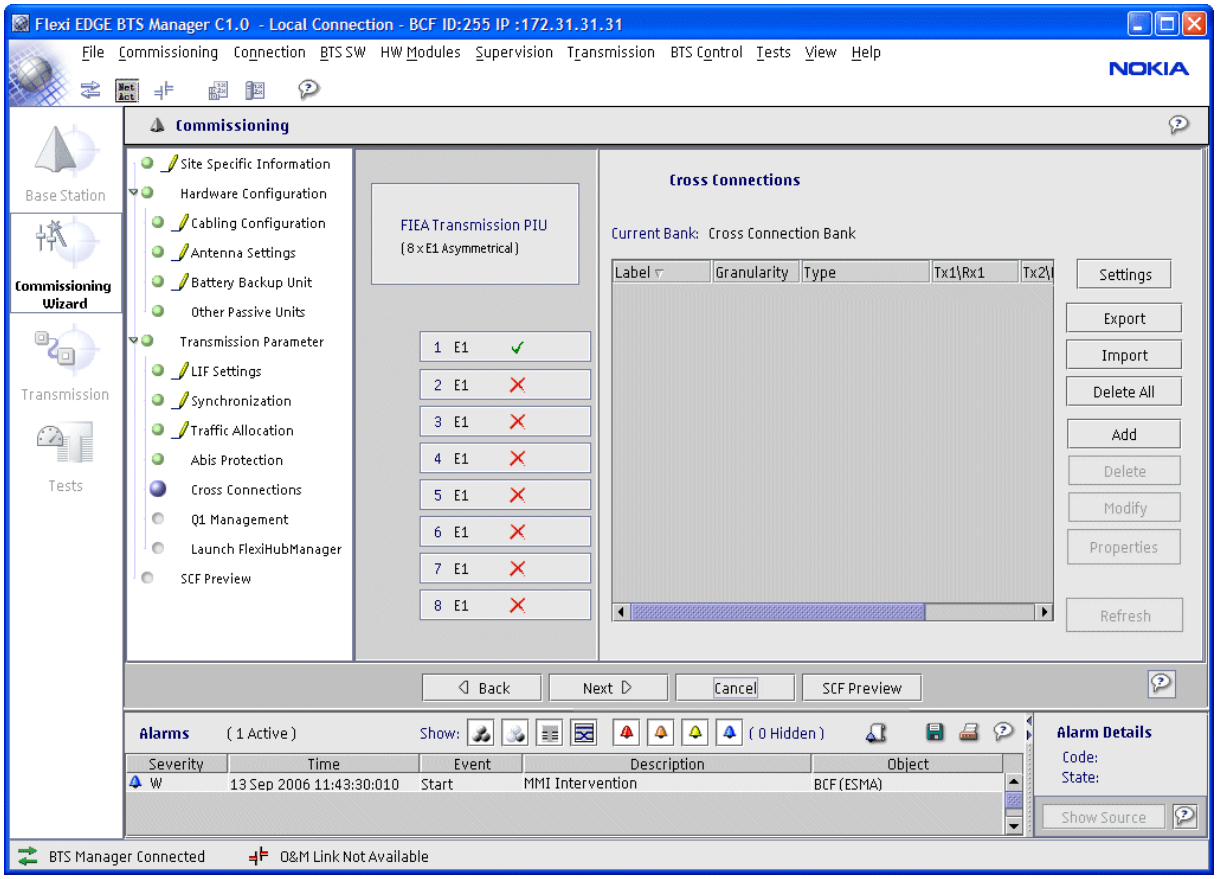

Figure 49. Cross Connections

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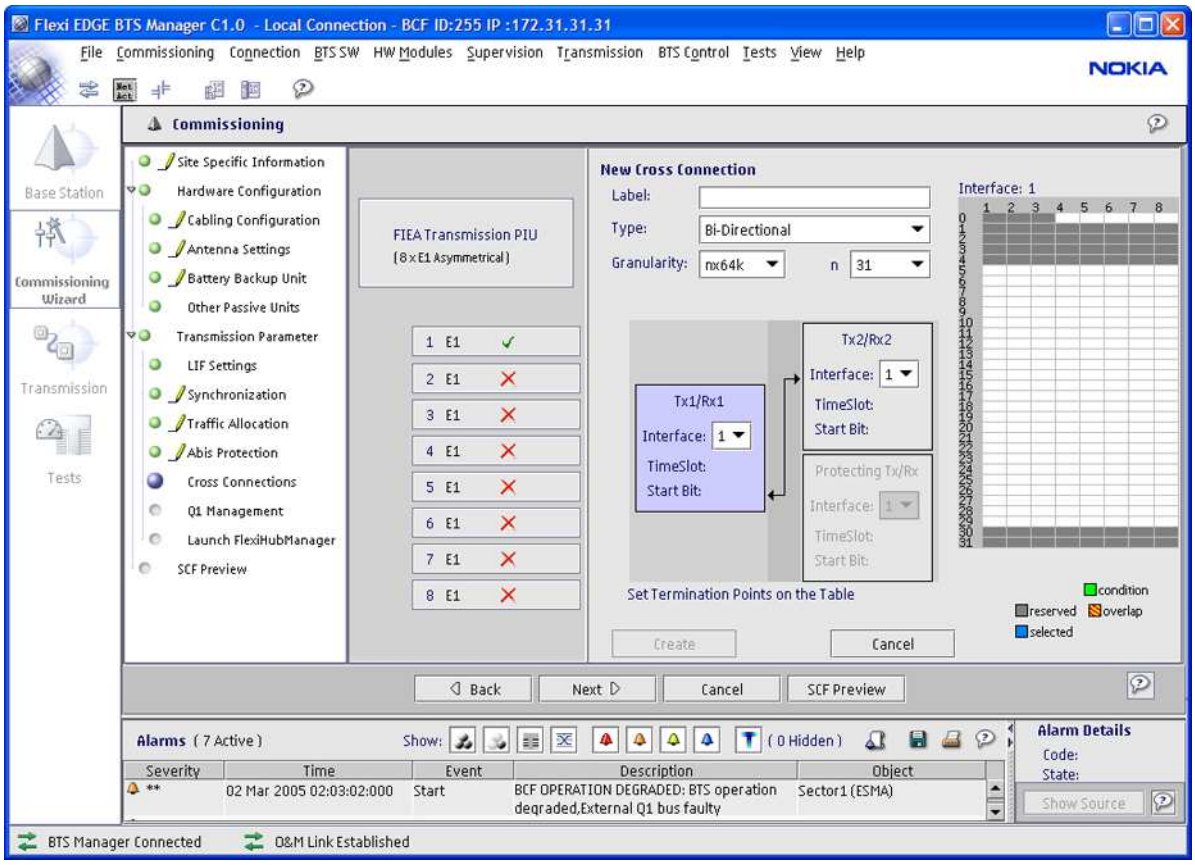

Figure 50. New Cross Connection

27. Click Next to continue.

The **Q1 Management** view opens.

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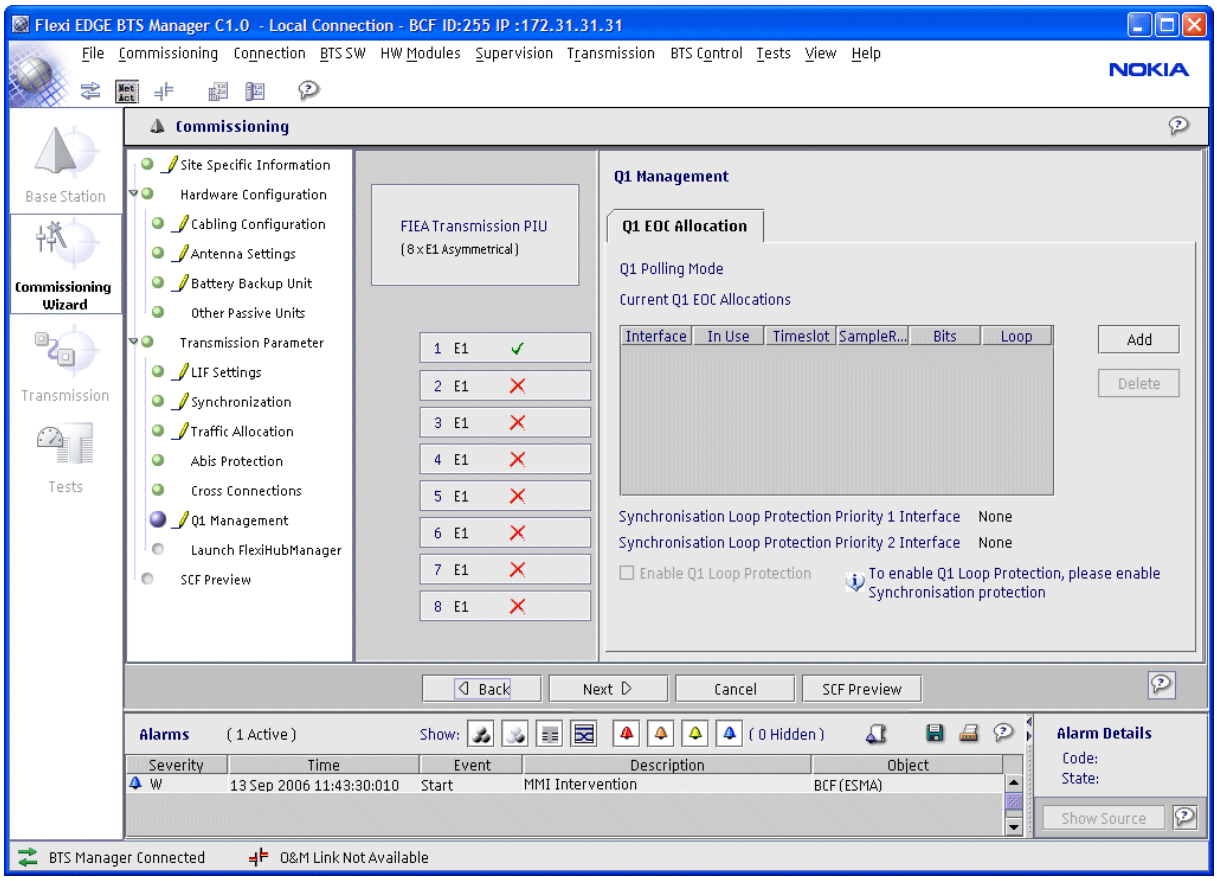

Figure 51. Q1 management

28. Define the Q1 management parameters.

Click **Add**, select the sampling rate (will be the same for all Q1 EOC allocations), and define the other settings in the table to meet your requirements. If you enable the Q1 loop protection, select the **Loop** option (primary and secondary) in the table.

Note

For a proper working of Q1 BSC polling over Timeslot 0, the BTS have to be commissioned with the TCH or Cross Connected traffic.

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29. If you use the FIFA and you have not commissioned the radio part of the FIFA yet, launch FlexiHub Manager.

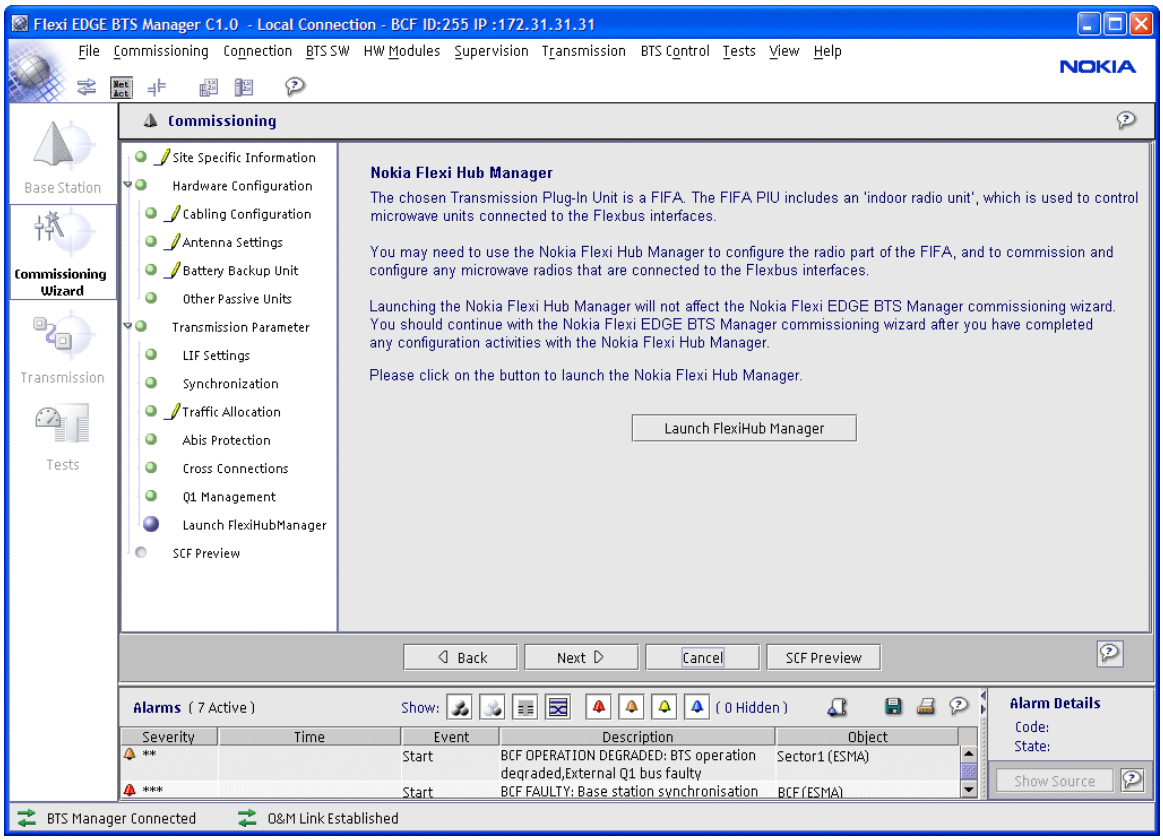

Figure 52. Launch FlexiHub Manager

For more information, see *Establishing transmission link*.

30. Click Next to continue.

The **Site Commissioning File (SCF)** view with two tabs opens.

