



**NovaTec  
Configuration  
Helpfile**

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# 1 NovaTec - Help

## NovaTec Configuration Application

The NovaTec configuration shell is a database aided application that allows the user to manage the configuration data of a NovaTec target system (NovaTec-Splitter, ALCR). All configuration settings of the respective system will be made here and will then be transmitted to the target system. For transmission either the V.24 port, ISDN or TCP/IP can be used. To enable transmission, the NovaTec Network Services must be started.

Following are the principal steps to create and transmit a target system's configuration

- Opening the configuration database
- Importing the FW-license
- Editing the configuration settings
- Processing the configuration data
- Transmitting the data to the target system

Because the NovaTec application consists of several mutually independent and partially optional software modules, an appropriate version checking feature is provided. Refer to the Info about Modules and Versions for details.

### Notes

The NovaTec application uses the Microsoft Jet Engine database driver (version 3.5) and the related software component DAO 3.5. Both must be installed on the target machine. To see whether Jet and/or DAO are installed, check the operating systems list of installed software that can be displayed by choosing

**Start | Settings | System | Software.**

If necessary, these components can be installed from the installation CD-ROM.

## 1.1 NovaTec - System

### NovaTec - System

The NovaTec Splitter is an electronic multiplexer. Several models are available. For example the NovaTec Splitter/NMG S10 is supplied in a fixed housing while the NovaTec Splitter/NMG S20 is supplied in a 19" rack. The NovaTec Splitter/NMG S2 is a very small unit with the size of about an one liter box. All models offer a wide range of configuration possibilities. The NovaTec Splitter converts a PRA interface into the appropriate number of BRA interfaces. The operational mode (fixed connection, direct dialling connection) is determined by the various configuration options.

#### **New choice**

You can select the model to be configured by clicking on the NovaTec system window. When you click on New choice, you have the following choices for the chassis type

- S2
- S3
- S5
- S5 Plus
- S6
- S10
- S20

First you will be asked, if you want to keep the current configuration. If you click on **No** , a new system will be prepared for configuration.

#### **WARNING**

Every new selection deletes the existing configuration data. To make configuration easier, some of the core values that must be provided, are automatically created as default values (trunk group 1, authorisation class 1 etc.). You can alter these default values during the configuration process.

## 1.1.1 Chassis

### Chassis

This window enables the slots and the modules to be configured.

#### Slots

You can select your individual slot configuration here by using the list that has been provided. Please note that the CCU, CCU-Light and CCU-3 can only be configured for slot 1. Dependent on which chassis you have chosen the number of configurable slots and boards varies.

Here is an overview of the possible combinations.

S2

no configurable slots.

S3

no configurable slots.

S5

no configurable slots.

The first slot must contain a CCU, CCU-Light, CCU-3, SOS or a CBS

S5 Plus

2 configurable slots.

The first slot must contain a CCU, CCU-Light, CCU-3, SOS, MCU or a CBS

S6

4 configurable slots.

The first slot must contain a CCU, CCU-Light, CCU-3, SOS or a CBS

S10

1 configurable slot.

The first slot must contain a CCU, CCU-Light or a CCU-3. The third slot must contain a PBU

S20

16 configurable slots.

The first slot must contain a CCU, CCU-Light, CCU-3, SOS or a CBS

#### Boards

You can select your desired boards here (e.g. S04, S2M2). If there are no slots available, entries in the selection box are automatically deactivated.

CCU

S04, or S2M2 for the available board.

CCU-Light

S04, or S2M2 for the available board.

CCU-3

S04, S2M2 or ANA04 for the available boards.

SOS

S04, S2M2 or ANA04 for the available boards.

CBS

S04, S2M2 or ANA04 for the available boards.

MCU

S04, S2M2 or ANA04 for the available boards.

WAU

GSM1 or a GSM2.

EWU

No boards available.

SCU

No boards available.

SXU

No boards available

PBU

No boards available.

ULU

No boards available.

CAU

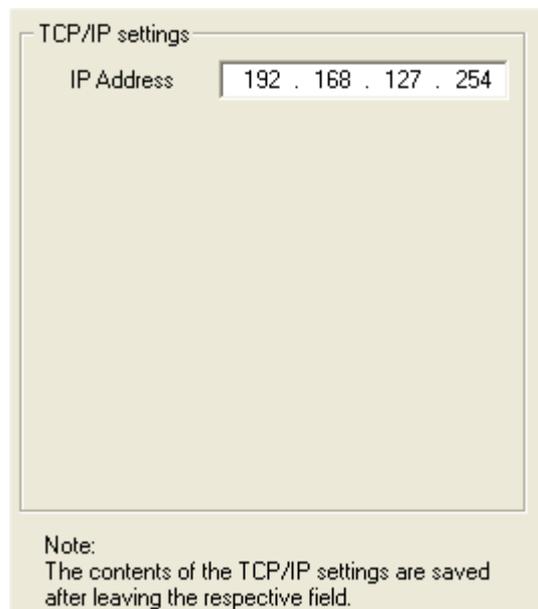
S04, S2M2 or ANA04 for the available boards.

BCU x

No boards available.

### TCP/IP-settings

These settings only apply for the CCU-3, SOS, CBS, MCU and the BCU boards, e.g. for any boards that have an IP connection.



TCP/IP settings

IP Address 192 . 168 . 127 . 254

Note:  
The contents of the TCP/IP settings are saved  
after leaving the respective field.

### IP Address

The IP address of the board. If the board being configured is derived from CCU3, then this is the IP address to connect to configure the system via TCP / IP.

### Note

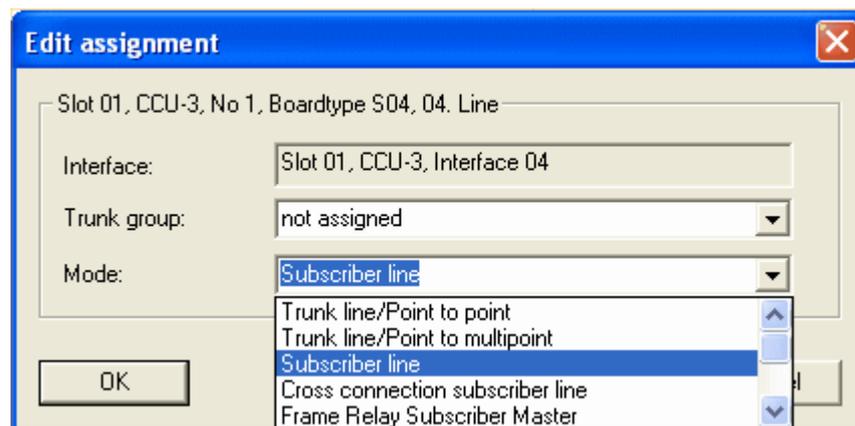
The chassis configuration can always be amended. Please be aware, however, that data amendments can potentially delete related configuration data.

In situations where a board other than the one configured is accidentally inserted into the slot, the system will issue an error message the next time the system boots.

## 1.1.2 Interfaces

### Interfaces

The interface window shows the physical interfaces that are available. This is where you can configure the desired operational mode and the trunk group by making your selection from the provided list. It is necessary to define all the trunk groups you need before you can configure the interfaces. The trunk group declaration you do here is automatically copied to trunk group assignment. Because of this you should first carry out the configuration here and adjust the trunk group assignments (if required) later. You may also export the interfaces for use in the CDR evaluation application using the **Export** function.



#### Interface

The chosen interface

#### Trunk group

The trunk group that is to be assigned to the interface

#### Mode

There are 17 different operational modes to choose from

- Trunk Line / Point to Point
- Trunk Line / Point to Multipoint
- Subscriber Line
- Cross Connection Subscriber Line
- Frame Relay Subscriber Master
- Frame Relay Subscriber Slave
- Frame Relay Link Master
- Frame Relay Link Slave
- L3 Transparent Subscriber
- L3 Transparent Trunk
- NLP Transparent
- SIP
- 1TR6 PTP --> DSS1 PTP
- 1TR6 PTMP --> DSS1 PTMP
- DSS1 PTP --> 1TR6 PTP
- DSS1 PTMP --> 1TR6 PTMP
- Analog Subscriber-Line

**Note**

For all interfaces, a dialing plan must be selected under trunk group. For Trunk Line interfaces, the value of a charge unit must be adjusted under Trunk group.

For Trunk Line interfaces, the synchronization must be set. For Point to Multipoint connections the MSN-Mapping must be set. For Cross Connection Subscriber Line the operational mode must be shut down. The L3-Transparency relates only to the supplementary services of the DSS1 protocol. Only if you want to shut off an interface to de-energize it, should you de-assign a trunk group, and you should de-assign the interface under trunk group. This reduces the electrical emission.

**Note**

If Slot 1, CCU slot, interface 4 is used as the Trunk Line / Point to Point connection, this interface should never be defined as a user interface because this can cause electrical disturbances within the system.

**Interface numbering**

Normally the numbering of the physical interfaces of a board start at the bottom. For example a WAU with two GSM2 sub modules, the lower interface is number 1.

**Note**

To assign one operational mode to more than one interface, it is possible to mark several interfaces, and change them at the same time.

**Export**

The export button allows you to export the interface information as a file, to be imported into the CDR evaluation application from NovaTec.



Slot 01: S3U : Submodule 03 (ANA): Interface 07

Settings Analogue-Interface

Dial Parameter

Max. Hook-Flash Duration [ms]: 310

Calling Line Identification Presentation

Caller-ID Standard: Off

Call-Charge

Pulse-Length [ms]: 100

Pulse [kHz]: 16 kHz

Country-Parameter

Country: ETSI

Default-Values

Set Default

Tone Detection

Fax Tone Detection

Ok Cancel

Now you can enter the desired parameters for the selected analogue-interface.

#### **Maximum Hook-Flash Duration**

Enter here the maximum Hook-Flash duration in milliseconds.

#### **Pulse-Length**

Enter here the pulse-length in milliseconds.

#### **Pulse**

Here you can define the frequency for call-charge.

#### **Caller-ID Standard**

Select a Caller-ID Standard for the chosen interface.

#### **Country**

Choose the appropriate Caller-ID standard for the country.

#### **Tone Detection**

Choose the desired tone detection.

In case of misconfiguring the analogue-interface you can reset the configuration data to default values by clicking on the button "Set Default".

## Global Analogue-Interface Configuration

If you want to edit the global configuration for both analogue-interfaces, click the button "Edit Globals...". The following dialog will appear.

**Global Analogue-Interface Options**

Global Settings Analogue-Interfaces

Dial Parameter  
Max. Hook-Flash Duration [ms]: 310

Calling Line Identification Presentation  
Caller-ID Standard: Off

Call-Charge  
Pulse-Length [ms]: 100  
Pulse [kHz]: 16 kHz

Country-Parameter  
Country: ETSI

Default-Values  
Set Default

Tone Detection  
Fax Tone Detection

Supplementary Services

|                                  |      |                            |      |
|----------------------------------|------|----------------------------|------|
| Clear Held Call                  | R0   | Activate Fwd. Busy Prefix  | *67* |
| Clear Active Call                | R1   | Activate Fwd. Busy Postfix | #    |
| Hold                             | R    | Deactivate Fixed Fwd.      | #21# |
| Alternation between Lines        | R2   | Deactivate Fwd. No Reply   | #61# |
| Activate Fixed Call Fwd. Prefix  | *21* | Deactivate Fwd. Busy       | #67# |
| Activate Fixed Call Fwd. Postfix | #    | Call Pick Up               | *14* |
| Activate Fwd. No Reply Prefix    | *61* | Abb. Dial                  | *#   |
| Activate Fwd. No Reply Postfix   | #    | Station Guarding           | *08* |

Ok Cancel

If some parameters in the global configuration differ from the individual configuration, the fields are not filled out. Therefore you can realize, which values are set for the global and which are set for the individual configuration. If you edit the global configuration, the individual configuration will be overwritten by the newly edited values.

In addition to the parameters described above, you can define the supplementary services for the analogue-interfaces in the lower half of the dialog.

In case of misconfiguring the analogue-interfaces you can reset the configuration data to default values by clicking on the button "Set Default".

By clicking this button in this dialog, both analogue-interfaces and the supplementary services will be reset to default.

## 1.1.4 System access control

### System access control

In this section, the access to the NMG (via ISDN / GSM) is controlled. The options here **have no effect** on the remote access for management or maintenance. The settings for remote maintenance are carried out here. The options in this section include Access profiles (which may be used for GSM / fixed network callback, and or for restricting the usage of specific interfaces).

#### 1.1.4.1 ISDN / GSM access options

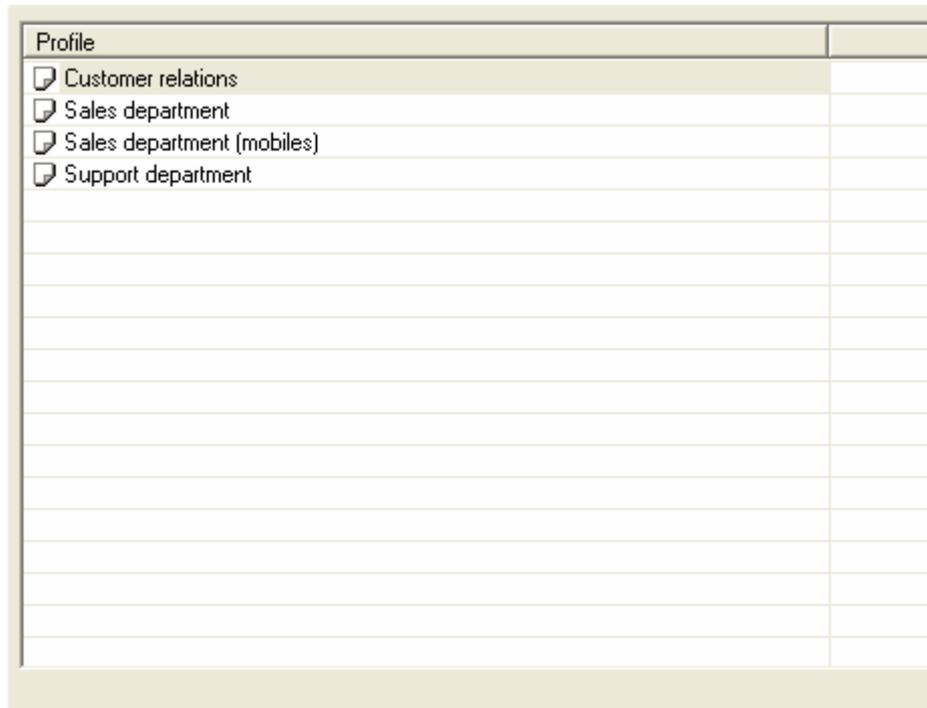
### ISDN / GSM access options

The Access list settings allow you to assign calls to specific interfaces or features. This a simple but effective way of distributing the (call) load between the available interfaces and or allowing/disallowing access to specific features of the NovaTec system. It also restricts the use of the interfaces from the various telephone numbers that are added to the profiles, for example only allowing certain telephone numbers access to specific interfaces.

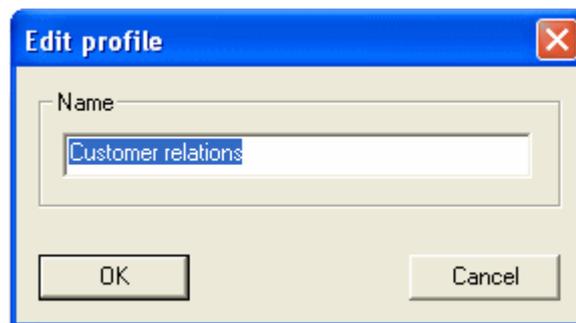
## 1.1.4.1.1 ISDN / GSM access profiles

## ISDN / GSM access profiles

Here the names of the profiles that have been created are listed.



To edit or create a new profile click the corresponding button and the following dialog will appear.

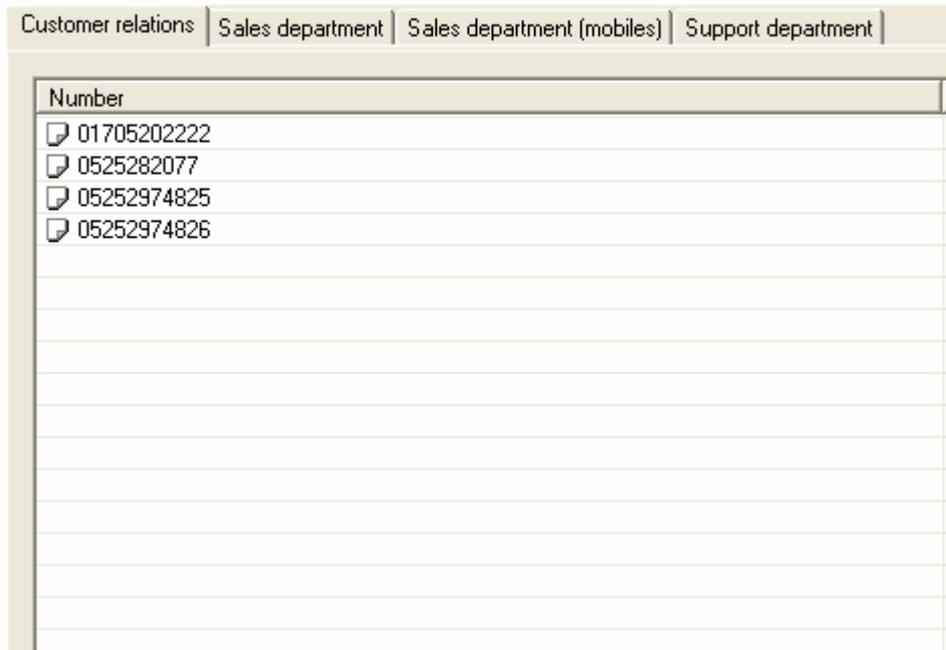


Enter a unambiguous and unique name for the profile. It is advisable to use names that describe the grouping of the telephone numbers to be assigned to the specific ports, this allows the easier assignment of the profiles to the installed interfaces in the assignment options.

## 1.1.4.1.1.1 Profile contents

## Profile contents

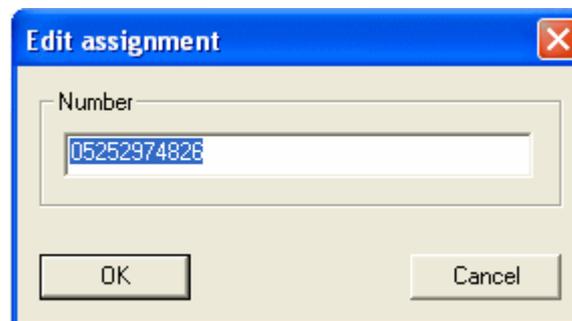
Here the various profiles that have been created in the previous options window can be filled with telephone numbers.



To edit the various profiles, click the tab with the name of the profile to see its contents

#### Inserting numbers, editing numbers

To insert or edit telephone numbers in the profile, click the corresponding button (**New** to insert numbers, **Edit** to edit existing numbers) and the following dialog will appear.



Enter the telephone number that is to be assigned to this profile and click **OK** to save it, or **Cancel** to abort any changes.

#### Copying numbers from one profile to another profile

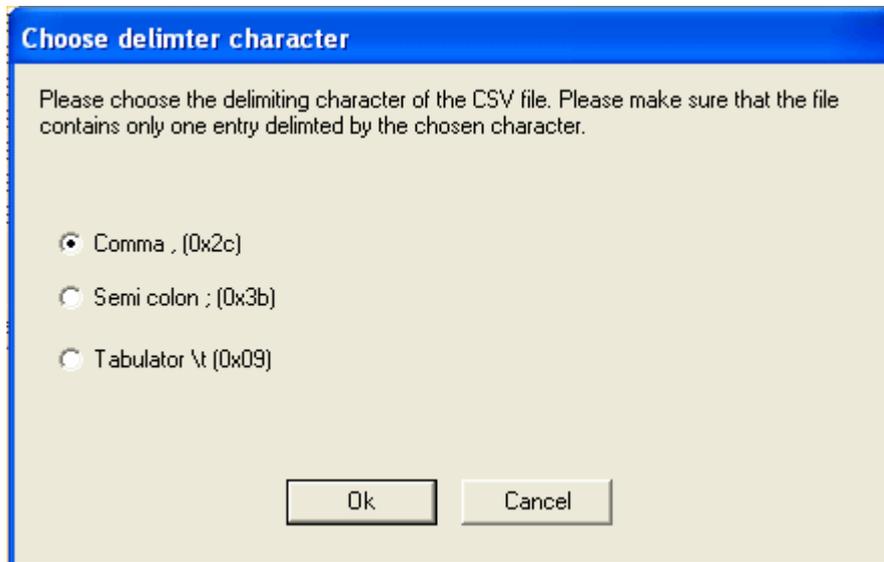
You also have the ability to copy telephone numbers from one profile to another. Simply click the button marked **Copy** and the following dialog will appear.



You can now may choose the destination profile to which the entries are to be copied to.

**Importing and exporting numbers**

To export numbers to be saved to a CSV file, select the numbers that are to be exported, and click the **Export** button. You will be prompted for a file name in which the numbers are to be exported too. The file extension **.csv** will be automatically added to the file name you enter. The file format is Comma separated. This is the first option that is preselected when importing files. To import files, click the **Import** button and the following dialog will appear.



Here you must choose what delimiter is used in the csv file that is to be imported, the following types are available

**Comma "," (0x2c)**

Each number is separated by a comma (ASCII 0x2c)

**Semi-Colon ";" (0x3b)**

Each number is separated by a semi-colon (ASCII 0x3b)

**Tabulator "\t" (0x09)**

Each number is separated by a tabulator (Tab key ASCII 0x09)

After selecting the required delimiter you will be prompted for the file that is to be imported. If for any reason you have chosen the incorrect delimiter, a error message will appear, and you can carry out the same procedure, choosing the correct delimiter. Once the csv file has been correctly imported, the new telephone numbers will appear in the list

## Mobility Features

### Description

The GSM-Gateways offers a cell phone subscriber the following features: „Hold", "Inquire", "Consult", and "Transfer" features.

These features are configured in the "Access List".

The following points must be known:

1. Who is allowed to use which feature?
2. With which key combination is the feature activated?

### Configuration

In order to access this feature, the subscribers number is prefixed with a combination of characters, which depicts the configuration of the feature for the mentioned number.

The combined prefix is composed of the following: "MF=a,b,c,d;"

| Parameter | Allowed characters | Meaning   |
|-----------|--------------------|---|
| a         | 1                  | Allowed:<br>Hold  |
|           | 2                  | Allowed:<br>Hold, Inquire   |
|           | 3                  | Allowed :<br>Hold, Inquire,<br>Consult                                      |
|           | 4                  | Allowed:<br>Hold, Inquire,<br>Consult,<br>Connect                           |
| b         | 0-9*#              | Characters under which the features Hold, Inquire and Consult are activated |
| c         | 0-9*#              | Character under which the feature connect is activated                      |
| d         | 0-9*#              | Character used to disconnect without clearing the call                      |

The following things need to be considered:

If the parameters b and c have the same character sequence, then the subscriber can only use the functions Hold, Inquire, and Consult but not Transfer.

Only one character is allowed when the parameter a, is used. All further characters are then ignored. A maximum of 5 characters is allowed for the parameters b, c and d. All further characters are then ignored.

## Configuration example

### **MF=4,\*,#1,#2;004912345678**

→ The subscriber 004912345678 is allowed to use all features. The subscriber must press the \* key to Hold, Inquire, and Consult.

The subscriber must use the key combination #1 to transfer, and #2 to disconnect a call.

### **MF=1,\*,#1,#2;004912345678**

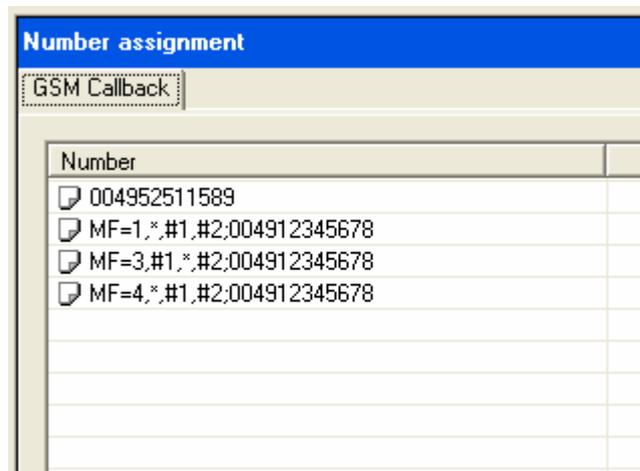
→ The subscriber 004912345678 is only allowed to use the Hold feature, by pressing the \* key.

The key combination to transfer is ignored.

### **MF=3,#1,\*,#2;004912345678**

→ The subscriber 004912345678 is allowed to use the features Hold, Inquire and Consult. The subscriber must use the key combination #1.

The \* key used to transfer is ignored, this feature is not allowed.



The screenshot shows a window titled "Number assignment" with a "GSM Callback" tab. Below the tab is a table with a header "Number" and a column of checkboxes. The table contains the following entries:

| Number   |  |
|--|--|
| <input type="checkbox"/> 004952511589              |  |
| <input type="checkbox"/> MF=1,*,#1,#2;004912345678 |  |
| <input type="checkbox"/> MF=3,#1,*,#2;004912345678 |  |
| <input type="checkbox"/> MF=4,*,#1,#2;004912345678 |  |
|  |  |
|  |  |
|  |  |
|  |  |

## Budget

### Description

The feature Budget allows a subscriber a budget to be assigned. The LCR module constantly calculates the charges during a call and deducts these charges from the Budget of the subscriber. A call may, or may not be terminated if the budget is exhausted depending on the configuration. The subscriber can make no further calls until the Budget is replenished.

One budget can be defined for more than one subscriber, this means all subscribers share the budget and each call exhaust the budget. When the budget is exhausted, no subscriber from that group can make new calls.

The configuration is made using a special character combination in the Access List similar to the configuration in the Mobility Features.

The actual Budget can be checked out and altered in the Trace Info Client. This means that the Budget can either be replenished or erased, but the maximum Budget can only be altered with the configuration.

SMS and E-Mails can be sent when the Budget is not less than 75% of its volume, if this feature is activated in the configuration.

### Configuration

To do the configuration a combination of characters is prefixed to the actual telephone number, which is used to configure the Budget for the declared number or numbers.

If more than one number is declared then these are separated with commas.

One number can obviously be declared for both a Mobility Feature Configuration and a Budget. Both character chains are simply separated with a semicolon, for instance „MF=...;B=...;12345". The order of the character chain is irrelevant. If due to a mistake, a Budget or Mobility Feature appears more than once in a configured line, then the last entry would be significant, and the previous entry would be deleted.

For example: „B=config\_a;B=config\_b;12345" – the entry „B=config\_b" would be accepted.

The character combination has the following composition: „B=a,b,c,d,e,f;"

| Parameter | Allowed Characters                  | Meaning  |
|-----------|-------------------------------------|--|
| a         | All allowed characters other than „ | Name of the Accounts, inclosed in „," such as „Account 1".   |
| b         | 1-9, maximum Value = 4.294.967.295  | Maximum Budget for the subscriber.   |
| c         | D or C                              | Type of charge calculation:<br>D=Duration, Charges are calculated according to the duration of the connection or<br>C=Charge, Charges would be calculated according to the cost of the connection. |
| d         | HH:MM-DD HH=Hour, MM=Month, DD=Day  | Date and Time in a month on which the exhausted Budget is automatically zeroed. If this area is empty then no automatic Budget-Reset occurs.   |
| e         | D or K                              | Shows the reaction when the maximum Budget is reached:<br>D=Disconnect – The call is disconnected forthwith or<br>K=Keep Alive – The call remains active.  |
| f         | C or F                              | Shows whether the charges for a SMS should be deducted from the Budget or not.   |

## SMS-Notification:

SMS-Notifications are sent in all numbers in the Access List behind the last number where a S is inserted. This means : an entry 12345S would mean that the subscriber 12345 receives a SMS, if the Budget not exceeded more than 75% or the Budget is exhausted.

If the charges for SMS has to be deducted from the Budget as declared in the configuration, then these charges would be deducted from the Budget in advance.

If the Budget calculation is based on the length of the call, then the Charges for the SMS-Notification would not be deducted from the account.

## E-Mail-Notifications:

An E-Mail-Notification always appears when the Budget of any subscribers account is down to 75% or completely exhausted.

An E-Mail would be sent to all E-Mail-Adresses with administrators rights.

This can be configured under „NovaTec-System/SMS / VSMSC – Email/SMS <-> Email settings/Email settings” .

| Number assignment                            |  |
|--|--|
| GSM Callback                                 |  |
| Number                                       |  |
| 004952511589                                 |  |
| B="Account",100,C,14:52-18,D,F;12345,987,456 |  |
| B="Hans Müller",10,C,,D,C;00491711234567S    |  |
| B="Test",500,D,,K,F;98765                    |  |
|  |  |
|  |  |
|  |  |

## Configuration example

### B=„Account",100,C,14:52-18,D,F;12345,987,456

The subscriber 12345, 987 and 456 have a joint account with the name „Account". This account has a maximum Budget of 100 € The "C" means that the deduction is dependent on the Charges, in other words through the LCR module. The exhausted Budget would be automatically reseted to zero at 14:52 on the 18<sup>th</sup>. of the month. If the Budget is exhausted, then the active call would be disconnected ("D") . The SMS Charges would not be deducted from the account ("F"). This does not matter because the SMS-transmittance is not active.

### B="Test",500,D,,K,F;98765

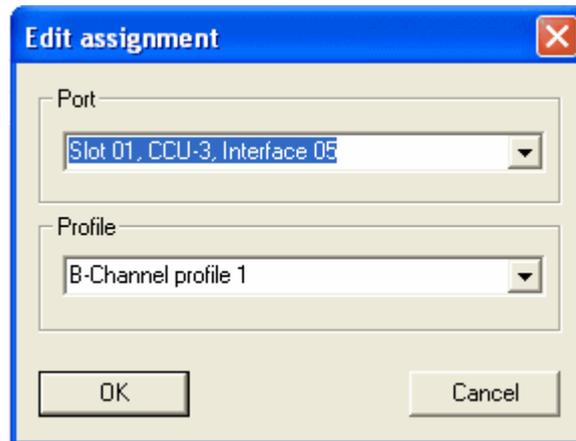
The subscriber 98765 has an account with the name „Test". The Budget has 500 minutes and would be charged on account of the length of the call ("D"). The next area is empty ("") and means that the account would not automatically be reseted. If during a call the Budget account is exhausted then the call is not disconnected, but after the call is ended the corresponding account is then blocked ("K"). SMS-Charges would not be deducted from the account ("F"). This does not matter because the SMS-Transmittance is not active.

### B="Hans Müller",10,C,,D,C;00491711234567S

The subscriber 00491711234567 has an account with the name „Hans Müller". He has a credit of 10,00 €. The fees would be calculated on the basis of Charges („C"). The next area is empty (""), and means that the Budget would not be automatically reseted. A call would be terminated forthwith when the Budget is exhausted ("D"). The Charges for SMS-Notification would be deducted from the Budget ("C"). The SMS-transmittance for the number 00491711234567 is active („S" behind the number).



**Cancel** to abort



**Note**

Only one profile may be assigned to a port

## 1.1.5 System IP options

### System IP options

The System IP options are the global IP options that affect all IP related applications within the NMG.

#### NovaTec - System IP options

IP-Options

|   |  |
|---|--|
| DHCP-Options                            | <input type="text" value="DHCP off"/>              |
| DHCP starts optional app                | <input type="text" value="Off"/>                   |
| Local Name                              | <input type="text" value="tmg.novatec.sip"/>       |
| Local Domain                            | <input type="text" value="novatec.sip"/>           |
| Local IP-Address                        | <input type="text" value="192 . 169 . 127 . 131"/> |
| Subnet mask                             | <input type="text" value="255 . 255 . 0 . 0"/>     |
| Gateway                                 | <input type="text" value="192 . 169 . 2 . 56"/>    |
| DSCP                                    | <input type="text" value="0"/>                     |
| MTU                                     | <input type="text" value="1400"/>                  |
| External Gateway IP-Address             | <input type="text" value="192 . 169 . 127 . 131"/> |
| Public name                             | <input type="text" value="novatec.dnsalias.net"/>  |
| Non masqueraded IP addresses mask (VPN) | <input type="text" value="255 . 255 . 0 . 0"/>     |

VLAN-Tagging

VLAN-Tagging On/ Off

|                 |                                |
|-----------------|--------------------------------|
| VLAN-ID         | <input type="text" value="0"/> |
| Priority (VLAN) | <input type="text" value="0"/> |

Transport Layer Security (TLS) License is loaded

#### Local Name

The name that is to be given for this system.

**Local Domain**

The local domain name for this system.

**Local IP-Address**

The IP-Address of this system.

**Subnet mask**

The mask that is to be used for this system within the LAN.

**Gateway**

The internal IP-Address of the gateway of the LAN. This is the address of the gateway seen from inside the LAN.

**DSCP**

**D**ifferentiated **S**ervice **C**odepoint. Allows the NMG to set it's own QoS to a higher priority, to allow a more stable VOIP/NLP connection

**MTU**

**M**aximum **T**ransmission **U**nit (of the current network)

**External Gateway IP-Address**

The external IP-Address of the firewall / router. This is the address of the gateway seen by outside from the internet.

**Public name**

The public domain name.

**Non masqueraded IP-Addresses mask (VPN)**

The IP-Address of this system used in a "Virtual Private Network".

## VLAN-Tagging

**VLAN-Tagging On/Off**

Enable or disable VLAN-Tagging.

**VLAN-ID**

Enter here your VLAN-ID for this system used in your network-environment.

**Priority (VLAN)**

If your infrastructure allows, you can enter here the priority for this system.

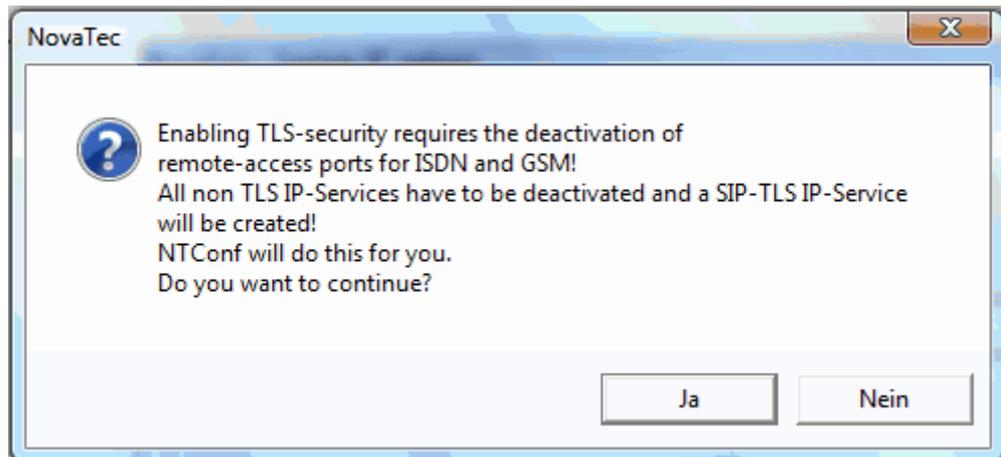
## Transport-Layer-Security (TLS)

### Enable Security

If you wish to use secured TCP/IP-communications, i.e. SSL/TLS over TCP/IP, it is mandatory to import a valid TLS-license into your configuration.

A valid license-file can be purchased at NovaTec. After receiving your license from NovaTec, you will be able to configure and set up the TLS-communication.

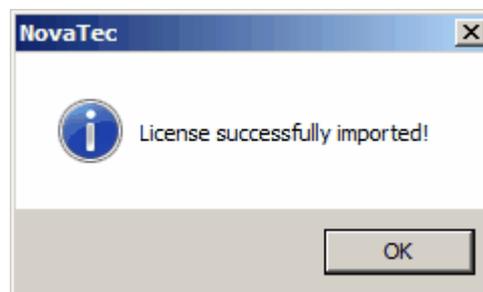
The import will be initiated by clicking on "Enable security...". A warning message will appear.



To continue the import, you will have to agree to this warning message.

A file-dialog appears to let you choose the valid license-file to be imported into the configuration.

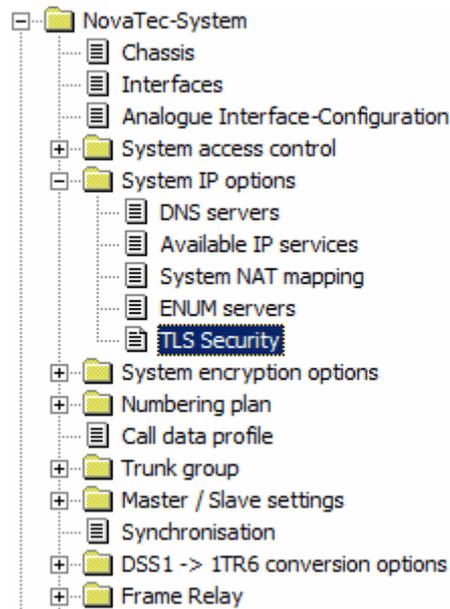
After successfully importing the license, an information dialog will show you the result of this operation.



In addition, a successful import of the license will be displayed by a check mark "License is loaded". The button "Enable Security..." is disabled.



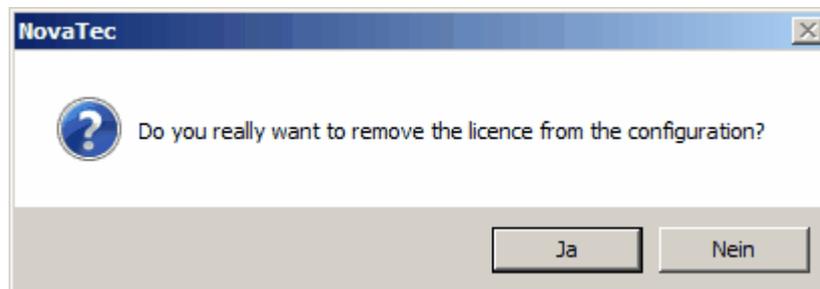
By successfully importing a TLS-license, the left tree-view gets a new sub-branch "TLS Security". To define the settings needed for secure-communication, click on this sub-branch.

**Attention:**

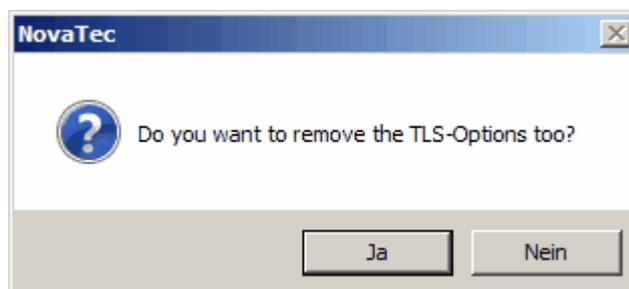
For NTConf it is unpredictable to check the validity of the license-file, i.e. importing a non-valid license-file will leave your system inaccessible.

**Disable security**

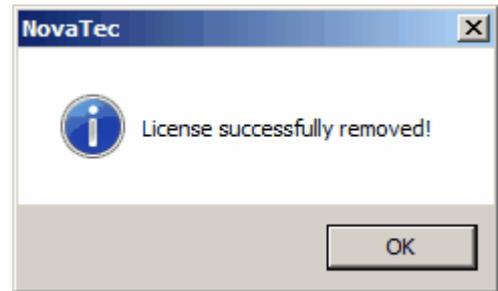
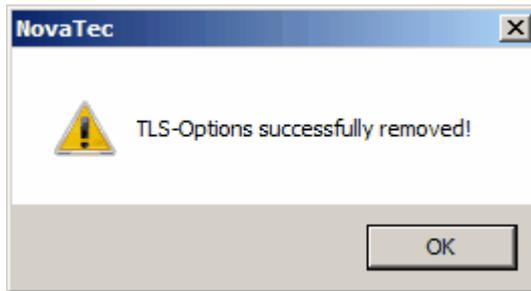
If you wish to remove the license from your configuration, press "Disable security...". A security query asks you to confirm the removal of the license.



After confirming this question, you will be asked if you wish to remove the stored security-options too.



After acknowledging this question, the successful removal of the license and the security options will be shown.

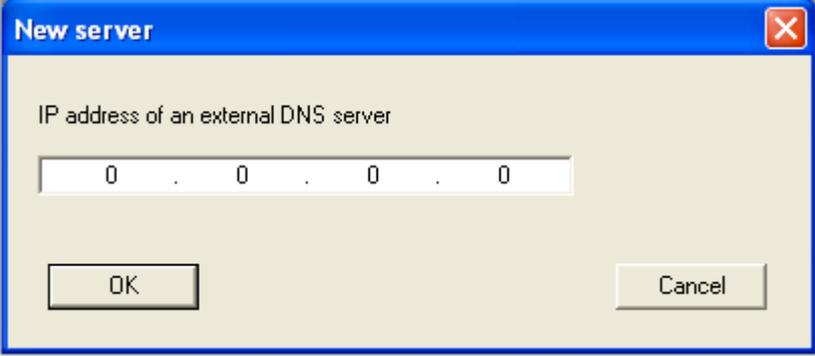


The sub-branch "TLS Security" will be removed from the left tree-view too.



### Creating a DNS server entry

To create a new DNS server, click the **New...** button, and the following dialog will appear

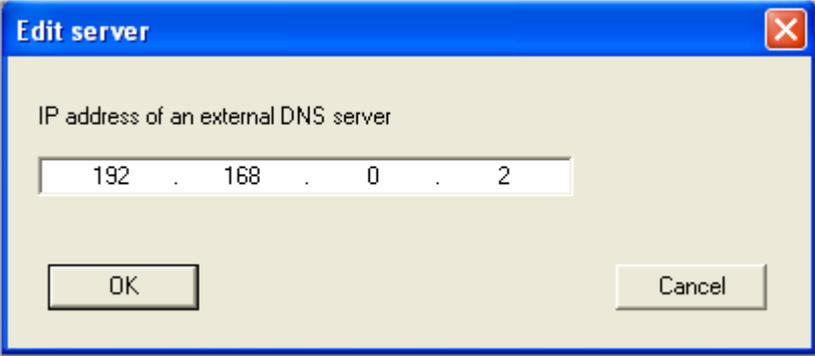


The dialog box titled "New server" has a blue title bar with a close button. The main area is light beige. It contains the text "IP address of an external DNS server" above a text input field with the value "0 . 0 . 0 . 0". Below the input field are two buttons: "OK" on the left and "Cancel" on the right.

Enter the IP address of the DNS server, and once satisfied with the value, choose **OK**. To abort creating a DNS server entry, choose **Cancel**.

### Editing a DSN server entry

To edit an existing DNS server entry, choose the DNS server that is to be edited from the list, and click **Edit**, the following dialog will appear



The dialog box titled "Edit server" has a blue title bar with a close button. The main area is light beige. It contains the text "IP address of an external DNS server" above a text input field with the value "192 . 168 . 0 . 2". Below the input field are two buttons: "OK" on the left and "Cancel" on the right.

Make any changes required, and click **OK**. To abort making any changes, choose **Cancel**.

### 1.1.5.2 Available IP services

## Available IP services

The Available IP services, lists all currently available IP services configured on the NMG. New ones can be created, and existing ones can be edited.

| Available IP services            |               |      |         |        |         |      |             |  |
|----------------------------------|---------------|------|---------|--------|---------|------|-------------|--|
| Service name                     | Core protocol | Type | Status  | Role   | Receive | Send | Destination |  |
| <input type="checkbox"/> http    | Stream        | HTTP | Enabled | Server | 80      | 0    | 0           |  |
| <input type="checkbox"/> sip_tcp | Datagram      | SIP  | Enabled | Server | 5060    | 5060 | 5060        |  |
| <input type="checkbox"/> sip     | Datagram      | SIP  | Enabled | Server | 5060    | 5060 | 5060        |  |
| <input type="checkbox"/> stun    | Datagram      | STUN | Enabled | Client | 3478    | 3478 | 3478        |  |
|                                  |               |      |         |        |         |      |             |  |
|                                  |               |      |         |        |         |      |             |  |
|                                  |               |      |         |        |         |      |             |  |
|                                  |               |      |         |        |         |      |             |  |
|                                  |               |      |         |        |         |      |             |  |
|                                  |               |      |         |        |         |      |             |  |

#### Service name

A user defined name given to the service.

#### Core protocol

The core protocol used by the service.

#### Type

The type of service.

#### Status

The current status of the service (Enabled or disabled).

#### Role

The current role of the service (Server or Client).

#### Receive

The port that the service is receiving on.

#### Send

The port that the service is sending on.

#### Destination

The destination port (usually negligible).

## Creating a new service

To create a new service, click the **New** button, and the following dialog will appear...

### Core options

On this page, core options are set for the service.

Core options | General options | Access options | SIP specific options

Service name:

Core protocol:

Service type:

Activate service

Receive port:

Send port:

Destination port:

Remote IP address:

Remote name:

Client

Server

OK Cancel Übernehmen

### Service name

The name of the service. This is used for referencing the different services in the configuration. It is recommended that you use an unambiguous name for easier identification.

### Core protocol

As mentioned above, there are two core protocols to choose from, dependant on the type of service required. The two protocols are:

**Stream (TCP)** and **Datagram (UDP)**.

### Service type

This defines the type of service to be created. Dependant on the role of the service, and what is required, you can choose from the following types:

|        |  |
|--------|--|
| SIP    | (implemented, used for SIP VoIP)                       |
| SIPS   | (not yet implemented, sometimes required for SIP VoIP) |
| HTTP   | (implemented, maybe used for trouble shooting)         |
| ECHO   | (implemented, maybe used for trouble shooting)         |
| DNS    | (not available at the moment)                          |
| RTP    | (disabled internally)                                  |
| RTCP   | (disabled internally)                                  |
| SYSLOG | (implemented, only as client)                          |
| FTP    | (disabled internally)                                  |
| STUN   | (sometimes needed for SIP VoIP)                        |
| HTTPS  | (disabled internally)                                  |
| TELNET | (disabled internally)                                  |
| SMTP   | (disabled internally)                                  |

**Activate service**

Activates or deactivates the service.

**Receive port**

The port on which the service will be receiving on, for example 8080 for HTTP.

**Send port**

The port on which the service will be sending on.

**Destination port**

The port on which the service is expecting to be received on. This value is normally negligible.

**Remote address**

The IP address of the remote machine / service that this service is to connect to. This value is only applicable if this service is a **client**.

**Remote name**

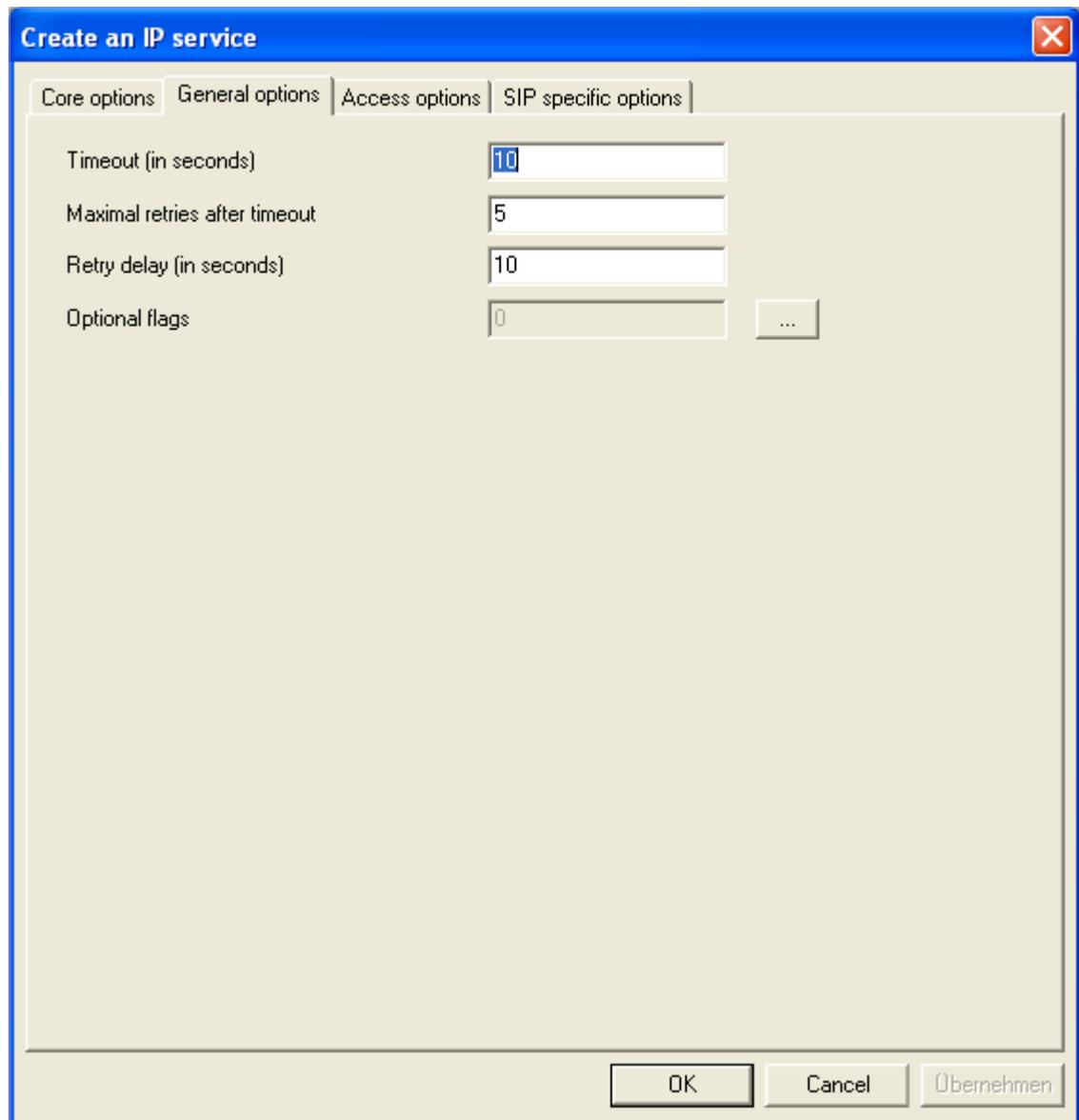
The (domain) name of the remote machine / service that this service is to connect to. This value is only applicable if this service is a **client**.

**Client / Server**

This option sets the service as either a client (i.e. it will be connecting to a remote machine / service) or a Server (i.e. this service is "serving" requests from a remote client or service)

## General options

On this page, general options are set for the service. These options are generic, and are present in all types of IP service



The screenshot shows a dialog box titled "Create an IP service" with a close button (X) in the top right corner. The dialog has four tabs: "Core options", "General options", "Access options", and "SIP specific options". The "General options" tab is selected. It contains four input fields and a button:

| Field Name                    | Value |
|-------------------------------|-------|
| Timeout (in seconds)          | 10    |
| Maximal retries after timeout | 5     |
| Retry delay (in seconds)      | 10    |
| Optional flags                | 0     |

There is a button with three dots (...) next to the "Optional flags" field. At the bottom of the dialog, there are three buttons: "OK", "Cancel", and "Übernehmen".

### Timeout (in seconds)

The timeout in seconds, before a request or response (dependant of the service role) is deemed as having failed.

### Maximal retries after timeout

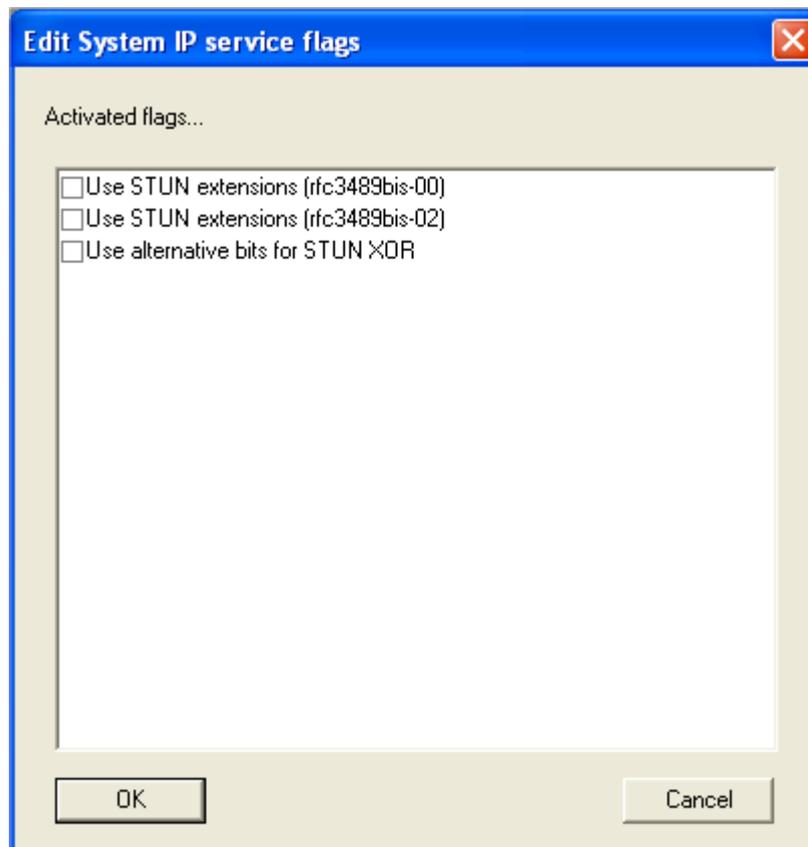
The maximal amount of retries a service will re-attempt a request or response (dependant of the service role) before aborting the current request / response.

### Retry delay (in seconds)

The delay between each retry attempt.

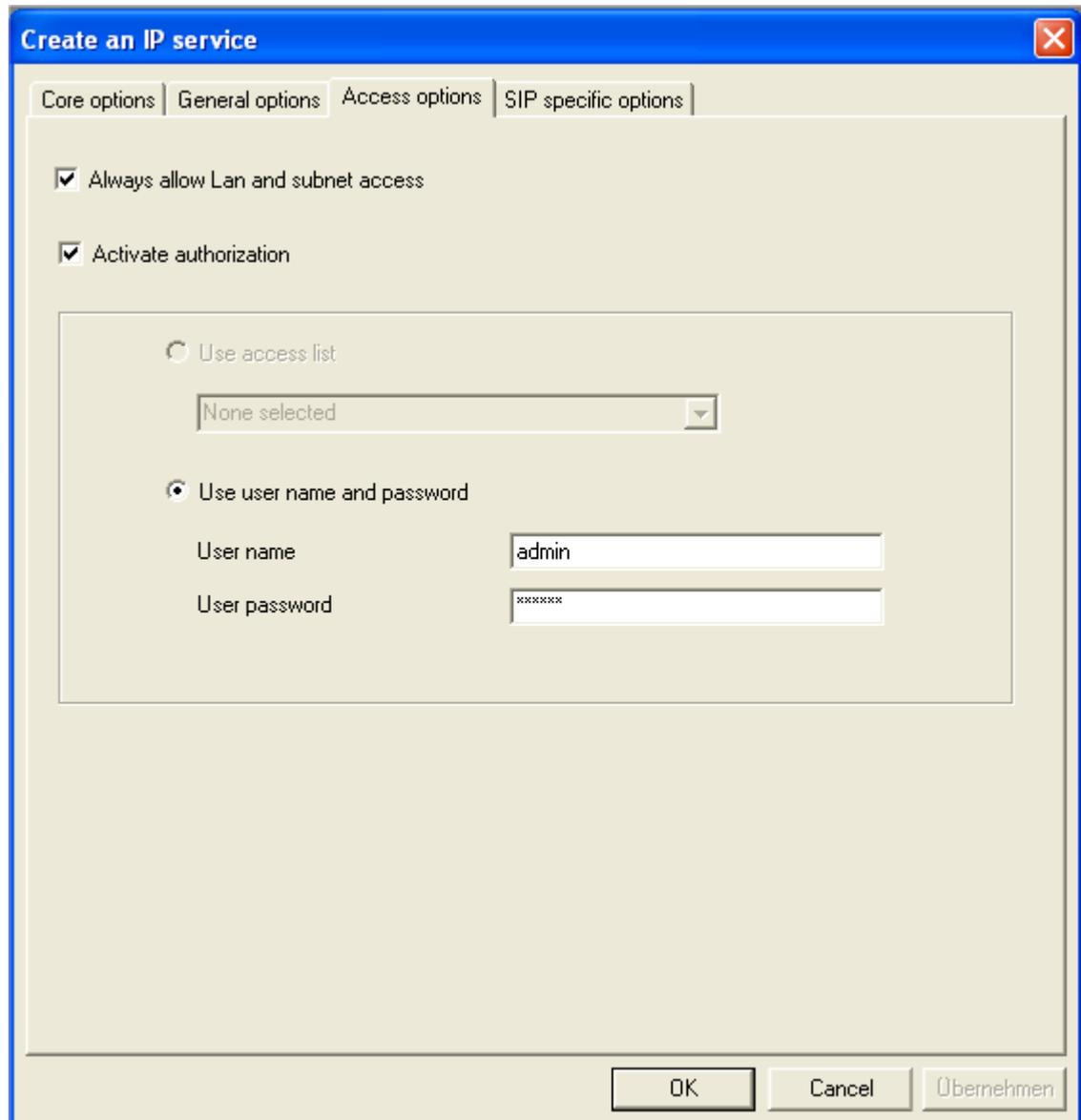
### Optional flags

The currently set optional flags for this service. Clicking the button ... will open a dialog, allowing various optional flags to be set. Dependant on the type of service that is being created, the flags will differ. Here is an example of the flags available for the STUN service...



### Access options

On this page, access options are set for the service, i.e. who and what are allowed to use the service.



The screenshot shows a dialog box titled "Create an IP service" with a close button (X) in the top right corner. The dialog has four tabs: "Core options", "General options", "Access options" (which is selected), and "SIP specific options".

Under the "Access options" tab, there are two checked checkboxes:

- Always allow Lan and subnet access
- Activate authorization

Below these checkboxes is a group box containing two radio buttons:

- Use access list
- Use user name and password

The "Use access list" option is currently disabled, and its dropdown menu shows "None selected".

Under the "Use user name and password" option, there are two text input fields:

- User name: admin
- User password: \*\*\*\*\*

At the bottom of the dialog, there are three buttons: "OK", "Cancel", and "Übernehmen".

#### Always allow Lan and subnet access

If this option is checked, then all other systems / users in the same LAN and subnet mask are allowed access to this service.

#### Activate authorization

Authorization is explicitly required for this service. Once this option is activated, you may enter a user name and password that is to be used to access this service. The standard values are "admin" as the user name, and "secret" as the password

### SIP specific options

As the name suggests, this page will only be visible, if the service type is one that is used for SIP, i.e. SIP or SIPS.

The screenshot shows the 'Edit service properties' dialog box with the 'SIP specific options' tab selected. The fields and options are as follows:

- Session owner: NMG Sipper
- Session name: NMG\_SIP\_Call
- UAC enabled
- UAS enabled
- Support V1
- Extensions: 0x00000000
- Proxy
- Redirector
- Registrar
- Locator

#### Session owner

The session owner of this SIP/SIPS service. This is used throughout the SIP / SIPS application. It **should not** contain spaces or unusual (öä# etc.) characters.

#### Session name

The name of the session. This is for informational purposes only.

#### UAC enabled

User Agent Client enabled / disabled.

#### UAS enabled

User Agent Server enabled / disabled.

#### Support V1

If enabled, then Version 1 of the SIP protocol will be supported.

**Extensions**

Clicking the button ... will enable a dialog box, so that extension flags may be set. At this time there are no supplementary flags available.

**Proxy (Media converter)**

the service can be used as a proxy (At this time, this option is disabled).

**Redirector**

The service can be used as a redirector.

**Registrar**

The service can be used as a registrar.

**Locator**

The service can be used as a locator.

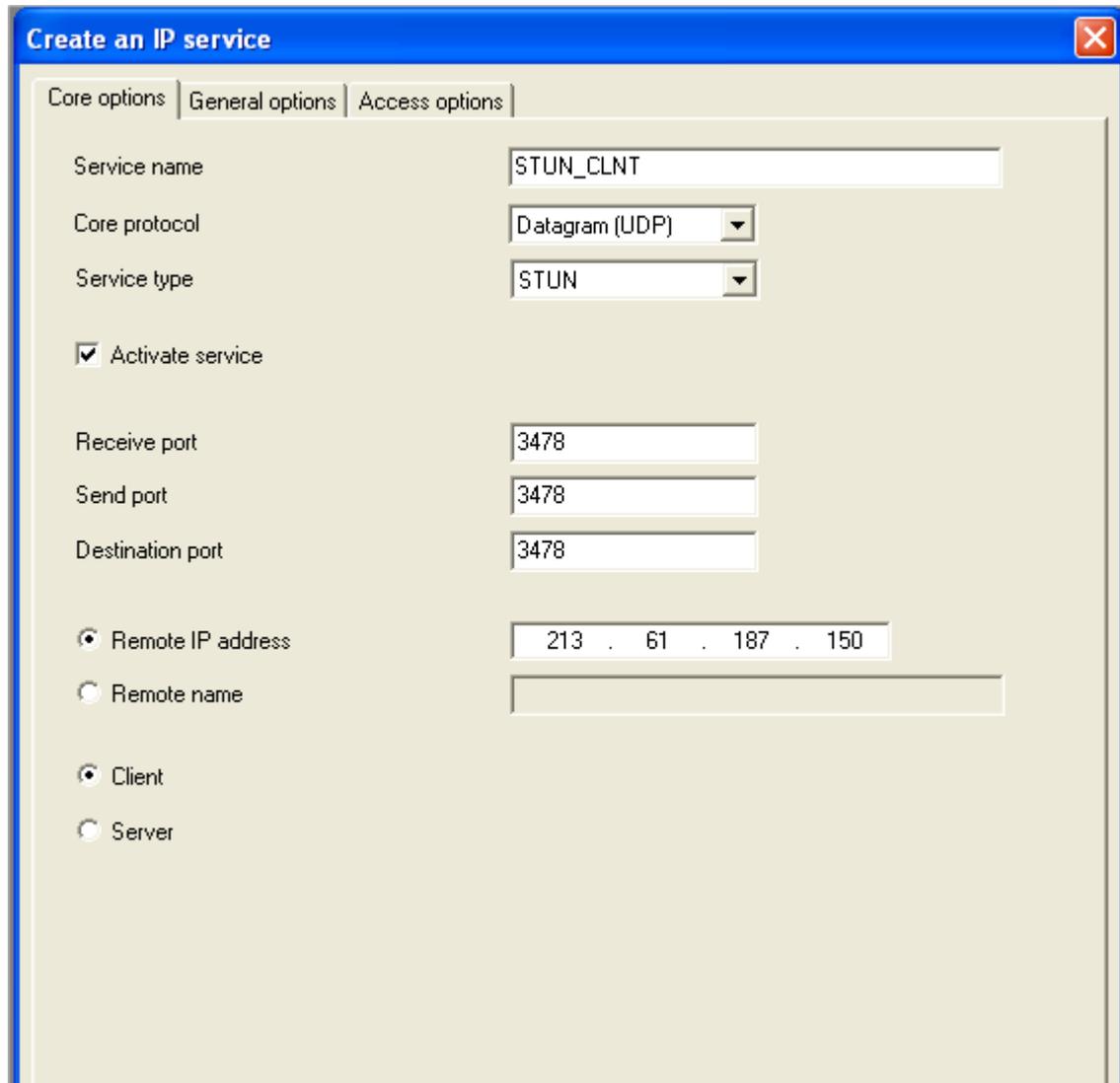
To save the options, choose **OK**. To abort creating a new service, choose **Cancel**.

**Editing an existing service**

To edit an existing service, choose the service that is to be edited from the list, and click the **Edit** button. Dialogs similar to the ones shown above will appear, and you may change any values / options to suite your needs. Once you are satisfied with the changes, choose the **OK** button, and the changes will be saved. To abort any changes you may have made, choose the **Cancel** button.

## An example. Creating a STUN client

Click on the **New** button...



The screenshot shows a dialog box titled "Create an IP service" with three tabs: "Core options", "General options", and "Access options". The "Core options" tab is active. The configuration is as follows:

- Service name: STUN\_CLNT
- Core protocol: Datagram (UDP)
- Service type: STUN
- Activate service
- Receive port: 3478
- Send port: 3478
- Destination port: 3478
- Remote IP address: 213 . 61 . 187 . 150
- Remote name: (empty)
- Client
- Server

### Core options

The **Service name** should be descriptive, as this is a STUN client, the name should reflect this. The **Core protocol** is Datagram (UDP). The **Service type** is naturally STUN. We want this service to be available for the system, therefore **Activate service** should be checked. The **Receive port**, **Send port** and **Destination port** should be set to the standard STUN port setting. The **Remote IP address** is that of the Voipbuster STUN server, this is a public STUN server. Should you wish to use another STUN server, enter the IP address (or domain name). This service is a client, and therefore the **Client** radio button must be chosen.

Usually both **General options** and **Access options** can be left using the default values. Once you are satisfied with the various settings, click **OK** and the values will be saved.

### Note

If services are to be accessed from outside of the firewall, please make sure that you make an entry in the NAT mapping section.

## Service types

### **STUN Simple Traversal of UDP through NATs**

Is a protocol for assisting devices behind a NAT firewall or router with their packet routing.

- STUN enables a device to find out its public IP address and the type of NAT service its sitting behind.
- STUN operates on TCP and UDP port 3478.

### **STUN Client**

A **STUN** client (also just referred to as a client) is an entity that generates **STUN** requests. A **STUN** client can execute on an end system, such as a user's PC, or can run in a network element, such as a conferencing server.

### **STUN Server**

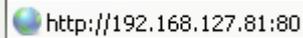
A **STUN** Server (also just referred to as a server) is an entity that receives **STUN** requests, and sends **STUN** responses. **STUN** servers are generally attached to the public Internet.

#### Public STUN servers

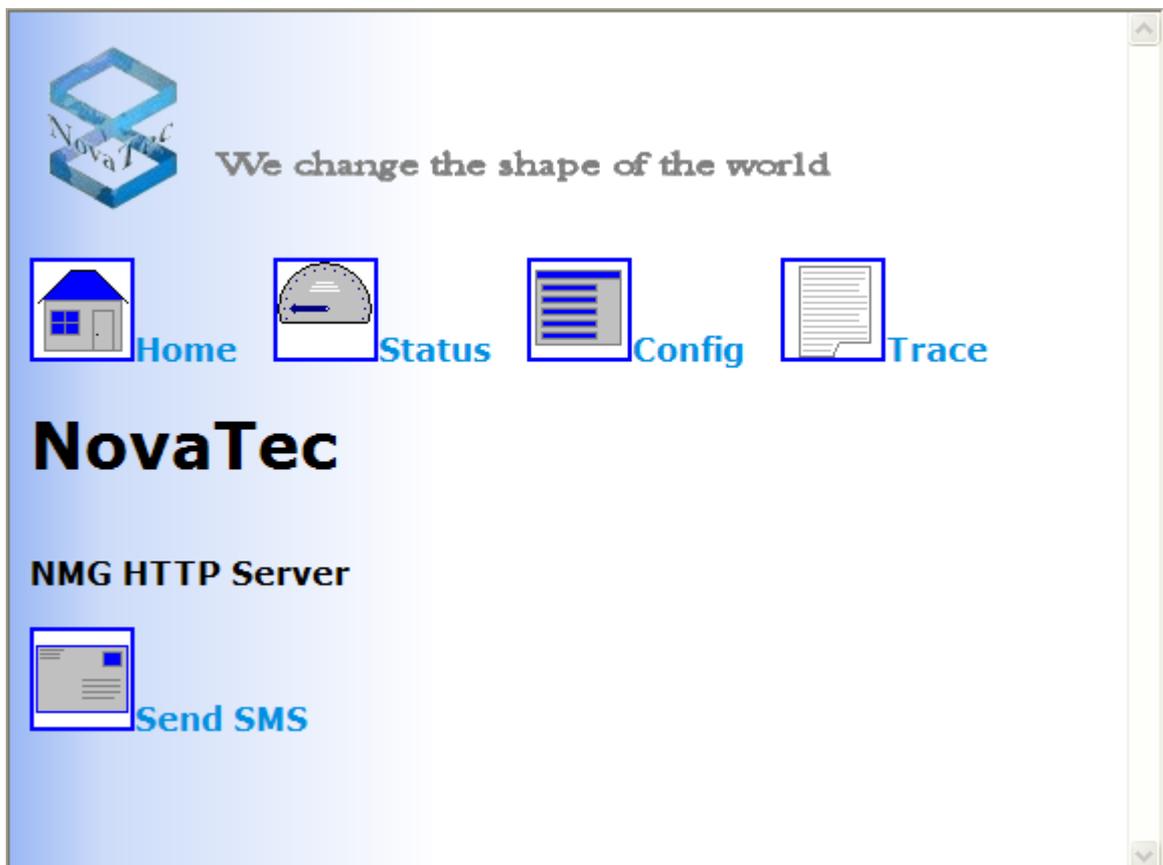
- stun.fwd.org (no DNS SRV record)
- stun01.sipphone.com (no DNS SRV record)
- stun.softjoys.com (no DNS SRV record)
- stun.voipbuster.com (no DNS SRV record)
- stun.voxgratia.org (no DNS SRV record)
- stun.xten.com
- stun1.noc.ams-ix.net
- stun.web.de

### HTTP Hypertext Transfer Protocol

Is the method used to transfer or convey information on the World Wide Web. It is a patented open internet protocol whose original purpose was to provide a way to publish and receive HTML pages. If a HTTP service is configured on the NMG, this can be used to retrieve information regarding the current state of the NMG. This is very useful when fault finding when configuring the SIP settings.



You can access the http server running on the NMG using any web browser (Internet Explorer, Firefox etc). In the above example the IP address of the NMG has been entered, followed by the port of the http server. Normally you would use a different port than the standard port 80, as this would conflict with real http servers, this can be set up in the corresponding service section. Below is an example of the information shown...



### 1.1.5.3 System NAT mapping

## System NAT mapping

The System NAT mapping is the configuration page to set up the NMG system when working behind a firewall/router and a connection is required to the internet. Most notably for the NIP, VSMSC, and SIM server - SIM client applications. Various modules / applications use these settings. It is advisable to make changes here with the help of the Network Administrator to avoid any problems.

| System NAT mapping  |                                  |                         |
|---|----------------------------------|-------------------------|
| Description   | (LAN)IP protocol:IP address:port | (Public)IP address:port |
| <input type="checkbox"/> Slot 02, BCU4, Interface 01 Port 1 | <UDP>:<192.168.127.101>:<21100>  | <*>:<21100>             |
| <input type="checkbox"/> Slot 02, BCU4, Interface 01 Port 2 | <UDP>:<192.168.127.101>:<21102>  | <*>:<21102>             |
| <input type="checkbox"/> Slot 02, BCU4, Interface 02 Port 1 | <UDP>:<192.168.127.101>:<21201>  | <*>:<21201>             |
| <input type="checkbox"/> Slot 02, BCU4, Interface 02 Port 1 | <UDP>:<192.168.127.101>:<21200>  | <*>:<21200>             |
| <input type="checkbox"/> Slot 02, BCU4, Interface 02 Port 2 | <UDP>:<192.168.127.101>:<21203>  | <*>:<21203>             |
| <input type="checkbox"/> Slot 02, BCU4, Interface 02 Port 2 | <UDP>:<192.168.127.101>:<21202>  | <*>:<21202>             |
|   |                                  |                         |
|   |                                  |                         |
|   |                                  |                         |
|   |                                  |                         |

The table above, shows the various interfaces (in this case BCU interfaces) with the corresponding NAT mapping.

#### Description

A informational description of the interface / usage.

#### (LAN)IP protocol:IP address:port

In this column, there are three values displayed. Each value is separated by a colon.

##### (LAN)IP protocol

The protocol used in the LAN environment.

##### IP address

The IP address that is to be mapped. If this is an interface (in the above example, these are all BCU interfaces), it will be the IP address of that particular board. You must also enter any services here that are to be accessible from outside of the firewall (for example STUN).

##### port

The internal port that is to be mapped.

#### (Public)IP address:port

In this column, there are two values displayed, Each value is separated by a colon.

##### (Public)IP address

This is the IP address that was entered in the page System IP options. If you have entered a domain name, then this will be an asterisk (as shown above)

##### port

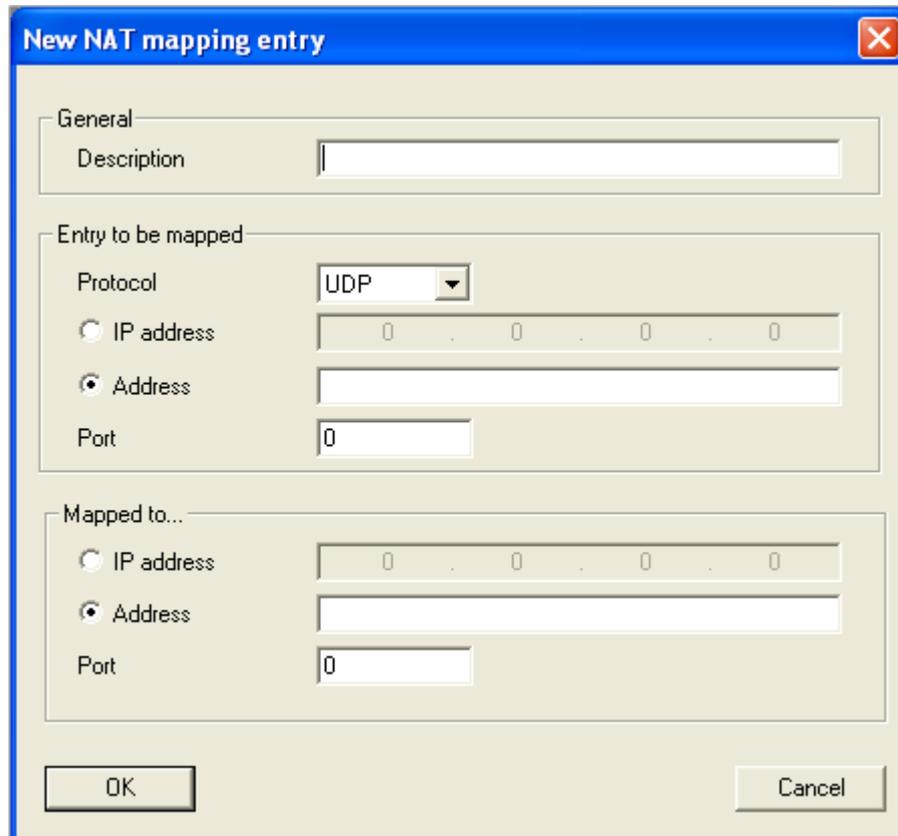
The port that is to be mapped to. This must be set, so that any request / connections to the firewall on this port, will be forwarded to the IP address port as set in the second column. As mentioned previously, these settings should be made with the help of the Network Administrator.

#### Note

If you have used the auto ports configuration in the SIP port configuration, or NLP port configuration they will be automatically created here. If however you have set them manually, you must also enter them manually here (provided that this is required)

## Creating a new NAT mapping entry

To create a new NAT entry, click on the **New** button, and the following dialog will appear.



In this example, we will create a NAT mapping entry for a STUN client service running on this NMG. A STUN client can be used for the SIP application.

### Description

For the description, we will use the name **STUN Client**

### Entry to be mapped

#### Protocol

The protocol should be set to **UDP**.

#### IP address

The IP address, is that of the CCU-3 or derived board (SOS, CBS or MCU).

#### Port

the port that the STUN service is running on, in this case it is port 3478

### Mapped to...

#### IP address

This is where the IP address of the firewall would be entered. If this is left blank (or all zero's) then the standard IP address will be used, or the domain name (if entered)

#### Port

The port to which the service is to be mapped to.

Once all required values have been entered, click **OK** to save the settings, and the new entry will be shown in the list of available IP services. To cancel the creation of a new IP service, choose **Cancel**.

### Editing an existing entry

Choose the NAT mapping entry to be edited and click the **Edit** button. Dependant on what was chosen, an interface, or a user defined entry (for example an entry to map an IP service), not all values are editable.

| System NAT mapping   |                                  |                         |
|--|----------------------------------|-------------------------|
| Description  | (LAN)IP protocol:IP address:port | (Public)IP address:port |
| <input checked="" type="checkbox"/> HTTP service                       | <TCP>:<192.168.127.82>:<80>      | <*>:<8080>              |
| <input checked="" type="checkbox"/> Slot 02, BCU4, Interface 01 Port 1 | <UDP>:<192.168.127.254>:<1070>   | <*>:<1070>              |
| <input checked="" type="checkbox"/> Slot 02, BCU4, Interface 01 Port 2 | <UDP>:<192.168.127.254>:<1072>   | <*>:<1072>              |
| <input checked="" type="checkbox"/> Slot 02, BCU4, Interface 02 Port 1 | <UDP>:<192.168.127.254>:<1074>   | <*>:<1074>              |
| <input checked="" type="checkbox"/> Slot 02, BCU4, Interface 02 Port 2 | <UDP>:<192.168.127.254>:<1076>   | <*>:<1076>              |
|  |                                  |                         |
|  |                                  |                         |
|  |                                  |                         |

### Editing a user defined entry

In this example, the HTTP service is to be edited, after selecting this entry and clicking the **Edit** button the following dialog will appear...

**Edit NAT mapping entry**
✕

General

Description

Entry to be mapped

Protocol

IP address

Address

Port

Mapped to...

IP address

Address

Port

As you may see from the picture, all values can be edited for this type of entry. However if you were to choose an entry that is an interface, for example the entry, **Slot 2, BCU4, Interface 01 Port 1**, then the dialog would appear so...

**Edit NAT mapping entry**

General

Description: Slot 02, BCU4, Interface 01 Port 1

Entry to be mapped

Protocol: UDP

IP address: 192 . 168 . 127 . 254

Address: nmg.novatec.sip

Port: 1070

Mapped to...

IP address: 0 . 0 . 0 . 0

Address: nmg.novatec.sip

Port: 1070

OK Cancel

Only the **Mapped to...** values are editable. Dependant on the interface mode, the IP address is set here, and the port is set here for NLP, or in the case of SIP, the IP address is set here, and the port here.

#### 1.1.5.4 ENUM servers

### ENUM servers

In this section, any ENUM servers are entered into the list, that are to be available for the SIP application running on the NMG. Also the order that the servers appear in the list is also the priority in which the servers will be accessed.

### 1.1.5.5 TLS Security

## TLS Security

This form allows you to define the required security-settings for your NovaTec-System. The security-settings are divided into three domains to gain a higher security-level. By selecting the according domain-tab, you decide to set up this domain for secure-communication.

#### Maintenance-Domain:

The Maintenance-Domain is intended to use for configuring and monitoring your NovaTec-System, for example the applications "NTConf" and "Traceinfo Client" are utilized for maintenance. In this case, the PC-Applications representing the client and the NovaTec-System represents the server.

#### SIP-Domain:

The SIP-Domain is intended to use use for SIP- and VoIP-functionality, for example all SIP-applications communicating with the NovaTec-System are communication endpoints that are using the keys and certificates defined within the SIP-Domain. In the case of SIP, the NovaTec-System can be either client or server.

#### CallHome-Domain:

The CallHome-Domain is intended to use for managing your NovaTec-System, for example NMS is utilized for Management and therefore uses the keys and certificates defined within the CallHome-Domain. In this case, the NovaTec-System represents the client, the PC-Application "Network Services" represents the server.

Select the desired domain by clicking on the according domain-tab.

The screenshot displays the 'NovaTec - Security-Management' window with the 'Maintenance' tab selected. The interface is divided into two main sections:

- General TLS Settings for Maintenance:**
  - Security Method: TLSv1 (selected in a dropdown menu)
  - Cipher Options... (button)
  - Server-Authentication:
  - Client-Authentication:
- Certificate - Management for Maintenance:**
  - Create certificate-request... (button) with a checked checkbox and 'CSR exists.' (text)
  - Select SSL verify depth: max depth = 1 (dropdown menu)
  - Import MNT-CA-file... (button) with a checked checkbox and '2 CA-certificate(s) imported.' (text)
  - Show Cert (button)
  - Default... (button)

#### Security Method

Choose the required security protocol for secure communication, either SSLv3 or TLSv1.

**Server-Authentication**

If you want the server to prove his identity to the client during the communication setup, enable the check mark "Server-Authentication".

**Client-Authentication**

If you want the client to prove his identity to the server during the communication setup, enable the check mark "Client-Authentication".

**Note:**

Server- and Client-Authentication are used to prevent "man-in-the-middle-attacks".

## Cipher Options

By clicking on "Cipher Options..." a dialog appears, displaying in the left part of the dialog a selection of available ciphers for secure communication.

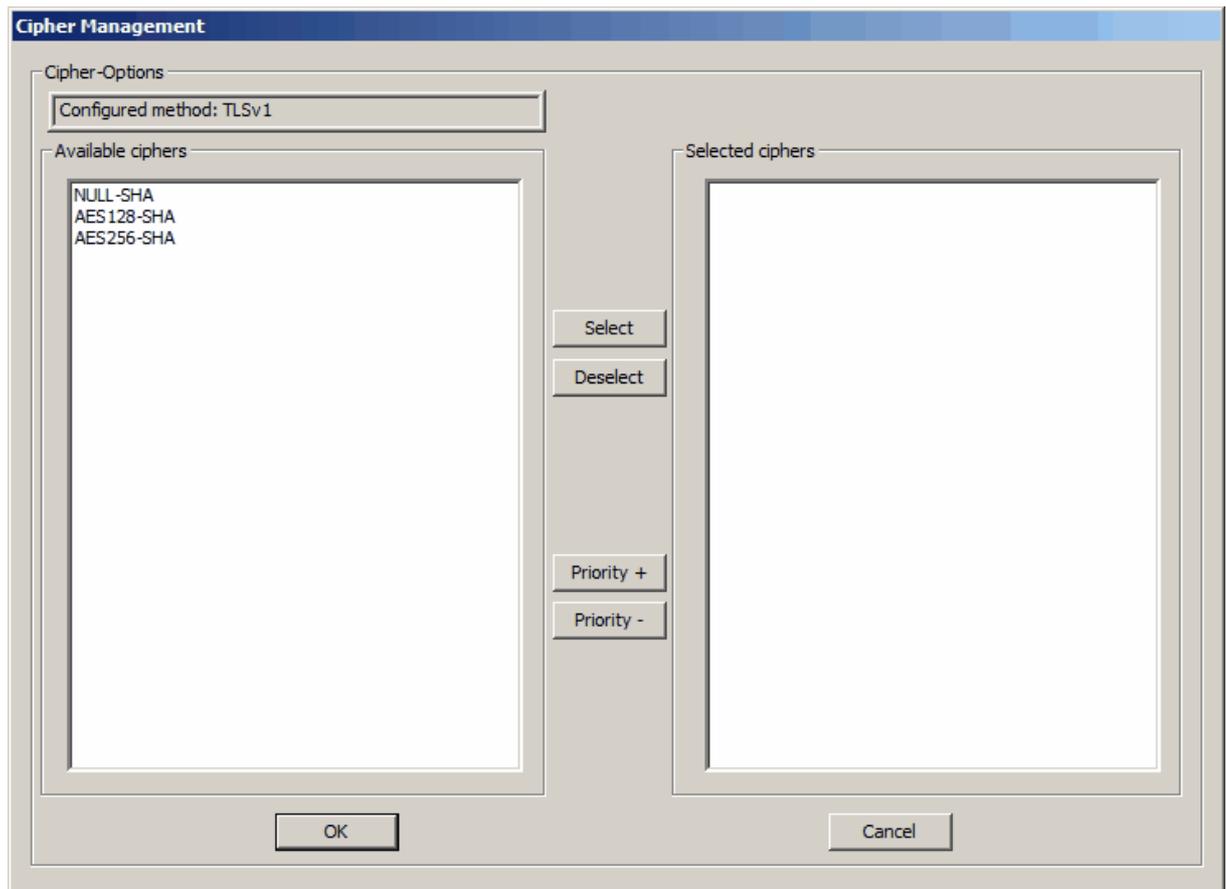
The selection of available ciphers depends on the configured security method. The right part display the selected ciphers, used in your configuration for secure communication.

If none of the available ciphers is listed in the right window and you decide not to select at minimum one of the available ciphers in the left window, i.e. the right window remains empty, the system determines itself the "best" cipher respectively the most secure and compatible cipher during communication setup.

In the case you want to restrict the selection of the used ciphers, select the desired cipher in the left window and press "Select". The selected cipher will be removed from the list of available ciphers and will be added to the selected ciphers in the right window. Repeat this step for every desired cipher.

After making your selection of ciphers, it is necessary to define the priority of the several selected ciphers. This will be done by rearranging the order of the selected ciphers in the right window. The higher the position of the cipher in the list the higher is the priority of the cipher to be elected to communicate.

To change the priority of a cipher, select the cipher in the right window and press the button "Priority +" respectively "Priority -".



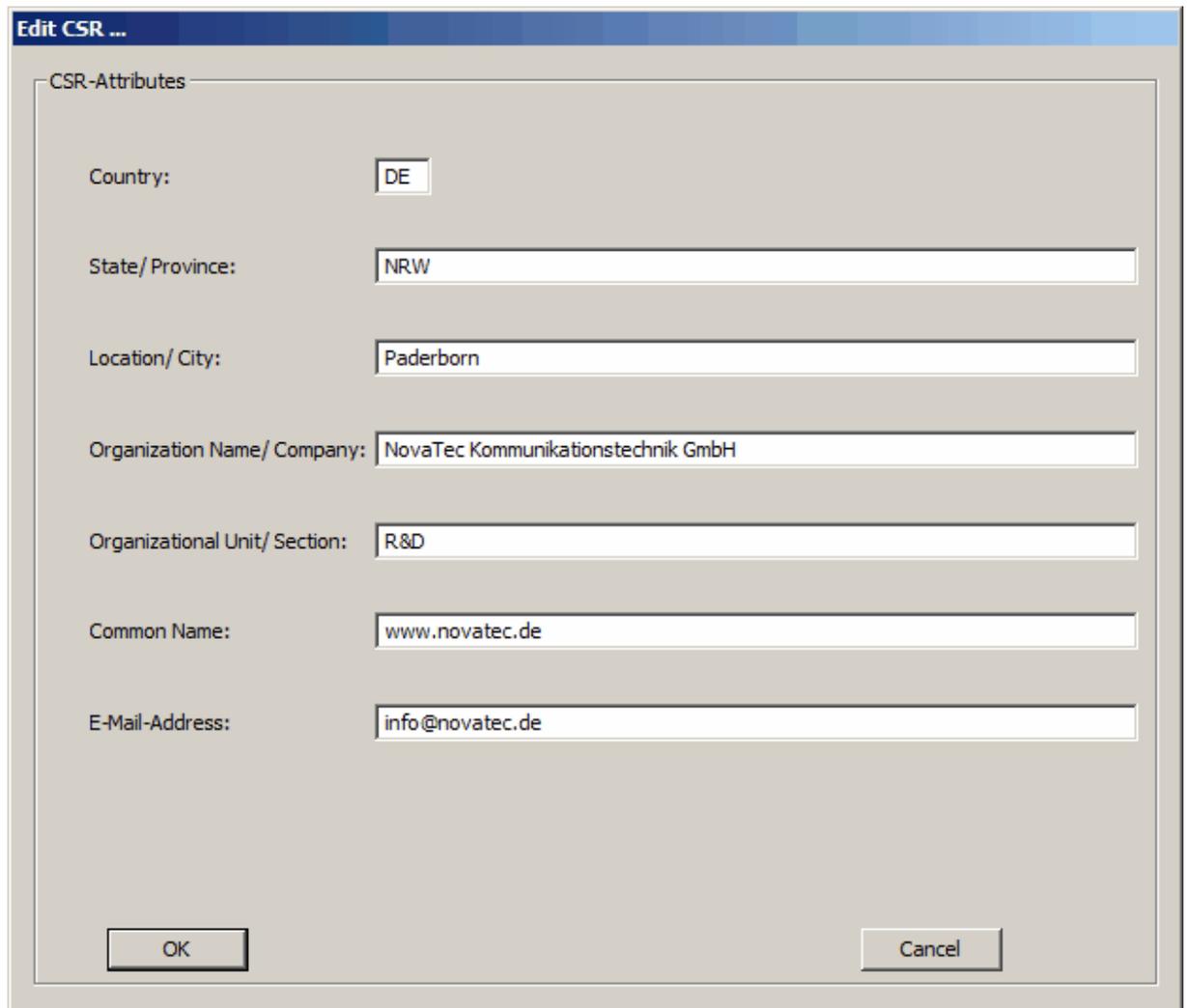
After making your settings, leave this dialog by pressing "OK".