31. Check the details on the SCF preview page.

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- On the **Summary** tab, you can view the SCF summary in a tree view.

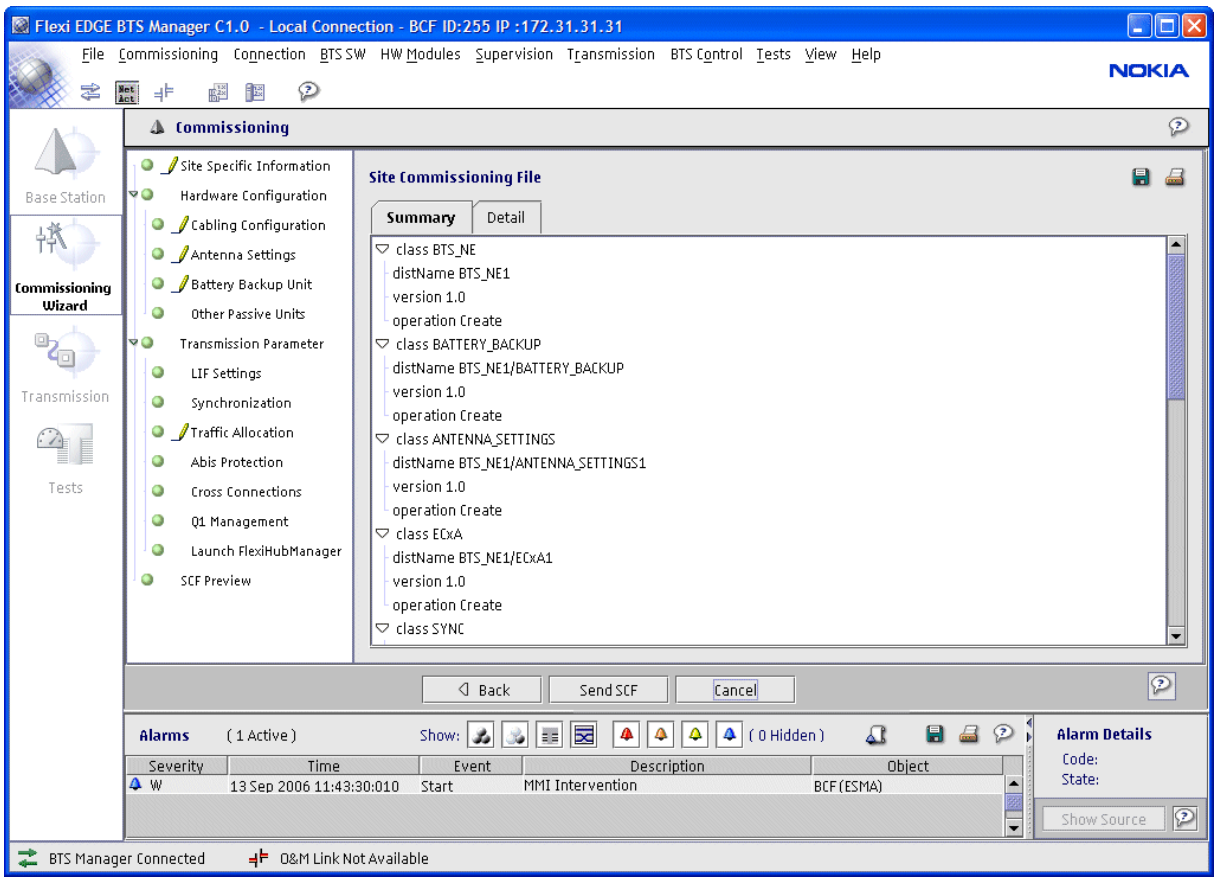

Figure 53. SCF preview - Summary

- On the **Detail** tab, you can view a complete SCF in XML format.

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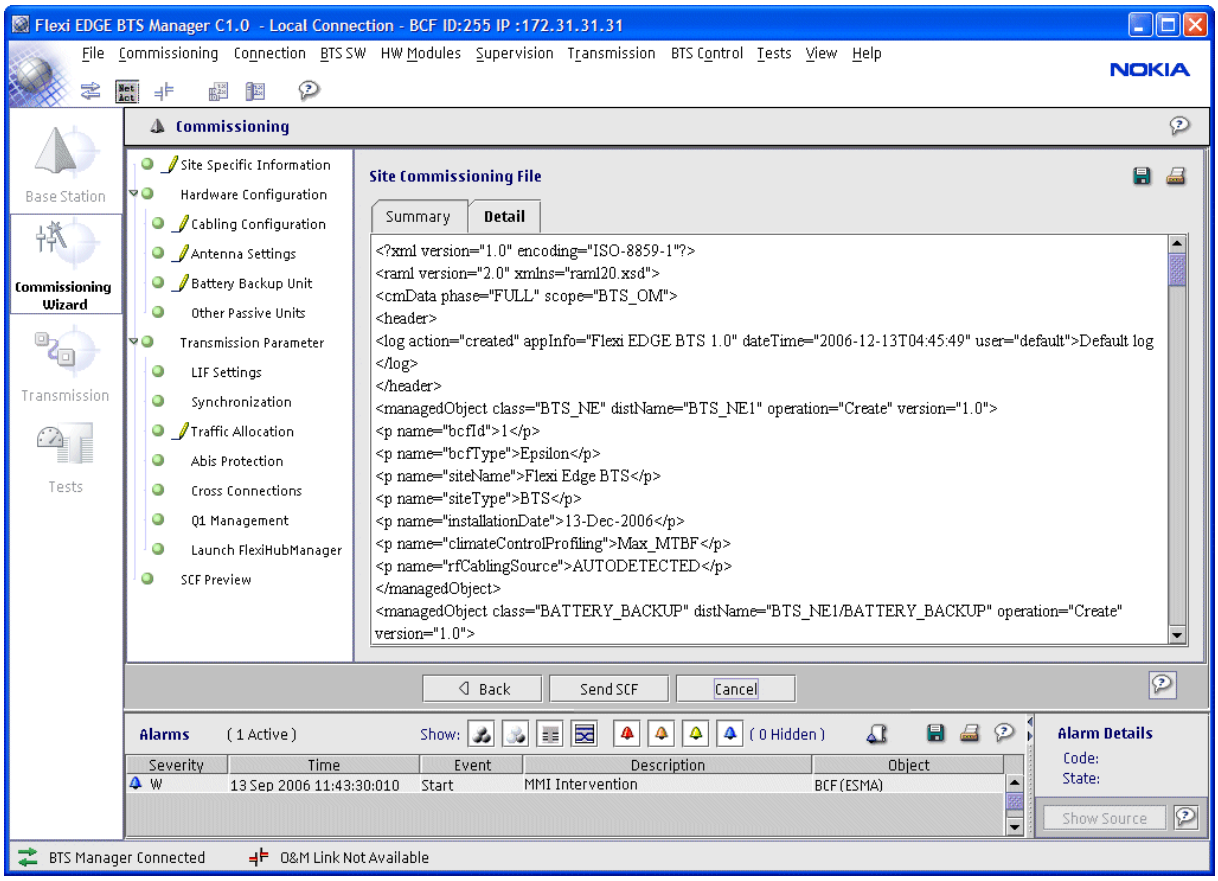

Figure 54. SCF preview - Detail

If the details are correct, click **Send SCF** to begin the commissioning. If the details are incorrect, you can use the **Back** button to browse back. If there is information entered incorrectly, the **Send SCF** button is not enabled and the errors are indicated by a red dot in the navigation tree.

32. Click Send SCF.

Expected outcome

The commissioning process begins.

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Further information

Next, go to section *Viewing the commissioning progress and the commissioning result*.

4.4 Viewing the commissioning progress and the commissioning result

Purpose

Sending the SCF to the BTS begins the process of commissioning the BTS site.

Steps

1. View the commissioning events on the Events tab.

The commissioning progress lights indicate when each step has started and when it completes.

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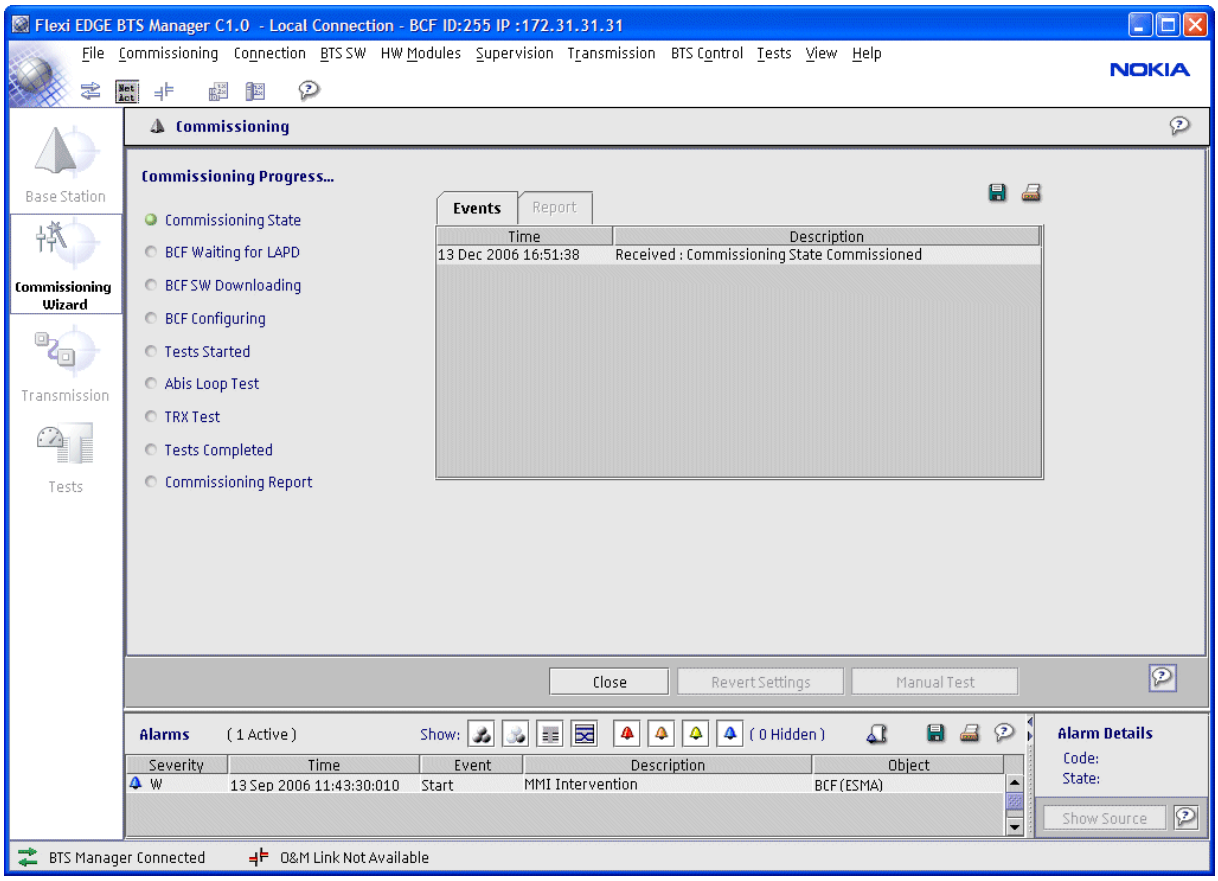

Figure 55. Commissioning progress, start

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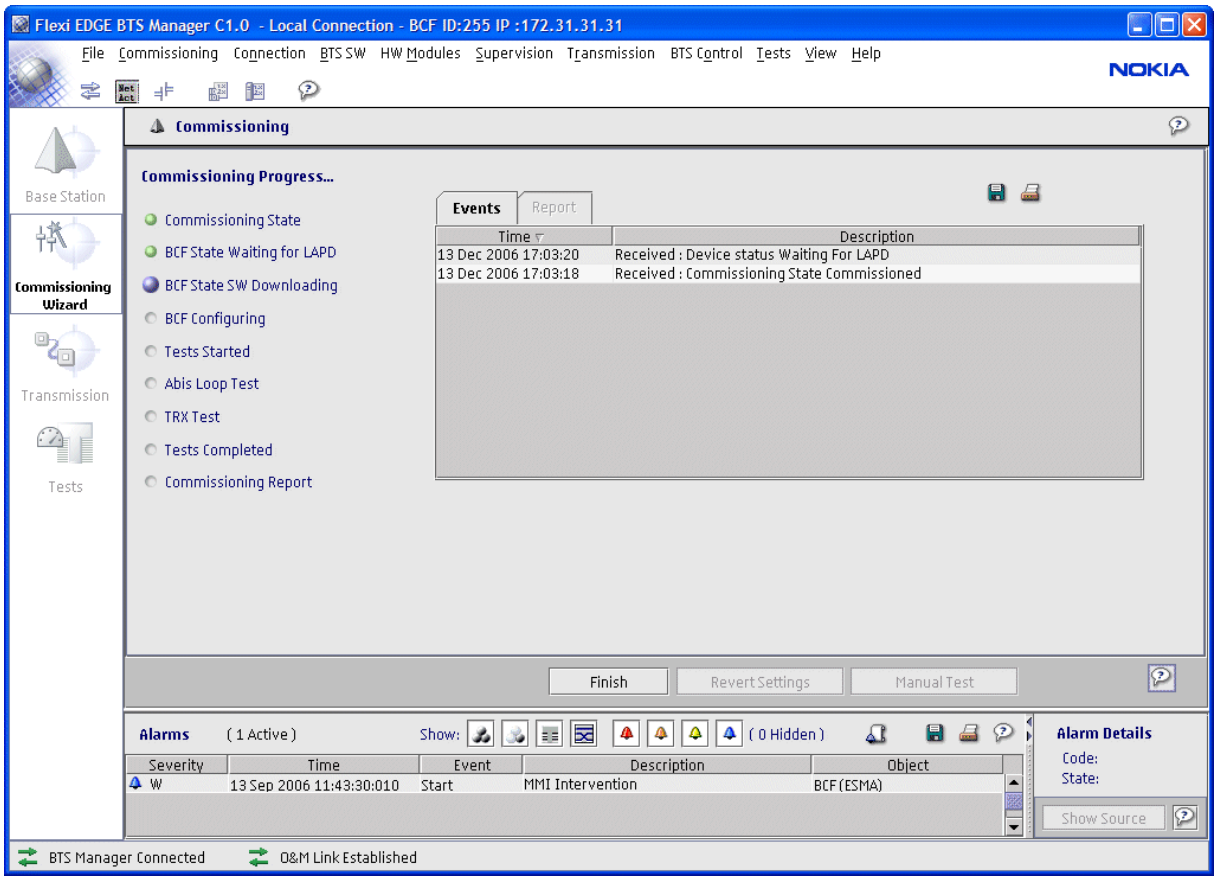

Figure 56. Commissioning progress, ongoing

2. View the commissioning result.

Expected outcome

When you have successfully completed the commissioning and the commissioning report is received from the BTS, the tab view is automatically switched to the **Reports** tab.