## Certificate-Management

SSL/ TLS uses keys and certificates to identify the communication partners and to encrypt/decrypt the communication with these keys and certificates between the involved communication partners. The first communication partner is the NovaTec-System, the second will be represented by the PC-Application respectively the SIP/VoIP-Application.

This form allows you to create a CSR (certificate signing request) and to import the corresponding CA-certificate (certification authority) required for this domain. The CSR will be later signed by an external application, the TI/CA-Application. This application represents logically the CA for the corresponding domain.

Press the button "Create certificate-request...". The following dialog appears, allowing you to edit the personal information for the desired CSR.

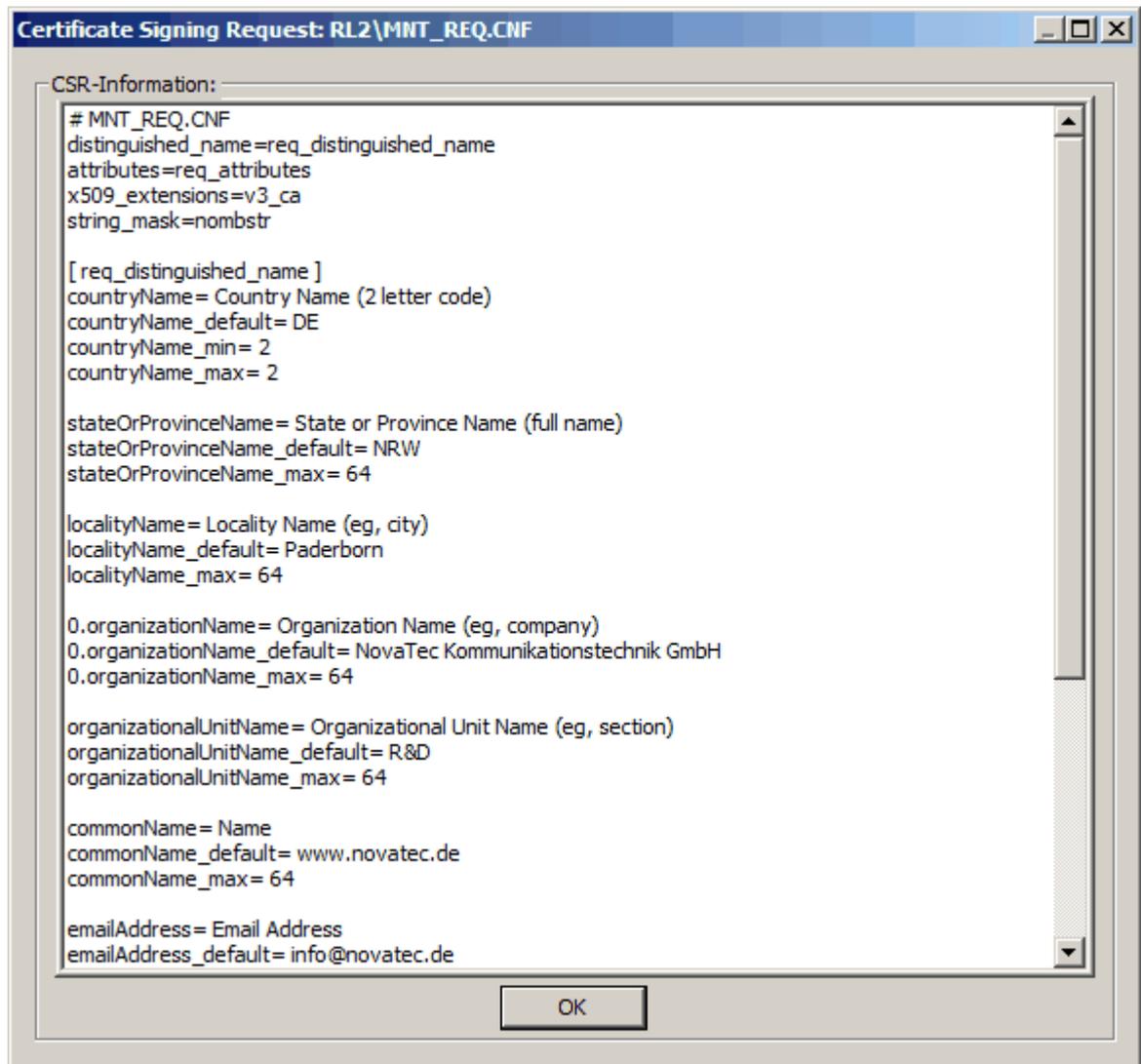


The image shows a dialog box titled "Edit CSR ...". Inside the dialog, there is a section labeled "CSR-Attributes" containing several input fields:

- Country: DE
- State/ Province: NRW
- Location/ City: Paderborn
- Organization Name/ Company: NovaTec Kommunikationstechnik GmbH
- Organizational Unit/ Section: R&D
- Common Name: www.novatec.de
- E-Mail-Address: info@novatec.de

At the bottom of the dialog, there are two buttons: "OK" and "Cancel".

After making your changes, leave this dialog by clicking on "OK".  
If you wish to prove the content of the CSR, click within the box with the check mark next to the button "Create certificate-request...". The following dialog appears allowing you to re-check your changes.

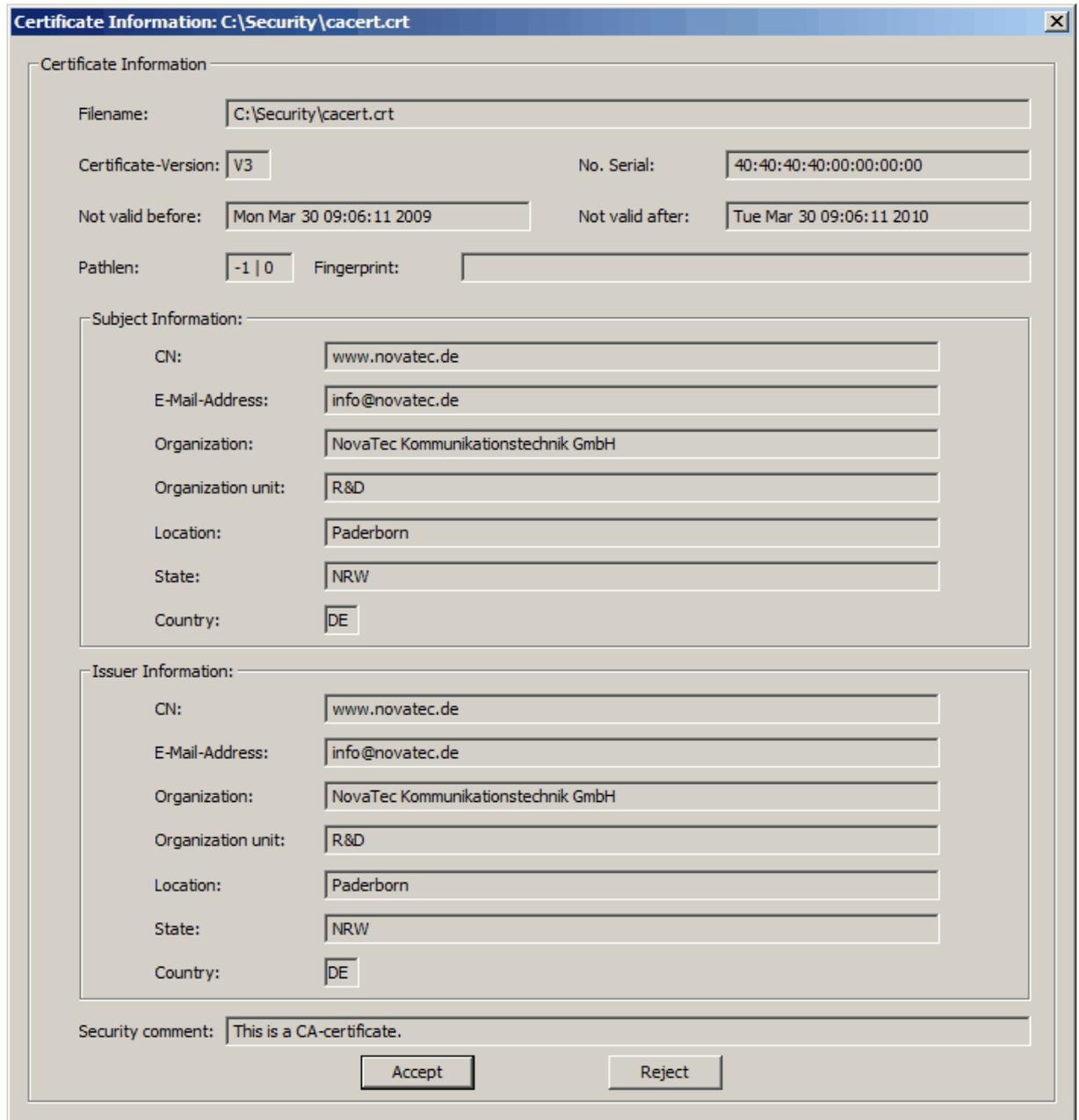


Leave this dialog by pressing "OK".

The next step is to import the corresponding CA-certificate. Press the corresponding button "Import MNT/SIP/CH-CA-file". A file-dialog appears allowing you to locate the CA-file within your filesystem. By selecting and opening the CA-file the following dialog appears, allowing you to re-check the contents of the chosen file. In addition, "NTConf" tries to check the correct type of the certificate, too. In negative case, the button "Accept" will be disabled.

**Note:**

The SIP-domain allows the import of two CA-certificates. In this case, two CA-certificates are used to check the identities of the SIP-communication-partners.



The image shows a Windows dialog box titled "Certificate Information: C:\Security\cacert.crt". The dialog is divided into several sections:

- Certificate Information:**
  - Filename: C:\Security\cacert.crt
  - Certificate-Version: V3
  - No. Serial: 40:40:40:40:00:00:00:00
  - Not valid before: Mon Mar 30 09:06:11 2009
  - Not valid after: Tue Mar 30 09:06:11 2010
  - Pathlen: -1 | 0
  - Fingerprint: (empty field)
- Subject Information:**
  - CN: www.novatec.de
  - E-Mail-Address: info@novatec.de
  - Organization: NovaTec Kommunikationstechnik GmbH
  - Organization unit: R&D
  - Location: Paderborn
  - State: NRW
  - Country: DE
- Issuer Information:**
  - CN: www.novatec.de
  - E-Mail-Address: info@novatec.de
  - Organization: NovaTec Kommunikationstechnik GmbH
  - Organization unit: R&D
  - Location: Paderborn
  - State: NRW
  - Country: DE
- Security comment:** This is a CA-certificate.

At the bottom of the dialog, there are two buttons: "Accept" and "Reject".

By accepting the CA-file it will be imported to the configuration-database.

Now you have set up and configured the secure-communication of the NovaTec-System for the corresponding domain. Repeat these steps for all required domains.

## 1.1.6 System encryption options

### System encryption options

**Encryption is disabled by default on all NovaTec system due to export restrictions to some countries. To use encryption, a serial number and extra files for the configuration are required. These can be obtained from NovaTec sales directly, providing that no laws are infringed in the country that the NovaTec system is installed in.**

For information regarding the acquirement of encryption capabilities please click here [info@novatec.de](mailto:info@novatec.de)

In this section, the various settings / options regarding the encryption of the various modules and or interfaces are carried out. At this moment encrypted calls can only be carried out between two (or more) NMGs (via SIP) and / or between SIP communications equipment and the NMG. When the NMG is to be used to encrypt communication, there are three steps that need to be carried out before this can be accomplished.

1. Recognising the a call is encrypted / is to be encrypted.
2. Handling of the key exchange method.
3. The actual exchange of the key between two systems.
4. The actual encryption of the communications channel using the key that has been previously exchanged.

The settings for the above steps are carried out in this section Also the interfaces / modules are assigned to be used for encryption.

Once the software required for the encryption settings has been obtained, and you have valid information to enter, a menu item appears in the main window of the configuration application.



After choosing **Enter serial number...** the following dialog appears, in which you must enter the information that you have received from the NovaTec support team. You must enter the data **exactly** as given, otherwise the encryption options will **not** be available.



The image shows a dialog box titled "Encryption" with a blue header. It contains three input fields: "Customer" (a single text box), "Backplane ID" (a single text box), and "Serial number" (two rows of five character boxes each). At the bottom, there are "OK" and "Cancel" buttons.

**Customer**

Your customer name / ID used for any encryption purposes.

**Backplane ID**

The unique identifier of the NMG chassis. This ID can be obtained using the TracelInfo Client. The Backplane ID **must be given** when requesting the serial number for enabling the encryption options!

**Serial number**

An alpha numeric serial number, spit into groups of 4 digits / characters. Valid values are the digits **0** through to **9**, and the characters **A** through to **F**.

Once you have entered the data, click **OK** and then **close** the configuration database. Then **reopen** the configuration database. If the data that you entered was valid, then the encryption options are available. **This configuration file is now only valid (for encryption purposes) for the system with the Backplane ID that you entered. If you attempt to use this configuration on another system FOR ENCRYPTION, this system will fail to encrypt any calls. Normal system operation is not affected.**



## Creating an encryption profile

To create a new encryption profile, click on the button **New** and the following dialog will appear:



### Encryption profile is active

Activate the check box to activate the encryption profile. Once the profile is active, the various settings can be changed / edited.

### Profile name

The name that this profile is to use. Please use an unambiguous, descriptive name as this makes the configuration easier to follow.

### Hash method

The hash method used to hash the key before encryption.

- SHA 1 \*
- SHA 1 (256 bits)
- SHA 1 (384 bits)
- SHA 1 (512 bits)
- Tiger
- MD5

### Encryption method

The encryption method, used to encrypt the key. The following methods are supported.

- AES \*
- DES
- IDEA
- 3DES
- RC2
- RC3
- RC4
- Blowfish
- CAST
- SEED

**Note**

At the moment, only the methods with an asterisk (\*) are officially supported.

**Topology**

The topology method used. At the moment only PSK (Pre-Shared Key) is supported

**Use ECC extension**

Activate this check box to enable ECC (Elliptic curve cryptography) extensions to be activated. The field to the left of the check box allows you to enter any user defined parameters. The ECC functionality is not available at this moment in time.

**Key**

This is the actual key to be used for encryption. **CHANGE THE STANDARD ENTRY BEFORE USING THE ENCRYPTION PROFILE!** The key must be at least 16 bytes (characters) long, but no longer than 128 bytes (128 characters).

Once you are satisfied with the settings you have made, click **OK**, and providing the entries you have made are valid, the profile will be saved.

**Editing an encryption profile**

The screenshot shows a dialog box titled "Edit Encryption profile". It contains the following fields and controls:

- Encryption profile is active:** A checked checkbox.
- Profile name:** A text input field containing "Encryption profile 1".
- Hash method:** A dropdown menu with "SHA 1" selected.
- Encryption method:** A dropdown menu with "AES" selected.
- Topology:** A dropdown menu with "Pre Shared Key (PSK)" selected.
- Use ECC extensions:** An unchecked checkbox, followed by an empty text input field.
- Key:** A large text area containing the text "...Your bait of falsehood takes this carp of truth".
- Buttons:** "OK" and "Cancel" buttons at the bottom.

To edit an encryption profile, select the profile to be edited from the list, and click the button **Edit**. A dialog will appear in which any changes you wish to make can be carried out. Once satisfied with your changes click the button **OK** and the changes will be saved. To abort editing without saving any changes, click the button **Cancel**.

### 1.1.6.2 Encryption handling profiles

## Encryption handling profiles

Once the encryption profiles have been created, the handling profiles must be created. A handling profile is nothing more than the parameters that two (or more) systems use to agree to a method of exchanging a key between each other. Handling profiles are listed here.

| Encryption handling profiles                        |               |  |
|---|---------------|--|
| Profile name  | Method        |  |
| <input checked="" type="radio"/> Handling profile 1 | NovaTec A     |  |
| <input checked="" type="radio"/> Handling profile 2 | NovaTec B     |  |
| <input checked="" type="radio"/> Handling profile 3 | MIKEY / Elmeg |  |
| <input checked="" type="radio"/> Handling profile 4 | NovaTec A     |  |
| <input checked="" type="radio"/> Handling profile 5 | NovaTec B     |  |
|   |               |  |
|   |               |  |
|   |               |  |
|   |               |  |

**Profile name**

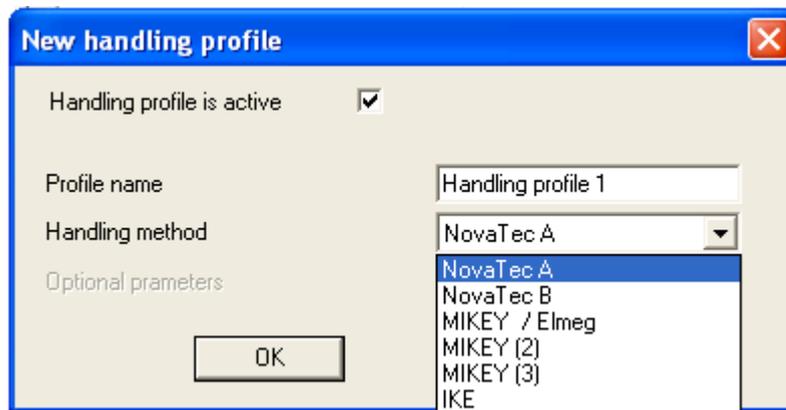
The name given to the profile. This is for informational purposes only.

**Method**

The encryption handling (key exchange) method of the profile.

### Creating a new handling profile

To create a new encryption handling profile, click the **New** button, and the dialog shown below will appear.



#### Handling profile active

Switch that enables / disables the handling profile

#### Profile name

The name of the handling profile. Please enter a unique and unambiguous name, as this help in the configuration of the encryption settings.

#### Handling method

This the method by which two systems "handle" the exchange of the key between the two systems. The following handling methods are supported at the moment.

##### **NovaTec A**

NovaTec proprietary handling method.

##### **NovaTec A**

NovaTec proprietary handling method.

##### **MIKEY / Elmeg**

MIKEY handling method. This is also used by Elmeg end user equipment.

##### **MIKEY (2)**

Alternative MIKEY method

##### **MIKEY (3)**

Alternative MIKEY method

##### **IKE**

IKE handling method.

#### Optional parameters

At this moment not available.

**Editing a handling profile**

To edit a handling profile, select the profile that is to be edited from the list and click **Edit**. A dialog like that shown below will appear.



The image shows a dialog box titled "Edit handling profile" with a blue header and a red close button in the top right corner. The dialog has a light beige background. It contains the following elements:

- A checkbox labeled "Handling profile is active" which is checked.
- A text input field labeled "Profile name" containing the text "Handling profile 4".
- A dropdown menu labeled "Handling method" with "NovaTec A" selected.
- A text input field labeled "Optional parameters" which is currently empty.
- Two buttons at the bottom: "OK" on the left and "Cancel" on the right.

Edit the properties as desired, and when finished click the **OK** button and any changes will be saved. To abort editing the handling profile, click the **Cancel** button.

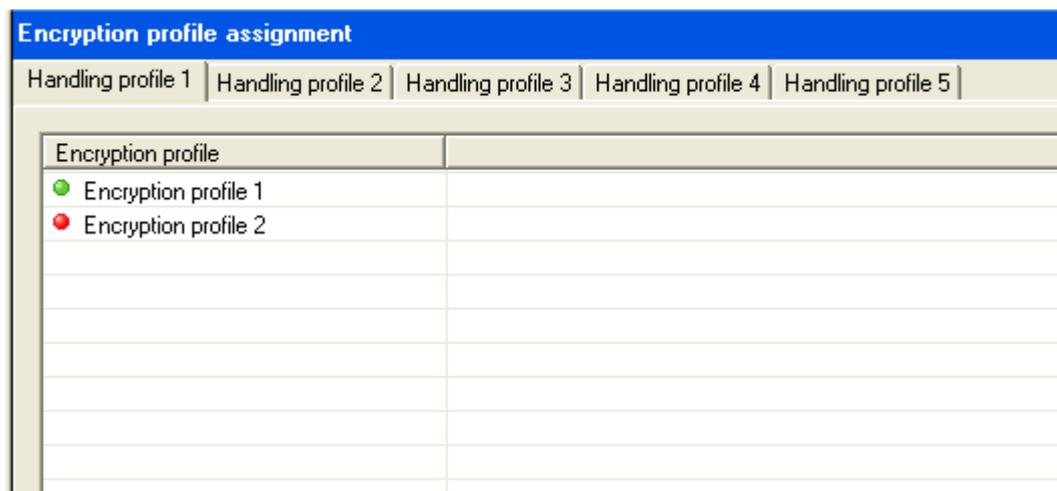
**Deleting a handling profile**

To delete a handling profile, choose the profile(s) to be deleted from the list and click the **Delete** button. The selected profile(s) will be deleted.

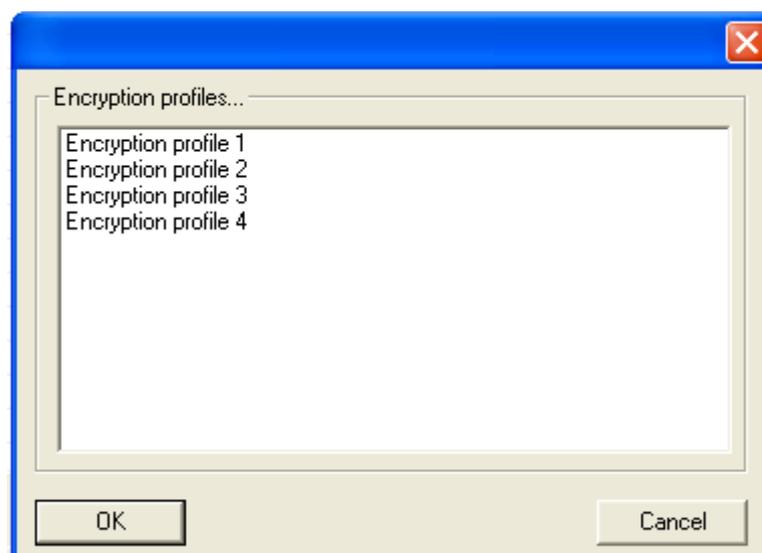
## 1.1.6.2.1 Encryption -&gt; Handling assignment

## Encryption profiles -> Handling profiles

Here, the previously created handling profiles are assigned encryption profiles. Each handling profile can be assign any number of encryption profiles. The key and key encryption methods that are set in the encryption profile are used by the handling profile when the system attempts to set up an encrypted communications channel.



The handling profiles are listed left to right using the tabs above the list. Encryption profiles that have already been assigned to the handling profiles are listed under **Encryption profile**. The icons to the left of the Encryption profile name indicate the current state of the encryption profile (**red** inactive, **green** active). To assign encryption profiles to a handling profile, choose the handling profile that is to be edited from the tabs at the top of the list. Click the **New** button and a dialog as shown below will appear listing all the available encryption profiles that may be assigned to the handling profile.



Select the encryption profiles from the dialog that you would like to assign to the handling profile and click **OK** when finished. Multiple selections can be made by holding the **Ctrl** key on the keyboard whilst selecting the encryption profiles with the mouse. Once you have clicked **OK** the dialog is hidden and

the handling profile list is updated to reflect the changes you have made. To abort making any changes, click the **Cancel** button. To delete an encryption profile from a handling profile, select the encryption profile from the list, and click **Delete**. The encryption profile will be removed from the handling profile. The **Copy** button has no function at this moment in time.

### 1.1.6.3 System module / interface assignment

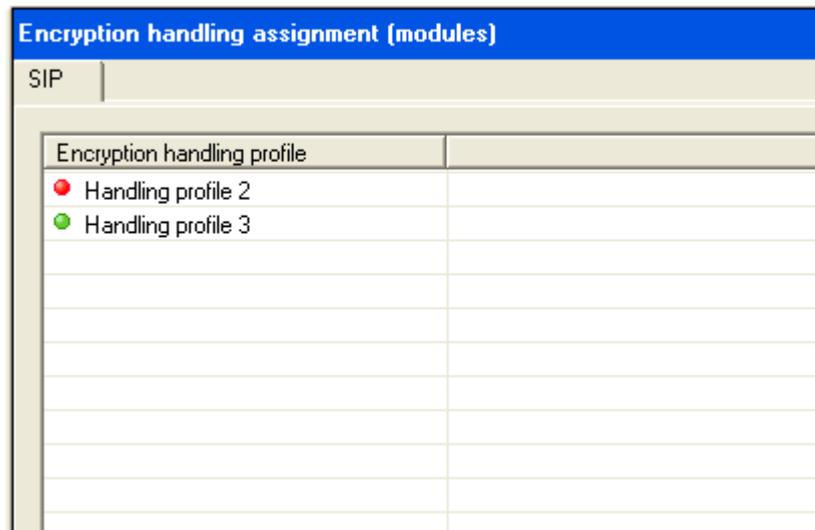
## System module and interface assignment

In this section, the previously created handling profiles are assigned to the various system modules / interfaces. At this moment in time, only certain system modules can be assigned handling profiles (and therefore are encrypt able). At a later date more modules may be developed that are capable of using encryption and will be added. Also when the encrypt able ISDN interface sub modules are ready for deployment, they also will be included here.

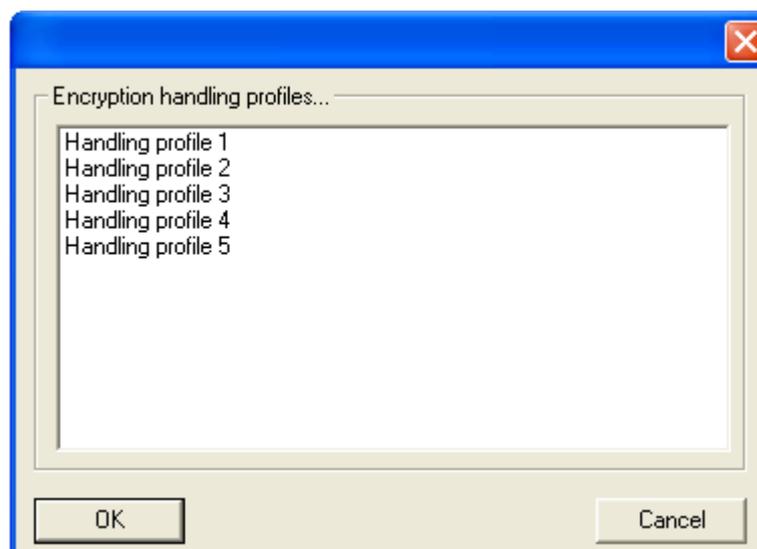
## 1.1.6.3.1 Module assignment

## System modules -> Encryption handling profiles

In this section, the encrypt able system modules are listed in the tabs above the list. On choosing a tab, the currently assigned handling profiles are shown for that particular system module. At this moment in time, only the system module **SIP** is capable of using the encryption functionality.



The screenshot above shows the SIP system module, and the encryption handling profiles currently assigned to it. **Handling profile 2** is inactive (as shown by the **red** icon), and **Handling profile 3** is active (shown by the **green** icon). To assign encryption handling profiles to a system module, click the button **New** and a dialog like that shown below will appear.



From the dialog select the encryption handling profiles that the system module may use and click the **OK** button. The dialog will be hidden, and the list will be updated to show the changes you have made. To delete an encryption handling profile for a system module, select the profile(s) and click the **Delete** button. The list will then be updated to show the changes you have made.

## 1.1.7 GSM settings

### GSM settings

These options allow you to configure the SIM-Cards. This includes all setting options specific to GSM modules. Here you manage the SIM's and assign them a SIM-Profile that determines the connection that uses this SIM. As a part of this Profile you also need to configure the tariff that is to be used by the respective SIM.

- Carrier list
- Tariffs/Tariff times
- SIM profiles
- SIM profile settings
- SIM profile assignment
- PIN list
- SIM Refresh List

### 1.1.7.1 Carrier list

## Carrier list

**Note**

At this moment in time, this feature is not implemented.

This list is only needed if you use the carrier selection in the GSM settings window. To create a new GSM carrier, click the **New** button, then enter an unambiguous name and the specific ID. To change the name ID of an existing carrier, check the appropriate row from the GSM carrier list, then click the **Edit** button or press **Enter**. You can also double click a list row. Edit the name or the ID as desired, then click **OK**. To delete a profile, check the appropriate row from the profiles list, then click the **Delete** button or press the **Del** key.

### 1.1.7.2 Tariffs

## Tariffs

## Tariff times

On the top of the page (in the drop-down combo-box) you can choose which tariff is to be edited. In the list beneath, all tariff times belonging to this tariff are listed with the relating settings.

Tariff :

| Name                            | Time/Date                   | from  | to    | Charge                   |
|---------------------------------|-----------------------------|-------|-------|--------------------------|
| <input type="checkbox"/> Time 1 | Mo, Tu, We, Thu, Fr, Sa, Su | 00:00 | 00:00 | from 0sec on 0.0000/0sec |
|                                 |                             |       |       |                          |
|                                 |                             |       |       |                          |
|                                 |                             |       |       |                          |
|                                 |                             |       |       |                          |
|                                 |                             |       |       |                          |
|                                 |                             |       |       |                          |

### Name

The name of the tariff time

### Time/Date

The week days or the date-interval in which the tariff time is valid.

### from

The time in which the tariff starts

### to

The time in which the tariff ends

### Charge

The charge calculated per time unit. Each tariff time stands for one accounting system. All tariff times of a tariff together must cover every minute of the week.

If you want to enter a new tariff time, click on **New**. You can enter an unlimited number of tariffs times. To change a tariff time click on **Edit** (or double click the corresponding row). The following dialog appears if you **Edit** a tariff time or create a **New** one

|   |                                  |                                     |  |
|---|----------------------------------|-------------------------------------|--|
| Tariff  |                                  | Name of period                      |  |
| <input type="text" value="GSM tarif 1"/>  |                                  | <input type="text" value="Time 1"/> |  |
| Date/days   |                                  |                                     |  |
| <input checked="" type="radio"/> Days: <input checked="" type="checkbox"/> Monday <input checked="" type="checkbox"/> Tuesday <input checked="" type="checkbox"/> Wednesday <input checked="" type="checkbox"/> Thursday <input checked="" type="checkbox"/> Friday <input checked="" type="checkbox"/> Saturday <input checked="" type="checkbox"/> Sunday |                                  |                                     |  |
| <input type="radio"/> Date         Start <input type="text" value="30.12.1899"/> End <input type="text" value="30.12.1899"/>  |                                  |                                     |  |
| Time  |                                  |                                     |  |
| Start   |                                  | End                                 |  |
| <input type="text" value="00:00"/>  |                                  | <input type="text" value="00:00"/>  |  |
| Charge  |                                  |                                     |  |
| Dialling  | <input type="text" value="0.2"/> | Alerting                            | <input type="text" value="0.2"/>   |
|   |                                  | SMS                                 | <input type="text" value="0.19"/>  |
| <input checked="" type="checkbox"/>   | 1                                | after                               | <input type="text" value="0"/> sec : <input type="text" value="0"/> / <input type="text" value="0"/> sec |
| <input type="checkbox"/>  | 2                                | after                               | <input type="text" value="0"/> sec : <input type="text" value="0"/> / <input type="text" value="0"/> sec |
| <input type="checkbox"/>  | 3                                | after                               | <input type="text" value="0"/> sec : <input type="text" value="0"/> / <input type="text" value="0"/> sec |

**Name of period**

Name of the tariff time (e. g. provider, freely chosen name or number).

**Date / week days**

This area defines the days when this tariff time is valid. If you want the tariff to be chosen on certain week days (e. g. only on Saturday and Sunday) check the **Week days** radio button, if you use this tariff time for bank holiday use the **Date** option. If you mix this two time-models in one tariff, be aware of the chosen priority. **Week days - check boxes for each day** Every weekday can be selected separately.

**Date - Begin / End**

Here you have to specify the first and the last day the tariff time should be valid. The date has to be written in the form "dd.mm.yyyy". It is possible to have the same date for Begin and End to specify exactly one day.

**Time**

This area defines the time range selection when this tariff time is valid. Time values must be entered as "hh:mm" (seconds are not evaluated). To select the whole day set the Begin and the End time to the same value (e. g. 00:00 - 00:00). The calculation uses the interval between the begin and the end time (e. g. with the interval 00:00 - 23:59 the last minute before midnight is not selected!).

**Charge**

Here you configure the charge calculated for a phone call. The first two options are only important, if not only the connection time is valued. All amounts refer to the monetary unit (e. g. € or \$).

**Dialing**

This is charged if the telephone number is dialed and accepted by the Network.

**Alerting**

This is charged if the call reaches a terminal, independent of the call being accepted.

**SMS**

This is the charge that will be generated when an SMS is sent using this tariff.

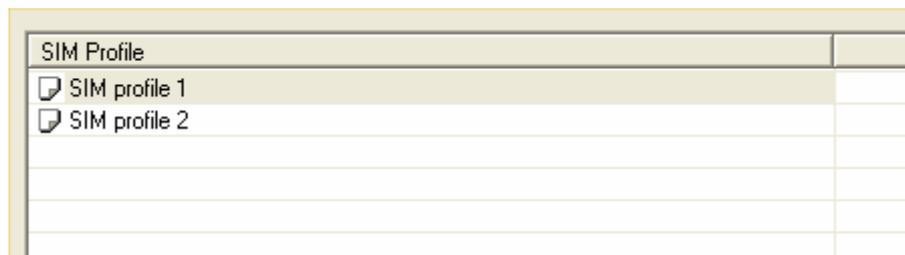
### **3 possible charges per time**

All three charges per time can be activated with the check box in the front of the row. The **"after"** time specifies the time interval from the start of the connection. In the first row this is always Zero. The second and third input field specify how much money must be calculated per time unit. The time unit is the phone call unit in seconds. If you use more than one charges per time, the **"after"** time of the following row must be a multiple of the time unit.

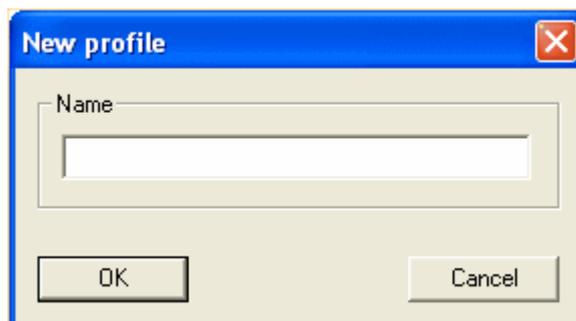
### 1.1.7.3 Profiles

## Profiles

This window lists the available SIM configuration profiles. A SIM profile can be described as a complete set of data that is required to run a GSM module. Each SIM present in the system must be assigned a profile. By using this method of data organization, it is made easier to assign identical configuration settings to any number of SIM's. Each SIM determines the GSM channel used. If you select a GSM2 board in the Chassis settings for the first time, a default profile named "**SIM profile 1**" will be created by the application automatically, and all existing SIM's will be assigned to this profile.



To create a new SIM profile, click the **New** button, the following dialog will then appear.



#### **Name**

Unambiguous and unique name for the profile. Use this name to identify the profile.

Click the **OK** button and the SIM profile will be created, and it's contents set to standard values. These values can be modified as describe under SIM profile settings and any number of SIM's can be assigned to this profile. To change the name of an existing profile, select the appropriate profile from the profiles list, then click the **Edit** button or press **Enter**. You can also double click a list row. Edit the name as desired, then click **OK** or press **Enter**. To delete a profile, click the appropriate profile row from the profiles list, then click the **Delete** button or press the **Del** key.

#### **Note**

A profile can only be deleted when there are no SIM's assigned to it, or it is not referenced in any way in the configuration data.

## 1.1.7.3.1 Settings

## Settings

With these options, the settings of the individual SIM profiles can be modified. The combo box labeled "Profile" at the top of the window contains all available profiles. The up to six tab pages underneath will display the values of the profile you selected from this box. The **Copy** button allows you to copy all settings from another profile to the currently selected profile. Choose the desired source profile from the appearing dialog, then click **OK**. The profile values themselves are displayed and can be modified on (up to) six tab pages

Common settings  
Call Forwarding settings  
Audio settings  
GSM settings  
SMS settings  
Budget settings

The **Common settings** page

Common | Call Forwarding | Audio Settings | GSM Settings | SMS - Settings | Budget

PIN

Use profile specific PIN :  ...  Disable PIN

Tariff for call charge calculation

Dial number length necessary for calls from ISDN  digits

Maximum waiting time for next digit when dialing  seconds

Send ALERTING-Message to line network after  seconds

Supplementary Services

CLIP  CLIR  on

Use CLIP from ISDN  off

ADC  network setting

Only use home provider

Use SIM for GSM call back

Use SIM Identifier

## PIN

### Use profile specific PIN

Select this option if you want all SIM cards related to this profile have the same PIN. The result of activating this option is that every SIM card assigned to this profile will be set to the PIN number which is entered in the corresponding edit field. This number can be set by clicking the "..." button at the right of the edit field and then entering the desired number on the dialog. If you chose this option but did not enter the required PIN number, an appropriate error message will appear next time data are processed. The length of the PIN must be at least four and at most eight characters. To toggle between encoded and decoded display use the PIN - list window.

### Disable PIN

Choose this option to make all SIM cards of this profile work without any PIN number. When transferring the configuration data the next time, the target system will switch off the PIN numbers. Thus the target system will be able to initialize the SIM cards without a PIN number next time the system is booted (which is significantly faster).

### Tariff for call charge calculation

In this box one of the defined tariffs must be chosen. This setting determines the call charge calculation.

### Dial number length necessary for calls from ISDN

Because the GSM network uses en-bloc transmission of dialing numbers, the total number of digits for a number must be entered here. The GSM module will recognize a dialing number as complete, if it is of exactly this length. If there are different number length to be handled, enter the number of digits of the longest number. The shorter numbers are accepted according to the next setting.

### Maximum waiting time for next digit when dialing

If the splitter has to wait longer for the next digit than specified by this setting, the phone number is transmitted to GSM even though **length necessary for calls from ISDN** is not reached.

### Send ALERTING message to line network after x sec

The GSM network will only send CONNECT messages during call-setup. Therefore the time, the GSM module will wait before an ALERTING message is sent to the line network, can be entered here.

## Supplementary services

### CLIP

Enables the CLIP supplementary service. E. g. with a call from the GSM network to ISDN the phone number of the GSM cell phone **is transmitted**, if the service is checked.

### Use CLIP from ISDN

Indicates that the dialing number of the subscriber which is calling from the line network will be transmitted to the receiver of the call. If not activated, the called subscriber will receive the affected channels SIM card dialing number instead. Note that this option only has an effect in conjunction when the CLIP option is activated. **At this moment in time, this option is permanently activated.**

### AOC

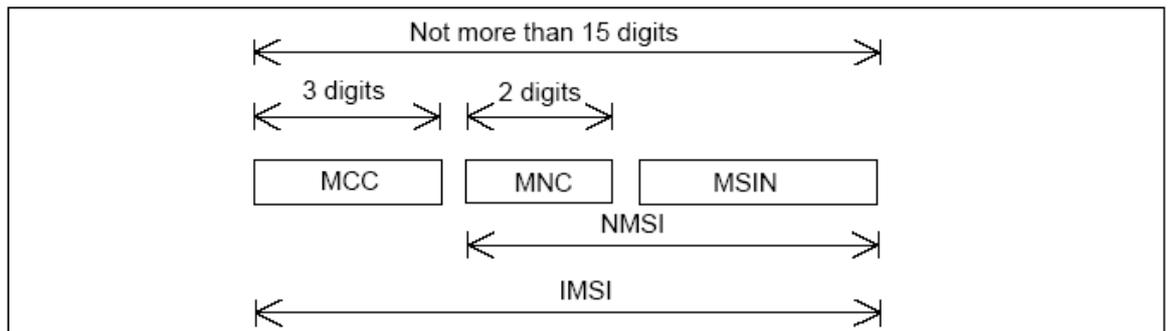
Enables the AOC supplementary service. **At this moment in time, this option is permanently activated**

### CLIR

Enables or disables the CLIR supplementary service. For example when a GSM cell phone is called from an ISDN connection, the phone number of the ISDN device **is not shown** in the cell phones display if the service is checked. If you select **network setting** the CLIR option is handled as defined per the GSM network providers default.

## Only use home provider

Every SIM card has it's own home provider encoded in the IMSI.



The MCC and MNC parts of the IMSI identify the home provider of the particular SIM. If the option **Only use home provider** is activated, then the GSM channel that uses this SIM will only log into a base station of the provider encoded in the IMSI, and **no other!** This prevents the GSM channel "roaming" from one provider to another, however be aware that if no GSM Cell capacity is available for the home provider of the SIM card, then this GSM channel will not be available for routing.

## Use SIM for GSM call back

Activating this options, allows the SIM to be used for GSM call back. Any incoming calls on this SIM will **NOT BE ANSWERED** but the system will be notified and the GSM call back process will be initiated. This prevents the GSM module from answering the call, and therefore preventing any costs being incurred.

## Use SIM identifier

Activating this options, allows the SIM card to be assigned a name (in the corresponding edit field) that is used in conjunction with the SOS pool mode. For more information on the SOS pool mode, please read the information provided in the SIM Server settings. This setting only applies to SOS configurations. Once this option is activated, the text field below it becomes active, and a string description can be entered that applies to this SIM.

## The Call Forwarding page

The screenshot shows the 'Call Forwarding' configuration page. It features four tabs: 'Common', 'Call Forwarding' (which is active), 'Audio Settings', and 'GSM Settings'. On the left side, under the heading 'Service', there are three buttons: 'Voice', 'Fax', and 'Data'. On the right side, there is a checkbox labeled 'Activate Call forwarding' and a text input field labeled 'to number :'. Below this, there is a 'Conditions' section with four checkboxes: 'not reachable' (checked), 'no reply', 'busy', and 'unconditional'. To the right of the 'no reply' checkbox, there is a spinner control set to the value '5' and the text 'sec'.

To select the desired service push one of the three option buttons "**Voice**", "**Fax**" or "**Data**" in the left area of the page. The other controls of the page will display the appropriate settings for the selected service.

### Activate Call Forwarding

Check this box to enable/disable the channels call forwarding features. If call forwarding is active, an appropriate dialing number must be entered in the edit field labeled "**to number**". If a number is not provided, an appropriate error message will appear the next time data is processed.

#### Conditions

Lists the conditions that can be set to forward a call

#### not reachable

Call will be forwarded, if the SIM card could not be reached.

#### no reply

Call will be forwarded, if SIM card is not responding within a certain time span. Possible values that can be entered in the corresponding edit field ("after") to the right range from 0 to 15 seconds.