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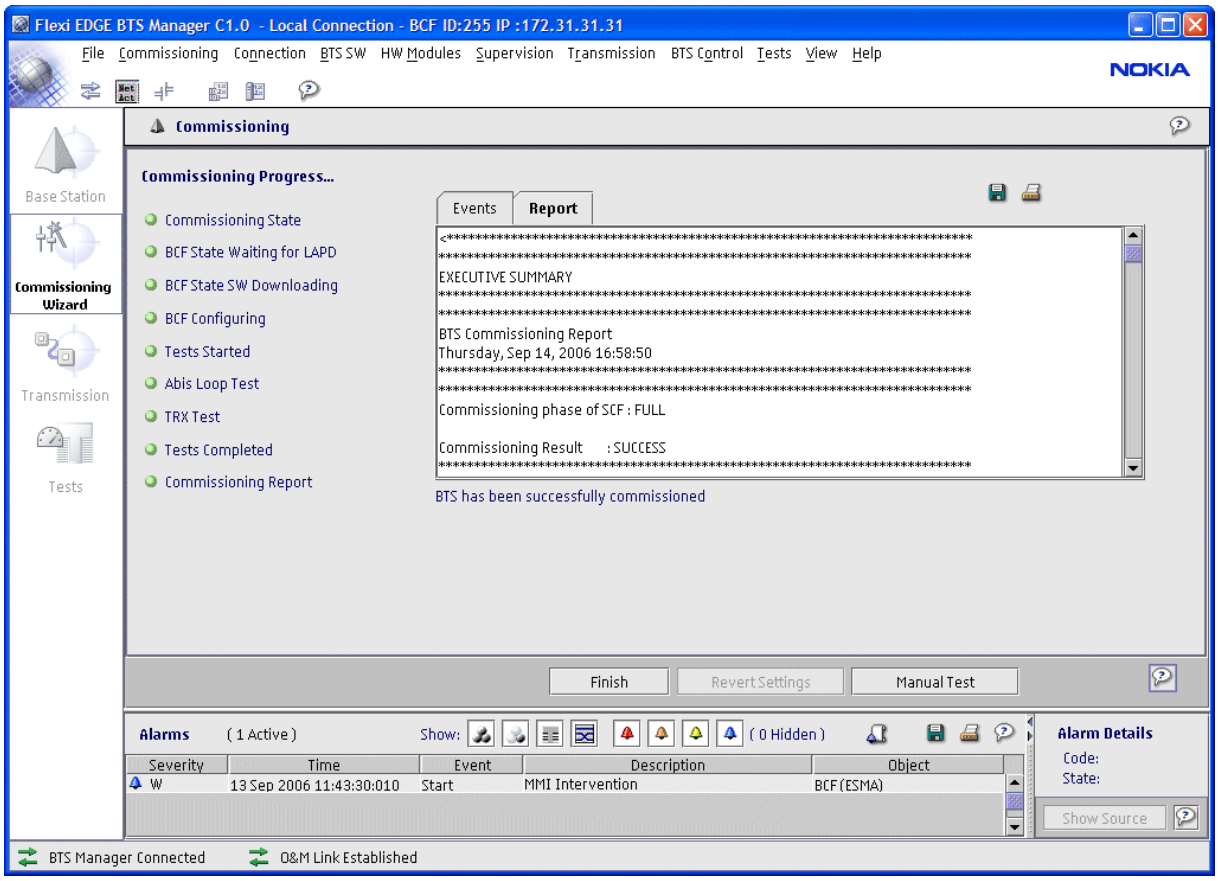

Figure 57. Commissioning result - Report

The automatic commissioning test results are stored in the commissioning report. Automatic commissioning tests include:

- Abis loop tests
- TRX loop tests
- EAC input tests

  This test is triggered once the BTS reaches supervisory state and runs for two hours during which time any changes in the state of the EAC inputs is recorded to the commissioning report.

  In addition, alarms are monitored for 60 seconds after the supervisory state is reached, and any alarms active during that time are also recorded to the commissioning report.

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Unexpected outcome

If the commissioning was unsuccessful, you can run manual tests, see *Running manual tests*. See also *Checklist for troubleshooting*.

3. To exit the Commissioning Wizard, click Finish.

4.5 Running manual tests

Purpose

On the **Commissioning progress** page, you can run manual tests once the commissioning report is received from the BTS. The results of the manual tests will not be stored in the commissioning report.

Running the tests after commissioning is optional.

For more information on the types of tests that you can run, see *Nokia Flexi EDGE BTS Manager Online Help.*

Before you start

The **Manual Tests** button becomes enabled when the commissioning process is completed and the commissioning report displayed.

Steps

1. Click Manual Tests on the Commissioning progress page.

The **Test** page opens with tabs representing the following testing options:

- **TRX Test**
- **Cross Connection Validity Check**
- **EAC Input**

  Note that starting the manual EAC input test will stop any ongoing automatic EAC input test (see section *Viewing the commissioning progress and the commissioning result* for more information), and EAC input states will no longer be recorded in the commissioning report.
- **EAC Output**

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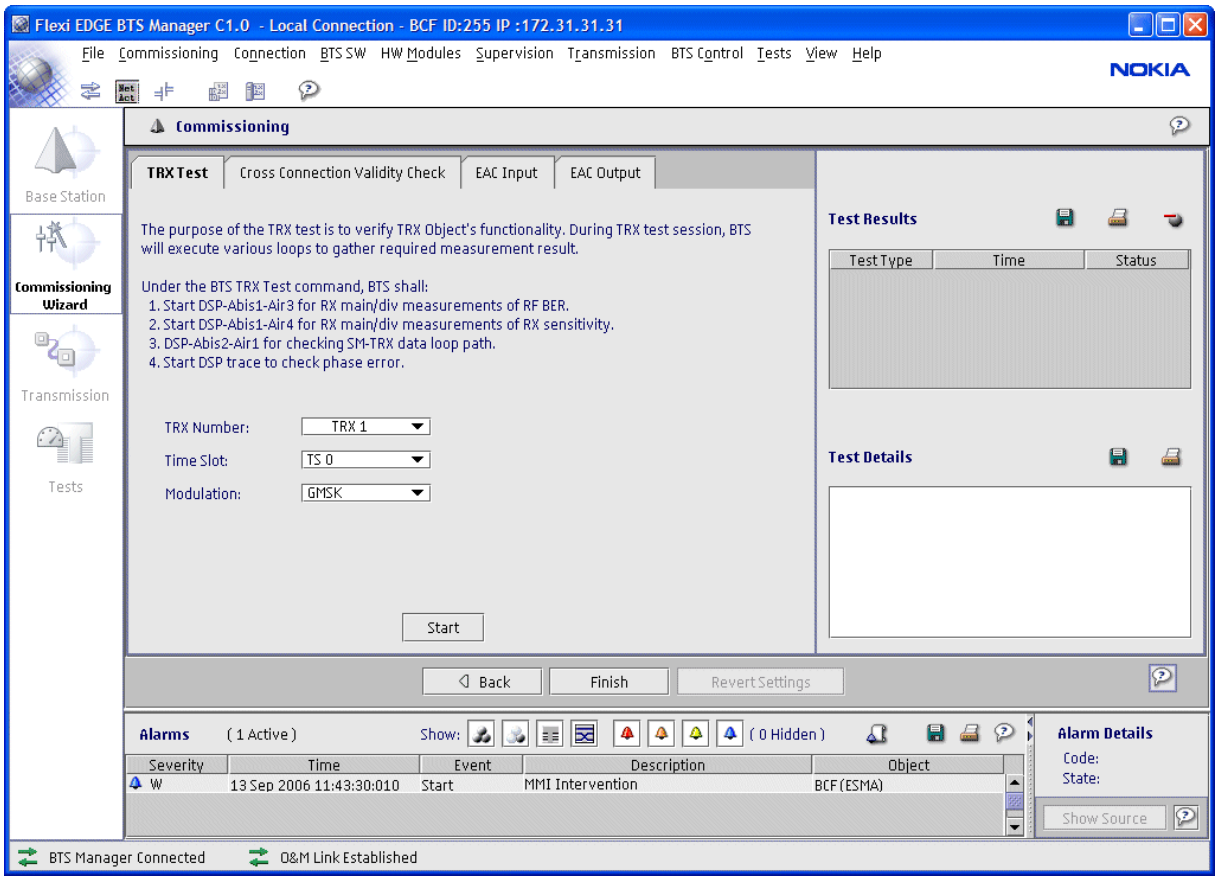

Figure 58. Manual tests

2. **Select the test you want to run by clicking the appropriate tab.**

3. **To run the test, click Start.**

   When the test is started, the **Test Results** list shows the list of tests to be executed. The results are updated dynamically when the results are received from the BTS O&M.

   If you want to stop the test, click **Stop**.

   If you want to return to the **Commissioning progress** page, click **Back**.

4. **After you have run the desired tests, click Finish.**

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4.6 Commissioning report

At the end of commissioning Nokia Flexi EDGE BTS, you can save the commissioning report in a file on the laptop PC hard disk. The report contains:

- the parameters supplied in the commissioning process,
- test results of the executed tests and
- a list of active alarms.

The commissioning report shows if commissioning is successfully completed. When commissioning is successfully completed, site installation and integration work can be completed.

The report is a .txt file that you can open and check with any word processor. In Nokia Flexi EDGE BTS, the commissioning report can be updated with changes in the site configuration when Nokia Flexi EDGE BTS Manager is disconnected. You can upload the report from a BTS at any time by selecting **Fetch from BTS** from the **Commissioning → Report** menu item.

Note that there is a limit to the size of commissioning report that can be stored in the BTS (262144 bytes). After this limit is reached, even though the commissioning procedure continues as usual, the report stops getting updated. This situation is indicated by the warning "Commissioning Report Size Exceeds Limit" in the "Executive Summary" part of the commissioning report, just before the "Details" section.

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5 Troubleshooting

5.1 Handling alarms

Purpose

If there are any alarms during or after the commissioning, you can see them in the window on the bottom part of the screen. The alarms that are shown depend on the filters that you can apply in the alarm window.

For more information on the alarms, see *Trouble Management of Nokia Flexi EDGE BTS.*

Steps

1. **Select an alarm from the displayed list near the bottom of the screen.**

   See the figure below.

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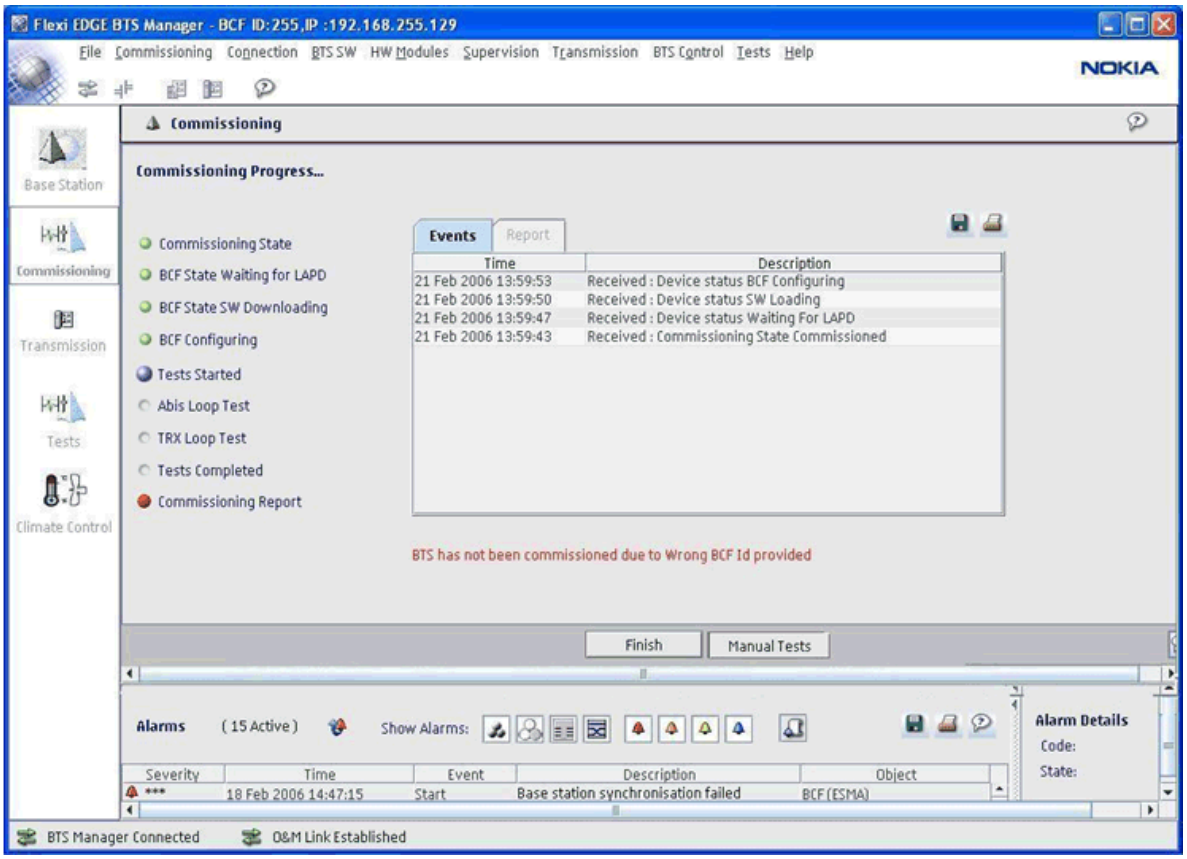

Figure 59. Alarms

2. Select the alarm in the Alarms window.

More information on the alarm is available in the **Alarms Details** window.