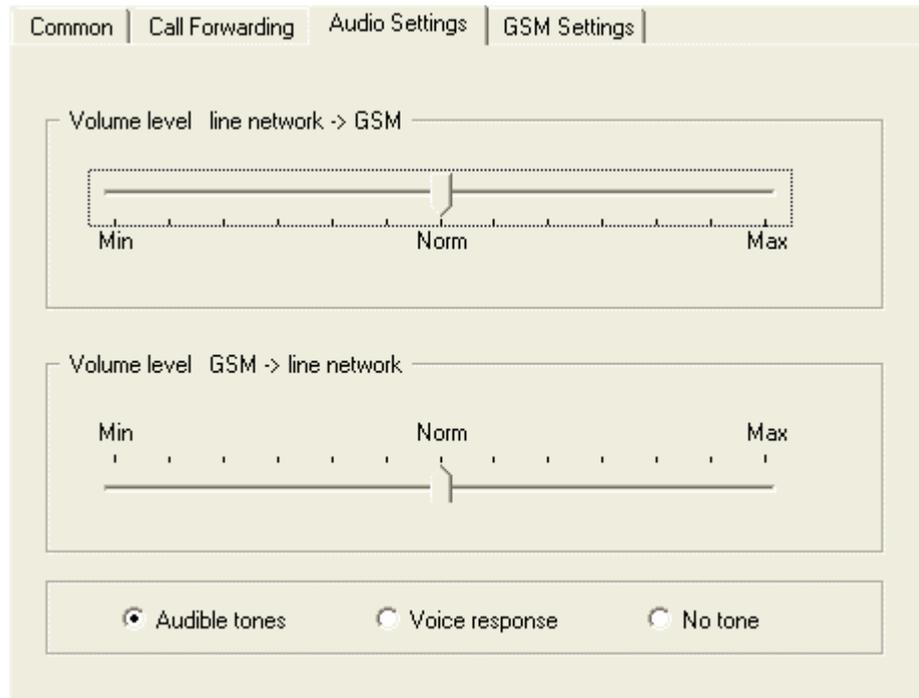
#### busy

Call will be forwarded, if SIM card is busy.

#### unconditional

Call will be always be forwarded.

The **Audio settings** page



#### **Volume level Line network -> GSM**

The value displayed by this slider control sets the relative level of amplification applied to the audio signal from the line network before it is sent to the GSM network.

#### **Caution**

Please keep in mind, that too much deviation from the "**Norm**" value may possibly result in extreme loudness, and / or distortion.

#### **Volume level GSM -> Line network**

This slider in contrast sets the amplification of incoming signals (from the GSM modules point of view).

#### **Caution**

Please keep in mind, that too much deviation from the "**Norm**" value may possibly result in extreme loudness, and / or distortion.

The three mutually exclusive options "**Audible tones**", "**Voice response**" and "**No tone**" determine the way the system will respond to incoming calls.

The **GSM settings** page

Common | Call Forwarding | Audio Settings | **GSM Settings**

Carrier selection

Use these carriers only :

Auto

Minimum field strength to enable channel

-110 -100 -90 -80 -70 -60 -50 dBm

Minimum field strength for cell registration

-110 -100 -90 -80 -70 -60 -50 dBm

Lock channel temporarily if no cell capacity is available

### Carrier selection

#### Use these Carriers only

Checking this option you can select up to three carriers out of the carrier list. If you have got access to several carriers and want to prevent a SIM from using an expensive carrier you may choose a selection allowed to use.

#### Auto

This is the default setting. If the SIM's native carrier can be reached, it will be used, otherwise another one may carry the call.

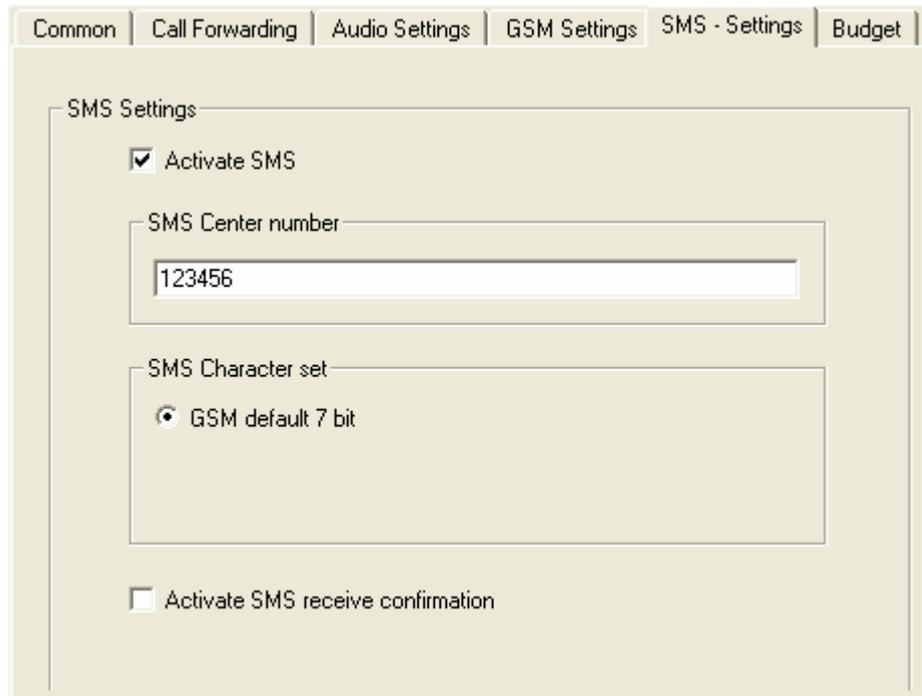
#### Minimum field strength for cell registration

This value indicates the minimum field strength the GSM channel must be received with by the cell. If the cell cannot receive the channel with the required field strength, the system will not use this cell.

#### Lock channel temporarily if no cell capacity is available

In case of utilization of cell capacity, the respective channel will be temporarily locked by the system.

The **SMS settings** page



The screenshot shows a web-based configuration interface for SMS settings. At the top, there are six tabs: 'Common', 'Call Forwarding', 'Audio Settings', 'GSM Settings', 'SMS - Settings', and 'Budget'. The 'SMS - Settings' tab is selected. Below the tabs, the 'SMS Settings' section is enclosed in a light-colored box. It contains the following elements:

- A checked checkbox labeled 'Activate SMS'.
- A text input field labeled 'SMS Center number' containing the value '123456'.
- A radio button selection for 'SMS Character set', with 'GSM default 7 bit' selected.
- An unchecked checkbox labeled 'Activate SMS receive confirmation'.

This page affects how the system deals with SMS messages

#### **Activate SMS**

This option activates SMS functionality for this SIM. When this option is not activated, the other settings for SMS cannot be changed, and any GSM interfaces that have this profile assigned to them are unavailable under SMS Email settings.

#### **SMS Center number**

This is the SMSC number to be used by this SIM. This number **MUST** be specified as it is not always possible to read the standard SMSC number from the SIM card automatically. It is also advisable to add the national prefix.

#### **SMS Character set**

Specifies which character set is to be used for this SIM card when sending SMS messages. At the moment only the standard default 7 bit character set is available.

#### **Activate SMS receive confirmation**

When activated, when an SMS message is sent by the system, when the system receives confirmation that the Cell has successfully sent the SMS to the recipient, a confirmation is sent to the sender.

#### **NOTE!**

Using this feature incurs extra costs on the system. Also if notification is turned on, and SIM multiplexing is used, in the case that the system is waiting for confirmation from the GSM network, and at the same time the system tries to switch to another SIM, the switch **WILL NOT TAKE PLACE** until the confirmation is received from the GSM network. During this time, no traffic will be routed through this SIM, and therefore this may be detrimental to the overall system performance.

## The **Budget settings** page

Common | Call Forwarding | Audio Settings | GSM Settings | SMS - Settings | Budget

Budget restriction

off

by total sum of connecting time  min

by charge :

---

Deadline: Day of month:  Time:

---

Disconnect immediately

---

**CAUTION!**  
 The settings on this page only take effect, if this GSM profile is assigned exclusively to SIM cards, which are run directly on a GSM2 submodule.  
 For SIMs which are placed on a SXU module or GSM1 submodule please use the respective settings of the assigned SIM multiplexing profile.

This page defines if and how a SIM should be deactivated and the corresponding GSM channel closed after being used for a finite time or with finite charges. With these settings it is possible to profit from tariffs that change with the type of usage. These selections are destined for SIMs running directly on a GSM2 sub module, so they are directly connected with the GSM module. If you have SIMs placed on a SXU, EWU or SCU board or on GSM1 sub module please use the respective settings of the assigned SIM multiplexing profile. These profiles enable to switch one GSM module between several SIMs due to time structures or budget restrictions.

### **Budget restriction off**

No Budget is used. The time or charge usage of the SIM is not restricted.

### **by total sum of connection time**

The time the SIM is used is summed up and the SIM is deactivated if the determined value is reached. The turn-off time is entered in minutes.

### **Note**

In cases of anomalous connection states or breakdowns the internal calculation and the calculation of the provider may slightly differ. If you want to be sure not to use the SIM over the budget please enter a slightly smaller limit.

### **by charge**

The used charge of the SIM is summed up and the SIM is deactivated if the determined value is reached. The turn-off amount of money is entered in units of currency.

### **Note**

In cases of anomalous connection states or breakdowns the internal calculation and the calculation of the provider may slightly differ. If you want to be sure not to use the SIM over the budget please enter a slightly smaller limit.

**Deadline**

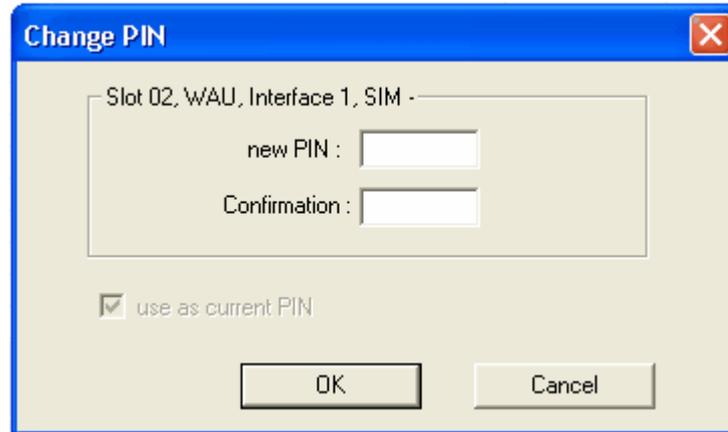
To automate the reset of the Budget every month, it is possible to define a **day of the month** and the **time** . The day is limited to the 28th to ensure that the day exists in every month. When the deadline is reached the counter sum is reset to 0. Otherwise a manual refresh of the SIM is necessary.

**Disconnect immediately**

If this option is selected the connection will be disconnected in the moment the budget is reached, otherwise the consisting connection is not troubled. Use this option if you want to be sure not to use the SIM over the budget.





**new PIN**

Enter the new PIN number that is to be used

**Confirmation**

Re-enter the new PIN number that is to be used. This is a safety measure

**use as current PIN**

The "use as current PIN" option provides two different ways the system should handle the newly entered PIN. Activate this option, if the system should initialize the SIM card immediately with the new PIN (e.g. if you have replaced a SIM card on the target system). The **Current PIN** will be ignored. If this option is not set, the system will initialize the SIM card with the **Current PIN** value and then change the PIN to the **New PIN** value. This applies if you want to change the PIN of an existing SIM card. Enter the PIN both to the New PIN and the Confirmation edit fields, then confirm by clicking OK.

To display the PIN numbers un-coded, click the button **Display real numbers**. The following dialog will appear.



Enter the password and the PIN numbers will be shown un-coded. If you have not changed the password (using the button **Change password...**) the password is **NovaTec**.

**Note**

PIN numbers have a length of at least four and at most eight digits. After you have processed the configuration data successfully and transferred them to the target system, the application will copy the number from the **new PIN** column to the **current PIN** column and then empty the latter one. In case you did not provide a new PIN number, the target system will continue to use the **current PIN** value, and therefore the columns contents will not be changed.

Changing the password for displaying the PIN numbers. To change the password required for displaying the PIN numbers un-coded, click the button **Change password...** and the following dialog will appear.

A screenshot of a 'Change Password' dialog box. The dialog has a blue title bar with the text 'Change Password' and a red close button. The main area is light beige and contains three text input fields labeled 'Old password:', 'New password:', and 'Confirmation:'. Below the fields are two buttons: 'OK' and 'Cancel'.**Old password**

Enter the present password here. If this is the first time that you are carrying out this operation, the password is **NovaTec**

**New password**

Enter the new present password here.

**Confirmation**

Re-enter the password here. This is a safety measure.

Once satisfied with the changes, click **OK** to save them. To abort, click **Cancel**.

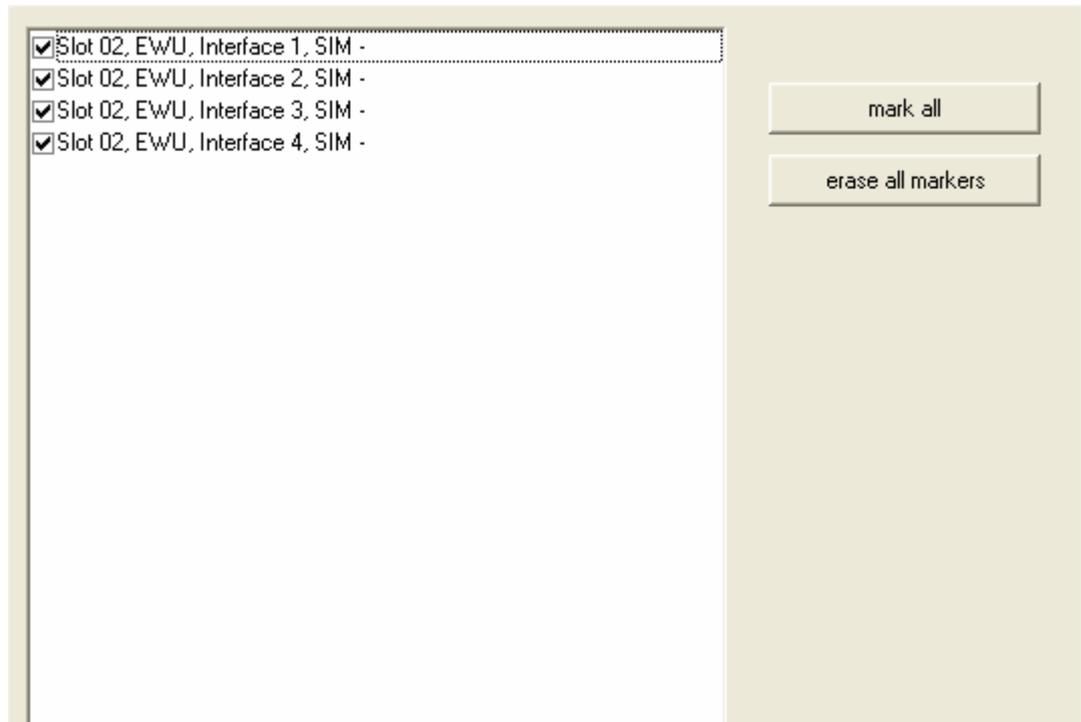
**Note**

To assign the same PIN to more than one SIM it is possible to mark several rows. To do this use the mouse with pressed **Shift** or **Ctrl** key or use the **Arrow** keys and the **SpaceBar** with pressed **Shift** or **Ctrl** key. Another way, which may be preferable when dealing with a large number of SIM cards, is described under GSM profile settings. Please be aware that settings, which are made at profile level, always override settings specific to an interface.

### 1.1.7.5 SIM refresh list

## SIM refresh list

This list shows you the SIM cards of all interfaces.



|                                     |                                  |
|-------------------------------------|----------------------------------|
| <input checked="" type="checkbox"/> | Slot 02, EwU, Interface 1, SIM - |
| <input checked="" type="checkbox"/> | Slot 02, EwU, Interface 2, SIM - |
| <input checked="" type="checkbox"/> | Slot 02, EwU, Interface 3, SIM - |
| <input checked="" type="checkbox"/> | Slot 02, EwU, Interface 4, SIM - |

mark all

erase all markers

If the check box for a particular SIM is checked, then the budget data of this SIM will be reset. The budget reset is carried out once the configuration is sent to the NMG. Un checking the check boxes for the SIMs allows a new configuration to be sent to the NMG, **without** resetting the budget data. The budget of a SIM is set on the page SIM - settings, or if used on boards that have GSM1 modules, or WAU, EWU, MCU on the page SIM Multiplexing - Settings

### 1.1.8 SIM Multiplexing

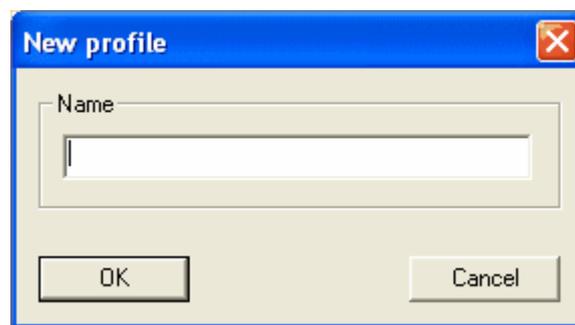
## SIM Multiplexing

These settings enable a GSM module to "switch" between several SIMs according to time structures or budget restrictions. You should use **SIM multiplexing** if you have SIM's installed on a EWU, SXU, SCU or GSM1 sub module. **SIM multiplexing** can not be used with SIMs running directly on a GSM2 sub module when they are directly connected with the GSM module.

### 1.1.8.1 Profiles

## Profiles

This window lists the available SIM multiplexing profiles. A SIM multiplexing profile can be described as a complete set of data that is required to use one GSM module with several SIMs. Each GSM module can be assigned one or more SIMs (e. g. by using a SXU - module). By using this method of data organization, it is easy to assign identical configuration settings to any number of GSM modules. If you select a SXU board in the Chassis window for the first time, a default profile named "**SIMX profile 1 (SXU)**" will be created by the application automatically, and all multiplexed GSM modules will be assigned to this profile. To create a new SIM multiplexing profile, click the **New** button, and the following dialog will appear.



#### Name

Enter an unambiguous name for the multiplexing profile

Click the **OK** button to save the profile. The new profile will be created and all of its values will be set to default ones. These values can be modified as described under multiplexing settings and any number of GSM modules can be assigned to this profile. To change the name of an existing profile, check the appropriate row from the profiles list, then choose the **Edit** button or press **Enter**. You can also double click a list row. Edit the name as desired, then choose **OK**. To delete a profile, choose the appropriate row from the profiles list, then click the **Delete** button or press the **Del** key.

#### Note

These options are only available when a WAU with GSM1 modules is installed, a WAU with GSM2 modules in combination with an SXU is installed, or EWU and/or SCU are installed

## Settings

In this window the settings of SIM multiplexing profiles can be modified. The combo box labeled **"Profile"** at the top of the window contains all available profiles. The combo box labeled **"Switch SIM usage by means of"** beneath defines the criteria to select one of the SIMs assigned to a multiplexed GSM module. It allows you to choose between time intervals, the connection time and a monetary budget.

Dependent on which option has been chosen in the combo box labeled **"Switch SIM usage by means of"** only one of the three tab pages underneath displaying the values of the selected profile is active. Each of the profiles allow to select the usage of up to five SIMs with the WAU (in combination with a SXU) and SCU, or four SIMs with the EWU.

The **"Copy"** button allows you to copy all settings of another profile to the currently selected profile (and thus make source and destination profile settings the same). Choose the desired source profile from the dialog that appears after clicking **"Copy"**, then click **OK**. The profile values are displayed and the settings of the chosen criterion can be modified on one of the three tab pages

Time / Date  
Timespan  
Budget

### The Time / Date page

The screenshot displays the 'Time / Date' tab of the settings window. It features five rows, each representing a SIM profile. Each row includes a checkbox for the SIM, a 'from' time field, a 'to' time field, a 'disconnect immediately' checkbox, and a 'Sunday' checkbox. Below these are checkboxes for each day of the week (Monday through Saturday). SIM 1 is selected and has a time interval from 06:00 to 18:00, with 'disconnect immediately' and 'Sunday' also selected. SIM 2 is selected and has a time interval from 18:00 to 06:00, with 'disconnect immediately' and 'Sunday' also selected. SIM 3 is selected and has a time interval from 00:00 to 00:00, with 'disconnect immediately' and 'Sunday' also selected. SIM 4 and SIM 5 are not selected and have no time intervals or day selections.

On this page you can configure SIMs to be selected according to the day and the time of day. The time intervals of the selected SIMs together should cover every minute of the week. If this is not the case, then when preparing the configuration for transfer to the target system a error message will be shown. For example with Time / Date settings you can choose one SIM for every weekday from 6:00 a clock to 18:00 a clock, another SIM for the rest of the time on weekdays and another SIM for the weekend.

**Time from / to**

This area defines the time range selection when this SIM is to use. Time values must be entered as "hh:mm" (seconds are not evaluated). To select the whole day set the Begin and the End time to the same value (e. g. 00:00 - 00:00). The calculation uses the interval between the begin and the end time (e. g. with the interval 00:00 - 23:59 the last minute before midnight is not selected! ).

**Check boxes for each day**

Every weekday can be selected separately

**Disconnect immediately**

If this option is selected the connection will be disconnected immediately on reaching the end of the time interval and any connections will be cut, otherwise the connection will be continued until the user calls off. Use this option if you want to be sure that the SIM will "over spend".

## The Timespan page

| Time / Day   | Timespan                                      | Rates / Costs   |
|--|---|---|
| <input checked="" type="checkbox"/> 1:   | SIM No.: <input type="text" value="1"/>       | <input type="checkbox"/> disconnect immediately                               |
| Duration: <input type="text" value="60"/> min  | <input checked="" type="checkbox"/> Deadline: | Day: <input type="text" value="1"/> Time: <input type="text" value="00:00"/>  |
| <input checked="" type="checkbox"/> 2:   | SIM No.: <input type="text" value="2"/>       | <input type="checkbox"/> disconnect immediately                               |
| Duration: <input type="text" value="60"/> min  | <input checked="" type="checkbox"/> Deadline: | Day: <input type="text" value="1"/> Time: <input type="text" value="00:00"/>  |
| <input checked="" type="checkbox"/> 3:   | SIM No.: <input type="text" value="3"/>       | <input type="checkbox"/> disconnect immediately                               |
| Duration: <input type="text" value="60"/> min  | <input checked="" type="checkbox"/> Deadline: | Day: <input type="text" value="1"/> Time: <input type="text" value="00:00"/>  |
| <input checked="" type="checkbox"/> 4:   | SIM No.: <input type="text" value="4"/>       | <input type="checkbox"/> disconnect immediately                               |
| Duration: <input type="text" value="60"/> min  | <input checked="" type="checkbox"/> Deadline: | Day: <input type="text" value="1"/> Time: <input type="text" value="00:00"/>  |
| <input type="checkbox"/> 5:  | SIM No.: <input type="text" value="5"/>       | <input type="checkbox"/> disconnect immediately                               |
| Duration: <input type="text" value="0"/> min   | <input type="checkbox"/> Deadline:            | Day: <input type="text" value="28"/> Time: <input type="text" value="23:59"/> |
| When finished this list  |   |   |
| <input type="radio"/> Local profiles (Repeat cycle)<br><input type="radio"/> Remote Profiles (Repeat until exhausted)                  |   |   |
| <input checked="" type="radio"/> Local Profiles (Lock channel)<br><input type="radio"/> Remote Profiles (Move to next Profile in list) |   |   |

On this page you can configure SIMs to be selected according to the connection time that has been used. The GSM module will be switched to another SIM if the sum of all phone calls using the last SIM reached the configured time limit.

### Numbering

The sequence of usage of the SIMs correlates with the number behind the check box. So the first (or top) SIM listed in the list is used first, the second one (the one beneath) thereafter and so on. It is not necessary to use the SIMs in the sequence of their slot number, but it is recommended to do so to avoid confusion. The number in the "SIM No." field defines the physical SIM to use. It could be 1 or 2 for a GSM1 sub module and 1 to 5 for a SXU, or 1 to 4 for an EWU

### SIM No.

This sets the SIM-number of the SIM selected for the following settings.

### Duration

This configures the time range in minutes the SIM is allowed to be used. The time the SIM is active is summed up and the GSM module is switched to the next SIM if the determined value is reached. The connection time is entered in minutes.

### Note

In cases of anomalous connection states or breakdowns the internal calculation and the calculation of the provider may slightly differ. If you want to be sure not to use the SIM over the budget please enter a slightly smaller limit.

### Disconnect immediately

If this option is selected the connection will be disconnected in the moment the configured connection time is reached, otherwise the active connection is not disconnected. Use this option if you want to be sure not to use the SIM longer than configured.

**Deadline**

To automate the reset of the Budget every month, it is possible to define a Day of month and the Time. The day is limited to the 28th to ensure the day exists every month. When the deadline is reached the counter sum is reset to 0.

**When finished this list**

These radio buttons define the behavior when the end of the list is reached.

**Local profiles (Repeat cycle)**

The counter sums of all SIM's is reset to 0. This automates the reset of the Budget and ensures that the GSM module is not deactivated.

**Remote profiles (Repeat until exhausted)**

The profile will be used until the budget on the SOS server is exhausted and the client no longer receives a SIM to access

**Local profiles (Lock channel)**

The GSM channel is locked and can't be used until the Budgets of the SIM's are reset by the deadline option or by a manual refresh

**Remote profiles (Move to next Profile in list)**

The EWU will move to the next remote profile (if it has been assigned one)

**Note**

These settings have no effect when a multiplexing profile is used in a remote profile!

## The Budget page

| Time / Day   | Timespan  | Rates / Costs                                    |
|--|---|--|
| <input checked="" type="checkbox"/> 1:   | SIM No.: <input type="text" value="1"/>   | Currency units: <input type="text" value="100"/> |
| <input type="checkbox"/> disconnect immediately  | <input checked="" type="checkbox"/> Deadline: Day: <input type="text" value="1"/> | Time: <input type="text" value="00:00"/>         |
| <input checked="" type="checkbox"/> 2:   | SIM No.: <input type="text" value="2"/>   | Currency units: <input type="text" value="100"/> |
| <input type="checkbox"/> disconnect immediately  | <input checked="" type="checkbox"/> Deadline: Day: <input type="text" value="1"/> | Time: <input type="text" value="00:00"/>         |
| <input checked="" type="checkbox"/> 3:   | SIM No.: <input type="text" value="3"/>   | Currency units: <input type="text" value="0"/>   |
| <input type="checkbox"/> disconnect immediately  | <input checked="" type="checkbox"/> Deadline: Day: <input type="text" value="1"/> | Time: <input type="text" value="00:00"/>         |
| <input checked="" type="checkbox"/> 4:   | SIM No.: <input type="text" value="4"/>   | Currency units: <input type="text" value="100"/> |
| <input type="checkbox"/> disconnect immediately  | <input checked="" type="checkbox"/> Deadline: Day: <input type="text" value="1"/> | Time: <input type="text" value="00:00"/>         |
| <input checked="" type="checkbox"/> 5:   | SIM No.: <input type="text" value="5"/>   | Currency units: <input type="text" value="0"/>   |
| <input type="checkbox"/> disconnect immediately  | <input checked="" type="checkbox"/> Deadline: Day: <input type="text" value="1"/> | Time: <input type="text" value="00:00"/>         |
| When finished this list:   |   |  |
| <input type="radio"/> Local profiles (Repeat cycle)<br><input type="radio"/> Remote Profiles (Repeat until exhausted)                  |   |  |
| <input checked="" type="radio"/> Local Profiles (Lock channel)<br><input type="radio"/> Remote Profiles (Move to next Profile in list) |   |  |

On this page you can configure SIMs to be selected according to the charge already used. The GSM module will be switched to another SIM if the charge of the last SIM has reached the configured budget.

### Numbering

The sequence of usage of the SIMs correlates with the number behind the check box. So the first (or top) SIM listed in the list is used first, the second one (the one beneath) thereafter and so on. It is not necessary to use the SIMs in the sequence of their slot number, but it is recommended to do so to avoid confusion. The number in the "SIM No." field defines the physical SIM to use. It could be 1 or 2 for a GSM1 sub module and 1 to 5 for a SXU or 1 to 4 for an EWU. **SIM No.** This sets the SIM-number of the SIM selected for the following settings.

### Currency units

The turn-off amount of money is entered in units of currency. The charge of the SIM is summed up and the GSM module is switched to the next SIM if the determined value is reached. **Note** In cases of anomalous connection states or breakdowns the internal calculation and the calculation of the provider may slightly differ. If you want to be sure not to use the SIM over the budget please enter a slightly smaller limit.

### Disconnect immediately

If this option is selected the connection will be disconnected in the moment the configured connection time is reached, otherwise the consisting connection is not troubled. Use this option if you want to be sure not to use the SIM longer than configured.

### Deadline

To automate the reset of the Budget every month, it is possible to define a Day of month and the Time. The day is limited to the 28th to ensure the day exists every month. When the deadline is reached the counter sum is reset to 0.

**When finished this list**

These radio buttons define the behavior when the end of the list is reached.

**Local profiles (Repeat cycle)**

The counter sums of all SIM's is reset to 0. This automates the reset of the Budget and ensures that the GSM module is not deactivated.

**Remote profiles (Repeat until exhausted)**

The profile will be used until the budget on the SOS server is exhausted and the client no longer receives a SIM to access

**Local profiles (Lock channel)**

The GSM channel is locked and can't be used until the Budgets of the SIM's are reset by the deadline option or by a manual refresh

**Remote profiles (Move to next Profile in list)**

The EWU will move to the next remote profile (if it has been assigned one)

**Note**

These settings have no effect when a multiplexing profile is used in a remote profile!



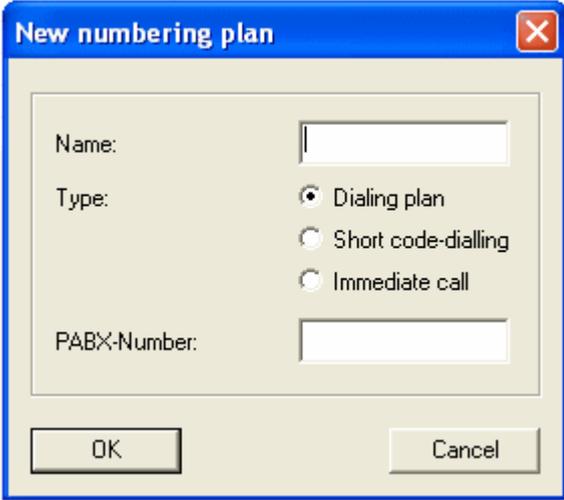
## 1.1.9 Numbering plan

### Numbering plan

This window contains the data relating to the telephone number plans. You can select from three different types of numbering plans

Dialing plan  
Short code dialing  
Immediate calls

You can enter an unlimited number of plans for dialing plans, short code-dials and immediate calls here. The respective telephone number assignments should be entered under dialing plan, short code-dial and immediate call. If a new chassis is chosen in the NovaTec - System section is selected, a default value for each type of dialing plan will be created as a standard entry. These default values can be individually edited. A system telephone number is not pre-entered. If the target system works as a telephone switchboard it might be useful to enter a PABX-number. This number is deleted from the call number of incoming calls. If a telephone number plan refers to the trunk line (external calls), an individual system number must be entered. If you create an internal telephone number plan, it is not necessary to enter the system telephone number. To create, edit or delete a Numbering plan, choose the desired plan from the list and click the corresponding button. When creating or editing a plan the following dialog will appear.

**Name**

An unambiguous name for the plan

**Type**

The type of plan to be created/edited

Dialing plan  
Short code dialing  
Immediate calls

**PABX-Number**

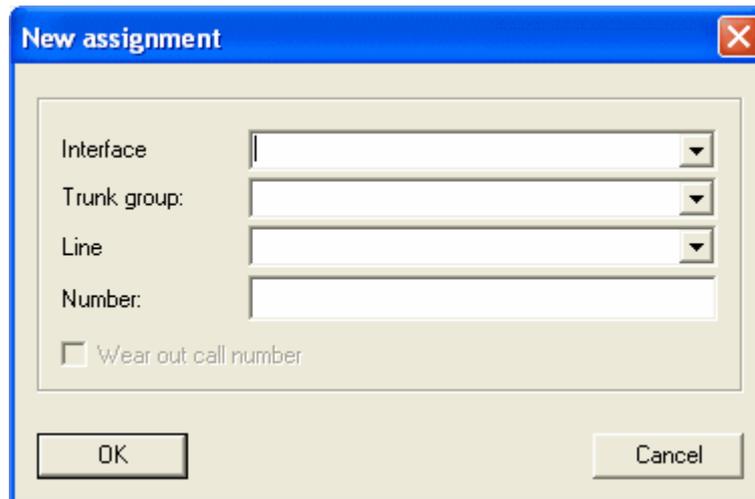
The number of the PABX (if required)

## The types of numbering plans and there differences

### 1.1.9.1 Dialing plans

## Dialing plans

A dialing plan is a collection of numbers to which incoming calls may be routed to. Interface or special objects (remote service or LCR-module) or a Line group or Trunk group. You can create, edit or delete entry's here using the respective buttons. If you click **New** or **Edit** the following dialog will appear

**Interface**

Choose or edit the interface for this dialing plan

**Trunk group**

Choose or edit the trunk group for this dialing plan.

**Line**

Choose or edit the line for this dialing plan.

**Number**

Enter the number for this dialing plan.

**Wear out call number**

Wear out call numbers means that this number will not be taken into consideration while dialling. Also "known as number stripping". This setting can be used to configure different trunk lines. For example, when a subscriber dials up another subscriber via the LCR module and the LCR module has been allocated the number 1, the subscriber will dial 1xy (xy=individual telephone number). The 1 will be removed by the entry "**wear out call number**", before the call is routed.

**Note**

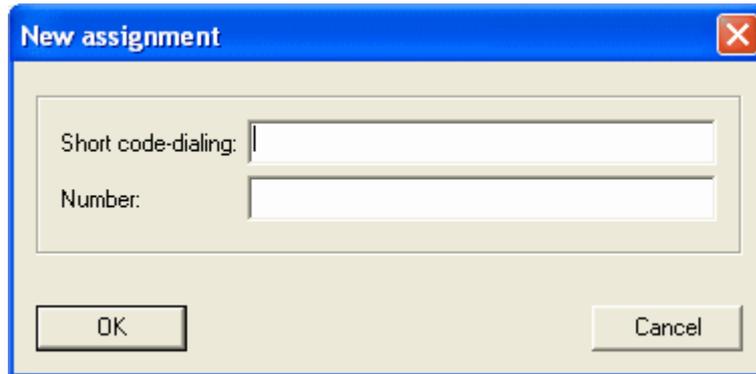
The LCR data will only be processed when a number is assigned to the ALCR module.

The "**Adopt**" function can be used to copy all the entries from another Call number plan. The "**Subscriber**" function can be used to copy all the entries on the subscriber list into the currently active telephone number plan.

### 1.1.9.2 Short code dialing

## Short code dialing

This window can be used to assign the individual short code-dial numbers to the respective telephone numbers in any existing short code-dial plan. To assign new short code dial numbers or edit them, select the appropriate short code-dial plan from the menu and then click on **New** or **Edit** respectively. The following dialog appears



The image shows a standard Windows-style dialog box titled "New assignment". It features a blue title bar with a close button (X) in the top right corner. The main area of the dialog is light beige and contains two text input fields. The first field is labeled "Short code-dialing:" and the second is labeled "Number:". Below these fields are two buttons: "OK" on the left and "Cancel" on the right.

#### **Short code dialing**

Enter the short code dialing number here.

#### **Number**

Enter the destination telephone number here.

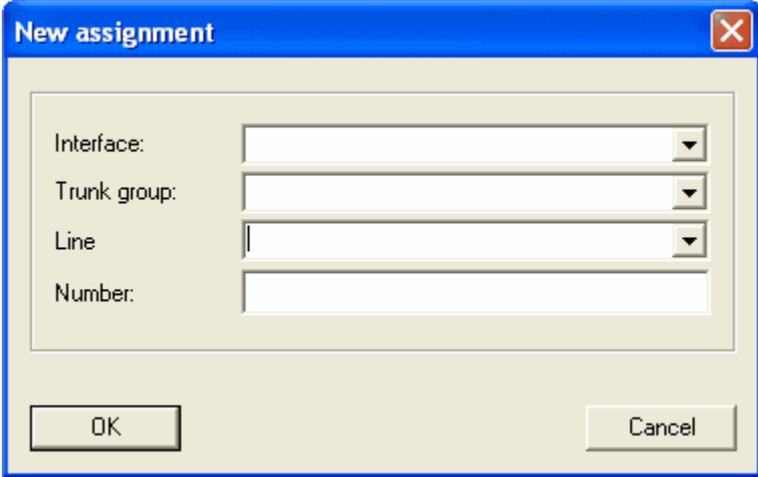
#### **Note**

You can save an unlimited number of short code-dial numbers here.

### 1.1.9.3 Immediate calls

## Immediate calls

The configuration of an immediate call is similar to the configuration of a dialing plan. To carry out the configuration, the immediate call destination must be specified as the object to be switched.



The screenshot shows a dialog box titled "New assignment". It contains four input fields: "Interface:", "Trunk group:", "Line", and "Number:". Each of the first three fields is a dropdown menu, and the "Number:" field is a text box. At the bottom, there are "OK" and "Cancel" buttons.

**Interface**

Choose or edit the interface for this plan

**Trunk group**

Choose or edit the trunk group for this plan

**Line**

Choose or edit the line for this plan

**Number**

Enter the number for this plan

#### 1.1.9.4 MSN settings

### MSN settings

The MSN-Mapping for all interfaces, that are configured as trunk line/multiple connections, can be defined here. The MSN-Mapping determines which telephone number in the office will ring to signal an incoming external call. If, for example, your telephone system number is xy-10 and the fax machine has the system number xy-11, then you can define via the MSN-Mapping, that only the fax machine rings, when the number xy-11 is dialed. Please ensure that only telephone numbers that already exist in your system are used to assign an MSN to your telephone number. Otherwise the call will either be released or re-directed to the lock-out number depending on the trunk group settings.

## 1.1.10 Call data profile

### Call data profile

The various call-tracking options can be selected here. These adjustments are decisive in determining the information that the Call-Monitor software will provide you with. When you click on **New** or **Edit**, the following dialog appears.

#### Name

The unambiguous name of the call data profile.

#### Internal -> Internal

Calls made from one subscriber to another subscriber within the PABX system.

#### Internal -> External

Calls made from an internal subscriber to a subscriber outside of the PABX system.

#### External -> Internal

Calls made from an external subscriber to a internal subscriber (within the PABX system).

#### External -> External

Calls made from an external subscriber diverted (routed) to a external subscriber. In each window you can select whether you want to save the calls and/or print them via the centronix interface.

#### Dialling

Data is saved, even if the connection is only being set-up (dialling).

#### Alerting

Data is saved, even when a connection is unsuccessful. (e.g. engaged).

**Connected**

Data is saved for a connection that has been successfully established.

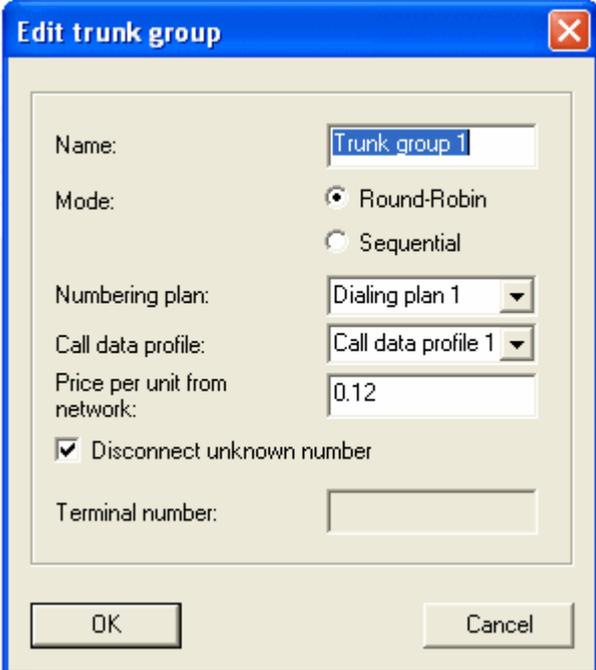
**Note**

The **Print** option is only available for CCU boards with integrated printer port.

## 1.1.11 Trunk group

### Trunk group

A trunk group comprises of a number of trunk line interfaces, which have been aggregated into a group. To create or edit a trunk group, click on the corresponding button and the following dialog will appear.



#### Name

Name of the trunk group (e. g. department, freely chosen name or number). This name **must** be unambiguous.

#### Mode

This is for B-Channel calls, choose or edit the mode required.

#### Round-robin

For each call that comes to this trunk group, the next interface will be used for that call. For example, there are four interfaces assigned to this trunk group, 1, 2, 3 and 4. The last call that came to this trunk group was sent to interface 2, therefore, the next call will be sent to interface 3, the next to interface 4 ....

This mode of operation, ensures that all interfaces within a trunk group are evenly used

#### Sequential

In this mode of operation, each interface in the trunk group is used in order, i.e. If of the four interfaces assigned to this trunk group, interface 1 is in use, then the next call will be sent to interface 2, if in the meantime the call using interface 1 has been completed, and another call comes in on this trunk group, then it will use interface 1, as it is free.

This method is not recommend for use in trunk groups that have GSM interfaces assigned to it, as the SIMs used by the interfaces **will not** be evenly used.

#### Numbering plan

Choose or edit the dialing plan to be assigned. Refer to the numbering plan option where you can select a dialing plan or immediate call type plan.

**Call data profile**

Choose or edit the Call data profile for this trunk group.

**Price per unit from network**

The unit cost of the trunk line in the local currency can be entered here. It is advisable to enter the value of 0.01 here for internally generated unit charges. This value must also be entered on the subscriber's terminal equipment. For externally generated unit charges, enter the trunk line standard price i.e the price per unit of the provider.

**Disconnect unknown number**

Activating this option will disconnect any incoming call where the dialed number does not correspond to any of the existing subscriber telephone numbers, or if that particular number is not covered in the numbering plan of this trunk group.

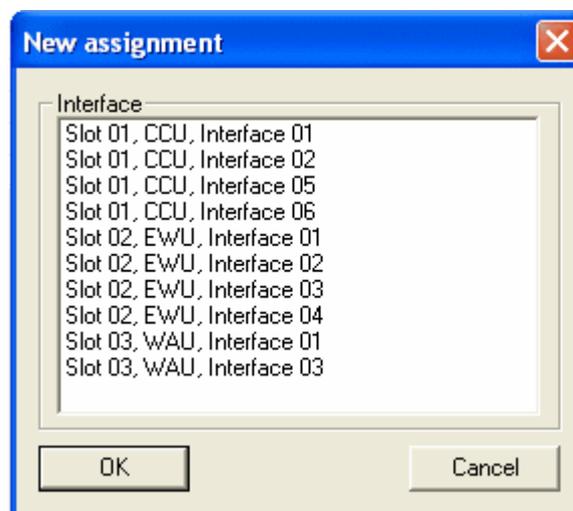
**Terminal number**

If the **Disconnect unknown number** option is not activated, you may enter a telephone number here. Any incoming call(s) where the dialed number does not correspond to any of the existing subscriber telephone numbers will be transferred to this number. As an example, the Reception / Central telephone number could be entered here.

### 1.1.11.1 Assignment

## Assignment

The allocation of the interfaces to the trunk groups is set here. Only trunk lines or cross connections appear in the selection list. The trunk groups that are declared in the interfaces settings are automatically copied to trunk group assignment. Because of this you should first configure the interface settings, and then (if required) make any trunk group assignments. To assign more than one interface at a time to the trunk group it is possible to mark several rows in the dialog, if you have chosen **New** mode. To do this use the mouse with pressed **Shift** or **Ctrl** key or use the **Arrow** keys and the space bar with pressed **Shift** or **Ctrl** key. If you mark several rows in the **Edit** mode, just the last marked and focused row will be used. It is also possible to mark several rows in the assignment form to delete them.



## 1.1.12 Master / Slave settings

### Master / Slave settings

The master slave settings for each interface, and in the case of more than one slave interface installed on a NMG, the synchronisation settings are carried out here

### 1.1.12.1 Cross Connection

## Cross Connection

This page shows all interfaces, that are defined as **Cross Connections**. In this window, layers 1-3 can be separately adjusted as master or slave. The default value is always set to **master** mode. Through these adjustments, a comprehensive range of networking topologies can be set up.

| Interface                    | Physical | Data link | Network |
|------------------------------|----------|-----------|---------|
| ← Slot 02, EWU, Interface 01 | Master   | Master    | Master  |
| ← Slot 02, EWU, Interface 02 | Master   | Master    | Master  |
| ← Slot 02, EWU, Interface 03 | Master   | Master    | Master  |
| ← Slot 02, EWU, Interface 04 | Master   | Master    | Master  |
|                              |          |           |         |
|                              |          |           |         |
|                              |          |           |         |
|                              |          |           |         |
|                              |          |           |         |
|                              |          |           |         |
|                              |          |           |         |

### Editing

To edit a cross connection highlight or "double-click" the entry in the list, and the following dialog will appear.

**Edit mode** ✕

Physical layer (L1) :  Master     Slave

Data link layer (L2) :  Master     Slave

Network layer (L3) :  Master     Slave

Now you can set the various modes for the different layers of the connection.

### Note

After the layer 1 synchronization has been adjusted to slave mode, an individual priority can be set using the synchronization options.



## 1.1.12.3 1TR6 -&gt; DSS1

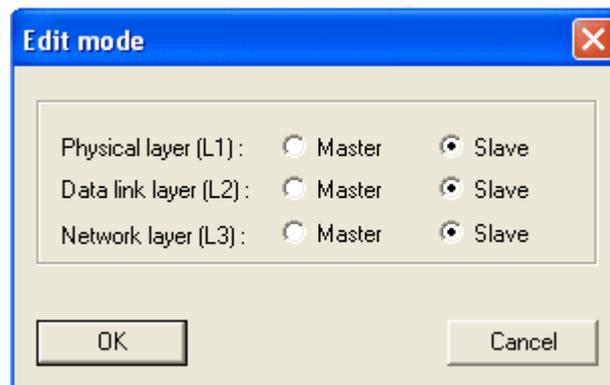
**1TR6 -> DSS1 master - slave settings**

This section shows all interfaces, that are defined as 1TR6 to DSS1 conversion interfaces. In this section, layers 1-3 can be separately adjusted as master or slave.

| Master/Slave for 1TR6 conversion interfaces |          |           |         |  |
|---|----------|-----------|---------|--|
| Interface                                   | Physical | Data link | Network |  |
| ← Slot 01: MCU : Interface 05               | Master   | Master    | Master  |  |
| ← Slot 01: MCU : Interface 06               | Slave    | Slave     | Slave   |  |
|   |          |           |         |  |
|   |          |           |         |  |
|   |          |           |         |  |
|   |          |           |         |  |
|   |          |           |         |  |

**Editing**

To edit the master/slave options highlight or "double-click" the entry in the list, and the following dialog will appear.



Now you can set the various modes for the different layers of the connection.

**Note**

After the layer 1 synchronization has been adjusted to slave mode, an individual priority can be set in the synchronization category.

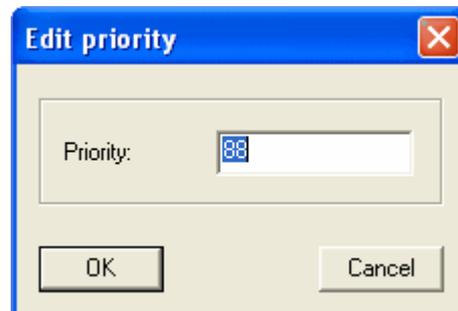
### 1.1.13 Synchronisation

## Synchronisation

All interfaces which can be used for the synchronization are listed here. This means all interfaces must be defined either as trunk slave or as layer 1 slave to be able to be synchronized. Synchronisation can be undertaken via the network or via the PABX that the system is connected to as a sub -system. For this to take place, the synchronization priority must be set.

| Interface  | Priority |  |
|--|----------|--|
| <input checked="" type="checkbox"/> Slot 01, CCU-3, Interface 02 | 99       |  |
| <input checked="" type="checkbox"/> Slot 01, CCU-3, Interface 04 | 99       |  |
| <input checked="" type="checkbox"/> Slot 01, CCU-3, Interface 05 | 88       |  |
| <input checked="" type="checkbox"/> Slot 01, CCU-3, Interface 06 | 88       |  |
| <input checked="" type="checkbox"/> Slot 03, ULU, Interface 02   | 77       |  |
|  |          |  |
|  |          |  |
|  |          |  |
|  |          |  |

To edit the priority of an interface, select it from the list and click **Edit** and the following dialog will appear.



#### Priority

Entry for priority level ranging from 0 to 99 are possible.

The following priorities are automatically provided by the system

Trunk- line interface 88

Cross connection 99

You can adjust the priority level at will, within the limitations given above. For the trunk-line interface please enter a higher priority than that given to slave lines. Within the trunk-line interfaces, the PRA lines should have a higher priority than the BRA lines.

#### Note

The **lower** the entered value, the **higher** the priority.

#### 1.1.14 1TR6 -> DSS1 conversion options

### 1TR6 -> DSS1 conversion options

As of 31.12.2006 the German Telekom will be switching the national ISDN protocol (1TR6) off. After this time, any existing 1TR6 ISDN equipment will cease to function when connected directly to the Telecommunications PSTN network. To protect existing hardware investments, and to allow the expansion of older 1TR6 telecommunications equipment, NovaTec allows the conversion of the DSS1 ISDN protocol to 1TR6 protocol. The various settings required to setup the NovaTec system as a 1TR6 protocol converter are carried out here.

### 1.1.14.1 Global options

## Global options

These options are globally relevant for all aspects of the 1TR6 conversion application

The screenshot shows a configuration window titled "Global options". It is divided into two main sections. The first section, "Protocol interrogation", contains three radio button options: "Inactive", "Active (deactivate on successful switch over)", and "Always active". The "Always active" option is selected. Below these options is a text input field labeled "Interrogation timeout (minutes)" with the value "1". The second section, "CDR Profile", contains a dropdown menu with the selected option "Call data profile 1".

### Protocol interrogation

This options allows the NovaTec system to be installed **before** the Telekom switch the 1TR6 protocol off, and automatically recognise this, and resume operation using the conversion application. The options are:

#### Inactive

Protocol interrogation is switched off. The system administrator must manually switch the 1TR6 conversion on (reconfiguration)

#### Active (deactivate on successful switch over)

Protocol interrogation is active, and once the Telekom has switch off the 1TR6 protocol, the DSS1 protocol is used automatically, and the interrogation is switched off.

#### Always active

Regardless of the current state, the interrogation is always active.

#### Interrogation timeout (in minutes)

The time period, in which the system "polls" the PSTN network, to determine which protocol is currently active (1TR6 or DSS1). This field is only applicable if either **Active (deactivate on successful switch over)** or **Always active** has been selected.

### CDR Profile

This options sets the CDR profile that is to be used for the 1TR6 <--> DSS1 calls in the system. For more information about CDR profiles, please read the corresponding section here.



## DSS1 PTP Head number(s)

Because of the differences in the two protocols DSS1 and 1TR6, the NovaTec systems need to know the head number (Head number) of the corresponding 1TR6 interface, that is bound to the 1TR6 interface. Each interface that has been setup to use the mode **DSS1 PTP -> 1TR6 PTP** is listed here, along with (if assigned) a head number.



## DDI / MSN -> EAZ number mapping

Because of the differences in the two protocols DSS1 and 1TR6, the NovaTec systems need to set the DSS1 DDI / MSN numbers to corresponding EAZ (1TR6) numbers. In this section, this "mapping" is carried out. If no numbers are entered, then the DDI/MSN are mapped 0 through to n to the corresponding EAZ numbers. Leaving this section empty is not advisable.

## 1.1.15 Frame Relay

### Frame Relay

Here, any settings required for the Frame Relay application are carried out.

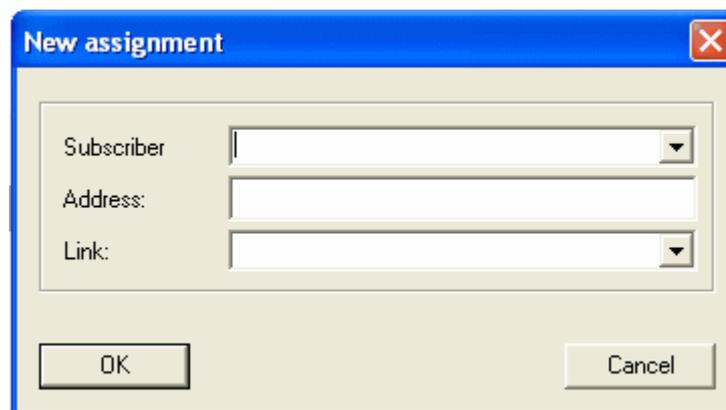
### 1.1.15.1 Frame Relay options

## Frame Relay options

Here you link the Frame Relay Subscriber interfaces to the **Frame Relay Link** interfaces, that you have defined in the settings Interfaces.

| Subscriber port                                       | Address | Link port                    |
|---|---------|------------------------------|
| <input type="checkbox"/> Slot 01, CCU-3, Interface 01 | 100     | Slot 01, CCU-3, Interface 03 |
| <input type="checkbox"/> Slot 01, CCU-3, Interface 02 | 200     | Slot 01, CCU-3, Interface 04 |
|   |         |                              |
|   |         |                              |
|   |         |                              |
|   |         |                              |

To create a new frame relay assignment, click the **New** button and the following dialog will appear.



The dialog box titled "New assignment" has a blue title bar with a close button (X) in the top right corner. It contains three input fields: "Subscriber" (a dropdown menu), "Address:" (a text box), and "Link:" (a dropdown menu). At the bottom, there are two buttons: "OK" and "Cancel".

#### **Subscriber**

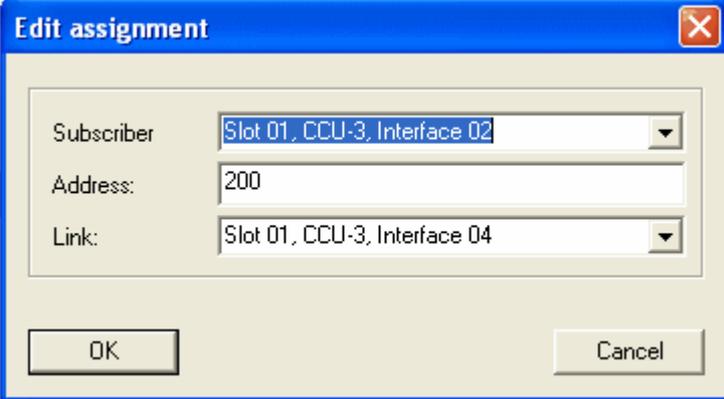
The subscriber interface that has been previously defined under interfaces. This is the BRA interface that is to be mapped to the **Link** interface.

#### **Address**

A unique value that is inserted into the layer 1 protocol to identify the multiplexing interface.

#### **Link**

This is the interface that is used to connect the two NovaTec system with one another via 4 wire cable or a S2M connection. To edit an entry, select the desired assignment from the list and click , the following dialog will appear.



The image shows a standard Windows-style dialog box titled "Edit assignment". It features a blue title bar with a close button (X) in the top right corner. The main area is light gray and contains three labeled input fields: "Subscriber" (a dropdown menu with "Slot 01, CCU-3, Interface 02" selected), "Address:" (a text box with "200" entered), and "Link:" (a dropdown menu with "Slot 01, CCU-3, Interface 04" selected). At the bottom of the dialog are two buttons: "OK" on the left and "Cancel" on the right.

Make any changes required and click the **OK** button, the edited values will be saved. To abort editing, click **Cancel**.

**Note**

The system on the other side of the Frame relay link must have a corresponding subscriber line with the same **Address** .

## 1.1.16 Layer 3 Multiplexer

### Layer 3 Multiplexer

Here, any settings required for the Layer 3 Multiplexer application are carried out.

### 1.1.16.1 Layer 3 Multiplexer options

## Layer 3 Multiplexer options

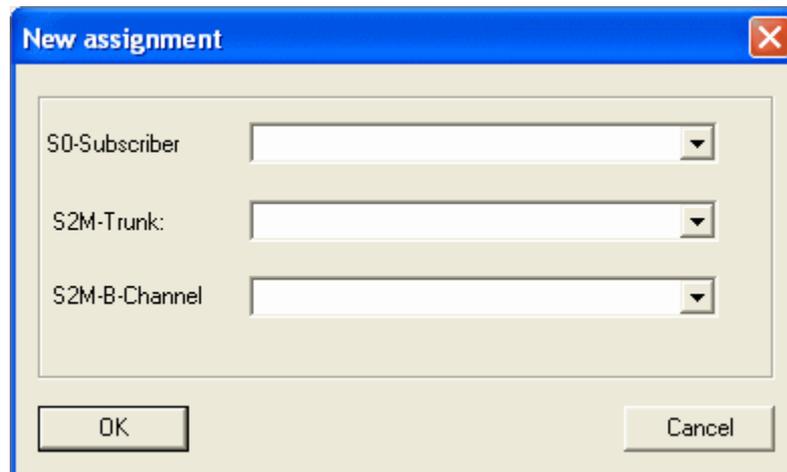
### Note

This feature is currently unavailable.

Here you link the L3 transparent interfaces together, that you have defined in the settings Interfaces to be transparent regarding the ISDN layer 3.

| S0 Subscriber-Interface                             | S2M Trunk-Interface          | S2M B-Channel |  |
|---|------------------------------|---------------|--|
| <input type="checkbox"/> Slot 03, ULU, Interface 01 | Slot 01, CCU-3, Interface 05 | B1,B2         |  |
| <input type="checkbox"/> Slot 03, ULU, Interface 03 | Slot 01, CCU-3, Interface 05 | B3,B4         |  |
| <input type="checkbox"/> Slot 03, ULU, Interface 04 | Slot 01, CCU-3, Interface 05 | B5,B6         |  |
|   |                              |               |  |
|   |                              |               |  |
|   |                              |               |  |
|   |                              |               |  |
|   |                              |               |  |

To create a new frame relay assignment, click the **New** button and the following dialog will appear.



The dialog box titled "New assignment" contains three dropdown menus for selection:

- S0-Subscriber
- S2M-Trunk:
- S2M-B-Channel

At the bottom of the dialog are two buttons: "OK" and "Cancel".

### S0-Subscriber

The interface that is to be mapped to the trunk

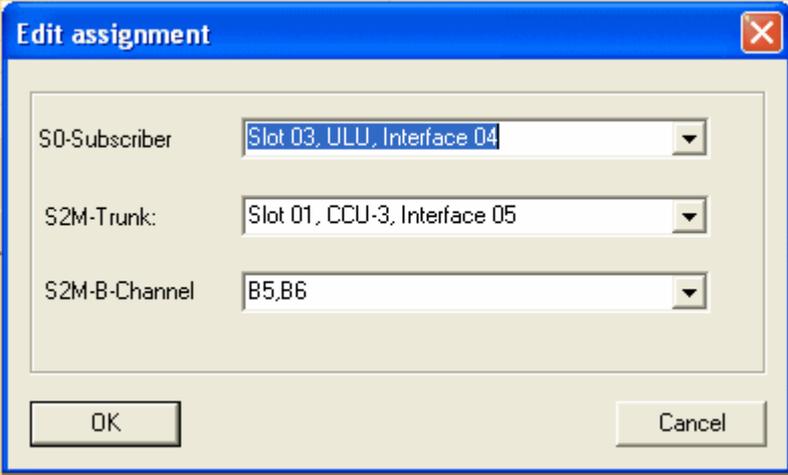
### S2M-Trunk

The B-Channel pairs of the trunk that is to be mapped to the **S0-Subscriber**

### S2M-B-Channel

The B-Channels that are to be used by the **S0-Subscriber** on the **S2M-Trunk**.

To edit an entry, select the desired assignment from the list and click , the following dialog will appear



**Edit assignment**

S0-Subscriber: Slot 03, ULU, Interface 04

S2M-Trunk: Slot 01, CCU-3, Interface 05

S2M-B-Channel: B5,B6

OK Cancel

Make any changes required and click the **OK** button, the edited values will be saved. To abort editing, click **Cancel**.

**Note**

The trunk line must be a PRA interface. The subscriber line BRA must be in point to point mode.

## 1.1.17 Fixed connections

### Fixed connections

Here, any settings required for the Fixed connections are carried out.



**Destination-Interface**

Destination interface to be configured

**Dest. B-Channel**

The B-Channel that is to be permanently "fixed"

**Mode****Full duplex**

Bidirectional communication is allowed.

**Half duplex**

Communication is only possible from source B channel to target B channel.

To edit a fixed connection, choose the fixed connection to be edited and click the **Edit** button. You may instead select the fixed connection in the list, and press **Enter** on the keyboard. Once the changes have been made, click **OK** and the changes will be saved. To abort editing, click the **Cancel** button.

**Note**

With a fixed connection, only the B channels of two physical interfaces within the system are connected. This means that the D-Channel signalling from the system is ignored. As a result the respective band width in the system is reserved and is not available for dynamic connection. Hubs or routers, for example, can be connected in this way. A star-shaped network with point-to-multi-point protocols is also possible.



**B-Channel**

The actual channel that is to be set (1 or 2)

**Mode****Blocked**

The B-Channel is blocked for all incoming and outgoing connections.

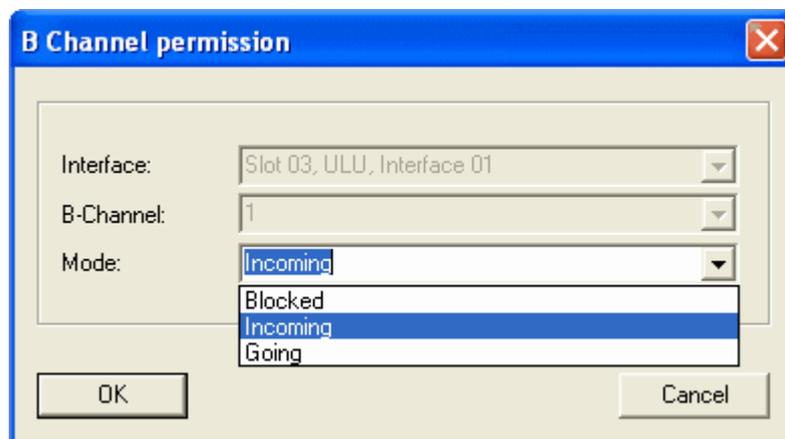
**Incoming**

The B-Channel is only available for incoming connections (Terminal --> Splitter).

**Outgoing**

The B-Channel is only available for outgoing connections (Splitter --> Terminal).

To edit a the B-Channel permission for an interface, select the interface from the list and click **Edit** . It is also possible to "double-click" the interface to be edited. When an interface has been chosen for editing, the following dialog will appear.



Once the required changes have been made, click **OK** to save them. To abort any changes, click the **Cancel** button.

**Note**

B channels which are assigned to a fixed connection are marked as [fixed]. The operational modes **incoming** and B-Channel are described as 'seen' from the systems's point of view.

## 1.1.19 Protocoll settings

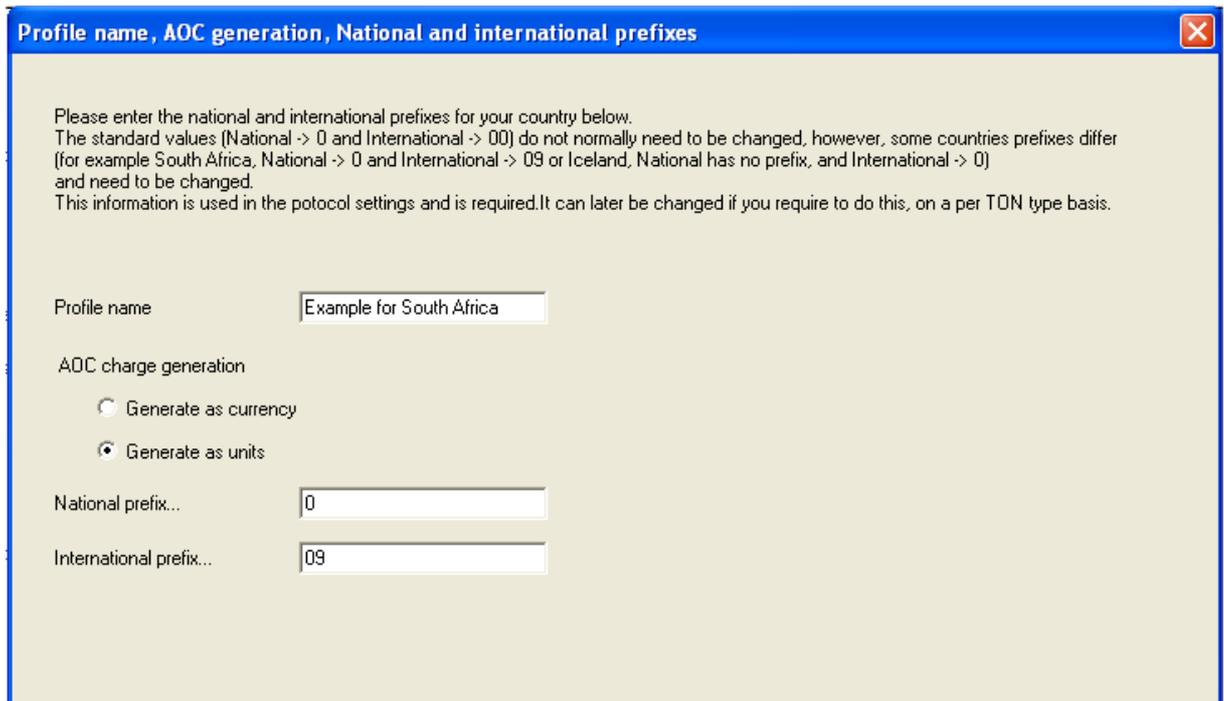
### Protocol settings

The Protocol Settings are used to configure specific individual settings within the target system.

### 1.1.19.1 Protocoll profiles

## Protocol profiles

Here are the available protocol profiles. You can create a new profile clicking the **New** button, edit an existing profile, when selected using the **Edit** button, or delete an existing profile using the **Delete** button. When creating a profile the following dialog will appear



**Profile name, AOC generation, National and international prefixes**

Please enter the national and international prefixes for your country below.  
The standard values (National -> 0 and International -> 00) do not normally need to be changed, however, some countries prefixes differ (for example South Africa, National -> 0 and International -> 09 or Iceland, National has no prefix, and International -> 0) and need to be changed.  
This information is used in the potocol settings and is required. It can later be changed if you require to do this, on a per TON type basis.

Profile name

AOC charge generation

Generate as currency

Generate as units

National prefix...

International prefix...

#### Profile name

Enter an unambiguous name for this profile. Using the name you can identify the profile when assigning it to an interface.

#### AOC charge generation

##### Generate as currency

If AOC information is to be generated by the NMG, then it will be sent as currency.

##### Generate as units

If AOC information is to be generated by the NMG, then it will be sent as units.

#### National prefix...

Enter the national prefix in this edit box ( for example 0)

#### International prefix

Enter the international prefix in this edit box ( for example 09)

Once you are satisfied with the entries you have made, click **Next** to continue.

**Incoming call settings**
✕

Source (caller) settings...

| TON              | Alter number                        | Change TON to ... | Strip | Prefix | Change numbering plan to.. |
|------------------|-------------------------------------|-------------------|-------|--------|----------------------------|
| Unknown          | <input type="checkbox"/>            | Unknown           |       |        | Don't change               |
| International    | <input checked="" type="checkbox"/> | International     |       | 09     | Don't change               |
| National         | <input checked="" type="checkbox"/> | National          |       | 0      | Don't change               |
| Network specific | <input type="checkbox"/>            | Network specific  |       |        | Don't change               |
| Subscriber       | <input type="checkbox"/>            | Subscriber        |       |        | Don't change               |
| Abbreviated      | <input type="checkbox"/>            | Abbreviated       |       |        | Don't change               |
| Reserved         | <input type="checkbox"/>            | Reserved          |       |        | Don't change               |

Target (callee) settings...

| TON              | Alter number                        | Change TON to ... | Strip | Prefix | Change numbering plan to.. |
|------------------|-------------------------------------|-------------------|-------|--------|----------------------------|
| Unknown          | <input type="checkbox"/>            | Unknown           |       |        | Don't change               |
| International    | <input checked="" type="checkbox"/> | International     |       | 09     | Don't change               |
| National         | <input checked="" type="checkbox"/> | National          |       | 0      | Don't change               |
| Network specific | <input type="checkbox"/>            | Network specific  |       |        | Don't change               |
| Subscriber       | <input type="checkbox"/>            | Subscriber        |       |        | Don't change               |
| Abbreviated      | <input type="checkbox"/>            | Abbreviated       |       |        | Don't change               |
| Reserved         | <input type="checkbox"/>            | Reserved          |       |        | Don't change               |

### Incoming call settings

Here, the incoming call settings are carried out. Normally, you do not need to change anything here, as the **National** and **International** prefixes have been entered in the previous page. If you do wish to make any changes here, please be aware that this is a change of the integral protocol that the system uses, and may cause severe problems if you do not know the EDDS1 protocol. Only make changes here if you know what you are doing, or you have been asked to make changes by the NovaTec support team.

To continue, click the **Next** button.

**Outgoing call settings**

Source (caller) settings...

| TON              | Alter number                        | Change TON to ... | Strip | Prefix | Change numbering plan to.. |
|------------------|-------------------------------------|-------------------|-------|--------|----------------------------|
| Unknown          | <input checked="" type="checkbox"/> | Subscriber        |       |        | ISDN                       |
| International    | <input checked="" type="checkbox"/> | International     | 09    |        | ISDN                       |
| National         | <input checked="" type="checkbox"/> | National          | 0     |        | ISDN                       |
| Network specific | <input checked="" type="checkbox"/> | Network specific  |       |        | ISDN                       |
| Subscriber       | <input checked="" type="checkbox"/> | Subscriber        |       |        | ISDN                       |
| Abbreviated      | <input checked="" type="checkbox"/> | Abbreviated       |       |        | ISDN                       |
| Reserved         | <input checked="" type="checkbox"/> | Reserved          |       |        | ISDN                       |

Target (callee) settings...

| TON              | Alter number                        | Change TON to ... | Strip | Prefix | Change numbering plan to.. |
|------------------|-------------------------------------|-------------------|-------|--------|----------------------------|
| Unknown          | <input type="checkbox"/>            | Unknown           |       |        | Don't change               |
| International    | <input checked="" type="checkbox"/> | International     | 09    |        | Don't change               |
| National         | <input checked="" type="checkbox"/> | National          | 0     |        | Don't change               |
| Network specific | <input type="checkbox"/>            | Network specific  |       |        | Don't change               |
| Subscriber       | <input type="checkbox"/>            | Subscriber        |       |        | Don't change               |
| Abbreviated      | <input type="checkbox"/>            | Abbreviated       |       |        | Don't change               |
| Reserved         | <input type="checkbox"/>            | Reserved          |       |        | Don't change               |

### Outgoing call settings

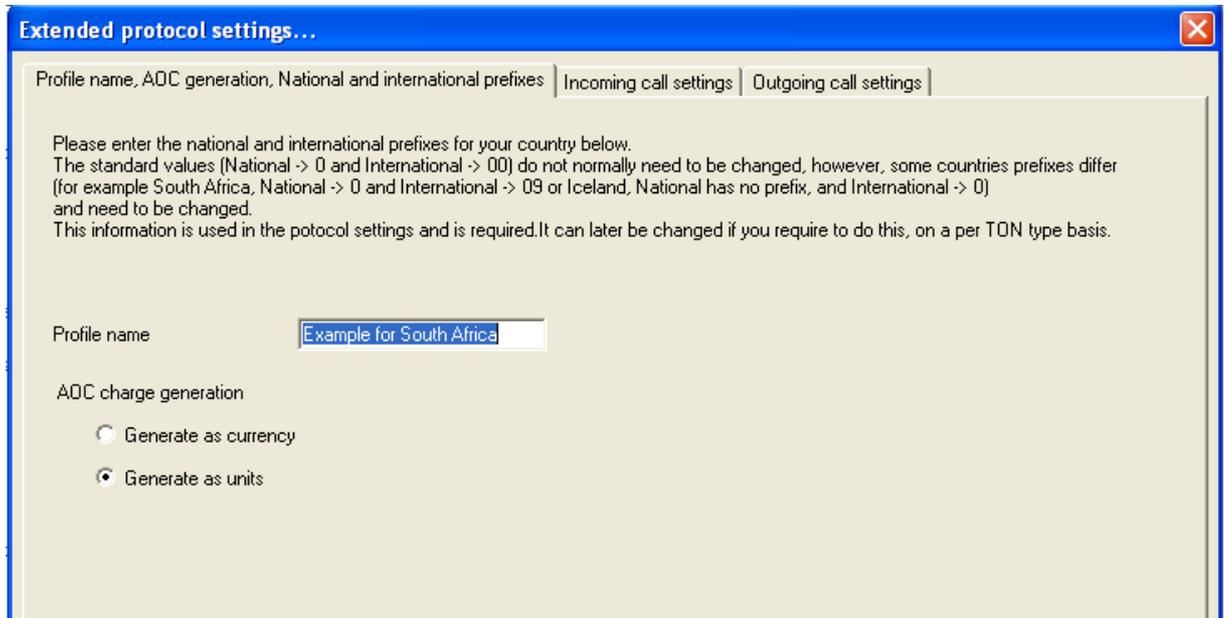
Here, the outgoing call settings are carried out. Normally, you do not need to change anything here, as the **National** and **International** prefixes have been entered in the first page. If you do wish to make any changes here, please be aware that this is a change of the integral protocol that the system uses, and may cause severe problems if you do not know the EDDS1 protocol. Only make changes here if you know what you are doing, or you have been asked to make changes by the NovaTec support team.

To save any changes, click the **Finish** button. To cancel any changes, click the **Cancel / Abort** button.

## Editing a profile

To edit a profile, choose the profile from the list, and click the **Edit** button. You may now make any changes to the profile. Clicking the **OK** button, saves any changes, and closes the dialog. Choosing **Cancel/ Abort**, closes the dialog **without** making any changes.

### Profile name, AOC generation



**Extended protocol settings...**

Profile name, AOC generation, National and international prefixes | Incoming call settings | Outgoing call settings

Please enter the national and international prefixes for your country below.  
The standard values (National -> 0 and International -> 00) do not normally need to be changed, however, some countries prefixes differ (for example South Africa, National -> 0 and International -> 09 or Iceland, National has no prefix, and International -> 0) and need to be changed.  
This information is used in the potocol settings and is required.It can later be changed if you require to do this, on a per TON type basis.

Profile name

AOC charge generation

Generate as currency

Generate as units

Please note that the default profile **cannot** be edited.

## Incoming call settings

Extended protocol settings...

Profile name, AOC generation, National and international prefixes | Incoming call settings | Outgoing call settings

Source (caller) settings...

| TON              | Alter number                        | Change TON to ... | Strip | Prefix | Change numbering plan to.. |
|------------------|-------------------------------------|-------------------|-------|--------|----------------------------|
| Unknown          | <input type="checkbox"/>            | Unknown           |       |        | Don't change               |
| International    | <input checked="" type="checkbox"/> | International     |       | 09     | Don't change               |
| National         | <input checked="" type="checkbox"/> | National          |       | 0      | Don't change               |
| Network specific | <input type="checkbox"/>            | Network specific  |       |        | Don't change               |
| Subscriber       | <input type="checkbox"/>            | Subscriber        |       |        | Don't change               |
| Abbreviated      | <input type="checkbox"/>            | Abbreviated       |       |        | Don't change               |
| Reserved         | <input type="checkbox"/>            | Reserved          |       |        | Don't change               |

Target (callee) settings...

| TON              | Alter number                        | Change TON to ... | Strip | Prefix | Change numbering plan to.. |
|------------------|-------------------------------------|-------------------|-------|--------|----------------------------|
| Unknown          | <input type="checkbox"/>            | Unknown           |       |        | Don't change               |
| International    | <input checked="" type="checkbox"/> | International     |       | 09     | Don't change               |
| National         | <input checked="" type="checkbox"/> | National          |       | 0      | Don't change               |
| Network specific | <input type="checkbox"/>            | Network specific  |       |        | Don't change               |
| Subscriber       | <input type="checkbox"/>            | Subscriber        |       |        | Don't change               |
| Abbreviated      | <input type="checkbox"/>            | Abbreviated       |       |        | Don't change               |
| Reserved         | <input type="checkbox"/>            | Reserved          |       |        | Don't change               |

Here, the incoming call settings may be edited.

## Outgoing call settings

Extended protocol settings...

Profile name, AOC generation, National and international prefixes | Incoming call settings | **Outgoing call settings**

Source (caller) settings...

| TON              | Alter number                        | Change TON to ... | Strip | Prefix | Change numbering plan to.. |
|------------------|-------------------------------------|-------------------|-------|--------|----------------------------|
| Unknown          | <input checked="" type="checkbox"/> | Subscriber        |       |        | ISDN                       |
| International    | <input checked="" type="checkbox"/> | International     | 09    |        | ISDN                       |
| National         | <input checked="" type="checkbox"/> | National          | 0     |        | ISDN                       |
| Network specific | <input checked="" type="checkbox"/> | Network specific  |       |        | ISDN                       |
| Subscriber       | <input checked="" type="checkbox"/> | Subscriber        |       |        | ISDN                       |
| Abbreviated      | <input checked="" type="checkbox"/> | Abbreviated       |       |        | ISDN                       |
| Reserved         | <input checked="" type="checkbox"/> | Reserved          |       |        | ISDN                       |

Target (callie) settings...

| TON              | Alter number                        | Change TON to ... | Strip | Prefix | Change numbering plan to.. |
|------------------|-------------------------------------|-------------------|-------|--------|----------------------------|
| Unknown          | <input type="checkbox"/>            | Unknown           |       |        | Don't change               |
| International    | <input checked="" type="checkbox"/> | International     | 09    |        | Don't change               |
| National         | <input checked="" type="checkbox"/> | National          | 0     |        | Don't change               |
| Network specific | <input type="checkbox"/>            | Network specific  |       |        | Don't change               |
| Subscriber       | <input type="checkbox"/>            | Subscriber        |       |        | Don't change               |
| Abbreviated      | <input type="checkbox"/>            | Abbreviated       |       |        | Don't change               |
| Reserved         | <input type="checkbox"/>            | Reserved          |       |        | Don't change               |

Here, the outgoing call settings may be edited.

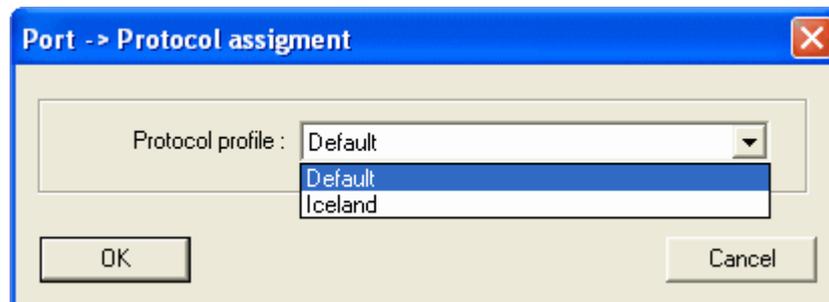
### 1.1.19.2 Interface -> Protocoll assignment

## Interface -> Protocol assignment

Here you can configure a specific interface to use a specific protocol profile.

| Schnittstelle   | Protocol profile |
|---|------------------|
| <input type="checkbox"/> Slot 01, CCU-3, Interface 01 | Default          |
| <input type="checkbox"/> Slot 01, CCU-3, Interface 02 | Default          |
| <input type="checkbox"/> Slot 01, CCU-3, Interface 03 | Default          |
| <input type="checkbox"/> Slot 01, CCU-3, Interface 04 | Default          |
| <input type="checkbox"/> Slot 01, CCU-3, Interface 05 | Default          |
| <input type="checkbox"/> Slot 01, CCU-3, Interface 06 | Default          |
| <input type="checkbox"/> Slot 02, EWU, Interface 01   | Default          |
| <input type="checkbox"/> Slot 02, EWU, Interface 02   | Default          |
| <input type="checkbox"/> Slot 02, EWU, Interface 03   | Default          |
| <input type="checkbox"/> Slot 02, EWU, Interface 04   | Default          |
| <input type="checkbox"/> Slot 03, ULU, Interface 01   | Default          |
| <input type="checkbox"/> Slot 03, ULU, Interface 02   | Iceland          |
| <input type="checkbox"/> Slot 03, ULU, Interface 03   | Iceland          |
| <input type="checkbox"/> Slot 03, ULU, Interface 04   | Iceland          |
|   |                  |
|   |                  |
|   |                  |
|   |                  |

To change which protocol profile an interface should use, select the desired interface and click **Edit**. The following dialog will appear.



#### Protocol profile

Choose the protocol previously defined to be used by the selected interface. Once any changes have been made, click **OK** to save them. To abort any changes, click the **Cancel** button.

## 1.1.20 Options

### Options

#### Options

|   |  |   |
|---|--|---|
| <b>System ASR</b>                                     |  |   |
| Minimal call duration                                 | <input type="text" value="0"/> sec             |   |
| Trigger Call home ASR <                               | <input type="text" value="0"/> %               |   |
| Minimal number of calls for Call Home                 | <input type="text" value="1000"/>              |   |
| <b>GSM ASR</b>  |  |   |
| Minimal call duration                                 | <input type="text" value="30"/> sec            |   |
| Trigger Call home ASR <                               | <input type="text" value="85"/> %              |   |
| Minimal number of calls for Call Home                 | <input type="text" value="1000"/>              |   |
| <b>ISDN ASR</b>                                       |  |   |
| Minimal call duration                                 | <input type="text" value="30"/> sec            |   |
| Trigger Call home ASR <                               | <input type="text" value="85"/> %              |   |
| Minimal number of calls for Call Home                 | <input type="text" value="1000"/>              |   |
| <b>SIP ASR</b>  |  |   |
| Minimal call duration                                 | <input type="text" value="30"/> sec            |   |
| Trigger Call home ASR <                               | <input type="text" value="85"/> %              |   |
| Minimal number of calls for Call Home                 | <input type="text" value="1000"/>              |   |
| <b>Music On Hold</b>                                  |  |   |
| <input type="button" value="Import Audio (PCM) ..."/> | <input type="button" value="Remove Audio..."/> | <input type="text" value="Audio: PCM, 8-Bit, 8 kHz, Mono"/> |

|   |                                     |
|---|-------------------------------------|
| <b>PABX relative settings</b>   |                                     |
| <input checked="" type="checkbox"/> Explicit call transfer  |                                     |
| <input checked="" type="checkbox"/> Call pick up  |                                     |
| <input checked="" type="checkbox"/> Call forwarding   |                                     |
| Call pick up  | <input type="text" value="*14*"/>   |
| Station guarding  | <input type="text" value="*08*"/>   |
| Abb. dial   | <input type="text" value="*#"/>     |
| <b>Tone generation options</b>  |                                     |
| <input checked="" type="checkbox"/> Generation active   | <input type="text" value="German"/> |
| <input checked="" type="checkbox"/> Always send progress indicator "INBAND INFO AVAILALBE" on disconnect, even when this indicator is not present |                                     |
| <b>Cause value "Congested" (34) options</b>   |                                     |
| <input type="checkbox"/> Alternative value  | <input type="text" value="34"/>     |
| <b>Pool buffer options</b>  |                                     |
| Size of pool buffer   | <input type="text" value="270"/>    |

**ASR-settings**

These settings are used for the internal ASR-calculations needed for the Call Home event on reaching a low ASR. Each type of call (ISDN, GSM and SIP) can be individually configured to trigger a call home event. The System ASR event is triggered, if the sum of all ASR's falls below that set.

**Minimal call duration**

Calls that do not last at least the length specified here are always rated as being successful.

**Call Home at ASR**

If the ASR falls short of this limit, a call home is initiated. Values from 0 to 100 % are possible.

**Minimal number of calls for call home**

This is a counter, that allows the system time to carry out the number of calls specified here, before the ASR is considered to be below the value set above. For example if this value is set to 1, then after a reset the first call that falls below the ASR will trigger the event ASR call home(if active).

**Note**

To use these settings the Call Home event Falls short of ASR-limit must be activated!

## PABX relative settings

The output characteristics can be adjusted here. You may choose from the following

**Explicit call transfer (ECT)**  
**Call take over (CTO)**  
**Call forwarding**  
**Tone generation**

To use the functions described above, short-cuts must be entered. You can choose from a range of symbol and or number combinations. You may either enter just a \* or an # , or you can select one of these symbols followed by a two digit number and followed again by one of these symbols.

### Examples

#### Call take-over

If a call should be picked-up from a subscriber with the telephone number 911 and the \* symbol has been configured as the call pick-up command, the call can be picked-up with \*911.

#### Station guarding

When the short-cut \*10\* is configured as station guarding, every subscriber can switch off the tone on his telephone by using the combination, \*10\* .

#### Short code dialing

If # is configured as the system's short code-dialing command for telephone number abbreviations, every subscriber who has been incorporated into the **short code-dial call number plan** can undertake a short code-dialing by using the # symbol followed by the abbreviation code for the desired telephone number.

#### Note

These functions are only needed when the NMG is used as a PABX system. Normally the above settings can be disabled.

## Tone generation options

### Generation active

With this option enabled, the NMG system can generate the required tones normally provided by the network provider (alerting etc.). You may choose between what type of tone generation is to be used, German (continental) or UK (British).

### Always send progress indicator\n"INBAND INFO AVAILALBE" on disconnect, even when this indicator is not present

The NMG will generate the disconnect INFO if there is no external INFO present. This option is only used on the NMG, when the **Generation active** is checked

### Cause value "Congested" (34) options

Here the systems cause value for congested may be altered from the standard 34 to another value. This setting may be required on some "exotic" PABX systems

### Pool buffer options

**NEVER** change this value unless **explicitly requested** to do so by the NovaTec support

## Music on Hold

### Music on Hold Options

If you wish to play a sound during a HOLD to let the caller to hear some information, you can install a soundfile on the system.

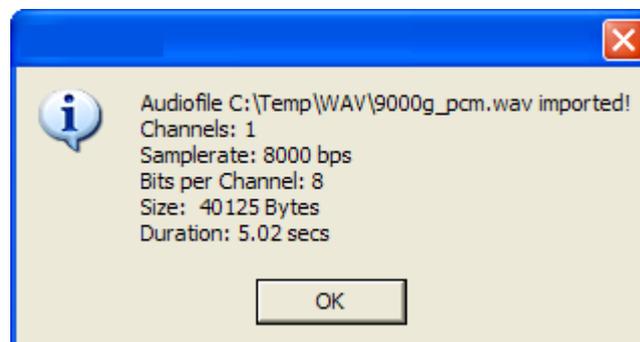
The requirements for a compatible soundfile are:

- Mono (i.e. 1 Channel)
- 8 kHz Samplerate
- 8 Bits per channel resolution
- Maximum 80 seconds
- Pulse Code Modulation (PCM, WAV)

### Install Audio (PCM)

To install a soundfile, click on the button "Install Audio (PCM)". Select a file in the appearing file-dialog to import the audio-data.

After a successful installation of the audio-data, a information-dialog will show some information about the imported audio-data.



### Remove Audio

To remove the music-on-hold audiofile, click the button "Remove Audio...". The audio-data will be removed from the configuration.

A successful remove will be shown by a confirmation-dialog.

## 1.1.21 Subscriber

### Subscriber

Here you may edit, create or delete subscribers, and assign them to, or remove them from an interface by clicking on the corresponding buttons.

When editing or creating a subscriber, the following dialog will appear

**Edit subscriber**

Subscriber-Options

Number: 30

Description:

Interface: Slot 01: S3U (Analog a/b) :Interface 07

Permission class: Permission class 1

Call take over: Call take over 1

Device Type: Phone

Subaddress-IE:

Bearer-Capability-IE: Speech

8090A3

Low-Layer-Compatibility-IE:

High-Layer-Compatibility-IE: Telephony

9181

OK Cancel

#### Number

Enter the telephone number of the subscriber here. Please note that only the direct dial number must be entered, not the complete telephone number.

#### Description

You can enter a (unambiguous) description of the subscriber (name, department, etc.) in this row.

#### Interface

Select the interface, to which the subscriber will be connected.

#### Permission class

You can assign a Permission class for the subscriber here.

#### Call take over

Select the call take-over group, to which the subscriber belongs.

#### Device Type

Select the type of device connected to the chosen interface above. Available choices are phone, facsimile, modem or a combi-device.

**Subaddress-IE**

The additional addressing possibility may be used as additional terminals after the ISDN subscribers interface to be addressed, such as the activation of an amplifier for an announcement or to start a computer program.

The maximum length of Subadresse is 42 numbers.