5.2 Checklist for commissioning troubleshooting

If there is a failure in any part of the commissioning procedure, an alarm appears in the alarm window. You can check the cause of the failure in the commissioning report.

The commissioning procedure may fail, for example, when:

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- there is no connection to the BTS - check that the BTS is powered up - the LED on a power supply unit is a good indicator
- the fetch SCF procedure fails
- saving the SCF fails
- sending the SCF during commissioning fails
- the BCF ID is changed during re-commissioning
- the SCF file has illegal data, for example, an unsupported PIU type.

If commissioning fails, check that the BTS cabling is correct and there are no unexpected unit alarms. Once corrected, try commissioning again with the Commissioning Wizard.

For more information on commissioning troubleshooting, see *Trouble Management of Nokia Flexi EDGE BTS.*

If commissioning is still unsuccessful, contact the BSS Engineer for assistance.

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6 Changing the settings of a commissioned BTS

Purpose

You can change the configuration of an already commissioned Nokia Flexi EDGE BTS using Nokia Flexi EDGE BTS Manager Commissioning Wizard. This option can be used when a new configuration can solve problems or when a new configuration can release HW resources for another site and/or make an element to function more efficiently.

You can also modify the settings of an already commissioned BTS remotely. To set up a remote connection, you need access to Nokia NetAct and have the following information available:

- Hostname or IP address of the NetAct server
- Username and password for accessing the NetAct server
- ID (also known as C-Number) of the BSC to which the BTS is connected
- BCF ID of the BTS

Alternatively, you can use an existing connection via the Nokia Connection Tool.

Before you start

Nokia recommends that you change settings only for a Nokia Flexi EDGE BTS site that is already fully successfully commissioned.

Steps

1. **Select one of the following options, depending on the mode used.**

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- **Change settings from EasyWizard template file**
- **Change settings from SCF**, if you want to use an EasyWizard complete SCF
- **Change settings manually**

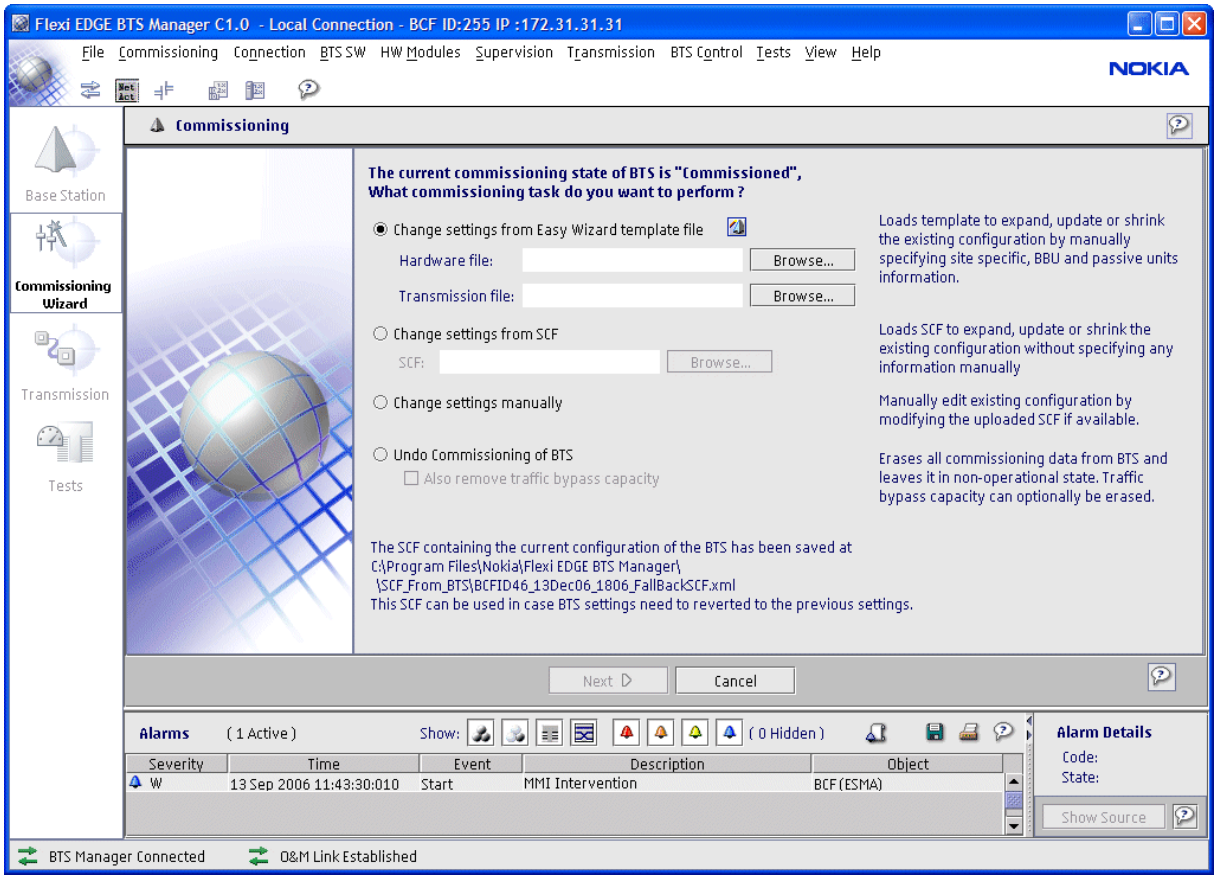

Figure 60. Changing commissioning settings

These modes are similar to those described for an uncommissioned BTS (see *EasyWizard Template Commissioning*, *EasyWizard Complete SCF Commissioning* and *Manual Commissioning*).

If you change the settings manually, the Commissioning Wizard screens are pre-populated with the existing settings in the BTS, which you can then change as required.

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When the Commissioning Wizard is launched and Nokia Flexi EDGE BTS Manager is connected to a commissioned BTS, the current SCF on that BTS is automatically uploaded and stored in the location stated on the commissioning task selection screen. This uploaded SCF can be useful for recovery actions if changing the settings fails.

Note that when changing settings, the commissioning result indicates whether the change was successful or not, not that any existing commissioning errors have been fixed.

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7 Undo commissioning

Purpose

Undo commissioning is not needed during normal operation. Perform undo commissioning only when instructed during troubleshooting.

Steps

1. **Select Undo commissioning of BTS in the Commissioning Wizard.**

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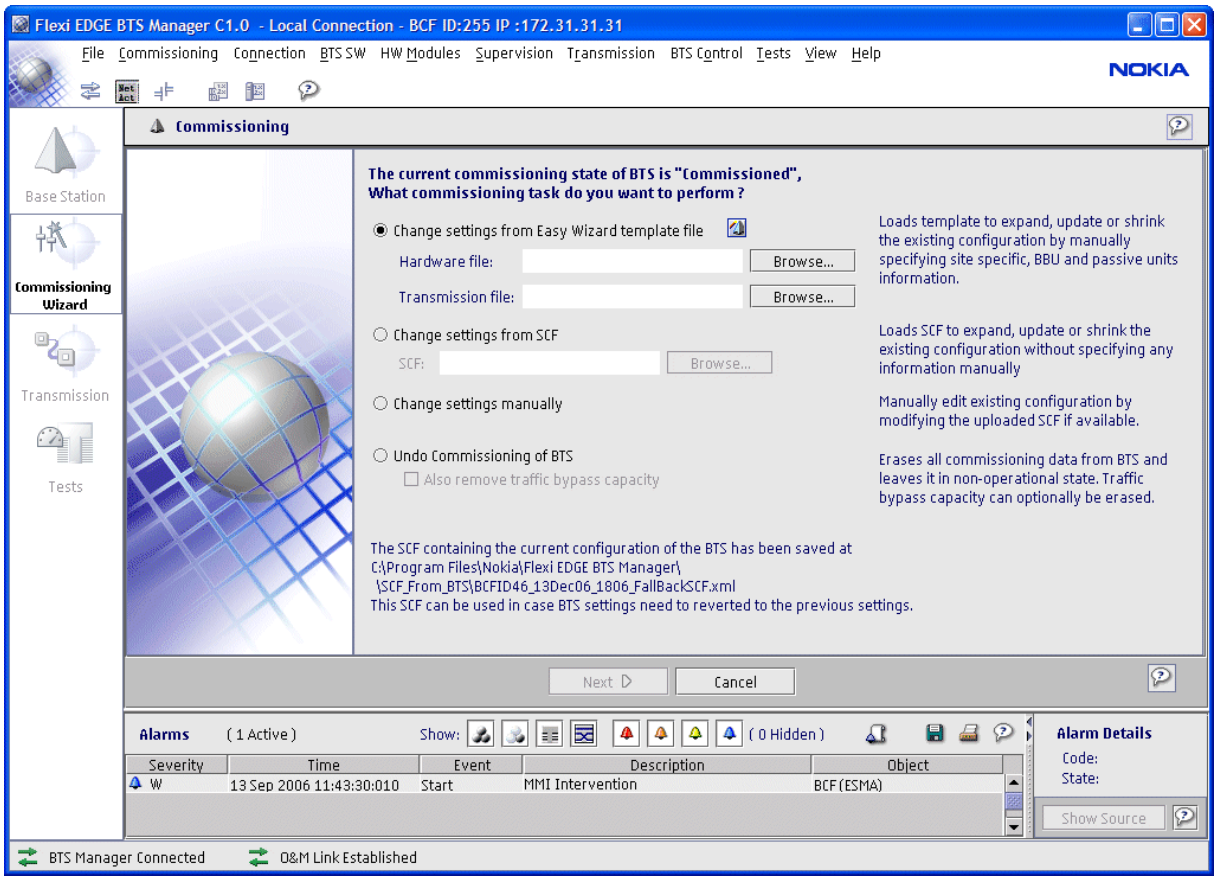

Figure 61. Undo commissioning

2. If you want remove traffic bypass capacity, select Also remove traffic bypass capacity.

If the bypass capacity is not removed, undoing the BTS commissioning will leave the BTS in a non-operational state but other sites that are using this site as a transmission hub should not be affected.

If the bypass capacity is removed, all transmission cross-connections will be removed and traffic to downstream sites will be affected.

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Expected outcome

Undo commissioning process starts.

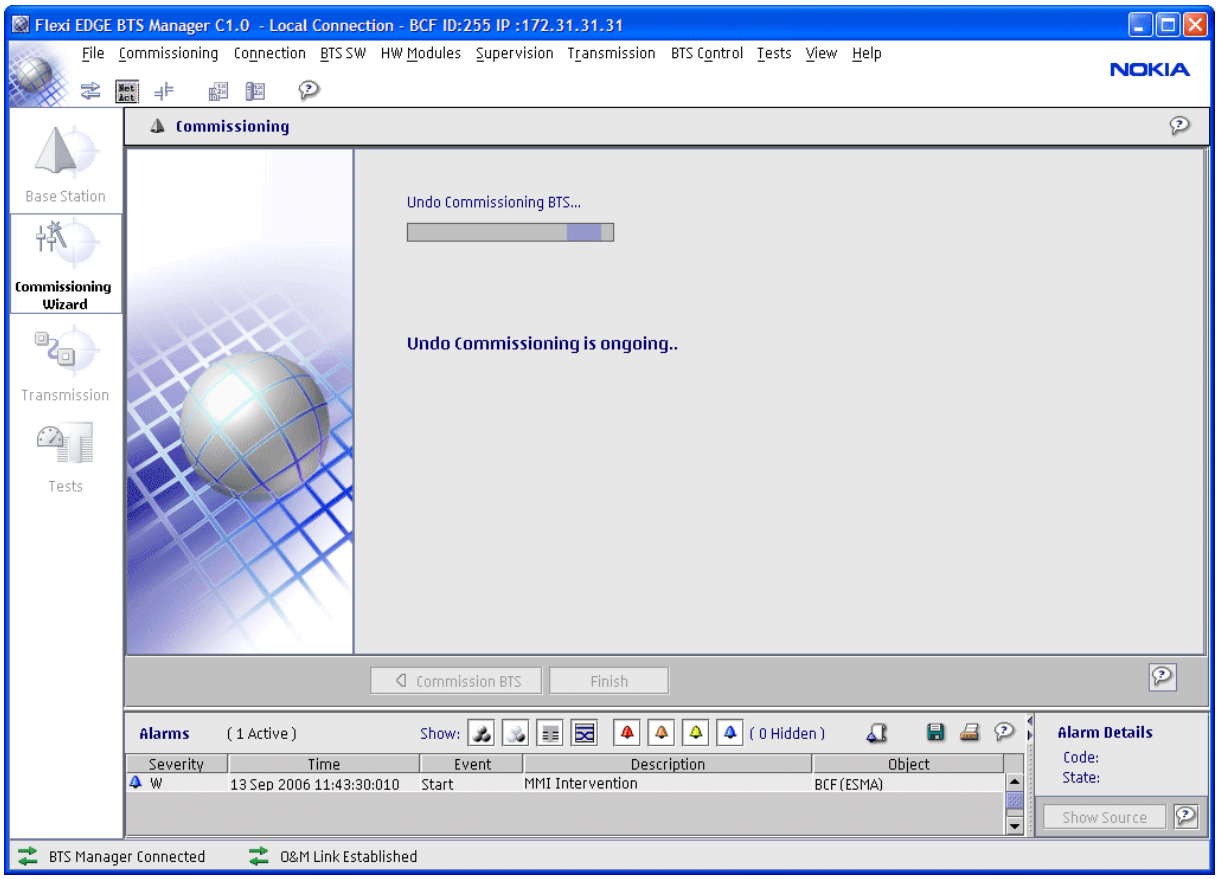

Figure 62. Undo commissioning

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Appendix A Installing Nokia Flexi EDGE BTS Manager

A.1 Installing Nokia Flexi EDGE BTS Manager

Purpose

Follow these instructions to install Nokia SiteWizard including the Nokia Flexi EDGE BTS Manager software on your PC.