**Bearer-Capability-IE**

Defines the mandatory bearer capability for this subscriber. You can choose between pre-defined profiles or, if you wish, use the user-defined profile to declare an individual bearer capability. The maximum length of the Bearer-Capability-IE is 22 numbers.

**Low-Layer-Compatibility-IE**

Enter here the individual Low-Layer-Compatibility-IE. The maximum length of the Low-Layer-Compatibility-IE is 22 numbers.

**High-Layer-Compatibility-IE**

Define here the services used by the subscriber. You can choose between pre-defined profiles or, if you wish, use the user-defined profile to declare an individual High-Layer-Compatibility-IE. The maximum length of the High-Layer-Compatibility-IE is 6 numbers.

### 1.1.21.1 Permission class

## Permission class

The purpose of this window is to enable you to configure the subscriber permission classes. You can enter an unlimited number of permission classes. To create or edit a permission class click the corresponding button. The following dialog will appear.

**Edit permission class**

Name:

Short code-dialing

Call forwarding

Hold

Explicit call transfer

Call take over

Advice of charge

Dialing plan:

Immediate call:

Short code-dialing:

Call data profile:

Price per unit to the subscr.:

The settings marked with \* are not optional and therefore must be configured.

#### **Name\***

Freely selected name for the permission class. This name **must** be unambiguous.

Now follows a list of all options that may be enabled or disabled.

**short code-dial**  
**call forwarding**  
**call hold**  
**explicit call transfer**  
**call take over**  
**advice of charge**

Either a dialing plan OR an immediate call must be assigned to the permission class.

**Dialing plan\***

Choose or edit the dialing plan that is assigned to this permission class.

**Immediate call**

Choose or edit the immediate call that is assigned to this permission class.

**Short code-dialing\***

Choose or edit the short code-dialing that is assigned to this permission class.

**Profile\***

Choose or edit the Call data profile that is assigned to this permission class

**Price per unit to the subscr\***

The unit cost of the trunk line in local currency. It is advisable to enter the value of 0.01 here for internally generated unit charges. This value must also be entered on the subscriber's terminal equipment. For externally generated unit charges, enter the trunk line standard price i.e the price per unit of the provider.

---

1.1.21.1.1 Assignment

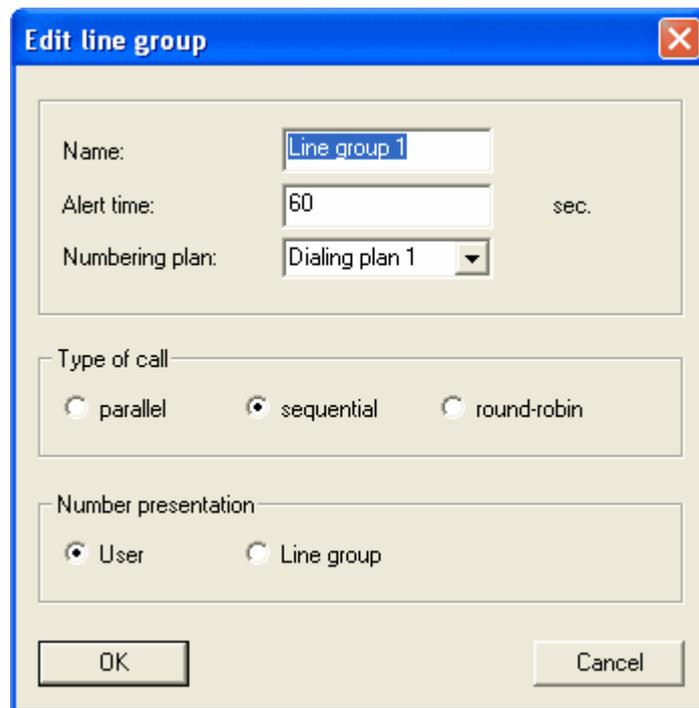
## Assignment

The trunk groups can be assigned to the permission classes here. The trunk groups assigned here are available for the subscribers which are assigned with this permission class.

## 1.1.22 Line group

### Line group

A line group enables you to unite individual subscribers into a group under one phone number. To create or edit a line group click the corresponding button, and the following dialog will appear.



#### **Name**

Name of the line group (e. g. department, freely chosen name or number). This name **must** be unambiguous.

#### **Alert time**

Maximum duration of ringing in seconds. A maximum of 119 seconds may be entered. This is because ISDN connections are automatically broken-off after a maximum of 2 minutes (120 seconds).

#### **Numbering plan**

Choose or edit the numbering plan in which the users who are assigned to the line group are present. This is a dialing tree type of plan.

#### **Type of call**

The following ringing sequence adjustments are possible.

##### **Parallel**

All telephones ring at the same time

##### **Sequential**

All telephones ring in order, one after another

##### **Round-Robin**

The telephone that comes after the last one that rang, is the next that will ring

#### **Number presentation**

This is where you select which telephone number will be displayed on the call recipient's telephone.

**User**

The subscriber's telephone number.

**Line group**

(CNC) The number for the line group.

**Note**

If you define a line group, the subscriber telephone numbers that relate to this line group must be entered under the respective dialing tree in the telephone number plan.

### 1.1.22.1 Assignment

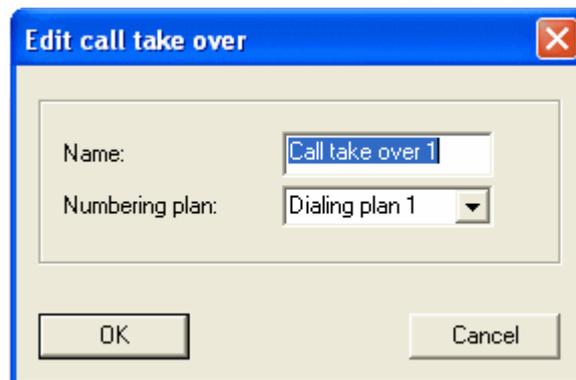
## Assignment

The subscriber telephone numbers may be assigned here to the line groups previously defined.

### 1.1.23 Call take over

## Call take over

Call take over groups can be defined here. To create or edit a call take over group click the corresponding button and the following dialog will appear.

**Name**

Freely selected name for the call take over group. This name **must** be unambiguous.

**Numbering plan**

Assign a numbering plan of the type dialing plan to the call take over group.

### 1.1.23.1 Assignment

## Assignment

The telephone numbers of the subscribers who are permitted to take over another subscriber's calls from within the same group can be entered here. This can be undertaken for every group.

## 1.1.24 Call back settings

### Call back settings

In this section, the GSM Callback and the Fixed network Callback settings and options are made.

### 1.1.24.1 GSM-Callback

## GSM-Callback

This is for calls being connected through one NMG system. The initiating call comes in on a GSM-channel, and is disconnected (automatically if chosen). The mobile user who initializes the call, will be called back from the system, and is requested to enter the number he/she wishes to connect to (how the user is informed, either via voice or dialing tone is set in the GSM options page here). The call is then connected using two channels within the NMG system. To create or edit a GSM call back profile click the corresponding button and the following dialog will appear.

The screenshot shows a dialog box titled "new Callback". It contains the following fields and options:

- Callback Profilname: [text input]
- Source: Numbering plan: [dropdown], Trunk group: [dropdown]
- Target: Numbering plan: [dropdown], Trunk group: [dropdown]
- Access list: [dropdown, value: without]
- Activation timer: [input: 0] sec, Repetitions: [input: 3]
- Recall timer: [input: 2] sec,  Disconnect on Activation,  Message
- Buttons: OK, Cancel

The settings are

#### Callback profile name

Choose or edit the name of the GSM call back profile. This name **must** be unambiguous.

#### Source

This specifies the routing of the call back call, that is established from the NMG system to the calling party. Please note, the source must be either a numbering plan or a trunk group

#### Target

This specifies the routing of the call, that is established from the NMG to the called party to carry out the connection. Please note, the source must be either a numbering plan or a trunk group

#### Access list

The access list assigned here restricts the permitted source-call numbers.

#### Activation timer

The time (in seconds) that a call back initialization call must be before the actual call back process is started. Calls shorter than this value are ignored.

#### Recall timer

---

The amount of time (in seconds) the call back timer has to run before the call back initiator is recalled. This ensures the call back initiator is available after the first call.

**Repetitions**

This counter defines the amount of times the NMG system should attempt the call back procedure on failure.

**Disconnect on Activation**

When this option is active, the initiating call is disconnected when the call back procedure is started. This ensures that the user who initiated the call back is available. The disconnect on activation is carried out once the **Activation timer** has run down.

**Message**

When this option is active, when the call back initiator is called, he/she receives a message stating that the desired (destination) number should now be dialed.

### 1.1.24.2 Fixed network Callback

## Fixed-network Callback

This is for calls from a PABX or telephones directly connected to a NMG target, the call back **client**. The connection is built up through a second target, the **call back-server**. The initiating call comes into the call back-**client**, the client waits until it receives the destination call number and calls a specific call back **server** to transmit the source- and destination call number. The server then calls the destination number and connects this call with a call back to the client. The final connection is composed of three calls, two originated in the call back **server** and the initiating call from the PABX or telephone to the call back client . To create a server or client profile click the corresponding button.

### Creating / Editing a client profile

**New client callback profile**

Callback profile name: DE Client

Outgoing server number: 12345

Number range: Start 00 End 99

Incoming CLIP: 12345

Number range: Start 00 End 99

Protocol:  Sub-address  User to User  Data service

Server IP settings

IP: 123 . 45 . 67 . 89 Port: 809

Local / National dialing code: 00495251

Target:

Numbering plan: BT

Trunk group:

Dial number length required (digits): 13

Maximum waiting time for next digit when dialling (seconds): 5

Hash (#) as call number termination character

OK Cancel

### Callback Profile name

Choose or edit the name of the Fixed network call back profile. This name **must** be unambiguous.

**Outgoing server number**

The number to be dialed by the client to transmit the destination call number to the call back server.

**Number range**

The number range is the DDI range that is available for the above number.

**Start**

The start DDI number

**End**

The end DDI number

**Incoming CLIP**

The number that is to be received by the client.

**Number range**

The number range is the DDI range that is available for the above number.

**Start**

The start DDI number

**End**

The end DDI number

**Note**

Normally the above two numbers should be the same, if this is not possible, for example, incoming and outgoing calls are on different E1 interfaces, they may be changed.

**Protocol**

The way the destination call number is transmitted to the server. There are three options that specify the way the number is enclosed in the call.

**Subaddress**

The call information (number) is transmitted in the DSS1 protocol using the sub addressing service.

**User to User**

The call information (number) is transmitted in the DSS1 protocol user to user service.

**Service data**

The BCIE element is "forced" to data. A fall back method to force the CLIP to be used during call back functions. This option is available, because in some countries and/or network providers do not supply CLIP information (for example South Africa). This is a "last resort" method and is not guaranteed to work in all circumstances.

**Note**

These services may need to be subscribed (supplied) from the Network provider.

**Server IP settings**

The server IP settings are optional values, that may be used to increase the reliability of the Callback service. As well as the client information being sent over the ISDN route, the client information is also sent via a TCP/IP connection to the Callback Server. The settings here reflect those of the Callback server. If you wish to use the TCP/IP options, the client must have a SOS installed.

**IP**

The IP address of the Callback Server

**Port**

The port that the Callback server is monitoring for Callback information. This port is at the moment not configurable.

**Local/National dialing code**

The National and local dialing code of the client. This information is usually carried in the CLIP of the call to the server, but in some cases this may not be true. This value must be entered correctly, unless the Callback call will fail.

**Target**

This specifies the routing of the call from the **client** to the **server**. **The** target may be either a Numbering plan or an Trunk group. The call is used to transmit the source and destination call number to the **server**.

**Dial number length necessary**

the destination call number is recognized as a valid number and sent to the server en-bloc when it reaches the amount of digits entered here.

**Maximum waiting time for next digit when dialing**

The destination call number is recognized as complete and sent to the server en-bloc when the system has waited longer for the next digit than the time specified by this setting. This leads to a call to the server being routed even though the "Dial number length necessary" may not have been reached.

**Hash as call number termination**

When this option is activated the destination call number is recognized as complete and sent to the server en-bloc when the hash ('#') is dialed. This also leads to a call to the server even when the **Dial number length necessary** may not have been reached.

## Creating / Editing a server profile

**New server callback profile**

Callback profile name: Server profile

**Source**

Numbering plan: 1-PRI Slave

Trunk group:

Incoming number (trigger): 12345

Number range: Start 00 End 09

Outgoing server CLIP: 12345

Number range: Start 10 End 20

**Target**

Numbering plan: 1-PRI Slave

Trunk group:

Access list: without

Activation timer: 2

Activate tone generation

OK Cancel

### Callback Profile name

Choose or edit the name of the Fixed network call back profile. This name **must** be unambiguous.

### Source

This specifies the routing of the call back call, that is initiated from the server back to the calling party through the client. This may be either a numbering plan or a trunk group.

#### Incoming number (trigger)

This number corresponds to the clients outgoing number

#### Number range

The number range is the DDI range that is available for the above number.

##### Start

The start DDI number

##### End

The end DDI number

**Outgoing server CLIP**

This number is the number that the server uses as it's CLIP

**Number range**

The number range is the DDI range that is available for the above number.

**Start**

The start DDI number

**End**

The end DDI number

**Note**

Normally the above two numbers should be the same, if this is not possible, for example, incoming and outgoing calls are on different E1 interfaces, they may be changed

**Target**

This specifies the routing of the call, that is initiated from the server to the party to be called. This may be either a numbering plan or a trunk group

**Access list**

The access list assigned here restricts the permitted source-call numbers

**Activation timer**

The initiating call must be at least at least the number of seconds specified here to be recognized as a valid call. Calls shorter than this are ignored

**Tone generation**

If this option is activated, when the initiating party is called back, the system will generate a tone as long as the connection is trying to be established to the destination call number

**Notes****Requirements for protocol mode Subaddress**

The network must pass the CALPS (Calling Party Subaddress) between the client and server. The network must pass the CLIP from the caller (client side) to the server. The server must have one or two digit DDI number range, so that the callback call be indexed

**Requirements for protocol mode User to User**

The network must pass the User-To-User IE (in the SETUP message, UUS1-Service) between the client and server. The network must pass the CLIP from the caller (client side)to the server. The server must have one or two digit DDI number range, so that the callback call be indexed

**Requirements for protocol mode Data Service**

The network must pass the CALPS (Calling Party Subaddress) between the client and server. The network must pass the CLIP from the caller (client side)to the server The information element Bearer Capability is used between the client and server, and this information should not be altered in any way. The server must have one or two digit DDI number range, so that the callback call be indexed

**Requirements for the Server IP settings**

The Callback server must be visible to the client making the callback connection. This includes that any request to the IP address set above coming in on the port set above must be forwarded to the Callback server system. Also IP masquerading must be set up for the Callback server system when the server is behind a firewall.

## 1.1.25 CLIP Masquerading

### CLIP Masquerading

In this section, you can enter DDI numbers that can be used to Masquerade CLIP numbers. This simplifies the use of the Fixed network Callback features.

| Masquerading Number | Status                 |
|---------------------|------------------------|
| 1099                | Static (01705202222)   |
| 1100                | Static (05252974825)   |
| 1101                | Static (05252974826)   |
| 1102                | Static (052511589685)  |
| 1103                | Dynamically assignable |
| 1104                | Dynamically assignable |
| 1105                | Dynamically assignable |
| 1106                | Dynamically assignable |
| 1107                | Dynamically assignable |
| 1108                | Dynamically assignable |
| 1109                | Dynamically assignable |
| 1110                | Dynamically assignable |
| 1111                | Dynamically assignable |
| 1112                | Dynamically assignable |
| 1113                | Dynamically assignable |
| 1114                | Dynamically assignable |
| 1115                | Dynamically assignable |
| 1116                | Dynamically assignable |
| 1117                | Dynamically assignable |

#### Masquerading number

The list of available masquerading numbers

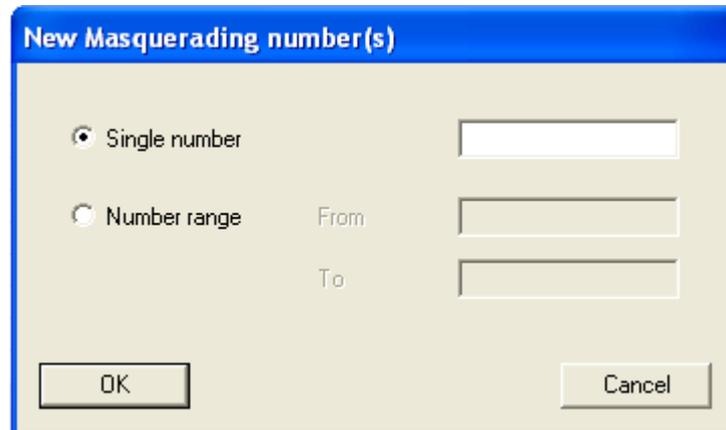
#### Status

Shows the current status of the masquerading number

As you can see from the above screen-shot, CLIP's can be statically assigned to a specific masquerading number (under status the text **static** is shown, with the currently assigned CLIP), or the available masquerading numbers will be used dynamically by the systems as required (under status the text **Dynamically assignable** is shown)

**New Masquerading number(s)**

To add Masquerading numbers to the pool, click the **New...** button and the following dialog will be shown



The dialog box titled "New Masquerading number(s)" features a blue header bar. Below the header, there are two radio button options. The first option, "Single number", is selected and is followed by a single text input field. The second option, "Number range", is unselected and is followed by two text input fields labeled "From" and "To". At the bottom of the dialog, there are two buttons: "OK" on the left and "Cancel" on the right.

**Single number**

Here you can enter a single masquerading number to be added to the pool

**Number range**

Here you can enter a range of numbers that are to be added to the masquerading pool

**From**

The start number of the range of numbers

**To**

The end number of the range of numbers

**Note**

To activate the **From** and **To** fields, you must select the **Number range** radio button. This will deactivate the **Single number** field. To reactivate the **Single number** field select the radio button **Single number**

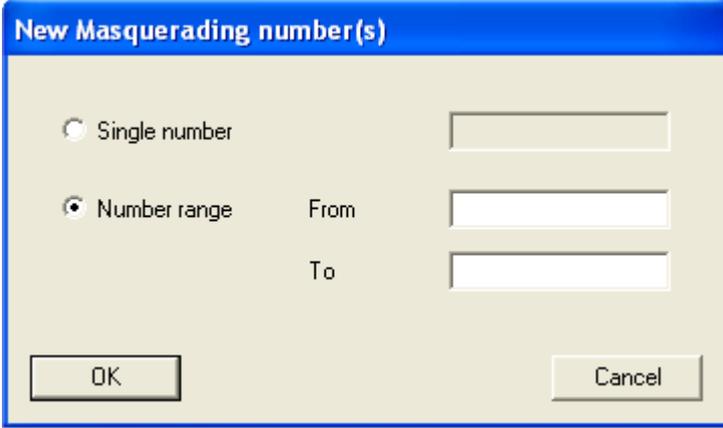
**OK**

Saves the entered number(s) in the configuration

**Cancel**

Cancels the current operation

In the mode shown above, a single masquerading number can be added to the pool. To enter a number range, choose the radio button **Number range**, and the two editable fields **From** and **To** are available, as shown below



The dialog box is titled "New Masquerading number(s)". It features two radio buttons for selection: "Single number" (unselected) and "Number range" (selected). The "Single number" option is followed by a single text input field. The "Number range" option is followed by two text input fields, one labeled "From" and one labeled "To". At the bottom of the dialog are two buttons: "OK" and "Cancel".

The numbers entered into the **From** and **To** fields will be generated and added to the masquerading pool. For example, 1000 is entered into the **From** field, and 1010 is entered into the **To** field. The numbers 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009 and 1010 are added to the masquerading pool

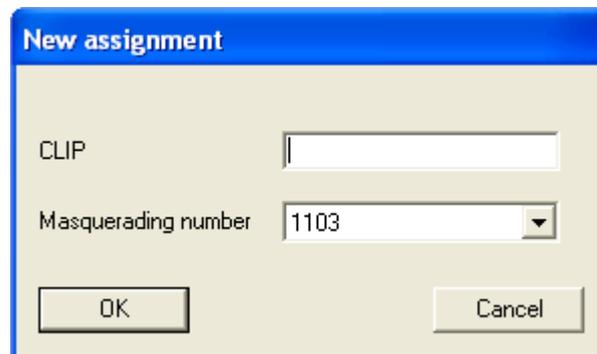
#### **Deleting numbers from the Masquerading pool**

To delete numbers from the masquerading pool, select the number(s) to be deleted, and click the Delete button. After confirming your choice, the numbers **and** any CLIP assignments will be removed from the pool. This operation is no reversible!



### Assigning a CLIP to a masquerading number

To assign a CLIP to a specific masquerading number, click the button **New...** and the following dialog will be shown



The dialog box titled "New assignment" contains the following elements:

- CLIP:** An empty text input field.
- Masquerading number:** A dropdown menu currently displaying "1103".
- Buttons:** "OK" and "Cancel" buttons at the bottom.

#### CLIP

The CLIP that is to be assigned to this masquerading number

#### Masquerading number

A list of available masquerading numbers that can be assigned to the CLIP number entered above

#### OK

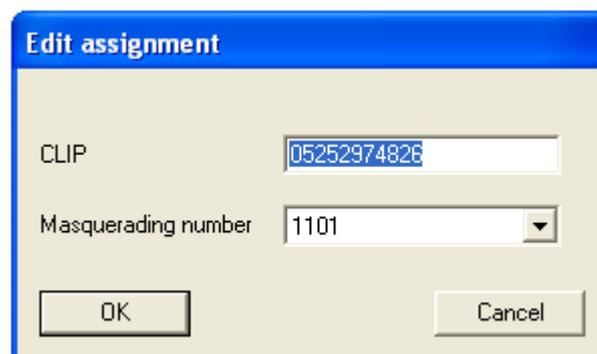
Save the assignment

#### Cancel

Abort any changes/assignments

### Editing a CLIP assignment

To edit an assignment, select the entry that is to be changed, and click the **Edit...** button, the following dialog will be shown



The dialog box titled "Edit assignment" contains the following elements:

- CLIP:** A text input field containing "05252974826", which is highlighted.
- Masquerading number:** A dropdown menu currently displaying "1101".
- Buttons:** "OK" and "Cancel" buttons at the bottom.

#### CLIP

The current CLIP that is assigned to the **Masquerading number**

#### Masquerading number

The currently selected masquerading number assigned to the CLIP shown above. All available masquerading numbers are present in this list

#### OK

Save any changes made

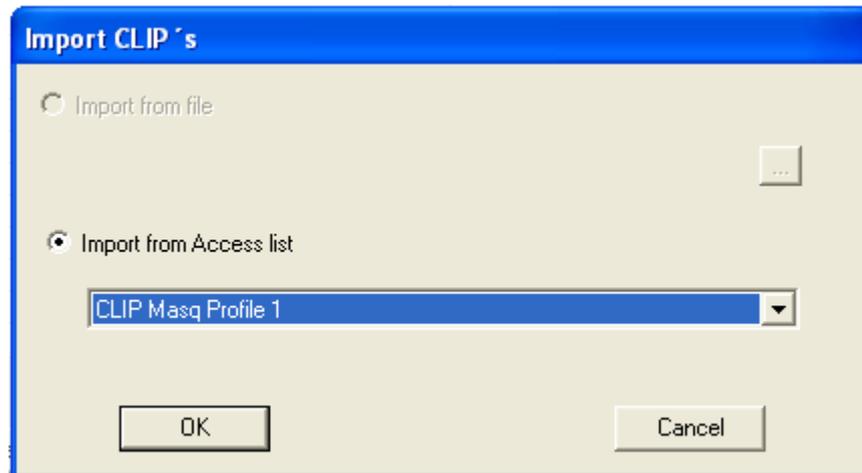
#### Cancel

Abort any changes made



### Importing CLIP's

To ease the administration of CLIP masquerading assignments, you have the ability to import CLIP's from various sources. At the moment the only source available to import from are the Access lists. To import CLIP's from the access lists, click the button **Import...** and the following dialog will be shown



#### Import from file

Currently not implemented

#### Import from Access list

A list of Access lists which contain CLIP's that can be imported into the CLIP masquerading assignment section. The imported CLIP's are automatically assigned masquerading numbers

#### Note

If there are not enough masquerading numbers available to cover all of the CLIP's that are to be imported, then a warning will be shown. Any CLIP's that are imported, and that have been previously assigned a masquerading number will be over written

#### Deleting an assignment

To delete a CLIP masquerading assignment, select the entry's to be deleted and click the button **Delete**. The masquerading number **is not** deleted, only the assignment. To delete a masquerading number, go to the section CLIP Masquerading and carry out the operation there

## 1.1.26 B-Channel to B-Channel

### B-Channel to B-Channel

The B-Channel to B-Channel assignment enables you to route an incoming call from a source-channel to one dedicated destination-channel. This assignment is direction-specific, it does not determine a call coming in on the destination channel. All interfaces have associated B-Channel, so this assignment can also be used for GSM-to-GSM routing. The B-Channel to B-Channel assignment makes no direct connection, it can only restrict the routing configured with the numbering plans.

#### Ignore

The current settings (if any) will be ignored.

#### Use if possible

The assignment is used as the preferred routing, but if the destination channel is blocked or in use, another interface will be used.

#### In any case

The assignment is binding. If the destination channel cannot be used (i.e. is already assigned or in use), the call is rejected.

To create or edit a B-Channel assignment, click the corresponding button and the following dialog will appear

#### Source - interface

Incoming interface

#### Source B-Channel

Incoming B-Channel that is to be routed

#### Destination - interface

Outgoing interface

**Destination B-Channel**

B-Channel that the incoming B-Channel connection is to be routed to

To save any changes, click the **OK** button. To abort any changes, click the **Cancel** button.

**Note**

After making one assignment in the open database, for the next new assignment the following channel will be the default. This behavior can be standard, so that channels may be assigned more quickly.

## 1.2 NIP (NovaTec Internet Pathfinder)

### NIP (NovaTec Internet Pathfinder)

The NovaTec Internet Pathfinder (NIP) is the name given to Novatec VoIP applications, using either SIP or NLP, or a combination of both, that converge normal ISDN / GSM communications networks with that of the inter - intranet networks.

## 1.2.1 Codec options

### Codec options

In this section, various base options are set for the SIP codec operation. The codec set and DTMF values are set here. Please note that changing the codec set used also influences the NLP codec options (if NLP is used)

**Codec options**

General codec options

Codec set to use: Codec set 1

DTMF options

Payload: 101

Name: telephone-event

Optional extensions:

FMTP: 0-15

PTime (in milliseconds): 20

#### General codec options

##### Codec set to use

Choose which codec set is to be used. At this moment in time, only one set of codecs are available. To view the contents of the codec sets, please read the information supplied here. Please note that the codec set used influences both SIP **AND** NLP.

#### DTMF options

Due to the fact that the DTMF functionality is poorly standardized (unfortunately), the NMG setup allows the configuration of the DTMF codec setting, allowing the NMG to use this codec with various other manufacturers equipment.

##### Payload

The payload type. Standard is 101, but other manufacturers may and do use other types. Please consult the handbook of the equipment to be used in conjunction with the NMG for this value.

##### Name

The name of the (DTMF) codec. This name is usually only for informational purposes only, but again, some manufacturers require this to be a specific text. Please consult the handbook of the equipment to be used in conjunction with the NMG for this value.

##### Optional extensions

Some SIP codec allow the use of optional extensions. Until now, we have no information that these are used.

**FMTp**

A text string that allows the individual configuration of the DTMF codec. Please leave this value "as is".

**PTime (in milli seconds)**

The current packet time encoding buffer size. This is set under SIP general settings

**Codec capabilities****Codec set 1**

| <b>Codec</b> | <b>Silence Compression (SC)</b> | <b>Comfort noise generation (CNG)</b> |
|--------------|---------------------------------|---------------------------------------|
| G.711 u/aLaw | Configurable (On / Off)         | Configurable (On / Off)               |
| G.723.1      | Always on                       | Always on                             |
| G.726        | Always on                       | Always on                             |
| G.728        | No                              | No                                    |
| G.729 A,B    | Always on                       | Always on                             |
| G.729 E      | No                              | No                                    |

**Codec set contents****Codec set 1**

| <b>Codec</b>         | <b>Bit rate /kb</b> | <b>Internal Payload Type</b> | <b>RFC Payload Type</b> |
|----------------------|---------------------|------------------------------|-------------------------|
| G.711 PCM-uLaw       | 64                  | 0                            | 0                       |
| G.711 PCM-aLaw       | 64                  | 8                            | 8                       |
| G.726                | 6,0                 | 112                          | dynamic                 |
| G.726                | 24,0                | 113                          | dynamic                 |
| G.726                | 32,0                | 2                            | dynamic                 |
| G.726                | 40,0                | 114                          | dynamic                 |
| G.728 (LD-CELP)      | 16,0                | 15                           | 15                      |
| G.729 A,B (CS-ACELP) | 8,0                 | 18                           | 18                      |
| G.729 E (CS-ACELP)   | 11,8                | 96                           | dynamic                 |

## Estimated bandwidth using the various codecs

### **B and D-Channel fully transparent.**

- Voice Quality 4,2 (MOS)
- RFC 1889 RTP-Protocol

Bandwidth usage, with a packet time of 20 ms.(estimated)

#### Per B-Channel

Voice-Data 160 Byte + RTP Header 12 Byte + UDP Header 8 Byte+ IP-Header 20 Byte.  
200 Byte / 20msec equals 80,0 kBit / sec.

#### Per D-Channel

Call setup roughly 20 Messages in 10 seconds with 32 Byte  
512 Bit/ sec.

Per ISDN-Line (both B-Channels)

**160,512 Kbits/sec.**

## G.711 (uLaw, aLaw) codec

### D-Channel transparent, B-Channel using codec

- Voice Quality 4,2 (MOS)
- G.711 Annex I (PLC: Packet Lost Concealment)
- G.711 Annex II (VAD/CNG Format: Voice Activity Detection / Comfort Noise Generation)
- G.168 ISDN Echo Cancellation (16 msec Near End).
- RFC 1889 RTP-Protocol

### Silence compression explanation

Every 100 ms, silence packets will be sent, when the PCM idle values are  
uLaw 55h or D5h  
aLaw 00h or FFh

### Non silence mode

Bandwidth usage, with a packet time of 20 ms.(estimated)

### Per B-Channel

Voice-Data 160 Byte + RTP Header 12 Byte + UDP Header 8 Byte + IP-Header 20 Byte.  
200 Byte / 20msec equals 80,0 kBit / sec.

### Per D-Channel

Call setup roughly 20 Messages in 10 seconds with 32 Byte  
512 Bit/ sec.

### Per ISDN-Line (both B-Channels)

**160,512 Kbits/sec.**

### When using the silence mode

Bandwidth usage with an idle packet time of 100ms.(estimated)

### Extra bandwidth Per B-Channel

Voice-Data RTP Header 16 Byte + UDP Header 8 Byte + IP-Header 20 Byte.  
44 Byte /100msec equals 3,520 kBit / sec

**NIP with G.726 (40/32/24/16 kb) Codec****D-Channel transparent, B-Channel using codec**

- Voice Quality 2.0, 3.2, 3.7, 4.0 (MOS)
- G.726 BFM (Bad Frame Interpolation)
- G.726 (VAD/CNG Format: Voice Activity Detection / Comfort Noise Generation)
- G.168 ISDN Echo Cancellation (16 msec Near End).
- RFC 1889 RTP-Protocol

## Silence compression explanation

Every 100 ms, silence packets will be sent, when the PCM idle values are  
uLaw 55h or D5h  
aLaw 00h or FFh

## Non silence mode

Bandwidth usage, with a packet time of 20 ms.(estimated)

## Per B-Channel

Voice-Data (100, 80, 60, 40)Byte + RTP Header 12 Byte + UDP Header 8 Byte + IP-Header 20 Byte  
140, 120, 100, 80 Byte /20msec equals 56, 48, 40,32 kBit/sec.

## Per D-Channel

Call setup roughly 20 Messages in 10 seconds with 32 Byte  
512 Bit/sec.

## Per ISDN-Line(Both B-Channels)

**112.512 kBit/Sec.**  
**96.512 kBit/Sec.**  
**80.512 kBit/Sec.**  
**64.512 kBit/Sec.**

## When using the silence mode

Bandwidth usage with an idle packet time of 100ms.(estimated)

## Extra bandwidth Per B-Channel

Voice-Data RTP Header 16 Byte + UDP Header 8 Byte + IP-Header 20 Byte.  
44 Byte /100msec equals 3,520 kBit / sec

## **NIP with G.728 codec**

### **D-Channel transparent, B-Channel using codec**

- Voice Quality 4,0 (MOS)
- G.728 Annex I (PLC: Packet Lost Concealment)
- G.168 ISDN Echo Cancellation (16 msec Near End).
- RFC 1889 RTP-Protocol

Bandwidth usage, with a packet time of 20 ms.(estimated)

Per B-Channel

Voice-Data 40 Byte + RTP Header 12 Byte + UDP Header 8 Byte + IP-Header 20 Byte  
80 Byte /20msec equals 32,0 kBit/sec.

Per D-Channel

Call setup roughly 20 Messages in 10 seconds with 32 Byte  
512 Bit/ sec.

Per ISDN-Line(Both B-Channels)

**64.512 kBit/Sec.**

**NIP with G.729 A,B codec****D-Channel transparent, B-Channel using codec**

- Voice Quality 4,0 (MOS)
- G.729 (VAD/CNG Format: Voice Activity Detection / Comfort Noise Generation)
- G.729 (PLC: Packet Lost Concealment)
- G.168 ISDN Echo Cancellation (16 msec Near End).
- RFC 1889 RTP-Protocol

## Silence compression explanation

Every 100 ms, silence packets will be sent, when the PCM idle values are  
uLaw 55h or D5h  
aLaw 00h or FFh

## Non silence mode

Bandwidth usage, with a packet time of 20 ms.(estimated)

## Per B-Channel

Voice-Data 20 Byte + RTP Header 12 Byte + UDP Header 8 Byte + IP-Header 20 Byte  
60 Byte /20msec equals 24,0 kBit/sec.

## Per D-Channel

Call setup roughly 20 Messages in 10 seconds with 32 Byte  
512 Bit/ sec.

## Per ISDN-Line(Both B-Channels)

**48.512 kBit/Sec.**

## When using the silence mode

Bandwidth usage with an idle packet time of 100ms.(estimated)

## Extra bandwidth Per B-Channel

RTP Header 16 Byte + UDP Header 8 Byte + IP-Header 20 Byte  
44 Byte /100msec equals 3,520 kBit/sec.

## **NIP with G.729 E codec**

### **D-Channel transparent, B-Channel using codec**

- Voice Quality 4,1 (MOS)
- G.729 (PLC: Packet Lost Concealment)
- G.168 ISDN Echo Cancellation (16 msec Near End).
- RFC 1889 RTP-Protocol

Bandwidth usage, with a packet time of 20 ms.(estimated)

#### Per B-Channel

Voice-Data 30 Byte + RTP Header 12 Byte + UDP Header 8 Byte + IP-Header 20 Byte  
70 Byte /20msec equals 28,0 kBit/sec.

#### Per D-Channel

Call setup roughly 20 Messages in 10 seconds with 32 Byte  
512 Bit/sec

Per ISDN-Line(Both B-Channels)

**56.512 kBit/sec.**



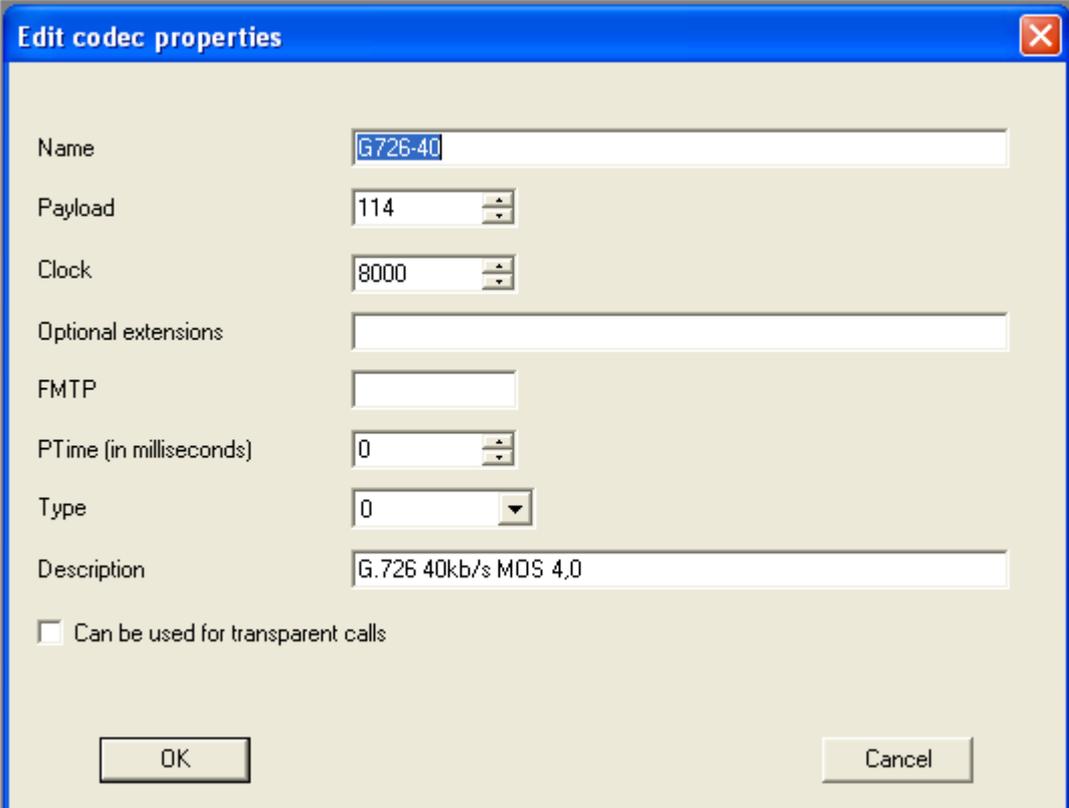


### Changing the negotiation priority

To change the priority of the negotiation of the codecs, select the codec and using the arrow buttons, move the codec to the required position in the list.

### Editing a codec

The editing of the standard codec settings **is not** recommended. This feature is available as a last resort for systems that are incompatible with the SIP standard, but **may** be made to work out of spec with the NMG. To edit the default codec settings, choose the codec to be edited, and click the **Edit...** button. A warning dialog will appear which **you must** acknowledge before being able to edit the settings of the chosen codec. After clicking **Yes**, the following dialog will appear...



#### Name

The RFC name for this particular codec. It is not recommended that this value be changed.

#### Payload

The RFC name for this particular codec. It is not recommended that this value be changed.

#### Clock

The clock settings for this codec. It is not recommended that this value be changed.

#### FMTP

The FMTP setting for this codec. This value indicates which named events a codec can handle. For more information please read the Session Description Protocol (RFC 2327 [7]) It is not recommended that this value be changed.

#### PTime (in milliseconds)

This gives the length of time (Packet time) in milliseconds represented by the media in a packet It is not recommended that this value be changed.

#### Type

The Type of this codec. This is an internal value used by the NMG system to identify the codec type. Possible values are:

- |   |                 |
|---|-----------------|
| 0 | Audio (speech). |
| 1 | DTMF.           |
| 2 | Fax.            |
| 3 | Video.          |

It is not recommended that this value be changed. Standard is 0

**Description**

The informational description for this codec. This value is used internally for informational purposes only. It **must not** be left empty.

**Can be used for transparent calls**

When activated, this allows the NMG to use this codec for transparent (data or fax) calls. It is recommended that at least one codec has this flag set.

Once you have made the changes that you require, click the **OK** button and the changes will be saved. To abort making any changes, click the **Cancel** button.

### 1.2.3 NLP

## NLP (Transparent)

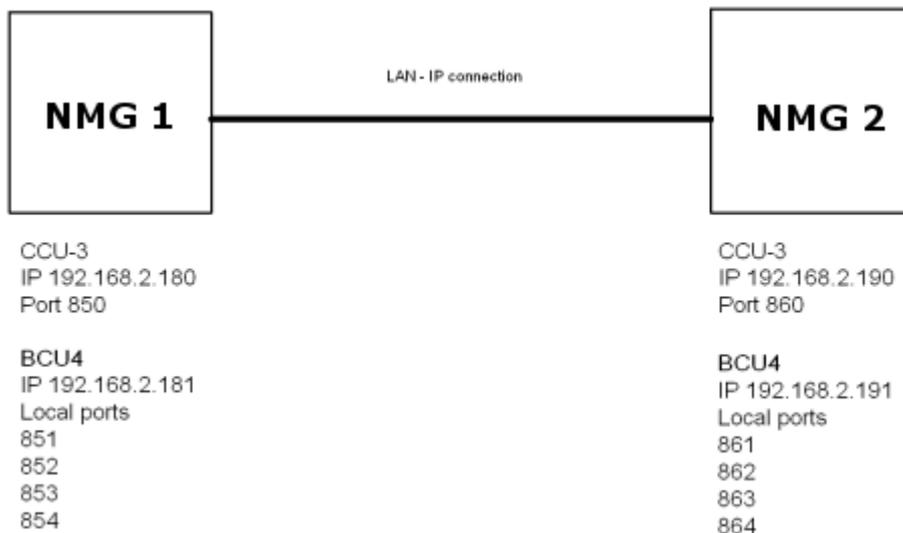
**NLP (Transparent)** is the NovaTec proprietary IP solution, that allows the routing of ISDN traffic via TCP/IP. The D-Channel information is passed "as-is" (transparent) and the B-Channel data may be also passed "as-is" (B-Channel transparency) or compressed using the various codecs provided. There are two main scenarios in which this application may be used. These scenarios are described below. Please note these are only examples of possible configurations, and will be used throughout the NLP (Transparent) help process to clarify how to configure the NMG for the NLP (Transparent) application.

The B-Channel data is transported via a BCU port and the related D-Channel data is transmitted via a CCU-3 IP port.

For a BCU port, only local connection parameters can be configured. For instance the local IP address of the BCU and the UDP port of each BCU port used for NLP. The remote IP address of a BCU port is automatically determined and exchanged during the connection establishment and therefore the remote BCU profile configuration is unnecessary, but for a CCU-3 port the local IP-parameters (local profile) have to be configured, and also the remote profile configuration must be correctly setup. If both NMG's are situated within the same LAN, the remote profile contains the IP address and UDP port of the destination CCU-3. If the NMG's are connected via the internet, the remote profile defines the public IP address and UDP port of the remote firewall. The public IP address is mapped by the firewall (NAT) to the local address and port of the addressed CCU-3. In this case the mapping of the BCU port IP address requires an entry in the NAT table of the firewall as well.

#### LAN scenario

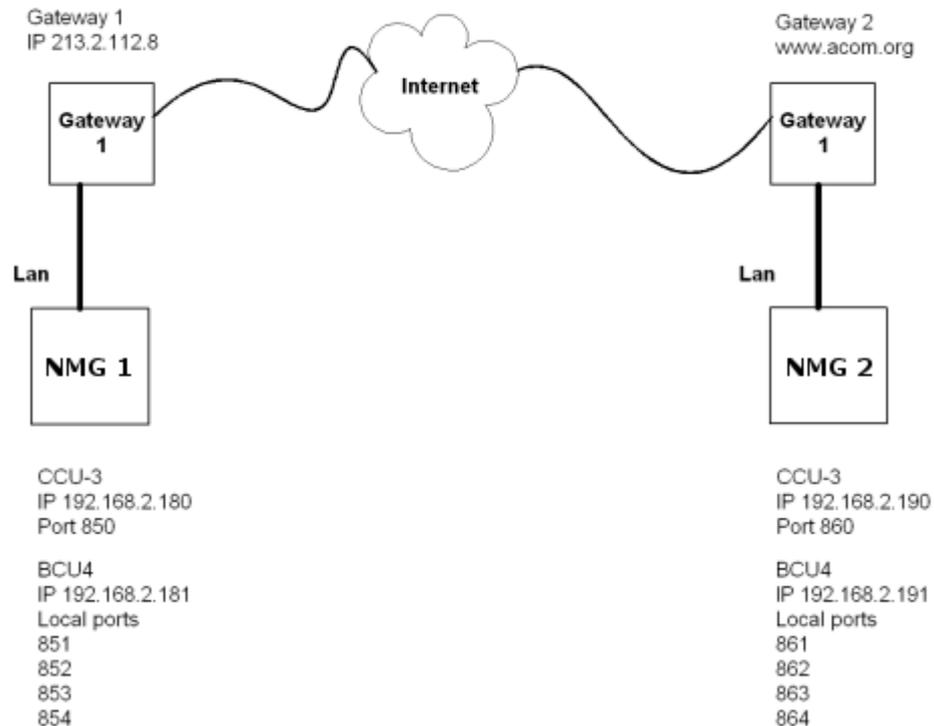
Both NMG systems are in the same LAN



The back plane ID of NMG 1 is FFFFFFFF11111, the back plane ID of NMG 2 is FFFFFFFF22222. As you can see from the above diagram, the various IP addresses and ports are to be used in the following steps for the configuration. Also, only one BRI (Interface 01) will be used for ISDN -> IP traffic to simplify the configuration.