Before you start

You should be familiar with installing software on your PC and managing files in it. Administrator rights are required for installing new software on your PC.

To set up and install Nokia SiteWizard, you need to have an Internet connection available to download the Nokia SiteWizard installation file from Nokia Online Services (NOLS). The installation file can also be delivered on a removable media (CD-ROM, for example).

Check that your computer meets the system requirements (see the table below).

Table 1. System requirements for Nokia Flexi EDGE BTS Manager

Microsoft® Windows XP Professional	• PC with 300 megahertz or higher processor clock speed recommended • Intel Pentium/Celeron family, or AMD K6/Athlon/Duron family, or compatible processor recommended • 128 megabytes (MB) of RAM or higher recommended
Microsoft® Windows 2000 Professional Edition	• PC with 300 megahertz or higher processor clock speed recommended • Intel Pentium/Celeron family, or AMD K6/Athlon/Duron family, or compatible processor recommended • 128 megabytes (MB) of RAM or higher recommended
Microsoft® Windows 2000 Server Edition	• 550 MHz for x86-based computers • 256 MB of RAM
Microsoft® Windows Server 2003	• 550 MHz for x86-based computers • 256 MB of RAM

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Table 1. System requirements for Nokia Flexi EDGE BTS Manager (cont.)

Common recommendations	• Super VGA (1024 x 768) or higher-resolution video adapter and monitor • Keyboard and Microsoft® Mouse or compatible pointing device • Minimum of approx. 5 MB free disk space for installation, excluding JRE and GCS

In all cases, the Host computer must be equipped with a 100Mbit/sec compatible Ethernet device.

Network settings:

For direct connections to the Flexi EDGE Local Management Port (LMP), the PC running Nokia Flexi EDGE BTS Manager must belong to the same subnet as that configured at the LMP.

The PC network settings for Nokia Flexi EDGE BTS Manager should be the following:

- IP address: 192.168.255.130
- Subnet Mask: 255.255.255.128
- Default gateway: 192.168.255.129

The default settings of the BTS are:

- IP address: 192.168.255.131
- TCP Port: 27500

Note

If a personal firewall is installed on the PC, it may request permission for Nokia Flexi EDGE BTS Manager (Nokia Flexi EDGE BTS Manager. exe) to access the local network. Permission must be granted, otherwise it will not be possible to connect to the Nokia Flexi EDGE BTS.

For further information about the specifc firewall installed on your PC, contact your System Administrator or IT Helpdesk.

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For instructions on changing the IP settings, see *Changing IP address settings for Windows XP*.

Steps

1. **Start Microsoft Windows.**

2. **To install the Nokia SiteWizard from NOLS, proceed as follows:**

   Download the Nokia SiteWizard installation package from NOLS (Care - Software Delivery). For more information about NOLS, contact your Nokia customer support representative.

   Extract the installation package that was downloaded from NOLS to a temporary location in your computer.

   Locate the installation package on your PC, using the Windows Explorer. Double-click on the setup.exe program icon in the window.

   Follow the instructions displayed in the Setup program.

   The Setup program copies the files, and at the end of the procedure it notifies you that the setup is complete.

3. **To install the Nokia SiteWizard from CD ROM, proceed as follows:**

   Insert the Nokia SiteWizard installation CD-ROM into your PC's CD-ROM drive. The setup program should start automatically within a few seconds.

   If the setup program does not start automatically, double-click the CD-ROM drive icon in the My Computer window to open the CD-ROM disk, and then double-click the setup.exe program icon in the window.

   Follow the instructions displayed in the setup program. GCS should be chosen for installation along with the Node Managers.

   The setup program copies the selected files and notifies when the installation is complete.

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Appendix B Creating commissioning files

B.1 Creating SCF or template files

Purpose

Site Commissioning Files (SCF) or EasyWizard hardware and transmission templates are required when commissioning Nokia Flexi EDGE BTS using one of the following commissioning modes:

- EasyWizard Template Commissioning
- Complete SCF Commissioning

It is also possible to use SCF files as basis with the Manual Commissioning mode.

With SCF file creation, you can see the same Commissioning Wizard screens as during manual commissioning of a BTS. The difference is that instead of sending the file to a BTS at the end of the process, it is saved to disk to be used later.

Depending on the SCF creation mode, different screens are shown.

- *EasyWizard hardware template file*: with this option, only the hardware screens are shown. The user of the template will also see the following pages, meaning that it is possible to modify any of the values on those pages at the time of commissioning:
  1. Site Specific Information
  2. Antenna Settings
  3. Battery Backup Unit
  4. Other Passive Units
- *EasyWizard transmission template file*: with this option, only the transmission-related screens are shown. The user of the template will not see any of the transmission screens, therefore the template must contain all of the transmission settings required for the site.
- *Complete SCF*: with this option, all the screens are shown, but the SCF cannot be saved unless it contains a valid configuration that would be accepted by a BTS. If the commissioner uses the SCF as a 'Complete SCF', no changes will be possible to the settings in this file.

  It is also possible to use this SCF during manual commissioning. In this case all the settings can be modified.

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- *Partial SCF*: with this option, all the screens are shown, and the SCF file can be saved at any time in any state. This option is normally used to specify partial configurations to be used later in manual commissioning. In such a case the commissioner can modify any of the settings at the time of commissioning.

Before you start

Nokia Flexi EDGE BTS Manager must be operational but not connected to the BTS.

Steps

1. **Select the Commissioning → Wizard menu item or click the Commissioning button on the View Bar.**

   The **Commissioning** task selection page opens.

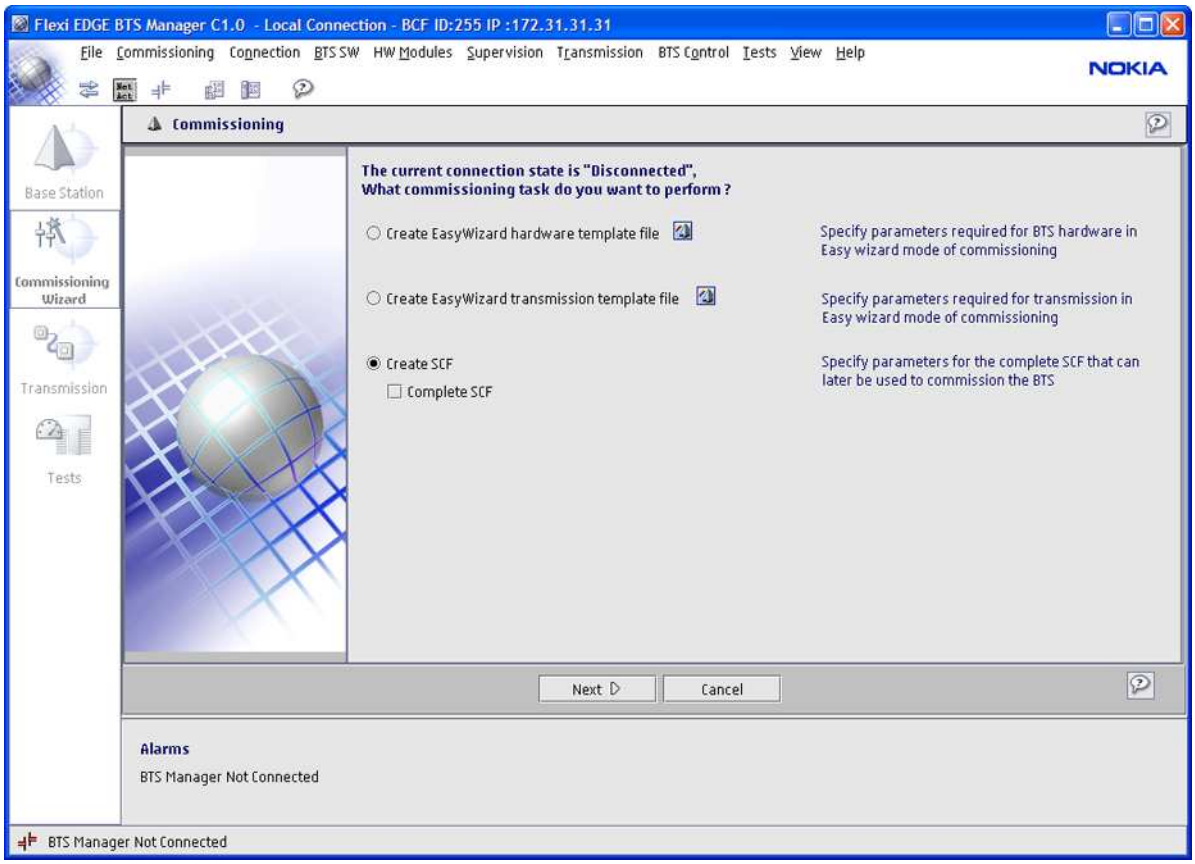

Figure 63. Commissioning task selection page, when BTS is not connected

2. **Depending on the template you want to create, select one of the following: Create EasyWizard hardware template file, Create EasyWizard transmission template file or Create SCF.**
   - To create a hardware template, select the **Create EasyWizard hardware template file** option.

     Follow the steps 5 - 14 and 30 in section *Manual Commissioning*.
   - To create a transmission template, select the **Create EasyWizard transmission template file** option.

     Follow the steps 15 - 30 in section *Manual Commissioning*.
   - To create a complete SCF, select the **Create SCF** option.

     Follow the steps 3 - 30 in section *Manual Commissioning*.
   - To create a partial SCF, select the **Create SCF** option.

     Follow the steps 3 - 30 in section *Manual Commissioning*.

3. **Check the details in the SCF preview page.**

   You can view the SCF summary in a tree view on the **Summary** tab, or as a complete SCF in XML format on the **Detail** tab.

   If the details are correct, click **Save** to save the templates or SCF at the desired location.

   If the details are incorrect, use the **Back** button to browse back.

4. **Save the SCF or template file.**
   - The extension for the hardware template file must be `epb`.
   - The extension for the transmission template file must be `ept`.
   - The extension for the SCF file must be `xml`.

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Appendix C LED statuses

C.1 LED statuses

STATES	BTSOM NOT RUNNING	PLATFORM STARTUP	AUTO DETECT	COMMIS	WAIT FOR LAPD	BCF_SW LOADING		BCF CONFIGURING		BCF SUPERVISORY		BACKGROUND SW LOADING		BCF RESET
						OMUSIG ON	OMUSIG OFF	OMUSIG ON	OMUSIG OFF	OMUSIG ON	OMUSIG OFF	OMUSIG ON	OMUSIG OFF	
BCF HIGHLIGHT	SR	BY	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	SR
ALARM:BCF CRITICAL	SR	BY	SR	SR	SR	SR	SR	SR	SR	SR	SR	SR	SR	SR
ALARM:BCF MAJOR	SR	BY	BR	BR	BR	BR	BR	BR	BR	BR	BR	BR	BR	SR
ALARM:TRS CRITICAL	SR	BY	SY	SY	SY	SY	SY	SY	SY	SAME PRIORITY AS BCF ALARMS				SR
ALARM:TRS MAJOR	SR	BY	SY	SY	SY	SY	SY	SY	SY					SR
ALARM:TRS MINOR	SR	BY	SY	SY	SY	SY	SY	SY	SY	BY	BY	BY	BY	SR
LOCAL_MODE	SR	BY	BY	BY	NA	NA	NA	BY	BY	SG	NA	NA	BG	SR
BCF OBJ LOCK	SR	BY	SY	SY	SY	SY	SY	SY	SY	SY	NA	SY	SY	SR
BCF OBJ BLOCK	SR	BY	NA	NA	NA	NA	NA	NA	NA	SY	SY	SY	SY	SR
NORMAL	SR	BY	BY	BY	BY	BG	SY	BY	SY	SG	SG	BG	SG	SR

Colour Priority
BCF HIGHLIGHT
SR
BR
SY
BY
BG
SG

Legend:
CC = Cycling Colors
SR = Stable Red
BR = Blinking Red
SY = Stable Yellow
BY = Blinking Yellow
BG = Blinking Green
SG = Stable Green
NA = Not Applicable

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Appendix D Using Nokia FlexiHub Manager

D.1 Introduction to Nokia FlexiHub Manager

Before you start

Nokia FlexiHub Manager software application is running on your computer and a connection to the node has been established.

The **Hardware View** opens automatically whenever you are managing a network element.

The **Hardware View** contains a graphical representation of the network element. The figure displays the number and configuration of indoor units, plug-in units, outdoor units, and Extended Flexbus connections.The **Hardware View** contains a graphical representation of the network element. The figure displays the configuration of the indoor unit, outdoor units, and Flexbus connections.

In the **Hardware View** you can access the settings and identifications of each unit, and view the status information for the radio hop. This information is updated periodically.

Steps

1. **To display the pop-up menu, click the right mouse button while the mouse pointer is over a unit.**

2. **To display the properties and settings, click on the unit or the radio hop.**

Further information

The **Alarms View** is displayed below the **Hardware View**, and also the **Details** for a selected alarm. In the **Alarms View** you can display current alarms or the alarm history, and you can use a filter to select the types of alarm to be displayed.

You can click on the icons in the **View Bar** along the left-hand edge to select other available views and operations. These include:

- Making 2M-level cross-connections
- Configuring DCN for network management
- Performing software upgrades

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- Monitoring node performance
- Commissioning the node

Note that many of the changes or actions that can be performed in Nokia FlexiHub Manager do not take place until they have been sent to the node.

D.2 Using online help in Nokia FlexiHub Manager

Purpose

Nokia FlexiHub Manager offers an online help that is available at all times.

Before you start

Nokia FlexiHub Manager software application is running on your computer.

Steps

1. **To access the help system, use one of the following methods:**
   a. In the Manager menu, select **Help → Help Topics**.
   b. Select the help symbol in any view of the Manager.

Expected outcome

Nokia FlexiHub Manager online help opens.

D.3 Printing from a Nokia FlexiHub Manager window

Purpose

You can print the information from selected views to a printer. The window is printed in text format.

Before you start

Nokia FlexiHub Manager software application is running on your computer and a connection to the node has been established.

Steps

1. **In the Nokia FlexiHub Manager menu, select File → Print.**
2. **Select the desired information to be printed.**

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Expected outcome

The information in the Manager window is printed.