### Internet scenario

The NMG systems are to be connected via the Internet, and therefore are behind a firewall / gateway



The back plane ID of NMG 1 is FFFFFFFF11111, the back plane ID of NMG 2 is FFFFFFFF22222. As you can see from the above diagram, the various IP addresses, ports and internet address are to be used in the following steps for the configuration. Also, only one BRI (Interface 01) will be used for ISDN -> IP traffic to simplify the configuration.

For the ports of NMG 1, these will be set as following:

#### BCU Interface 01

|        |           |
|--------|-----------|
| Port 1 | Local 851 |
| Port 1 | NAT 851   |
| Port 2 | Local 852 |
| Port 2 | NAT 852   |

#### BCU Interface 02

|        |           |
|--------|-----------|
| Port 1 | Local 853 |
| Port 1 | NAT 853   |
| Port 2 | Local 854 |
| Port 2 | NAT 854   |

For the ports of NMG 2, these will be set as following:

**BCU Interface 01**

|        |           |
|--------|-----------|
| Port 1 | Local 861 |
| Port 1 | NAT 861   |
| Port 2 | Local 862 |
| Port 2 | NAT 862   |

**BCU Interface 02**

|        |           |
|--------|-----------|
| Port 1 | Local 863 |
| Port 1 | NAT 863   |
| Port 2 | Local 864 |
| Port 2 | NAT 864   |

**Please note that in the example, only the BCU Interface 01 will be configured. Also the port numbers that have been used are not "valid" ports numbers that may be used for NLP**

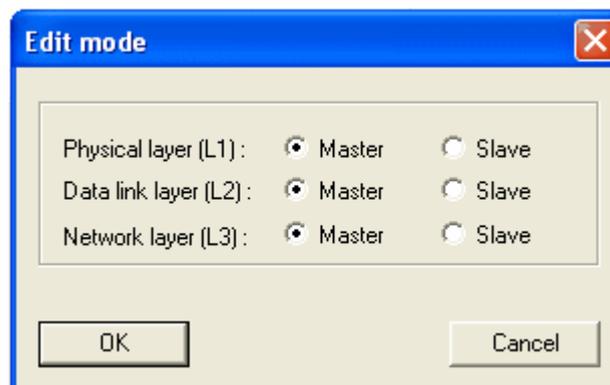
### 1.2.3.1 NLP NT/TE settings

## NLP NT/TE settings

This window shows all ISDN interfaces, that are defined as **NLP (Transparent)**. In this window, layers 1-3 can be separately adjusted as master or slave. The default value is always set to **master** mode. Through these adjustments, a comprehensive range of networking topologies can be set up.

| NIP                            |          |           |         |  |
|--------------------------------|----------|-----------|---------|--|
| Interface                      | Physical | Data link | Network |  |
| ← Slot 01, CCU-3, Interface 01 | Slave    | Slave     | Slave   |  |
|                                |          |           |         |  |
|                                |          |           |         |  |
|                                |          |           |         |  |

To edit the master / slave settings for the individual layers, select the interface, and click the **Edit...** button, and the following dialog will appear:



Now you can set the various modes for the different layers of the connection.

#### Note

After the layer 1 synchronization has been adjusted to slave mode, an individual priority can be set using the synchronization options.

### 1.2.3.2 Connection options

## Connection options

The connection options are used by the CCU-3's of the two systems that are used for the NLP Transparent application to carry out authorization and synchronisation regarding the NLP Transparent application. Dependant on which of the two scenarios that is to be used (LAN scenario, or Internet Scenario) the configuration is slightly different.



## Local profile

On choosing **Local profile** the following dialog will appear:

The screenshot shows a dialog box titled "New connection profile" with a close button in the top right corner. The dialog is divided into sections for "Local settings". The first section is "Profile name (unique)" with an empty text input field. The second section is "IP / Domain name / UDP port", which contains two radio buttons: "Use domain name" (unselected) and "Use IP address" (selected). To the right of these radio buttons are two text input fields: the first contains the IP address "192 . 168 . 127 . 254" and the second contains the UDP port "0". The third section is "Backplane ID" with an empty text input field. At the bottom of the dialog are "OK" and "Cancel" buttons.

### Profile name (unique)

The name to be used by this profile. As shown in the title, the name **must be** unique, as this is used internally by the NLP Transparent application. It is advisable to use a name that easily identifies this profile, for example "Local BRI 01". Also, this name (used in the **local** profile) **must be** used as the name for the remote profile, in the NMG that is to be connect to, and vice-versa.

### IP/ Domain name / UDP port

#### Use domain name

Not available when creating or editing a local profile. This information is gathered from the system once the configuration is sent to the NMG.

#### Use IP address

Not available when creating or editing a local profile. This information is gathered from the system once the configuration is sent to the NMG.

#### UDP Port

This is the local port, on which the synchronisation and authorisation is carried out for this ISDN interface.

#### LAN scenario

On the NMG 1 this would be set to 850.

On the NMG 2 this would be set to 860.

#### Internet scenario

On the NMG 1 this would be set to 850.

On the NMG 2 this would be set to 860.

### Backplane ID

Not available when creating or editing a local profile. This information is gathered from the system

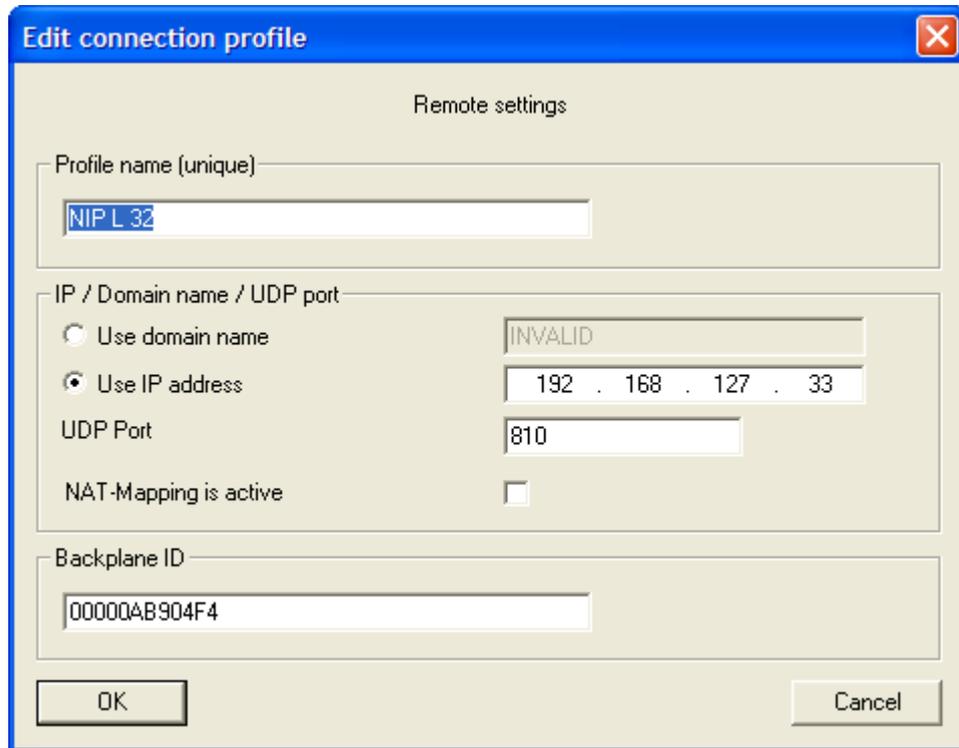
---

once the configuration is sent to the NMG

To save the profile, click the **OK** button. To cancel creating a local profile, click **Cancel**.

## Remote profile

On choosing **Remote profile** the following dialog will appear:



The screenshot shows a dialog box titled "Edit connection profile" with a close button (X) in the top right corner. The dialog is divided into sections for "Remote settings".

**Remote settings**

Profile name (unique): NIP L 32

IP / Domain name / UDP port:

- Use domain name: INVALID
- Use IP address: 192 . 168 . 127 . 33

UDP Port: 810

NAT-Mapping is active:

Backplane ID: 00000AB904F4

Buttons: OK, Cancel

### Profile name (unique)

The name to be used by this profile. As shown in the title, the name **must be** unique, as this is used internally by the NLP Transparent application. It is advisable to use a name that easily identifies this profile, for example "Remote BRI 01". Also, this name (used in the **remote** profile) **must be** used as the name for the **local** profile, in the NMG that is to be connect to, and vice-versa

### IP/ Domain name / UDP port

#### Use domain name

Choose this option, if the remote NMG system does not have a fixed IP address, or is to be contacted via the domain name. The field for the domain name is only active when this option has been chosen. On choosing this option, the **IP address** field is disabled. Enter the domain name of the remote NMG system in the field provided.

#### LAN scenario

On both NMG 1 and NMG 2 this would be not be used, and therefore **must be** set to 0 (zero).

#### Internet scenario

On NMG 1 this would be set to active, and in the domain name field, **www.acom.org** would be entered.

On NMG 2 this would be disabled

#### Use IP address

Choose this option, if the remote NMG system has a fixed IP address. The field for the IP address is only active when this option has been chosen. On choosing this option, the **Domain name** field is disabled. Enter the IP address of the remote NMG system in the field provided

#### LAN scenario

On the NMG 1 this would be enabled, and the IP address to enter would be **192.168.2.190**

On the NMG 2 this would also be enabled, and set to **192.168.2.180**

#### Internet scenario

On the NMG 1 this would be disabled.

On the NMG 2 this option would be enabled, and set to **213.2.112.8** (the IP address of gateway 1).

#### UDP Port

This is the remote port, on which the synchronisation and authorisation is carried out for this ISDN interface.

#### LAN scenario

On both NMG 1 and NMG 2 this **must be** set to 0.

#### Internet scenario

On the NMG 1 this would be set to 860, the gateway 2 must be configured to send any packets coming on this port, to the CCU-3 IP address (as set in the Chassis settings), on port 860 (the UDP port of the CCU-3 interface on the NMG 2 that is to be used for the NLP Transparent application in it's local profile).

On the NMG 2 this would be set to 850, the gateway 1 must be configured to send any packets coming on this port to the CCU-3 IP address(as set in the Chassis settings), on port 850 (the UDP port of the CCU-3 interface on the NMG 1 that is to be used for the NLP Transparent application in it's local profile).

#### NAT-Mapping is active

If your system is behind a firewall or a NAT-Router, you should enable this option.

**Backplane ID**

This is the back plane ID of the remote NMG system. The back plane ID can be read using the Trace Info Client.

## LAN scenario

On the NMG 1 this would be set to **FFFFFFFF22222**.

On the NMG 2 this would be set to **FFFFFFFF11111**.

## Internet scenario

On the NMG 1 this would be set to **FFFFFFFF22222**.

On the NMG 2 this would be set to **FFFFFFFF11111**.

To save the profile, click the **OK** button. To cancel creating a remote profile, click **Cancel**.

**Editing connection profiles**

To edit a connection profile, select the profile to be edited and click the **Edit** button and the edit dialog box will appear. The same options that are available for the local and remote profiles are available. To save any changes, click the **OK** button. To cancel any changes, click the **Cancel** button.

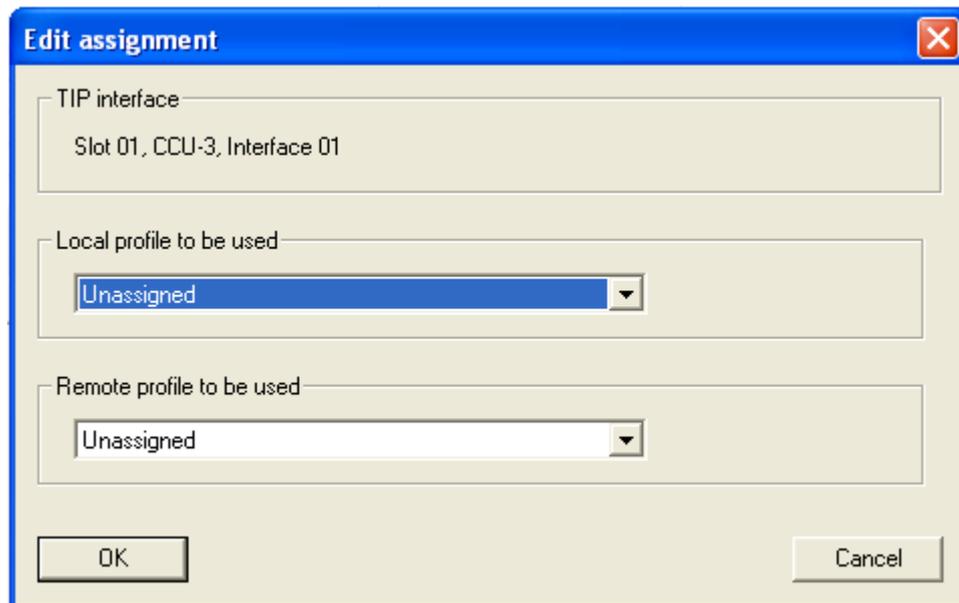
**Deleting connection profiles**

To delete a connection profile, select the profile(s) to be deleted and click the **Delete** button, after confirming the deletion, the profiles will be deleted. **This action is non recoverable!**



### Assigning profiles to an ISDN interface

To assign profiles to an ISDN interface, select the interface to which profiles are to be assigned to, and click **Edit**, the following dialog will appear:



### NLP interface

The full name of the ISDN interface that has been configured to use the NLP Transparent mode.

### Local profile to be used

Here you select the local profile that is to be used for this interface.

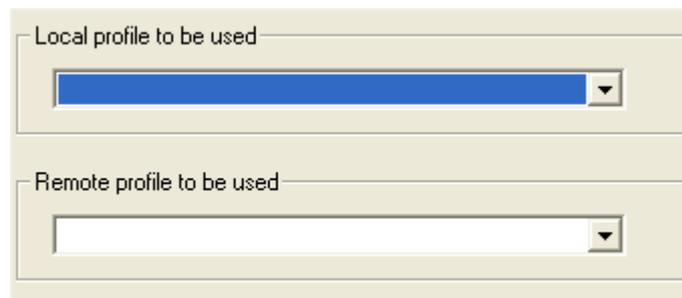
### Remote profile to be used

Here you select the remote profile that is to be used for this interface.

To save any changes click the **OK** button. To abort any changes, click the **Cancel** button.

### Note

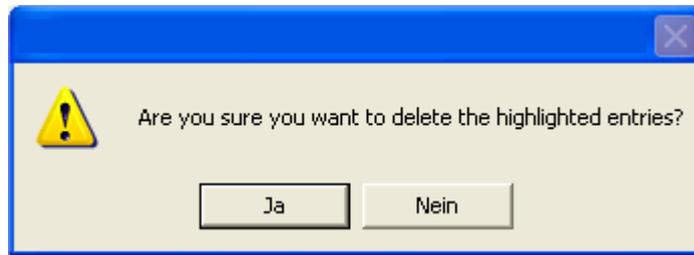
If you have not yet created any profiles, or all profiles have been previously assigned to other interfaces, the dialog will be shown as below



As you can see, there are no profiles available for assignment. You can either create more profiles, or delete profile assignments from other ISDN interfaces.

**Deleting profiles from an ISDN interface**

To delete profile assignments from an ISDN interface, select the interface and click the **Delete** button. After confirming the deletion dialog (as shown below)



the assignments will be deleted, and the profiles are available for assignment to other interfaces.

### 1.2.3.3 Codec options

## Codec options

With the NLP Transparent application, each BCU interface is assigned two codec profiles (for each of the "virtual" B-Channels aka Ports) which determine how the payload is transmitted over the IP connection. Please note that on both NMG systems, each corresponding BCU interface and port must have codec profiles that have the same options and settings, otherwise the NLP application will not function correctly!



### Creating a new codec profile

To create a new codec profile, click the button **New...** and the following dialog will appear:

**New codec profile**

Codec profile name  
CHANGE THIS NAME!!

ISDN codec settings  
 ALaw  ULaw

Jitter Buffer settings  
Jitter Buffer mode: Adaptive Jitter Buffer Mode  
Init JB Time: 50  
Min. JB Time: 10  
Max. JB Time: 180  
JB Delay: 100  
 Discard Voice Frames allowed  
 Locale Adaption allowed  
 Use Jitter buffer as system-clock

Encode packet time  
10 ms

B-Channel transparent settings  
 Activate B-Channel transparency

Echo cancellation  
 Activate ISDN (Near end) echo cancellation

Comfort Noise Generation  
 Activate CNG

Silence compression  
 Activate silence compression

High Pass Filter  
 Activate HPF

IP codec settings  
 Use alternative IP codec  
aLaw

OK Cancel

**Codec profile name**

Enter a name for the codec profile. This name must be unambiguous. It is recommended that the name "describes" the settings of the codec, to allow easier reference when assigning the codec to the BCU interfaces.

**ISDN codec settings**

This option allows you to set which codec is to be used for the ISDN leg of the NLP Transparent application.

**ALaw**

G.711a, used in most countries for speech/data transmission in ISDN networks.

**ULaw**

G.711u, used in the USA for speech/data transmission in ISDN networks.

**Jitter Buffer Settings**

The target of the jitter buffer (JB) is to find a compromise between the mean value of the packet play out delay and the number of packets which must be discarded because they have not been received in time. The packet play out delay should be high enough to ensure that most of the late packets are not discarded, but it should be kept as small as possible to reduce the total delay.

The JB can be configured in two different modes:

1. Adaptive mode
2. Fixed mode
  - a) with adaption
  - b) [without adaption – not implemented]

1. In the adaptive mode the JB estimates the network jitter and the corresponding JB size automatically. The JB tries to keep the actual size close to the estimated network jitter. The minimal and maximal JB size is calculated considering the actual network jitter but within the programmed min. and max. JB time values. The minimum size is set to 20% of the optimum size. The maximum size is set 40ms above the optimum size. Thus all three thresholds depend on the network jitter.

2.a) In the fixed JB mode the jitter buffer size has to be programmed. The JB does not estimate the network jitter, but tries to keep its actual size close to the configured Init JB Time. The minimum and maximum JB size is set to the programmed Min. JB Time and Max. JB Time respectively.

2.b)[Without adaption the JB works like a simple buffer with reordering support. The JB size is set to the programmed Init JB Time.]

Note: Min. JB Time < Init JB Time <= Max. JB Time

The Init JB Time should be set close to the real network jitter.

In case of fixed JB mode the Init JB Time depends on the network jitter and should be sufficient to compensate the expected network jitter. In this case the Init JB Time determines the target JB size. The higher the network jitter distribution the higher the Min. JB Time should be chosen. In fixed mode the Max. JB Time determines the upper limit for acceptable packet play out delay which requires a hard intervention (discard packets).

For the adaptive mode the Max. JB Time defines the upper limit for the JB buffer size estimation.

NLP mode: Set the flag 'Use JB as system clock' only for the proprietary NovaTec NLP transmission mode where the connected NovaTec devices are not synchronized by a common clock source. It is mandatory to select the fixed JB mode when the NLP protocol (instead of SIP) is activated.

**Recommended settings for voice transmission**

To keep the play out delay low the JB size should be minimized (permit a low Min. JB Time) and should be adapted to the actual network jitter. Voice packets may be discarded to achieve this objective.

JB mode: **Adaptive**

Discard Voice Frames allowed: **ON**  
Locale Adaption allowed: **ON**  
Use JB as system clock: **OFF** (use this option for NLP, not for SIP)  
Init JB Time: 50 [ms]  
Min. JB Time: 10 [ms]  
Max. JB Time: 150 [ms]

#### **Recommended settings for data/fax/modem transmission**

In case of inband data transmission discarded or replaced packets are most likely not acceptable because this will cause bit errors. Many data transmission protocols are not able to resynchronize or retransmit lost packets. A high delay is acceptable to establish reliable data transmission without bit errors (increase the Init and Min. JB Time). In addition to minimize the frequency of the JB adjustments select fixed mode. Also take into consideration that the network jitter is not uniformly (bursts). In such a case set the Min. JB Time only slightly lower than the Init JB Time.

JB mode: **Fixed**  
Discard Voice Frames allowed: **OFF** (do not discard any voice/data packets)  
Locale Adaption allowed: **OFF**  
Use JB as system clock: **OFF** (use this option for NLP, not for SIP)  
Init JB Time: 100 [ms]  
Min. JB Time: 80 [ms]  
Max. JB Time: 180 [ms]

#### **B-Channel Transparent settings**

The B-Channel transparent settings, allow you to choose the mode that the B-Channels are to use. Fully transparent, or non transparent (activating one or more of the options described below.

##### **Activate B-Channel transparency**

Check this option to activate B-Channel transparency. Uncheck the option to disable B-Channel transparency.

#### **Echo cancellation**

This option allows echo cancellation to be activated on the Near ISDN leg. **This option is only available if the Activate B-Channel transparency is inactive.**

##### **Activate ISDN (Near end) echo cancellation**

Check this option to activate echo cancellation. Uncheck the option to disable echo cancellation.

#### **Comfort Noise Generation**

During periods of transmit silence, when no packets are sent, the NMG has a choice of what to present to the listener. Muting the channel (playing absolutely nothing) gives the listener the unpleasant impression that the line has gone dead. CNG generates a local noise signal that it presents to the listener during silent periods. **This option is only available if the Activate B-Channel transparency is inactive.**

##### **Activate CNG**

Check this option to activate comfort noise generation. Uncheck the option to disable comfort noise generation.

#### **High Pass Filter**

The High Pass Filter filters out any unwanted noise from a IP connection, enabling the codec to produce a better voice quality. **This option is only available if the Activate B-Channel transparency is inactive.**

##### **Activate HPF**

Check this option to activate the high pass filter. Uncheck the option to disable the high pass filter.

**IP codec settings**

This sets the codec to be used on the IP leg of the NLP Transparent application. You **must** ensure that the remote NMG also uses the **same codec** entered here. **This option is only available if the Activate B-Channel transparency is inactive.**

**Use alternative IP codec**

Check this option to enable the selection of an alternative codec. Uncheck the option to make use of an alternative codec. If you uncheck this option, the codec will be set to that of the ISDN codec selected previously. The codecs currently available are:

|                    |                    |
|--------------------|--------------------|
| ALaw (G.711a)      |                    |
| ULaw (G.711u)      |                    |
| G.726 (16kBits/s)  |                    |
| G.726 (24kBits/s)  |                    |
| G.726 (32kBits/s)  |                    |
| G.726 (48kBits/s)  |                    |
| G.728 (16kBits/s)  | * requires license |
| G.729AB (8kBits/s) | * requires license |
| G.729E (11kBits/s) | * requires license |

Please be aware that the codecs that are marked \* require a license. Contact [NovaTec](#) for more information on acquiring the necessary license.

To save the codec using the settings you have entered, click the **OK** button. To abort creating a codec profile, click the **Cancel** button.

### Editing an existing codec profile

To edit an existing codec profile, select the codec profile that is to be edited, and click the **Edit...** button, and the following dialog will appear:

Codec profile name  
ALaw Echo/CNG/HPF G.729AB

ISDN codec settings  
 ALaw  ULaw

Jitter buffer settings  
90 ms (poor IP connection quality)

B-Channel transparent settings  
 Activate B-Channel transparency

Echo cancellation  
 Activate ISDN (Near end) echo cancellation

Comfort Noise Generation  
 Activate CNG

High Pass Filter  
 Activate HPF

IP codec settings  
 Use alternative IP codec  
G.729AB (8kBits/s)

OK Cancel

You may now change any of the options available to suite your needs. To save any changes, click the **OK** button. To abort editing a codec profile, click the **Cancel** button.

#### Note

The default profile **cannot** be edited.

**Deleting a codec profile**

To delete an existing codec profile, select the profile(s) to be deleted and click the **Delete...** button, after confirming the deletion, the codec profiles will be deleted. If any of the profiles have been assigned to BCU interfaces, these interfaces will be automatically assigned the default codec profile.

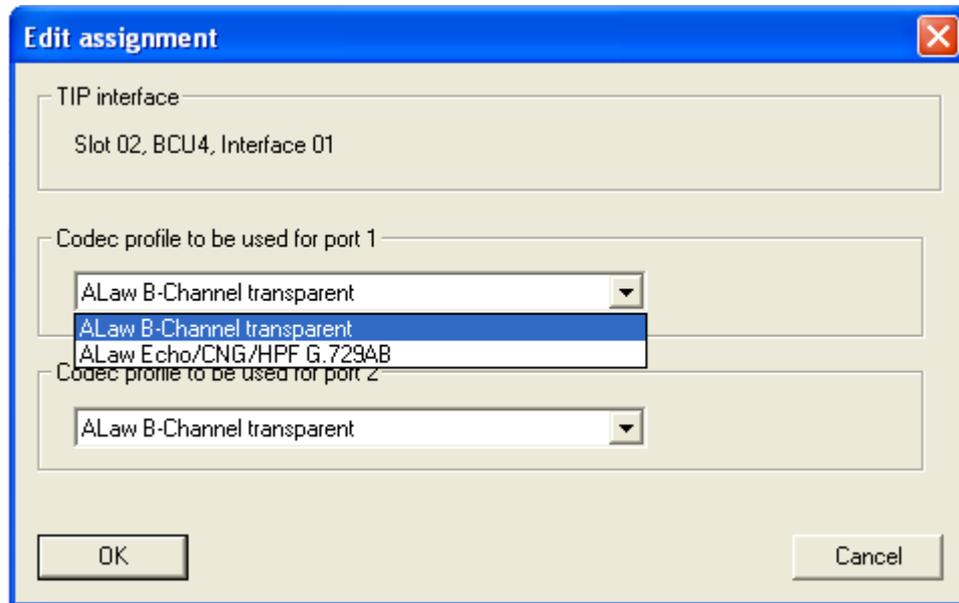
**Note**

The default profile **cannot** be deleted.



### Assigning a codec profile

To assign a codec profile to one or more BCU interfaces, select the interface(s), and click **Edit...** and the following dialog will appear:



### NLP interface

The name of the actual BCU / GSM2E interface whose codec profiles are to be edited. If you have selected more than one BCU / GSM2E interface, this will contain the text **Multiple interfaces...**

### Codec profile to be used for port 1

The name of the codec profile to be assigned to port 1 (aka B-Channel) of the BCU / GSM2E interface. The list contains all available codec profiles that you may have created.

### Codec profile to be used for port 2

The name of the codec profile to be assigned to port 2 (aka B-Channel) of the BCU / GSM2E interface. The list contains all available codec profiles that you may have created.

#### 1.2.3.4 VoIP UDP port options

### VoIP UDP port options

The BCU / GSM2E UDP port options are probably the most complex part in setting up the NLP Transparent application, as they are dependant on the scenario used, you may require the help and participation of the network administrator.

## VoIP UDP port assignment

On this page, all the BCU / GSM2E interfaces that are configured to use the NLP Transparent mode are listed. Here the UDP port settings are made for each BCU / GSM2E interface.

| BCU Interface -> UDP port assignment                 |              |              |  |
|--|--------------|--------------|--|
| Interface  | Port 1 Local | Port 2 Local |  |
| <input type="checkbox"/> Slot 02, BCU4, Interface 01 | 0            | 0            |  |
| <input type="checkbox"/> Slot 02, BCU4, Interface 02 | 0            | 0            |  |
|  |              |              |  |
|  |              |              |  |
|  |              |              |  |
|  |              |              |  |

**Interface**

The name of the BCU / GSM2E interface.

**Port 1 Local**

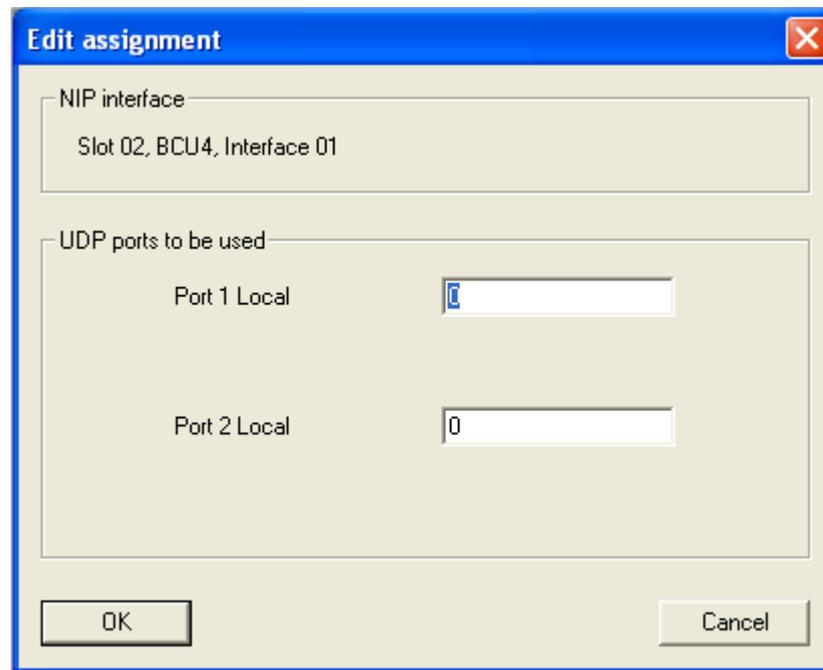
The currently set local UDP port, for the first port(aka virtual B-Channel) of this BCU / GSM2E interface.

**Port 2 Local**

The currently set local UDP port, for the second port(aka virtual B-Channel) of this BCU / GSM2E interface.

### Editing the UDP port settings

To edit a specific interface, select the interface from the list and click the **Edit...** button and the following dialog will appear:



The screenshot shows a dialog box titled "Edit assignment". It has a blue title bar with a close button (X) in the top right corner. The dialog is divided into two main sections. The first section, "NIP interface", contains a text field with the value "Slot 02, BCU4, Interface 01". The second section, "UDP ports to be used", contains two rows. The first row is labeled "Port 1 Local" and has an empty text input field. The second row is labeled "Port 2 Local" and has a text input field containing the number "0". At the bottom of the dialog, there are two buttons: "OK" on the left and "Cancel" on the right.

#### NIP interface

The name of the BCU / GSM2E interface.

#### UDP ports to be used

The currently selected ports that are to be used by this BCU / GSM2E interface.

##### Port 1 Local

The local UDP port to be used by the first BCU / GSM2E port (aka virtual B-Channel) of this interface.

##### Port 2 Local

The local UDP port to be used by the second BCU / GSM2E port (aka virtual B-Channel) of this interface.

To save any changes made, click the **OK** button, to abort saving any changes, click the **Cancel** button.

In our example for the LAN scenario, the settings would be as follows:

### NMG 1

| BCU Interface -> UDP port assignment                            |              |              |  |
|---|--------------|--------------|--|
| Interface   | Port 1 Local | Port 2 Local |  |
| <input checked="" type="checkbox"/> Slot 02, BCU4, Interface 01 | 1050         | 1052         |  |
| <input checked="" type="checkbox"/> Slot 02, BCU4, Interface 02 | 1054         | 1056         |  |
|   |              |              |  |
|   |              |              |  |
|   |              |              |  |

### NMG 2

| BCU Interface -> UDP port assignment                            |              |            |              |            |
|---|--------------|------------|--------------|------------|
| Interface   | Port 1 Local | Port 1 NAT | Port 2 Local | Port 2 NAT |
| <input checked="" type="checkbox"/> Slot 02, BCU4, Interface 01 | 861          | 0          | 862          | 0          |
| <input checked="" type="checkbox"/> Slot 02, BCU4, Interface 02 | 863          | 0          | 864          | 0          |
|   |              |            |              |            |
|   |              |            |              |            |
|   |              |            |              |            |

As you can see from the above screen shots, the NAT ports are all set to 0 (zero) as they are not required in a (normal) LAN environment

For the Internet scenario, the settings would be as follows:

### NMG 1

| BCU Interface -> UDP port assignment                            |              |            |              |            |  |
|---|--------------|------------|--------------|------------|--|
| Interface   | Port 1 Local | Port 1 NAT | Port 2 Local | Port 2 NAT |  |
| <input checked="" type="checkbox"/> Slot 02, BCU4, Interface 01 | 851          | 851        | 852          | 852        |  |
| <input checked="" type="checkbox"/> Slot 02, BCU4, Interface 02 | 853          | 853        | 854          | 854        |  |
|   |              |            |              |            |  |
|   |              |            |              |            |  |

### NMG 2

| BCU Interface -> UDP port assignment                            |              |            |              |            |  |
|---|--------------|------------|--------------|------------|--|
| Interface   | Port 1 Local | Port 1 NAT | Port 2 Local | Port 2 NAT |  |
| <input checked="" type="checkbox"/> Slot 02, BCU4, Interface 01 | 861          | 861        | 862          | 862        |  |
| <input checked="" type="checkbox"/> Slot 02, BCU4, Interface 02 | 863          | 863        | 864          | 864        |  |
|   |              |            |              |            |  |
|   |              |            |              |            |  |

As you can see from the above screen shots, the NAT ports have been set to complement the local ports. This is of course not a requirement, but is left to the readers digression. As previously stated, this is the UDP port that is "visible" from outside of the LAN, i.e. the gateway/firewall must be configured, so that any IP traffic that is addressed on this port, is passed to the IP address of the BCU, on the corresponding local port as set above.

### 1.2.3.5 Interface assignment

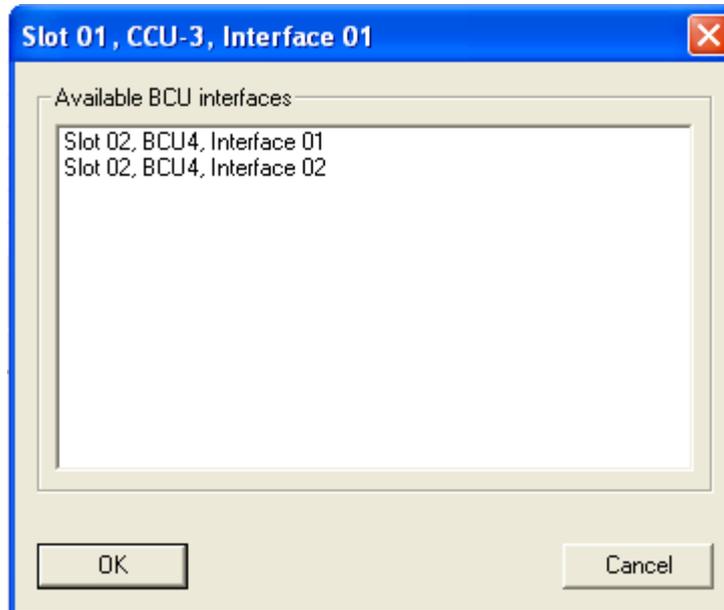
## Interface assignment

Here the ISDN interfaces (S04, S2M2) are assigned which BCU / GSM2E interfaces are to be used.



### Assigning BCU interfaces to ISDN interfaces

To assign BCU interfaces to ISDN interfaces, choose the tab of the ISDN interface to be configured, and click the **Edit...** button, and the following dialog will appear:



This dialog lists all available (unassigned) BCU / GSM2E interfaces. Select the BCU / GSM2E interfaces that are to be assigned to this ISDN interface and click the **OK** button. Multiple selections can be made by holding down the **Ctrl** button on the keyboard, and clicking on each BCU / GSM2E interface in the list. Clicking the **Cancel** button aborts the assignment. If you assign more than the allowed number of BCU / GSM2E interfaces to the ISDN interface, the first BCU interface in the list will be assigned

#### Note

If the **Edit...** button is not available, (i.e. greyed out) then the maximum number of BCU / GSM2E interfaces have already been assigned to this interface. To reassign other BCU interfaces to this ISDN interface, you must first delete one or more BCU interfaces from this ISDN interface. One BRI interface may have only one BCU / GSM2E interface assigned to it. A PRI (S2M) may have 15 BCU / GSM2E interfaces assigned to it. Also, if an ISDN interface has been configured to be used in the NLP Transparent mode, then the maximal number of BCU / GSM2E interfaces **must be** assigned, otherwise the processing of the configuration will fail.

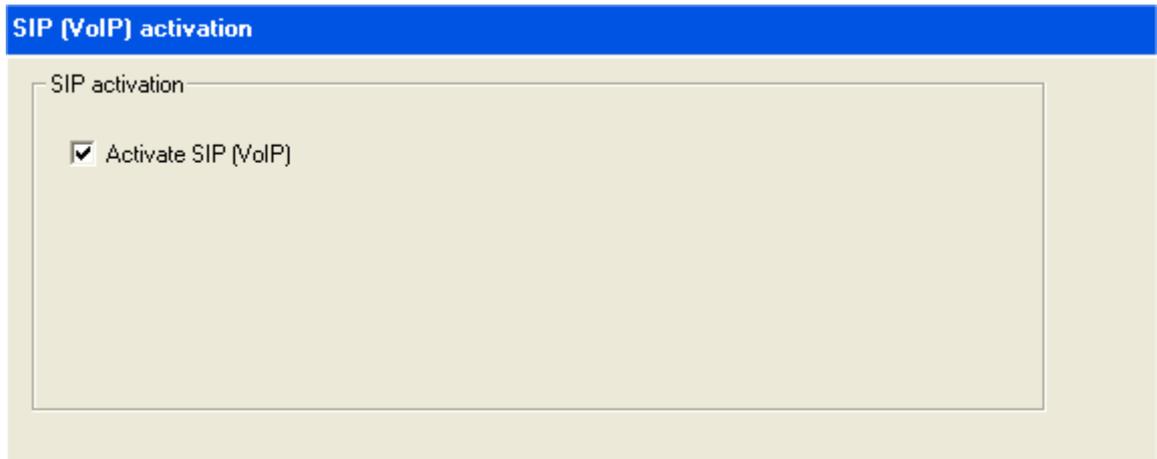
### Deleting BCU assignments to ISDN interfaces

To delete BCU / GSM2E interface to ISDN interface assignments, select those which are to be deleted from the ISDN assignment, and click the **Delete** button, after confirming deletion, they will be deleted, and are available for assignment to other ISDN interfaces as required.

## 1.2.4 SIP (VoIP)

### SIP (VoIP)

In this section, the SIP options are entered, so that the SIP application can be run on the NMG. Please note, that you may only make any changes, when the check box (as shown below) is activated. Also, the SIP settings will only be activated on the NMG when this check box (as shown below) is active.



The screenshot shows a window titled "SIP (VoIP) activation" with a blue header. Inside the window, there is a section labeled "SIP activation" containing a single checked checkbox labeled "Activate SIP (VoIP)".



## Creating a user defined codec

To create a user defined codec, click the button **New** and the following dialog will appear...

The screenshot shows a dialog box titled "Edit codec properties". The fields are as follows:

- Name: User Defined Codec
- Payload: 127
- Clock: 8000
- Optional extensions: (empty)
- fmtp: (empty)
- PTime (in milliseconds): 20
- Type: audio
- Description: Your user defined description
- Can be used for transparent calls
- Bearer capability: (empty)
- LLC: (empty)
- HLC: (empty)
- SubSrc: (empty)
- SubDst: (empty)
- Map to the codec...: Not yet mapped

### Name

The name that this codec is to use.

### Payload

The numerical RTP payload type.

### Clock

The clock settings for this codec. It is not recommended that this value be changed.

### fmtp

The FMTP setting for this codec. This value indicates which named events a codec can handle. For more information please read the Session Description Protocol (RFC 2327 [7]) It is not recommended that this value be changed.

### PTime (in milliseconds)

This gives the length of time (Packet time) in milliseconds represented by the media in a packet It is not recommended that this value be changed.

### Type

The Type of this codec. This is an internal value used by the NMG system to identify the codec type. Possible values are:

|   |                 |
|---|-----------------|
| 0 | Audio (speech). |
| 1 | DTMF.           |
| 2 | Fax.            |
| 3 | Video.          |

It is not recommended that this value be changed. Standard is 0

**Description**

The informational description for this codec. This value is used internally for informational purposes only. It **must not** be left empty.

**Can be used for transparent calls**

When activated, this allows the NMG to use this codec for transparent (data or fax) calls. It is recommended that at least one codec has this flag set.

**The following fields are inserted into the codec properties verbatim. If you have not been asked to enter anything here, or are not sure, DO NOT CHANGE ANY OF THESE SETTINGS!**

**Bearer capability**

The bearer capability of this codec

**LLC**

The LLC property of this codec

**HLC**

The HLC property of this codec

**SubSrc**

The SubSrc property of this codec

**SubDst**

The SubDst property of this codec

**Map to the codec...**

This codec is currently mapped to the codec displayed in the combo box (if any)

### 1.2.4.2 SIP general settings

## SIP general settings

In this section, the global options are entered for the SIP application that is to run on the NMG

### SIP general settings

General

|   |   |                           |                                    |
|---|---|---------------------------|------------------------------------|
| Local IP address  | <input type="text" value="192 . 168 . 100 . 58"/>               |                           |                                    |
| Software name   | <input type="text" value="Novatec SIP Agent Version 1.00.000"/> |                           |                                    |
| Initial sequence  | <input type="text" value="0"/>                                  |                           |                                    |
| <input type="checkbox"/> Allow internal (routing) loops                                       |   |                           |                                    |
| <input checked="" type="checkbox"/> Ignore unauthorized sites                                 |   |                           |                                    |
| <input checked="" type="checkbox"/> Always try to internally resolve names/IP addresses first |   |                           |                                    |
| <input type="checkbox"/> Use local name (if unchecked, use IPv4)                              |   |                           |                                    |
| <input checked="" type="checkbox"/> Reply on syntax errors to counterpart                     |   |                           |                                    |
| <input checked="" type="checkbox"/> Read internal server lists at startup                     |   |                           |                                    |
| <input checked="" type="checkbox"/> Save dynamic server information every....                 | <input type="text" value="1"/>                                  | hours                     |                                    |
| <input checked="" type="checkbox"/> Forward numerical addresses to ISDN                       |   |                           |                                    |
| Q value   | <input type="text" value="1.0"/>                                |                           |                                    |
| PSTN prefix   | <input type="text"/>  | PSTN prefix insert length | <input type="text" value="0"/>     |
| Min. session expire   | <input type="text" value="300"/>                                |                           |                                    |
| Session expire  | <input type="text" value="3600"/>                               |                           |                                    |
| Anonymous name  | <input type="text" value="anon"/>                               |                           |                                    |
| Optional flags  | <input type="text" value="0x00000000"/>                         |                           | <input type="button" value="..."/> |

UDP / RTCP options

|                  |                                    |
|------------------|------------------------------------|
| UDP packet size  | <input type="text" value="1200"/>  |
| Local RTP port   | <input type="text" value="30000"/> |
| Remote RTP port  | <input type="text" value="30000"/> |
| Local RCTP port  | <input type="text" value="30001"/> |
| Remote RCTP port | <input type="text" value="30001"/> |
| RTP Packet time  | <input type="text" value="20"/>    |

## General

### Local IP address

This is the IP address of the CCU-3 / CBS / SOS / MCU board installed in the chassis. This value is not editable, and only shown for informational purposes.

### Software name

The internal SIP software name. This value cannot be edited, and is shown only for informational purposes.

### Initial sequence

The start sequence for SIP control dialog. Leave this value "as is".

### Allow internal (routing) loops

Allow the SIP application to route SIP calls back to the same SIP equipment. Currently disabled.