D.4 Exporting information to a text file

Before you start

Nokia FlexiHub Manager software application is running on your computer and a connection to the node has been established.

Steps

1. In the Manager menu, select File → Save As.

2. Save the required information.

Expected outcome

The information is exported to a text file.

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Appendix E Configuring properties and settings of FIFA

E.1 Configuring properties

Purpose

All FIFA properties and settings are viewed and edited using the **Hardware View** in Nokia FlexiHub Manager. Click on a unit in the **Equipment** pane in order to select it.

Before you start

Nokia FlexiHub Manager is running on your computer and a connection to the node has been established.

Steps

1. **On the Nokia FlexiHub Manager View Bar, select Hardware.**

   The **Equipment** pane is shown.

2. **Select the appropriate unit.**

   Click on the unit. The settings are shown on the configuration pane on the right.

   Click the tabs to switch between pages.

   To view or change far-end settings, select *Radio Hop Settings*.

3. **Make sure the Properties tab is selected, detailing the properties of the selected unit.**

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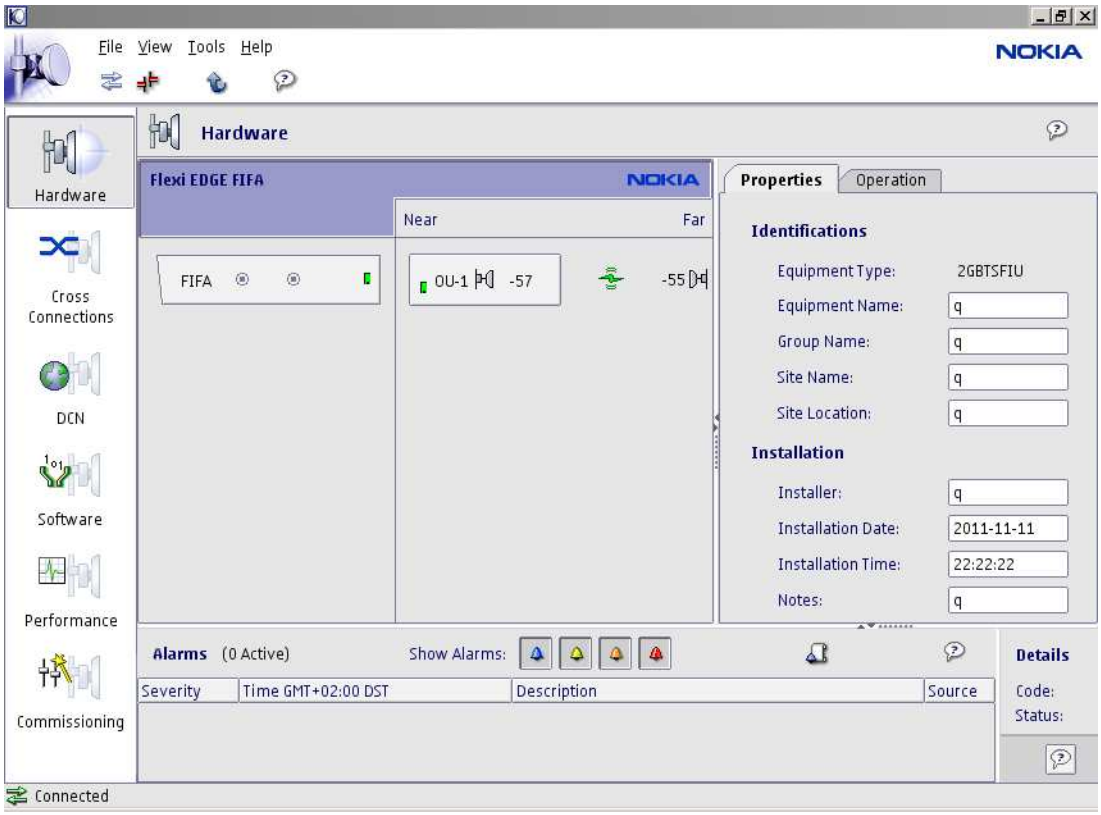

Figure 64. Nokia FlexiHub Manager **Hardware View**, Properties

Properties are displayed separately for the network element, indoor unit, and outdoor units.

4. Type in the desired information in the fields, and click Send.

User-defined properties for a network element or a unit can include, for example, notes on the installation. Some of the information cannot be altered because it is read directly from the equipment.

Expected outcome

The properties have been configured.

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E.2 Viewing and changing unit settings

Before you start

Nokia FlexiHub Manager is running on your computer and a connection to the node has been established.

Steps

1. **On the Nokia FlexiHub Manager View Bar, select Hardware.**

   The **Equipment** pane is shown.

2. **Select the appropriate unit.**

   Click on the unit. The settings are shown on the configuration pane on the right.

   Click the tabs to switch between pages.

3. **Select the appropriate tab.**

   The settings may be divided under several tabs. You may have to check all of them.

4. **Change the settings for the unit, if necessary.**

   If certain settings are changed (for example, transmit frequency or Flexbus capacity), also the settings of the terminal at the other end of the hop have to be changed correspondingly.

5. **Change the settings for the unit, if necessary.**

6. **Click Send to send the changes to the node.**

Expected outcome

The unit settings are displayed and, optionally, you have changed some settings.

E.3 Configuring network element settings

Purpose

Network element settings define the protection settings for FIFA.

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Before you start

Nokia FlexiHub Manager is running on your computer and a connection to the node has been established.

Steps

1. **On the Nokia FlexiHub Manager View Bar, select Hardware.**

   The **Equipment** pane is shown.

2. **Select the network element.**

   Click on any area outside of the units. The settings are shown on the configuration pane on the right.

   Click the tabs to switch between pages.

3. **Select the Operation tab to change the operation mode settings.**

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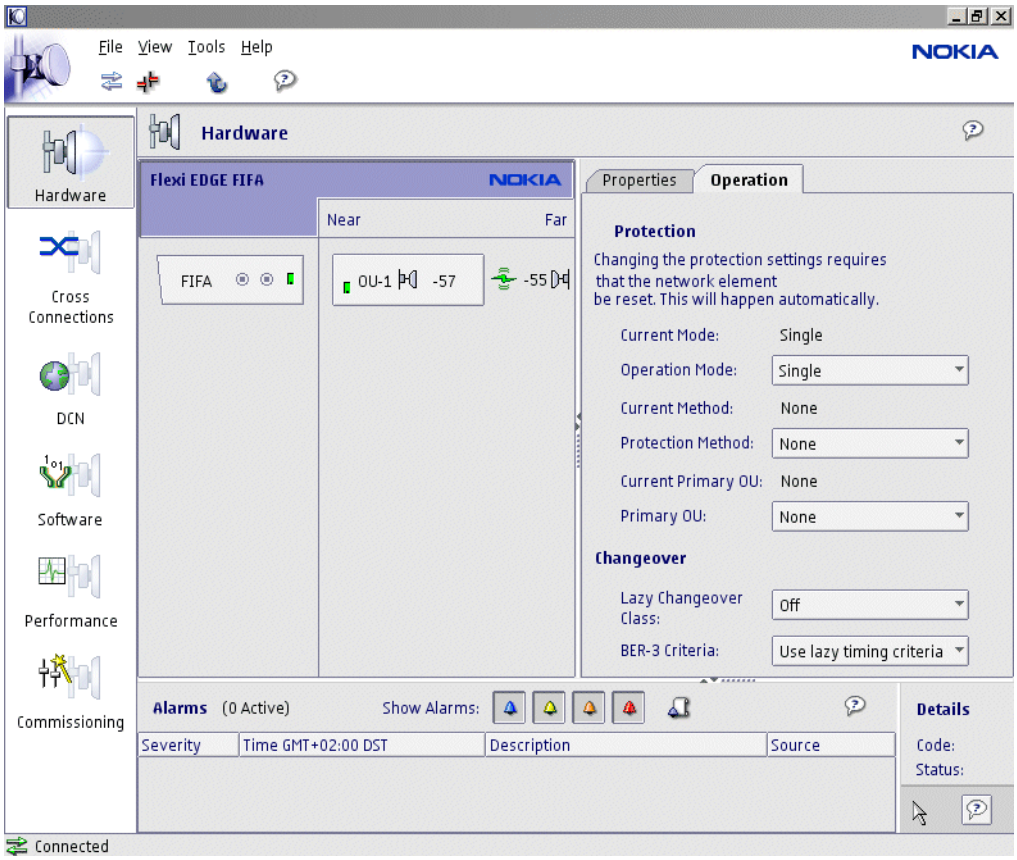

Figure 65. Network Element settings

In the drop-down lists, select the value to change the protection mode, protection method, or primary outdoor unit in a protected setup. You can also select different changeover criteria.

Expected outcome

The network element settings have been configured.

E.4 Configuring indoor unit settings

Before you start

Nokia FlexiHub Manager is running on your computer and a connection to the node has been established.

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Steps

1. **On the Nokia FlexiHub Manager View Bar, select Hardware.**

   The **Equipment** pane is shown.

2. **To check or change the indoor unit settings, select the unit.**

   Click on the unit. The settings are shown on the configuration pane on the right.

   Click the tabs to switch between pages.

3. **Select the Indoor Unit Settings tab to check or change interface settings.**

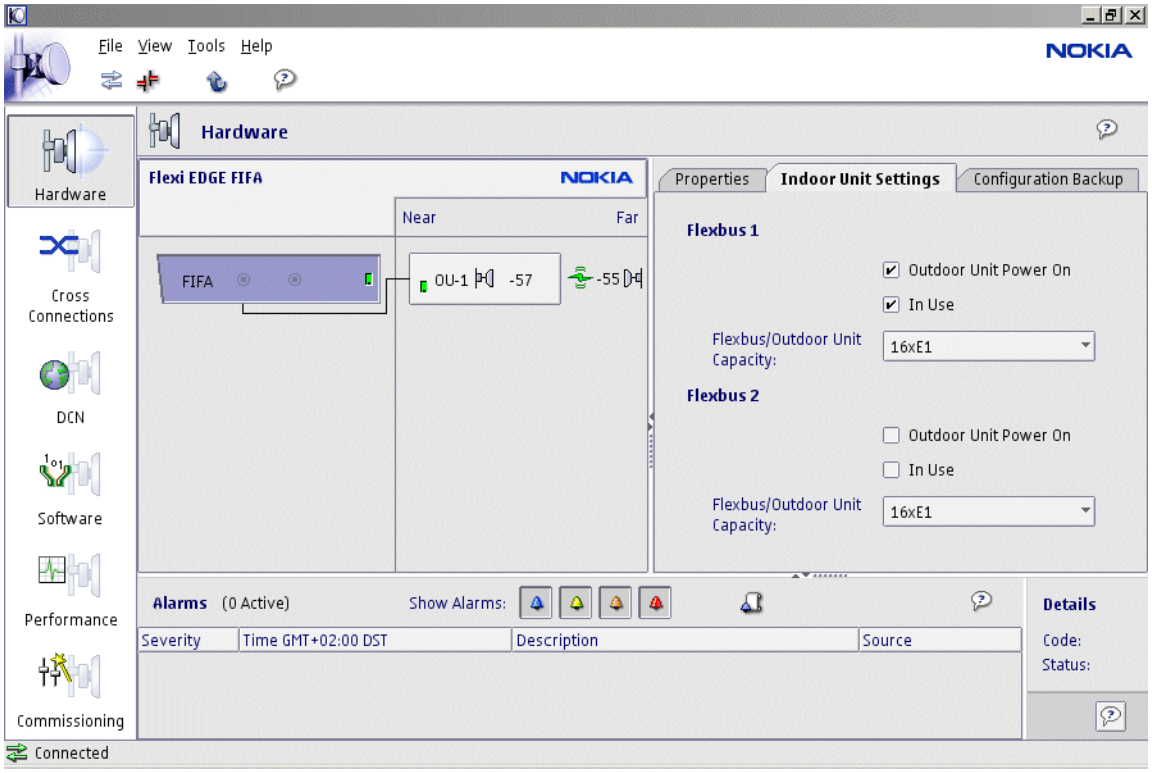

Figure 66. Indoor Unit Settings

- Set a Flexbus in use by clicking the check box.
- In the drop-down list, select the Flexbus capacity.
- Set the outdoor unit power on by clicking the check box.

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4. **Click Send to send the changes to the node.**

Expected outcome

The indoor unit settings have been configured.

E.5 Configuring outdoor unit settings

Before you start

Nokia FlexiHub Manager is running on your computer and a connection to the node has been established.

Steps

1. **On the Nokia FlexiHub Manager View Bar, select Hardware.**

   The **Equipment** pane is shown.

2. **To check or change the outdoor unit settings, click on the outdoor unit.**

3. **Select the Outdoor Unit Settings tab.**

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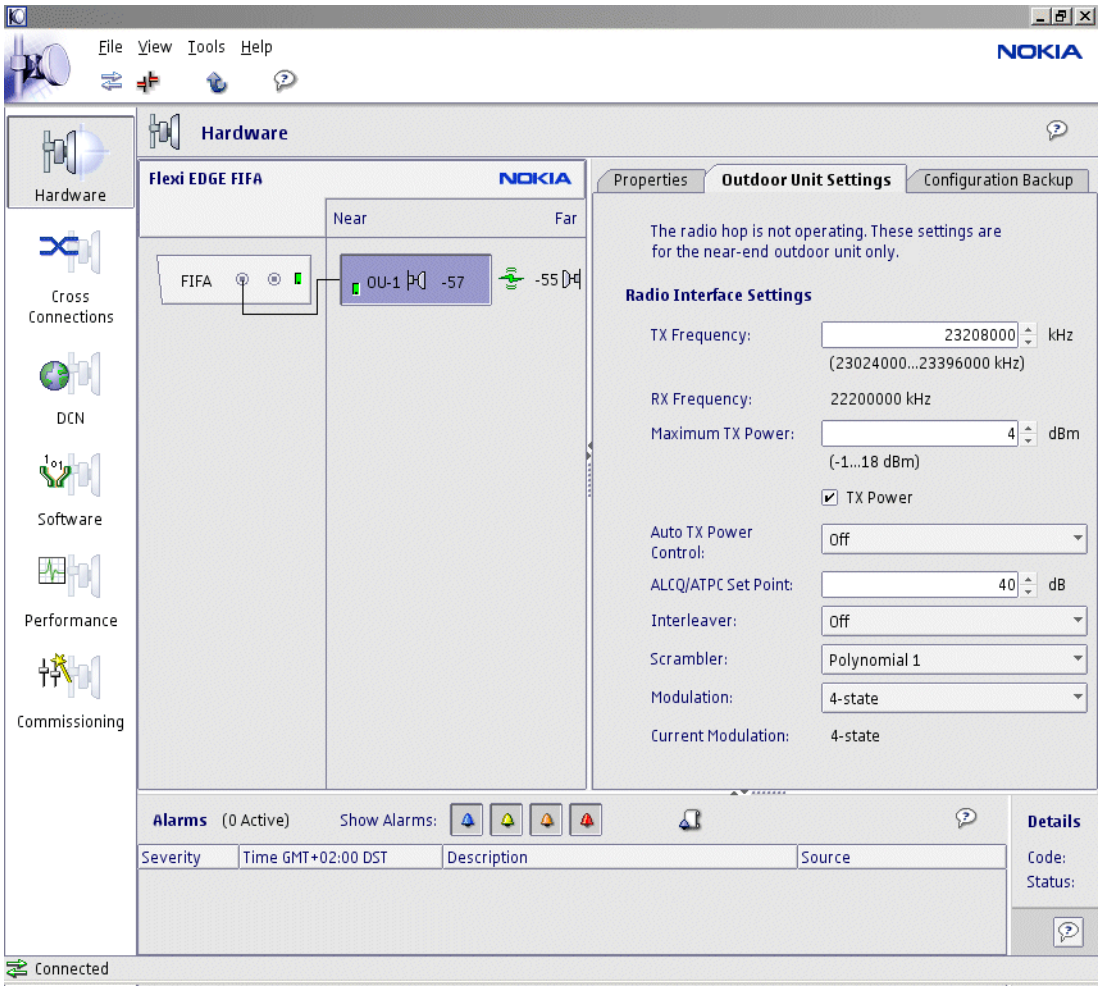

Figure 67. Outdoor Unit Settings

In the settings tab you can modify the transmit frequency, transmit power, automatic transmit power control (ATPC/ALCQ), modulation, and interleaving settings for the outdoor unit(s). In a protected setup, some settings are common for both radios, depending on the protection method (hot-standby operation (HSB) or diversity protection).

4. **To turn the transmit power on/off, select/clear the Tx Power check box.**

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5. **To change the transmit frequency, type in the new value in the Tx Frequency (kHz) box or click the arrows to adjust the frequency.**

   The frequency step is read from the equipment.

6. **To change the transmit power, type in the new value in the Maximum Tx Power (dBm) box or click the arrow to adjust the power.**

   The minimum and maximum values for the transmit power are read from the equipment.

7. **To change automatic transmit power control, select the control mode from the Auto TX Power Control drop-down list.**

   The possible operating modes for automatic transmit power control are Off, ATPC, and ALCQ.

   For the ATPC or ALCQ to function, you must set a value in the ALCQ/ATPC Set Point (dB) box. This value can be obtained from transmission planning.

   Further information

   For more information on ALCQ, see the relevant technical note in Maintenance Documentation in NOLS under Transmission and Backbone → Microwave Radios → Nokia FlexiHopper Plus Microwave Radio.

8. **To change the interleaving mode, select a new value from the Interleave status drop-down list.**

   Possible values for interleaver status are Off, Depth 2, and Depth 4 in 4-state modulation mode.

   Note that the outdoor unit stops transmitting while this setting is being changed. Change the setting accordingly also at the other end of the hop.

   In 16-state modulation the interleaver status is fixed to Depth 4.

9. **To change the modulation type, select a new value from the Modulation mode drop-down list.**

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Possible values are 4-state modulation or 16-state modulation. Changing the modulation mode settings interrupts the traffic for one minute.

Note that 16-state modulation is a licensed feature, and may require installation of a software licence.

10. In the Outdoor Unit Settings dialogue box, click Send to send the changes to the node.

Expected outcome

The outdoor unit settings have been configured.

E.6 Configuring Q1 settings

Before you start

Make sure that Nokia FlexiHub Manager is running on your computer and a connection to the node has been established.

Steps

1. On the Nokia FlexiHub Manager View Bar, select DCN.

The **DCN** view is shown.

2. Select the Q1 tab.

3. View and change, if necessary, the Q1 port settings.

To change the Q1 address or the baud rate of the Q1 port, type in the desired value or select it from the list.

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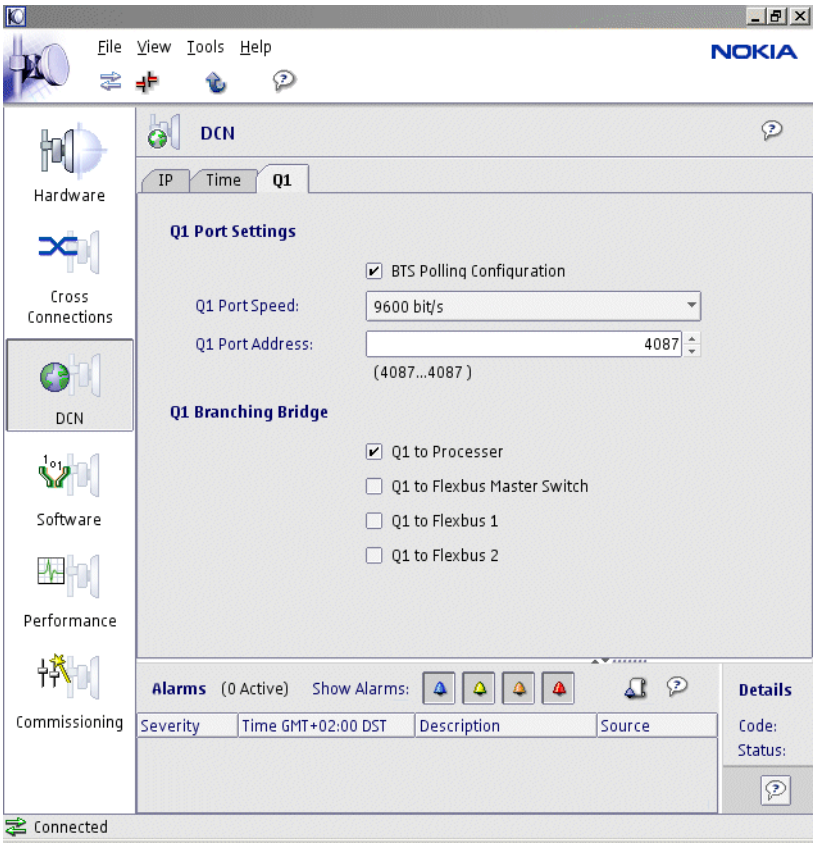

Figure 68. Configuring Q1 settings; BTS Polling Configuration

When FIFA is used with BTS polling, the Q1 port address is fixed to 4087 and the Q1 speed must be set to 9600 bit/s. This is the rate used by the BTS.

In BSC polling the Q1 address must be configured in the range 0 - 3999 according to the Q1 plan. The Q1 port speed must be set to the same value defined for the Q1 bus in the BSC.

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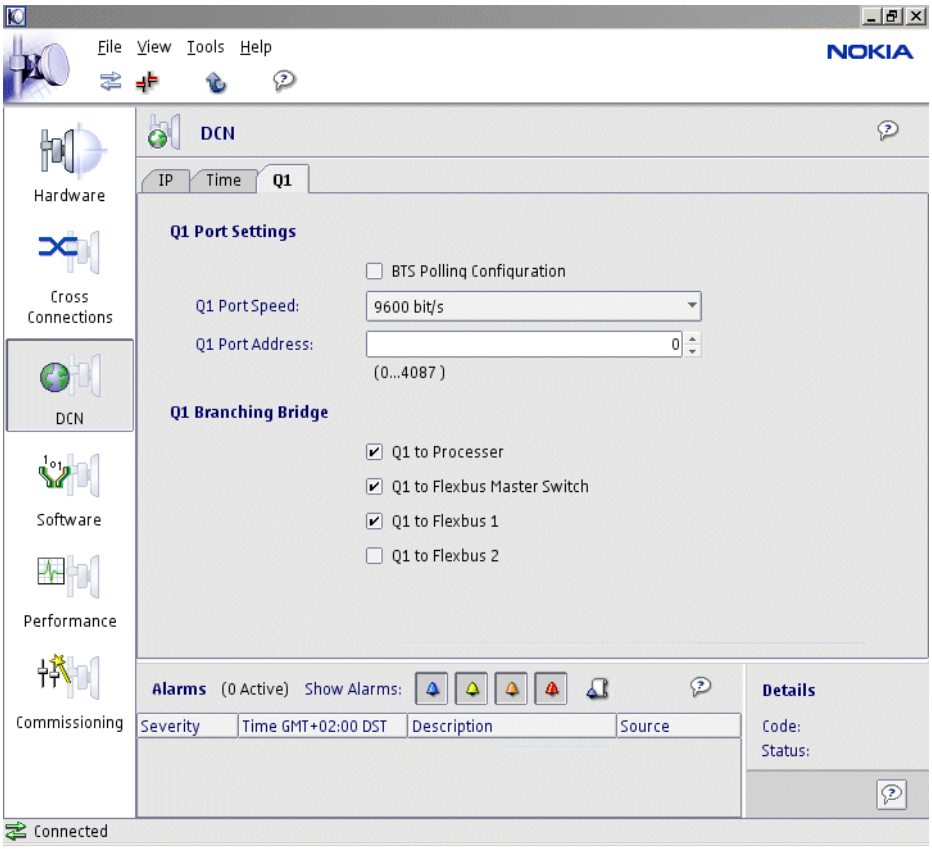

Figure 69. Configuring Q1 settings; BSC Polling Configuration

4. View and change, if necessary, the Q1 branching settings.

Select or clear the boxes to achieve the desired setting.

5. Click Send to send the changes to the node.

Expected outcome

The Q1 settings have been set.

Further information

For more information about the Q1 addresses, see *Q1 addresses* in *Product Description for FIFA Flexbus Transmission Sub-module for Nokia Flexi EDGE BTS*.

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E.7 Configuring IP settings

Before you start

Make sure that Nokia FlexiHub Manager is running on your computer and a connection to the node has been established.

Steps

1. **On the Nokia FlexiHub Manager View Bar, select DCN.**

   The **DCN** view is shown.

2. **Select the IP tab.**

   The IP settings are used for local management only, and cannot be changed. Modifications can only be made to the User Name and Password controlling user access.

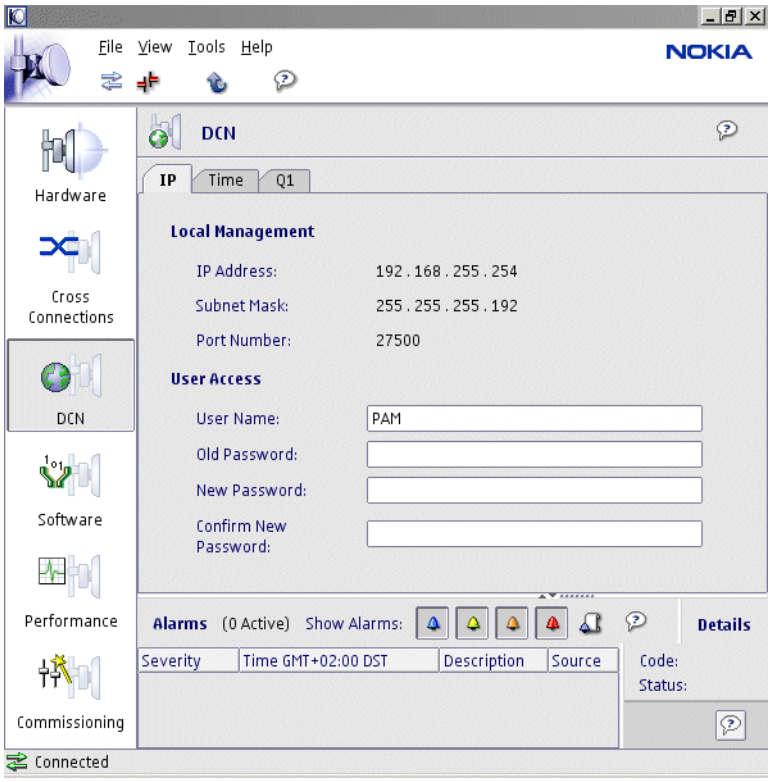

Figure 70. IP Settings

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3. **Click Send to send the changes to the node.**

Expected outcome

The IP settings have been set.

E.8 Setting the real time clock

Before you start

Nokia FlexiHub Manager is running on your computer and a connection to the node has been established.

Steps

1. **On the Nokia FlexiHub Manager View bar, select DCN.**
2. **Select the Time tab.**
3. **Check the Set Local Time in Network Element from PC Time check box.**
4. **Click Send to send new real time clock settings to the node.**

Expected outcome

The real time clock has been set and the check box is cleared.

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Appendix F Configuring FIFA Cross-Connections

F.1 Creating cross-connections

Use the cross-connections to define how signals are routed between interfaces and radio hops in the network element.

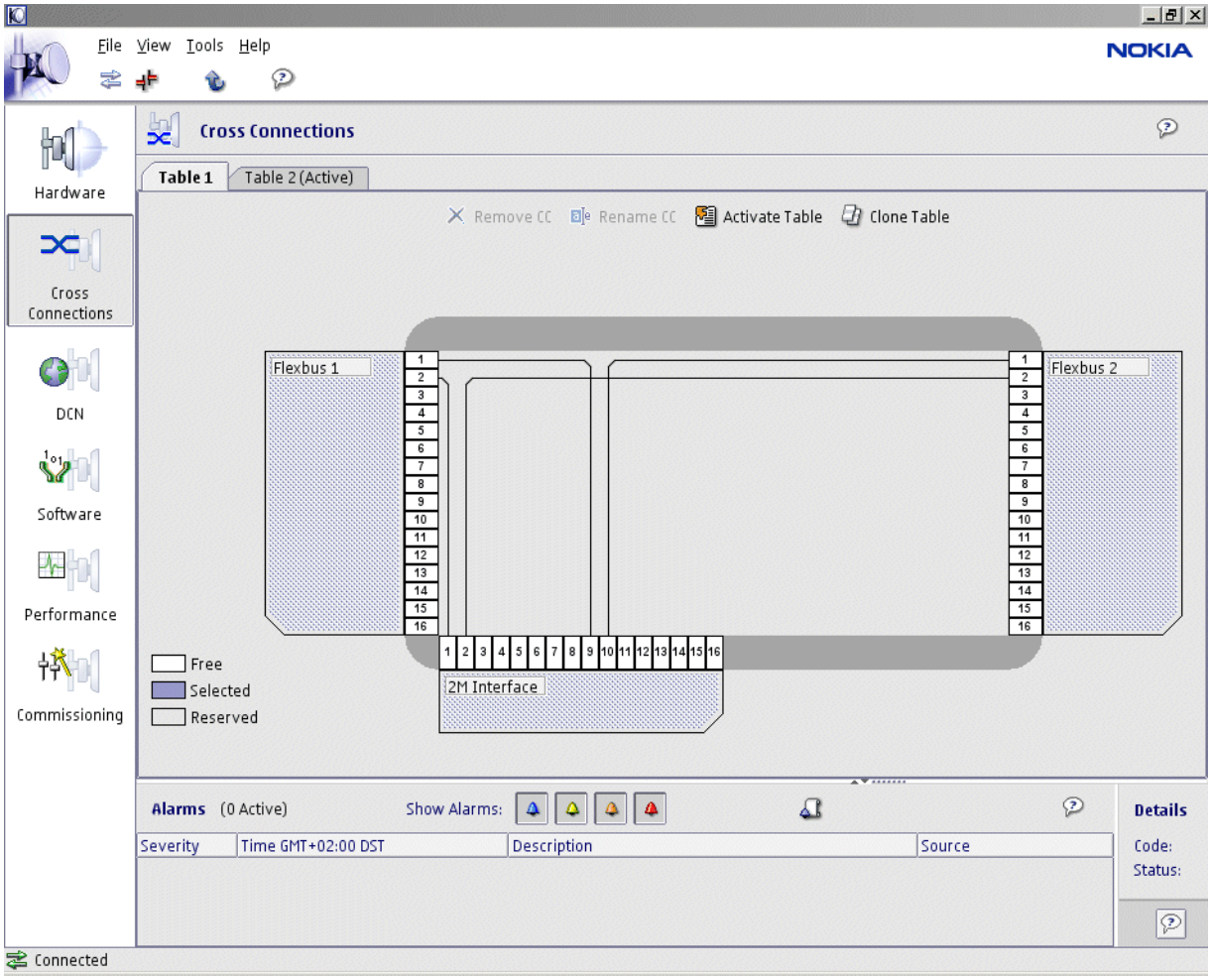

Figure 71. Cross-Connections View

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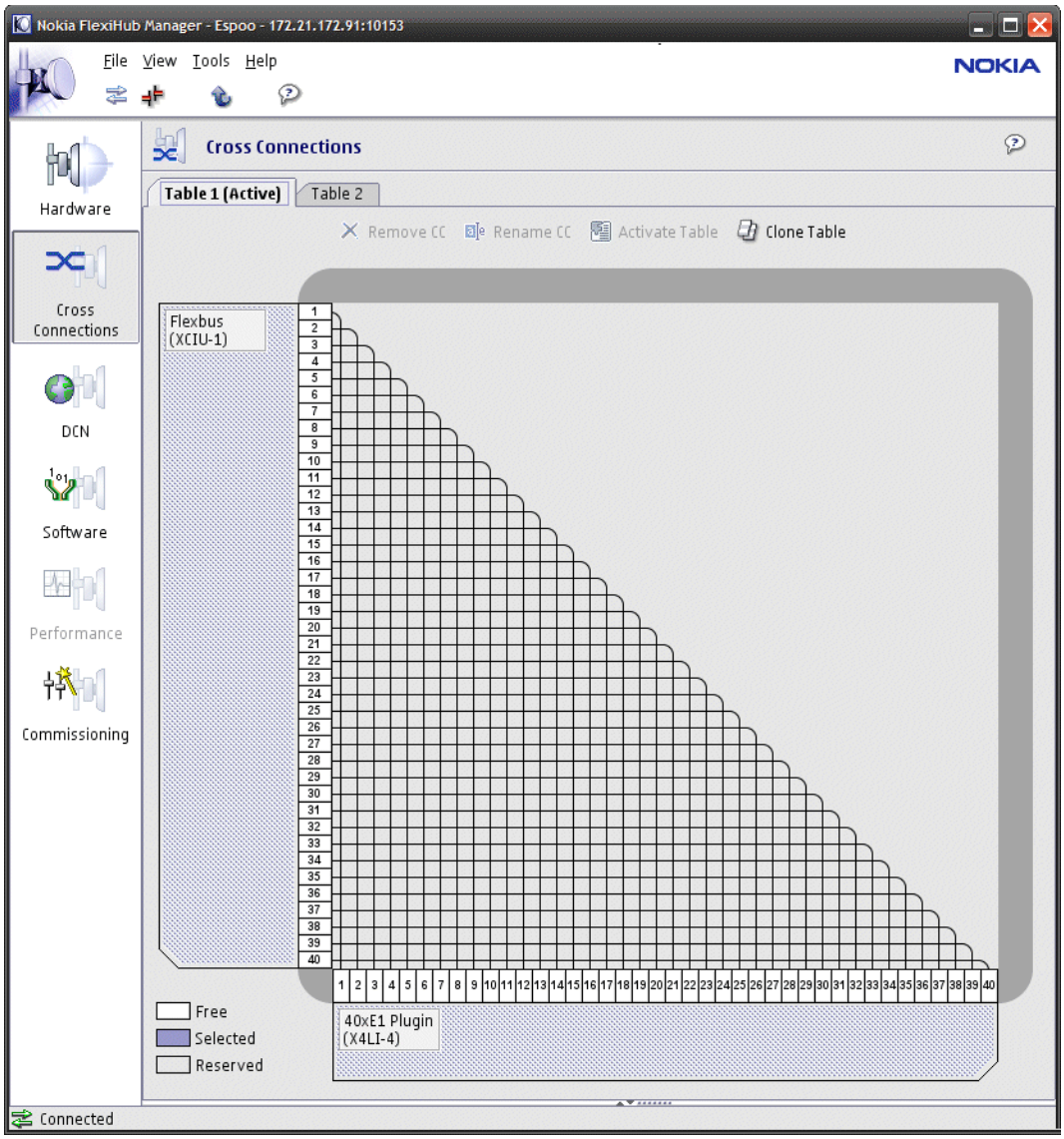

Figure 72. Cross-Connections View

You can view, create, manage, and remove 2Mbit/s cross-connections in the cross-connections view.

Free	The channel is not used for a cross-connection.

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Selected 	You have selected this channel, the cross-connection with this channel, or the channel to which this channel is cross-connected.

Selected cross-connection lines are highlighted with the same colour as the selected channel buttons.

Once you have made changes (such as adding, renaming, or removing a cross-connection), an approval bar with buttons **Send** and **Cancel** appears below the table. Choosing **Send** sends the changes to the network element. **Cancel** restores the user interface to the initial state before the editing started. To exit the Cross-Connections View, you have to choose either **Send** or **Cancel**.

F.2 Adding cross-connections

Purpose

You can add cross-connections between two channels, or connection points, in different interfaces.

Before you start

You are logged in and have adequate user rights to create cross-connections.

Steps

1. **Select Cross-Connections from the View Bar on the left.**

   The cross-connections view is shown with two tables: one active table and one inactive table. The active table is shown first.

2. **Select the first channel.**

   Click on the first connection point in one of the interfaces (the order is of no importance).

3. **Select the second channel.**

   Click on the second connection point in another interface.

   Expected outcome

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The cross-connection is drawn on the table.

4. Click Send.

Expected outcome

The cross-connection table update is sent to the node.

Unexpected outcome

If the system fails to send the new settings to the node, you will receive an error message. Try sending the settings again by clicking **Send**.

Further information

The cross-connection is named automatically (for example, *Flexbus1-3 <-> Flexbus2-3*, where the number after the hyphen is the channel number). You can rename the cross-connection by clicking **Rename CC**.

F.3 Removing cross-connections

Purpose

You can remove cross-connections between two channels, or connection points, in different interfaces.

Before you start

You are logged in and have adequate user rights to remove cross-connections.

Steps

1. Select Cross-Connections from the View Bar on the left.

Expected outcome

The cross-connections view is shown with two tables: one active table and one inactive table. The active table is shown first.

2. Select the cross-connection you want to remove.

Click either the cross-connection line or one of the channels.

3. Click Remove CC at the top of the table.

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Expected outcome

The cross-connection is removed from the table.

4. Click Send.

Expected outcome

The cross-connection table update is sent to the node.

Unexpected outcome

If the system fails to send the new settings to the node, you will receive an error message. Try sending the settings again by clicking **Send**.

F.4 Activating a cross-connection table

Purpose

There are two cross-connection tables that can be edited, one of them is active, that is, those settings are used by the node, and one is inactive. The active table has the word *Active* on its tab.

Before you start

You are logged in and have adequate user rights to activate cross-connection tables.

Steps

1. Select Cross-Connections from the View Bar on the left.

Expected outcome

The cross-connections view is shown with two tables: one active table and one inactive table. The active table is shown first.

2. Select the inactive table by clicking its tab.

3. Click Activate Table at the top of the table.

Expected outcome

The status of the table is changed to Active.

4. Click Send.

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Expected outcome

The activated cross-connection table is sent to the node.

Unexpected outcome

If the system fails to send the new table to the node, you will receive an error message. Try activating the table again by clicking **Send**.

F.5 Cloning a cross-connection table

Purpose

There are two cross-connection tables that can be edited. You can clone, or copy, the contents of one table to the other.

Before you start

- You are logged in and have adequate user rights to clone cross-connection tables.
- One of the tables is empty or has cross-connections that you can safely discard.
- You have sent to the node all your changes to the table by clicking the **Send** button.

Steps

1. Select Cross-Connections from the View Bar on the left.

Expected outcome

The cross-connections view is shown with two tables: one active table and one inactive table. The active table is shown first.

2. Select the table you want to clone (copy) by clicking its tab.

3. Click Clone Table at the top of the table.

Expected outcome

The contents of the table are cloned to the other table.

4. Click Send.

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Expected outcome

The cloned cross-connection table is sent to the node.

Unexpected outcome

If the system fails to send the new table to the node, you will receive an error message. Try activating the table again by clicking **Send**.

F.6 Configuring additional settings

Purpose

Perform the following tasks after the actual commissioning is completed, if needed.

Steps

1. **Make any additional settings with Nokia FlexiHub Manager.**

   For instructions, see *Configuring properties and settings* in *Administering FIFA Flexbus Transmission Sub-module for Nokia Flexi EGDE BTS*.

2. **Install any necessary software upgrades.**

   For instructions, see *Upgrading software with Nokia FlexiHub Manager* in *Installing FIFA Flexbus Transmission Sub-module for Nokia Flexi EGDE BTS*.

3. **Install any required software licences.**

   Time-limited (60-day) trial licences may be used for commissioning. However, long-term operation may require installation of non-time-limited licences for certain indoor and outdoor unit features. Licence installation can also be performed remotely.

4. **Perform manual configuration backup or enable automatic configuration backup in the indoor and outdoor units (if desired).**

   For instructions, see *Configuration backup* in *Product Description for FIFA Flexbus Transmission Sub-module for Nokia Flexi EDGE BTS*.

5. **Reset performance data.**

For instructions, see *Resetting the counters* in *Administering FIFA Flexbus Transmission Sub-module for Nokia Flexi EDGE BTS*.

6. Monitor the hop for at least half an hour.

For instructions, see *Monitoring the hop*.

7. Save the alarm log (if needed).

For instructions, see *Exporting information to a text file* in *Administering FIFA Flexbus Transmission Sub-module for Nokia Flexi EDGE BTS*.

8. Save the cross-connection information (if needed).

For instructions, see *Exporting information to a text file* in *Administering FIFA Flexbus Transmission Sub-module for Nokia Flexi EDGE BTS*.

9. Close the connection to the node.

For instructions, see *Closing the connection to a node* in *Administering FIFA Flexbus Transmission Sub-module for Nokia Flexi EDGE BTS*.

Expected outcome

The commissioning has been completed.

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Appendix G RF auto-detection supported configurations

G.1 RF auto-detection supported configurations

The Flexi EDGE Base Station supports automatic RF cable detection for the sector configurations listed in the following table. The Flexi EDGE Base Station supports HW configurations that are a combination of different sector configurations, as long as each sector configuration is listed in the table below. The maximum number of sectors supported by the Flexi EDGE Base Station is six.

Table 2. Sector configurations supporting automatic RF cable detection

Number of TRX	TX Combining	RX diversity	Number of Dual TRX Modul (EXxA)	Number of Dual Duplexer Module (ERxA)	Number of Wide Band Combiner Sub-Module (EWxB)	Number of Antenna
1 to 2	By-pass	2UD	1	1	0	2
3	By-pass	2UD	2	2	0	3
4	By-pass	2UD	2	2	0	4
1 to 2	2-way	1UD (no diversity)	1	1	1	1
3 to 4	2-way	2UD	2	1	2	2
3 to 4	4-way	1UD (no diversity)	2	1	3	1
5 to 8	4-way	2UD	4	1	6	2

In addition, the Flexi EDGE BTS supports automatic RF cable auto-detection of the cost-optimised base station configurations listed in the table below.

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HW Configuration	TX Combining	RX diversity	Number of Dual TRX Modul (EXxA)	Number of Dual Duplexer Module (ERxA)	Number of Wide Band Combiner Sub-Module (EWxB)	Number of System Module (ESMA)	Number of Antenna per sector	Number of Antenna
1+1	By-pass	1UD (no diversity)	1	1	0	1	1	2

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