### Ignore unauthorized sites

If sites other than those which are authorized to use this NMG for SIP purposes, contacts the NMG, checking this option is highly recommended, as this prevents / minimizes the risk DoS attacks. Un checking this option, a site which has no authorization to use this NMG, would receive a reply stating this.

### Always try to internally resolve names/IP address first

Checking this option, the SIP application will try to resolve names / IP addresses itself, before falling back to external resources.

### Use local name (if unchecked use IPv4)

Use the domain name (respectively alias name if supplied), to identify itself. If not supplied, use the system IP address.

### Reply on syntax errors to counterpart

During communication with other SIP systems, if this option is checked, and the SIP protocol is not adhered to strictly (i.e. errors in the protocol), the NMG will respond to the other system with an error. If this option is unchecked, then syntax errors (in the protocol) will be ignored, and the NMG will try to carry on operations as normal, using the erroneous syntax supplied.

### Read internal server lists at startup

This option allows the NMG to read it's cached and internal server data at startup.

### Save dynamic server information every...

The NMG saves server information periodically (caching), so that the processing time of certain requests can be minimized. This option sets the time span in which this data should be periodically saved.

### Forward numerical address to ISDN

Automatically forward all incoming numerical users to the ISDN module/interface.

### Q value

Priority value of the REGISTER method, might be used if required by remote SIP equipment. Recommended values (in the case of a NMG registration at the external server): either 0.0 (don't send) or 1.0 (the highest).

### PSTN prefix

The PSTN prefix of the ISDN network (head number, of the ISDN interface on which the NovaTec system is connected). It will be applied either to all numbers, or upon the PSTN number falling below a certain length (see below).

### PSTN prefix insert length

The maximal length, where the PSTN prefix (above) will be applied to an ISDN number. The PSTN prefix will be applied to all numbers, if the length value is set to zero.

**Min. session expire**

A value that will be used during arbitration of the "timer" utility/extension to SIP. Please refer to RFC for this parameter. The standard value is recommended.

**Session expire**

A value that will be used during arbitration of the "timer" utility/extension to SIP. Please refer to RFC for this parameter. The standard value is recommended.

**Anonymous name**

Standard name to identify the system under CLIR conditions.

**Optional flags**

Flags that influence the behaviour of the SIP application on the NMG, for more information, please read the section optional SIP flags. To set any of the available flags, click on the ... button.

## UDP / RTCP options

### UDP packet size

The "secure" packet size used in the SIP communication. Allows further inserts at the next hop in the SIP route.

### Local RTP port

Standard value to replace an unsupplied parameter in the SIP protocol.

### Remote RTP port

Standard value to replace an unsupplied parameter in the SIP protocol.

### Local RCTP port

Standard value to replace an unsupplied parameter in the SIP protocol.

### Remote RCTP port

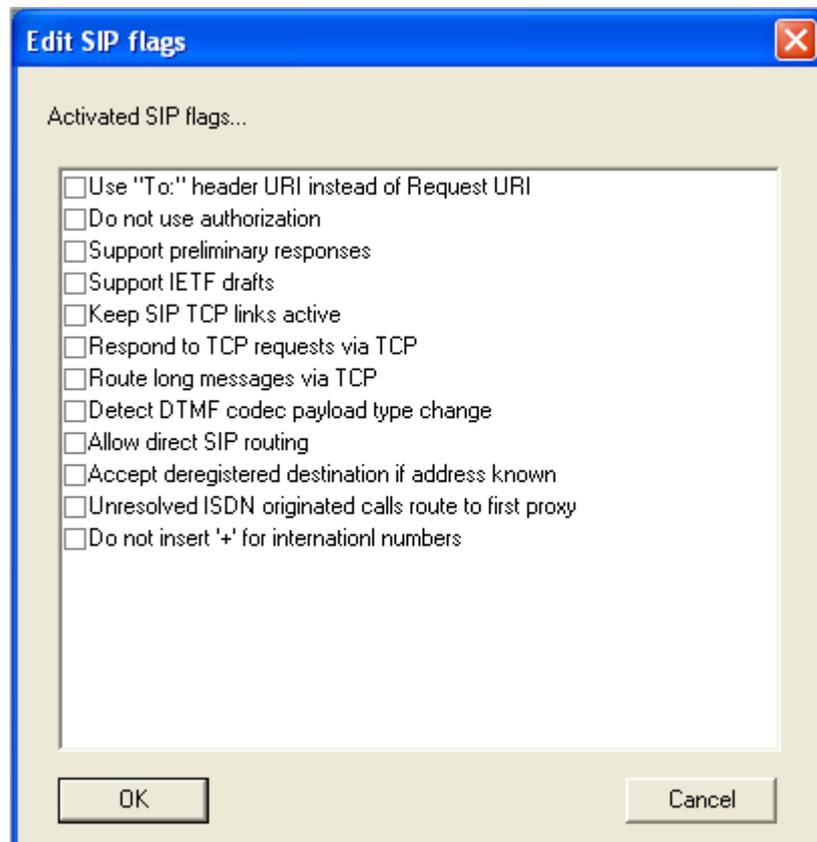
Standard value to replace an unsupplied parameter in the SIP protocol.

### RTP Packet time

The time (in milli seconds) to be used for the SIP packet time encoding

### Optional SIP flags

The optional SIP flags, allows the "fine tuning" of the SIP application, so that it can function in various environments (i.e. with other manufacturers equipment) that do not always strictly adhere to the SIP protocol.



The following flags are available at this moment:

**Use "To:" header URI instead of Request URI**

Use the "To:" header field instead of the **INVITE** request URI in the SIP protocol.

**Do not use authorization**

Disregard authorization for all sites.

**Support preliminary responses**

Support extensions (100rels) to SIP.

**Support IETF drafts**

Should preliminary IEF extensions (which are standard de facto) be supported.

**Keep SIP TCP links active**

Keep any TCP SIP control links active throughout the session.

**Respond to TCP requests via TCP**

Immediately respond to TCP request via the same (TCP) link, without using other options.

**Route long messages via TCP**

Route "long" SIP messages immediately via TCP

**Detect DTMF codec payload type change**

Automatically detect any changes in the poorly specified DTMF payload type, during session

---

communication.

**Allow direct SIP routing**

Allow the direct routing of SIP to SIP calls without passing through the Layer 3 administration modules (not recommended).

**Accept de registered destination if address known**

Route to de registered destination addresses if the address is statically assigned.

**Unresolved ISDN originated calls route to first proxy**

Route any unresolved ISDN calls to the first available proxy for further processing.

**Do not insert '+' for international numbers**

Do not automatically insert the '+' for international numbers.

**Support timer**

Try to arbitrate the session renewal using the "timer" utility/extension to SIP.

While having this ('keep alive') extension active, the session must be renew automatically from either a server, or a client.

The other fixed session expire timeouts ('Expire time for active calls') will not be applied in this case.

**Support proprietary functions**

Enable support for some (NovaTec) internal proprietary functions. The option has no practical use.

**Support 484 (incomplete number)**

Support the incomplete number processing. This option is currently not recommended.

**Route all incoming SIP through ISDN backbone**

Forward all incoming SIP calls through all processing network layers, including ISDN Layer 3 numbering plans and LCR.

Otherwise only the routing table of 'User mappings' will be used, if there is a corresponding destination reference.

This may result in different numbering results and transfer routes. It is recommended to set this option.

**Enable using wildcards for redirection**

Apply wildcards while searching for a destination, if the redirection in LAN may be used.

**Repeat SDP after early media**

Some remote systems (i.e. the third party software) may 'loose' the signalled RTP parameters, that were provided with the 'early media' (18x), while processing the connect response (200). This flag allows to resend SDP with the 200 (connect) response. It is recommended to set this option.

**Replace local numbers with available outbound maps**

The 'local mappings', which result in a registration on external servers, will be always inserted to the 'reverse local map'. The 'reverse local map' creates a reference between the local subscriber number and his identity at the external server (registrar). The flag forces creating the reverse references to all local subscriber numbers, so that the externally presented name or number will result from the reverse map.

**Detect obsolete voice codecs**

This option allows to avoid a codec agreement only upon the payload type number. If the parameter is set, the codec names will be compared (case insensitive) as well. Some third party software uses old payload type numbers for some archaic codecs.

**Allow change of invalid SIP addresses**

NMG software follows a very tight security policy. The SIP packets are verified, whether they are tempered, faked or malformed. Especially the IP addresses are verified against the registration (account) data. Some third party software provides, for example LAN IP addresses in public transport lines. SIP requests from such counterparts will be discarded. This parameter allows to 'switch on' a 'softer' policy. In this case the option 'Correct faulty format' may be applied individually to the entries in the 'user mappings'.

**Use "rport"**

'rport' is a diagnostic parameter used in SIP transport lines ("Via:" header). Please refer to RFC about details. The response to 'rport' provides the own IP send port values as seen from the remote side. It allows to diagnose some transport related issues (like NAT). The option is irrelevant except for the system managers in certain trouble shooting scenarios.

**Support "Received"**

'Received' is a diagnostic parameter used in SIP transport lines ("Via:" header). Please refer to RFC about details. The IP address values will be returned with 'Received' to the requester. It allows to diagnose some transport related issues (like NAT). The option is irrelevant except for the system managers in certain trouble shooting scenarios.

**Leave (i.e. additionally process) non-numeric codes in the destination numbers**

If activated, allows the NMG to pass some supplementary DTMF input (postfix) as a destination number. The option allows the use of this parameters as a part of the index. All the '\*' characters will be replaced with '(', and '#' correspondingly with ')', while creating the key search string. One might use this option for a distinct routing upon such a postfix data.

**Treat wildcards in local mappings as extensions**

The wildcards will be applied as extensions to create the final originating number, if this flag is enabled.

Example:

With the local mapping:

9876\* 11\*

a local subscriber 11345 will be presented as 9876, if the flag is unset, but it will be identified as 9876345 with the option enabled.

**Selective 18x processing**

Enable to provide more distinct information between:

180 Ringing

181 Call Is Being Forwarded

182 Queued

183 Session Progress

to the layer 3 of ISDN for the SIP outgoing calls.

**Ignore external REFER (CCTR)**

Explicitly ignore an external 'consultative' call transfer (CCTR) with REFER, as the provided destination numbers or the call transfer itself via SIP might be unwished.

**Obey external blind call transfer**

Explicitly enable an externally provided 'blind' call transfer (BCTR) with REFER, as the provided destination numbers or the call transfer itself via SIP might be unwished.

**Reserved [M]****Reserved [N]****Show all (i.e. hidden) mapping records**

Internal development diagnostic function with no special value in the production system, and even for the system management.

Some more details about the index keys and their structure like 'associated records' will be shown.

**Note**

As more NMG systems are used in the field, to allow various (non SIP protocol compliant) systems to be used in conjunction with the NMG systems SIP application, flags are added from time to time. If in doubt to which flags may be required for your specific application, please contact the NovaTec support team.

### 1.2.4.3 VoIP port settings

## VoIP port settings

The VoIP port settings allow you to set which ports are to be used for the SIP application within the LAN.

## 1.2.4.3.1 VoIP UDP port assignment

## VoIP UDP port assignment

In this section, the SIP BCU / GSM2E interfaces are assigned the ports that are to be used for the SIP application.

| BCU UDP/RTCP port assignment                         |              |              |  |
|--|--------------|--------------|--|
| Interface  | Port 1 Local | Port 2 Local |  |
| <input type="checkbox"/> Slot 02, BCU4, Interface 01 | 50600        | 50602        |  |
| <input type="checkbox"/> Slot 02, BCU4, Interface 02 | 50604        | 50606        |  |
|  |              |              |  |
|  |              |              |  |
|  |              |              |  |
|  |              |              |  |
|  |              |              |  |

### Interface

The interface description, slot number, BCU / GSM2E type and the interface.

### Port 1 Local

Each BCU / GSM2E interface has two ports (two voice channels), this is the IP port of the first BCU / GSM2E port of the interface. Please note that this is the UDP port, a second port (the one that is visible +1) is explicitly assigned for RTCP. In the above example for Slot 02, BCU4, Interface 01, the UDP port is 50600, and the RTCP port is 50601.

### Port 2 Local

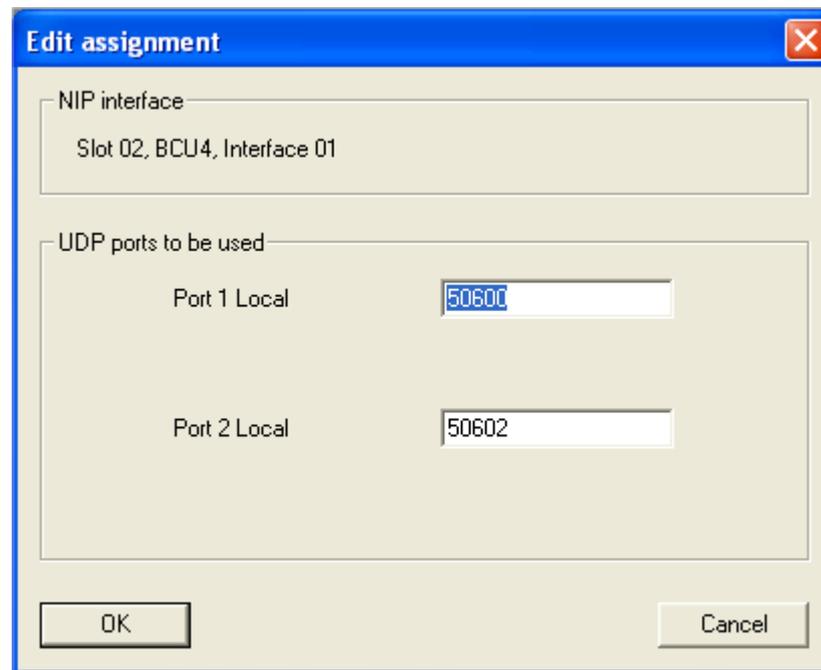
Each BCU / GSM2E interface has two ports (two voice channels), this is the IP port of the second BCU / GSM2E port of the interface. Please note that this is the UDP port, a second port (the one that is visible +1) is explicitly assigned for RTCP. In the above example for Slot 02, BCU4, Interface 01, the UDP port is 50602, and the RTCP port is 50603.

### Note

If you have not defined any BCU / GSM2E ports to use the interface mode SIP, then there will be no interfaces visible in this section.

### Editing the port assignment

To edit the assignment of ports to the BCU interfaces, choose the interface that is to be edited, and click the **Edit...** button, and the following dialog will appear...



The screenshot shows a dialog box titled "Edit assignment". It has a blue title bar with a close button (X) in the top right corner. The dialog is divided into two main sections. The first section, "NIP interface", contains the text "Slot 02, BCU4, Interface 01". The second section, "UDP ports to be used", contains two rows of input fields. The first row is labeled "Port 1 Local" and has a text box containing the value "50600". The second row is labeled "Port 2 Local" and has a text box containing the value "50602". At the bottom of the dialog, there are two buttons: "OK" on the left and "Cancel" on the right.

#### NIP interface

Description of the interface to be edited.

#### UDP ports to be used

**Port 1 Local**

**Port 2 Local**

To save any changes made, click the **OK** button. To abort any changes without saving, click the **Cancel** button.

#### Note

Manual changes to the port configuration, delete any previous entry's in the NAT mapping section concerning this interface, and therefore must be re-entered manually!

**Auto port assignment**

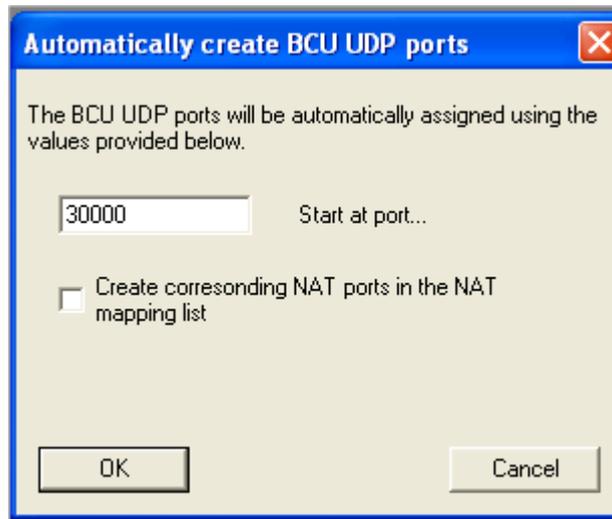
To ease the configuration of the BCU / GSM2E SIP interfaces, the option of automatically assigning the IP ports is available. To carry out the auto port configuration, click on the button **Auto ports...**

A message box will appear with the following text...

**Port settings will be overwritten for all  
BCU interfaces present on this form!  
Do you wish to continue?**

All previous settings **for all ports** will be overwritten. To carry on with the auto ports configuration, click **Yes**. If you do not wish to carry on with the auto ports configuration, click **No**.

Then the following dialog will appear...



Enter the IP port that should be used as the starting port. All interfaces will automatically be assigned ports from this number onwards. If you wish to create corresponding ports in the NAT mapping list, check the box **Create corresponding NAT ports in the NAT mapping list**. Once satisfied with the values, click **OK** and the desired values will be created and saved. If you wish to abort, click **Cancel**.



**SC**

Shows the status of the **S**ilence **C**ompression for this profile. ( On / Off ).

**Encode buffer**

Shows the current size of the packet time encode buffer (in milli seconds).

**Note**

The standard port profile cannot be edited

## Creating a new profile

To create a new port profile, click on the **New...** button and the following dialog will appear...

**New codec profile**

Codec profile name  
CHANGE THIS NAME!

ISDN codec settings  
 ALaw  ULaw

Jitter Buffer settings  
Jitter Buffer mode: Adaptive Jitter Buffer Mode  
 Discard Voice Frames allowed  
 Locale Adaption allowed  
 Use Jitter buffer as system-clock  
Init JB Time: 50  
Min. JB Time: 10  
Max. JB Time: 180

Packet time encoding settings  
30 ms

Echo cancellation  
 Activate ISDN (Near end) echo cancellation

Comfort Noise Generation  
 Activate CNG

High Pass Filter  
 Activate HPF

Silence compression  
 Activate silence compression

OK Cancel

### Codec profile name

Enter a name for this profile. Please use an unambiguous name, as this help when using multiple profiles.

### ISDN codec settings

Here you can choose which ISDN codec is to be used for this profile.

### Jitter buffer settings

The target of the jitter buffer (JB) is to find a compromise between the mean value of the packet play out delay and the number of packets which must be discarded because they have not been received in time. The packet play out delay should be high enough to ensure that most of the late packets are not discarded, but it should be kept as small as possible to reduce the total delay.

The JB can be configured in two different modes:

1. Adaptive mode
2. Fixed mode
  - a) with adaption
  - b) [without adaption – not implemented]

1. In the adaptive mode the JB estimates the network jitter and the corresponding JB size automatically. The JB tries to keep the actual size close to the estimated network jitter. The minimal and maximal JB size is calculated considering the actual network jitter but within the programmed min. and max. JB time values. The minimum size is set to 20% of the optimum size. The maximum size is set 40ms above the optimum size. Thus all three thresholds depend on the network jitter.

2.a) In the fixed JB mode the jitter buffer size has to be programmed. The JB does not estimate the network jitter, but tries to keep its actual size close to the configured Init JB Time. The minimum and maximum JB size is set to the programmed Min. JB Time and Max. JB Time respectively.

2.b)[Without adaption the JB works like a simple buffer with reordering support. The JB size is set to the programmed Init JB Time.]

Note: Min. JB Time < Init JB Time <= Max. JB Time

The Init JB Time should be set close to the real network jitter.

In case of fixed JB mode the Init JB Time depends on the network jitter and should be sufficient to compensate the expected network jitter. In this case the Init JB Time determines the target JB size. The higher the network jitter distribution the higher the Min. JB Time should be chosen. In fixed mode the Max. JB Time determines the upper limit for acceptable packet play out delay which requires a hard intervention (discard packets).

For the adaptive mode the Max. JB Time defines the upper limit for the JB buffer size estimation.

NLP mode: Set the flag 'Use JB as system clock' only for the proprietary NovaTec NLP transmission mode where the connected NovaTec devices are not synchronized by a common clock source. It is mandatory to select the fixed JB mode when the NLP protocol (instead of SIP) is activated.

#### **Recommended settings for voice transmission**

To keep the play out delay low the JB size should be minimized (permit a low Min. JB Time) and should be adapted to the actual network jitter. Voice packets may be discarded to achieve this objective.

|                               |   |
|-------------------------------|---|
| JB mode:                      | <b>Adaptive</b>                                   |
| Discard Voice Frames allowed: | <b>ON</b>   |
| Locale Adaption allowed:      | <b>ON</b>   |
| Use JB as system clock:       | <b>OFF</b> (use this option for NLP, not for SIP) |
| Init JB Time: 50 [ms]         |   |
| Min. JB Time: 10 [ms]         |   |
| Max. JB Time: 150 [ms]        |   |

#### **Recommended settings for data/fax/modem transmission**

In case of inband data transmission discarded or replaced packets are most likely not acceptable because this will cause bit errors. Many data transmission protocols are not able to resynchronize or retransmit lost packets. A high delay is acceptable to establish reliable data transmission without bit errors (increase the Init and Min. JB Time). In addition to minimize the frequency of the JB adjustments select fixed mode. Also take into consideration that the network jitter is not uniformly (bursts). In such a case set the Min. JB Time only slightly lower than the Init JB Time.

|                               |  |
|-------------------------------|--|
| JB mode:                      | <b>Fixed</b>                                       |
| Discard Voice Frames allowed: | <b>OFF</b> (do not discard any voice/data packets) |
| Locale Adaption allowed:      | <b>OFF</b>   |
| Use JB as system clock:       | <b>OFF</b> (use this option for NLP, not for SIP)  |
| Init JB Time: 100 [ms]        |  |
| Min. JB Time: 80 [ms]         |  |
| Max. JB Time: 180 [ms]        |  |

#### **Packet time encoding settings**

This is the size of the buffer, that is used for encoding speech packets before being sent. This

---

allows the reduction of protocol overhead, however increases the chance of delay. Also, should any packets be dropped, this will increase the speech drop-out. A value of 20 ms is the recommended setting. This is set under SIP general settings

**Echo cancellation****Activate ISDN (Near end) echo cancellation**

Activates or deactivates the echo cancellation on the ISDN side of ISDN -> SIP connection leg.

**Comfort Noise Generation**

During periods of transmit silence, when no packets are sent, the NMG has a choice of what to present to the listener. Muting the channel (playing absolutely nothing) gives the listener the unpleasant impression that the line has gone dead. CNG generates a local noise signal that it presents to the listener during silent periods.

**High Pass Filter**

Enables the filtering of any low frequency (DC part of the signal) "noise" in the connection legs. The cutoff frequency is 20Hz. Please note, not all VoIP codecs support this option. For more information, please read the comments here.

**Silence compression**

Enables the codec to compress silence packets to minimize IP traffic. Please note, not all VoIP codecs support this option. For more information, please read the comments here.

### Editing an existing profile

To edit an existing profile, choose the profile that is to be edited and click the **Edit...** button. A dialog similar to the one used when creating a profile will be displayed. Edit the required values and then click **OK**. The changes will be saved. To abort making any changes, click the **Cancel** button. Please note that the default profile **cannot** be edited.

#### 1.2.4.3.2.1 Profile -> port assignment

## Profile -> port assignment

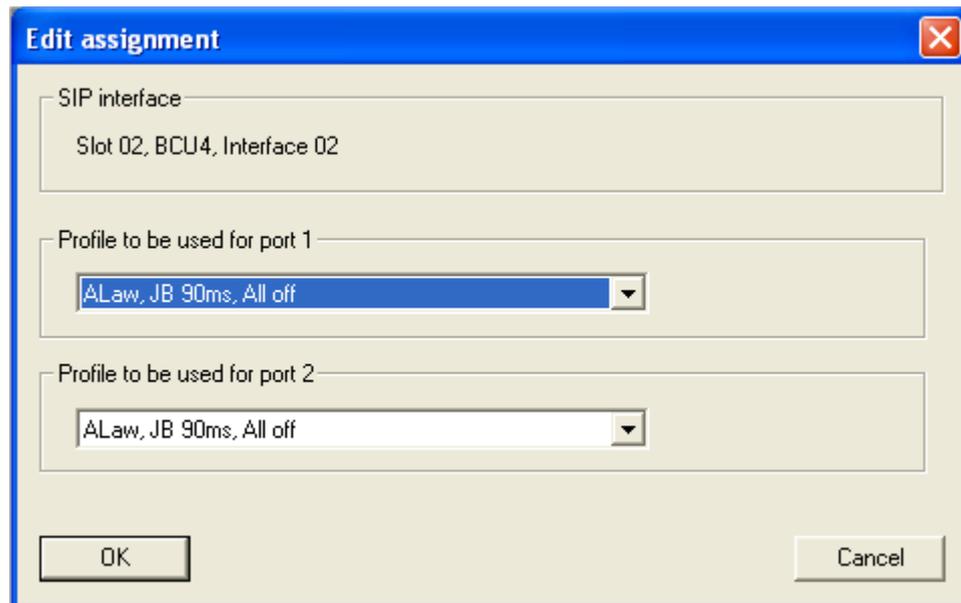
In this section, the profiles that may have been created here, are assigned to the available BCU / GSM2E SIP interfaces and define the default behaviour of the interfaces. If you have not created any port profiles, then the standard port profile is automatically assigned to the available interfaces. If you delete a profile that was previously assigned to an interface, the standard profile is automatically re-assigned to the interface(s).

| Profile -> port assignment                           |                        |                        |  |
|--|------------------------|------------------------|--|
| Interface  | Port 1 profile         | Port 2 profile         |  |
| <input type="checkbox"/> Slot 02, BCU4, Interface 01 | ALaw, JB 90ms, All off | ALaw, JB 90ms, All off |  |
| <input type="checkbox"/> Slot 02, BCU4, Interface 02 | ALaw, JB 90ms, All off | ALaw, JB 90ms, All off |  |
|  |                        |                        |  |
|  |                        |                        |  |
|  |                        |                        |  |
|  |                        |                        |  |
|  |                        |                        |  |

### Assigning profiles to ports

Before assigning profiles (other than the default profile) to BCU / GSM2E SIP ports, you must have created **at least one** alternative profile in the previous section. If you have not done this, you will receive an error message.

To assign an alternative profile to one or more ports, choose the ports that are to be assigned an alternative profile, and click the **Edit...** button, and the following dialog will appear...

**SIP interface**

Shows the description of a single interface. If you have chosen to edit more than one interface, this field will show the text **Multiple interfaces...**

**Profile to be used for port 1**

As each BCU / GSM2E interface has two ports (two voice paths), this shows the current port profile for port 1. The drop down box, once clicked, shows the available port profiles that may be assigned to this port.

**Profile to be used for port 2**

As each BCU / GSM2E interface has two ports (two voice paths), this shows the current port profile for port 2. The drop down box, once clicked, shows the available port profiles that may be assigned to this port.

Once satisfied with the options that you have entered, click the **OK** button and the changes will be saved. To abort making any changes, click the **Cancel** button.

## 1.2.4.4 SIP &lt;-&gt; ISDN options

## SIP &lt;-&gt; ISDN options

In this section, all SIP ISDN options are set.

| SIP <-> ISDN options   |  |
|--|--|
| Dialing plan to use for incoming SIP calls                               | 08-SIP                                     |
| Access list to use   | None                                       |
| Call data record profile to use  | Call data profile 1                        |
| Minimal number of digits required from ISDN                              | 13   |
| Wait time between each digit (overlapped)                                | 5  |
| <input type="checkbox"/> Activate progress indication                    | Indication type<br>Destination is non ISDN |
| <input checked="" type="checkbox"/> Activate "Fake" alerting after       | 7 seconds                                  |
| Wait for ALERT (in seconds)  | 30   |
| Wait for CONNECT (in seconds)  | 180  |
| Wait for RELEASE (in seconds)  | 30   |
| Wait for RELEASE COMPLETE (in seconds)                                   | 5  |
| Maximal disconnect TONE duration (in seconds)                            | 30   |
| <input checked="" type="checkbox"/> Activate early media for VOICE calls |  |
| <input type="checkbox"/> Activate early media for DATA calls             |  |

**Dialing plan to use for incoming SIP calls**

Here the dialing plan that is to be used to route incoming SIP calls is set. If no dialing plan is set here, you will receive an error on processing the data. Dialing plans are created here.

**Access list to use**

Here you may set an access list that will be used for incoming calls. For more information on access lists, please read the information provided here.

**Call data record profile to use**

Here the CDR profile is set.

**Minimal number of digits required from ISDN**

Here the minimal number of digits is set. This number represents the minimal number of digits that will be cached, before the number is considered to be complete, and the Call setup will be carried out.

**Wait time between each digit (overlapped)**

This is the time (in seconds) that the NMG waits between each digit in overlapped mode, to decide if the number is complete, and the call setup will be carried out.

**Activate progress indication**

If checked, then the progress indication will be sent (in the ISDN leg).

**Indication type**

this is the indication type that is sent to the ISDN leg of a SIP call (if applicable). This option is only available if the **Activate progress indication** check box is active.

**Destination is non ISDN**

The terminal is not ISDN equipment.

**Call is not "End to End"**

This option indicates that the call is passing through a non ISDN network.

**Activate "Fake" alerting after ... seconds**

If active, the NMG will "fake" the alerting signal, when the network / user has not responded to the call setup within the time here. The tone type is set here.

**Wait for ALERT (in seconds)**

The maximal waiting time for the ALERT signal before aborting the call.

**Wait for CONNECT (in seconds)**

The maximal waiting time for the CONNECT signal before aborting the call.

**Wait for RELEASE (in seconds)**

The maximal waiting time for the RELEASE signal, before carrying out normal call clearing.

**Wait for RELEASE COMPLETE (in seconds)**

The maximal waiting time for the RELEASE COMPLETE signal, before carrying out normal call clearing.

**Maximal disconnect TONE duration (in seconds)**

Automatically clear the call, after the number of seconds entered here, once the called party has hung up.

**Activate early media for VOICE calls**

If this option is checked, then the EARLY MEDIA event is sent for **voice** calls. This of course incurs traffic over the RTP stream, which in some cases may not be desirable. If this is the case, the EARLY MEDIA event can be de-activated (un-checking the option). The standard setting is activated.

**Activate early media for DATA calls**

If this option is checked, then the EARLY MEDIA event is sent for **data** calls. This of course incurs traffic over the RTP stream, which in some cases may not be desirable. If this is the case, the EARLY MEDIA event can be de-activated (un-checking the option).

### 1.2.4.5 Timeout options

## Timeout options

Here the various timeout options are set for the SIP application running on the NMG. These timeouts are set to standard values, that by default should work with the various environments that the NMG would be used in.

| Timeout options   |       |
|---|-------|
| Call setup timeout (in seconds)                         | 120   |
| Repeat interval (in milliseconds)                       | 5000  |
| Maximal number of repeats                               | 5     |
| Ping time ( in seconds, 0 = disabled)                   | 0     |
| Disconnect wait (in seconds)                            | 10    |
| Expire time for active calls (in seconds)               | 14400 |
| System session timeout (in seconds) MUST > Expire time  | 86400 |
| Time limit to cache DNS resolutions (in seconds)        | 86400 |
| Maximum number of retries to resolve an address         | 3     |
| Backoff time for unresolved name (in seconds)           | 900   |
| DNS request timeout (in seconds)                        | 10    |
| URI (SIP) resolution timeout (in seconds)               | 30    |
| Registration expire time (in seconds)                   | 600   |
| Public connection registration expire time (in seconds) | 300   |
| Proxy link expire time (in seconds)                     | 180   |

**Call setup timeout (in seconds)**

The Call setup timeout for SIP -> ISDN calls.

**Repeat interval (in milliseconds)**

The interval between Call setup attempts to the ISDN network.

**Maximal number of repeats**

The maximal number of attempts to route / contact the ISDN network (call setup).

**Ping time (in seconds, 0 = disabled)**

Time between each "ping" sent to ensure that the session is still valid.

**Disconnect wait (in seconds)**

The time that the system will wait before automatically disconnect any calls that may not have been cleared correctly.

**Expire time for active calls**

The maximal time that a SIP call may be active (prevents unnecessary IP traffic and usage in the case of SIP errors during the disconnect stage).

**System session timeout(in seconds) MUST > Expire time**

The maximal time that a single session may be active for. This time **MUST BE** larger than the Expire time for active calls.

**Time limit to cache DNS resolutions (in seconds)**

The time limit that is used before any DNS cache entries are cleared (cache flushing).

**Maximum number of retries to resolve address**

The maximal number of attempts to resolve an address to it's ISDN counterpart.

**Backoff time for unresolved name (in seconds)**

The time span between unsuccessful attempts to resolve an address/name.

**DNS request timeout (in seconds)**

The timeout for DNS requests.

**URI (SIP) resolution timeout (in seconds)**

The timeout before unsuccessfully SIP resolution actions are accounted as failed.

**Registration expire time (in seconds)**

The expire time which this NMG uses to register at an external system.

**Public connection registration expire time (in seconds)**

The expire time which this NMG uses to register at a public external system.

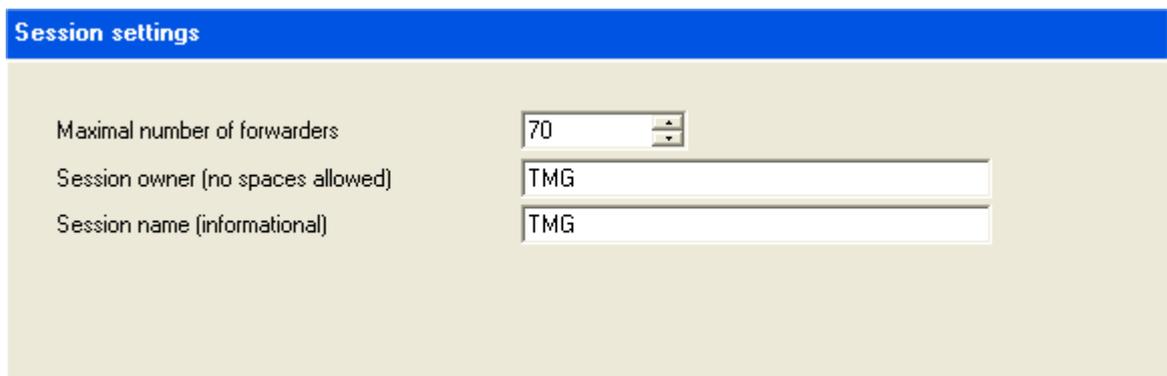
**Proxy link expire time (in seconds)**

The time interval used internally by the NMG, to keep temporary information. Please leave this value unchanged, unless the NovaTec support team recommends using another value.

### 1.2.4.6 Session settings

## Session settings

Here the various session settings are entered for the SIP application running on the NMG.



|                                   |                                  |
|-----------------------------------|----------------------------------|
| Maximal number of forwarders      | <input type="text" value="70"/>  |
| Session owner (no spaces allowed) | <input type="text" value="TMG"/> |
| Session name (informational)      | <input type="text" value="TMG"/> |

#### **Maximal number of forwarders**

The maximal number of hops (forwarders) allowed for a call.

#### **Session owner (no spaces allowed)**

The session owner of the SIP session. This value is used between systems for administration purposes. Please note that this value **should not** contain any spaces.

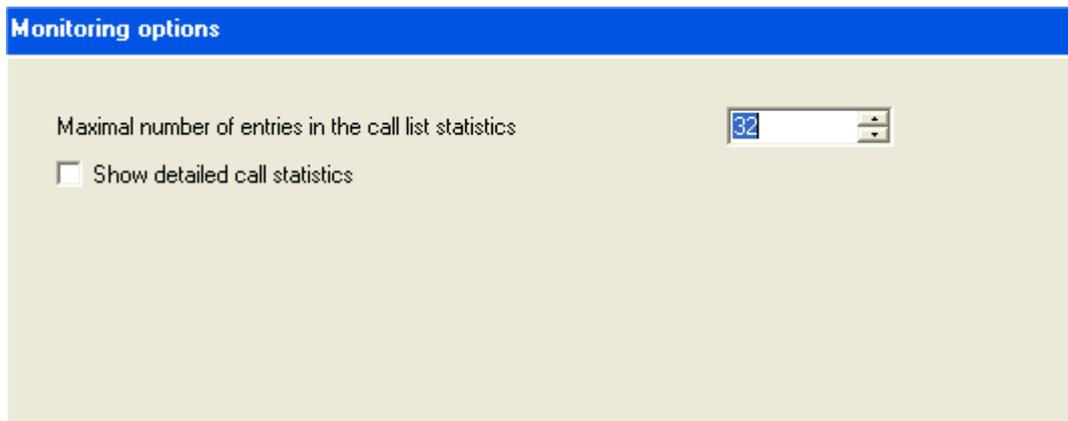
#### **Session name (informational)**

the session name. This value is for informational purposes only.

### 1.2.4.7 Monitoring options

## Monitoring options

Monitoring options for the fault finding and system information.



The screenshot shows a configuration window titled "Monitoring options". It contains two settings:

- Maximal number of entries in the call list statistics**: A numeric input field with the value "32".
- Show detailed call statistics**: A checkbox that is currently unchecked.

#### **Maximal number of entries in the call list statistics**

This value sets the maximal number of statistics that are held in the NMG system memory at any one time. Usually the default value (32) is sufficient for fault finding and maintenance purposes.

#### **Show detailed statistics**

If this option is active, detailed statistics are logged, but uses slightly more memory of the NMG system.

#### 1.2.4.8 SIP server lists

### SIP server lists

In this section, the various servers lists are created that are used by the SIP application running on the NMG. The server lists are divided in the following categories:

- Proxy servers
- Registrar servers
- Locator servers
- ENUM servers

## 1.2.4.8.1 Proxy servers

## Proxy servers

In this section, any proxy servers are entered into the list, that are to be available for the SIP application running on the NMG. Also the order that the servers appear in the list is also the priority in which the servers will be accessed.

## Registrar servers

In this section, any registrar servers are entered into the list, that are to be available for the SIP application running on the NMG. Also the order that the servers appear in the list is also the priority in which the servers will be accessed.

## 1.2.4.8.3 Locator servers

## Locator servers

In this section, any locator servers are entered into the list, that are to be available for the SIP application running on the NMG. Also the order that the servers appear in the list is also the priority in which the servers will be accessed.

#### 1.2.4.9 Mapping lists

### Mapping lists

In this section, the various mapping lists are created. These mapping lists are used by the SIP application running on the NMG. The following mapping lists are available for configuration:

- User mapping
- Host mapping
- Local mapping



### Creating a new user mapping entry

To create a new User mapping entry, click the button **New** and the following dialog will appear:

**Edit User mapping**

User mapping is active

ISDN options

ISDN  Wildcard  WearOut

Incoming prefix  Number length

Device options

Device  Sub:  LLC:

BC:  HLC:

Facsimile over IP (T.38)

Enable T.38

SIP URI / Name / Domain / IP information

URI / Name / IP

IP verification mask  significant bits

Voice / Data codec

Trusted  Accept all names  Correct faulty format

Public access  User name is a prefix  Can redirect in LAN

ISDN is a user name  Additional flags

Account settings

Account  Password

Simplified digest  Basic authorisation  Proxy authorisation

Reserved 1  May use alternative encryption methods

Encryption setting  Handling profile

Additional flags

**User mapping is active**

If this option is checked, then the user mapping entry is active. If this option is unchecked, then this user mapping entry is inactive.

**ISDN options****ISDN**

The ISDN number of the user.

**Wildcard**

If this option is checked, this indicates that any matching ISDN number is to be mapped to this user mapping object.

**Incoming prefix**

This number will be used internally as a prefix for the incoming numbers.

**Number length**

Maximal number length to apply the prefix.

**Device Options****Device**

Select the device for this user. Valid devices are phone or facsimile.

**Sub-IE**

Enter here the subaddress-information element.

**LLC**

Enter here the low-layer-compatibility-information element.

**BC**

Select here the bearer-capability of this user.

**HLC**

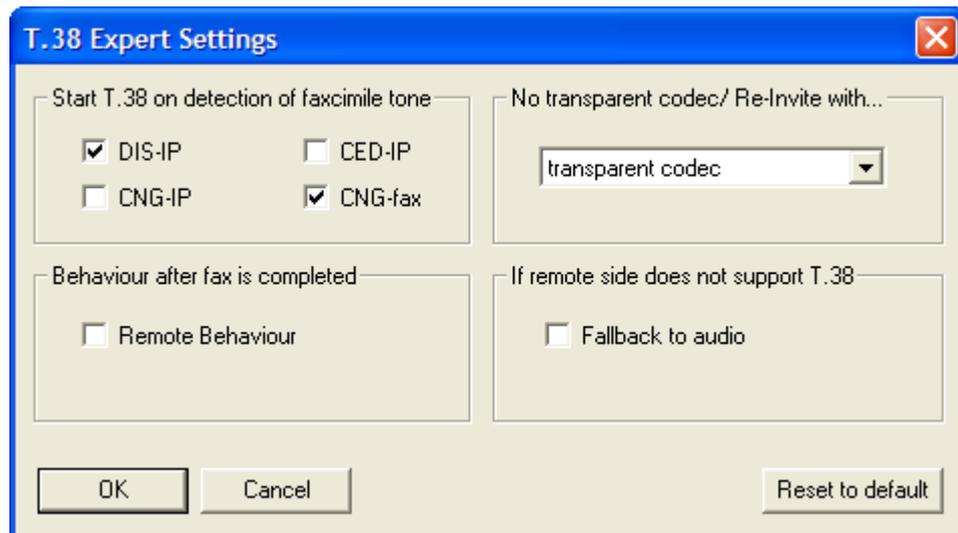
Select here the high-layer-compatibility of this user.

**Facsimile over IP (T.38)****Enable T.38**

Check this option to enable or disable the T.38 functionality.

**Note:** It is recommended to prioritize higher the transparent voice codecs (for example: pcm-aLaw, pcm-uLaw,...) than non-transparent voice codecs to increase the likelihood to send a fax to non T.38-enabled devices.

**T.38 Expert Settings**



### Start T.38 on detection of facsimile tone

Select here which signal is used to start the T.38 functionality.

#### DIS-IP

Digital Identification Signal (over IP)

#### CED-IP

Called Terminal Identification (over IP)

#### CNG-IP

Calling tone (over IP)

#### CNG-FAX

Calling Tone (from own facsimile)

### No transparent codec/ Re-Invite with...

If at the initial session establishment no transparent codec was negotiated and the system tries to send a facsimile, you can choose to re-invite with a new negotiated transparent-codec or direct with the T.38 protocol.

#### T.38

transparent codec

### Behaviour after fax is completed

#### Remote behaviour

If this option is disabled, the system closes the connection after completion of fax-transfer.

By activation of this option, the system depends on the remote side behaviour, i.e. the remote side decides to close or not to close the connection.

### If remote side does not support T.38

Fall-back to audio

If the remote side does not support T.38, normally the T.38 connection would be closed.

After activation of this flag, if the the remote side does not support T.38, the system tries to "fall-back" to audio,

i.e. the system tries to use a transparent codec (negotiated at the first session establishment) to establish a T.38 connection.

**Reset to default**

By clicking this button, the T.38 configuration will be resetted to default values.

**SIP URI / Name Domain / IP Information****URI / Name / IP**

The URI, user name or IP address.

**IP verification mask**

The allowed address mask in **bits**. i.e. 32 all addresses are allowed.

**Voice / Data codec**

The preferred voice and data codecs to be used for this user. These options can be used to "force" a specific user to use specific codecs contrary to the standard codec negotiation settings.

**Trusted**

If this option is checked, then no authorisation is necessary.

**Accept all names**

If this option is checked, then use as an access map for all the sources of the **URI / IP**.

**Correct faulty format**

If this option is checked, then faulty/incomplete IP addresses will be accepted.

**Public access**

If this option is checked, then public access is allowed

**User name is a prefix**

If this option is checked, treat the **Name** as an additional prefix for the outgoing route and as a wildcard for the incoming route identification.

**Can redirect in LAN**

If this option is checked,prefer a direct connection within a LAN (answer with 305/reflection if both SIP devices flagged and in LAN).

**ISDN is a user name****Additional flags**

Here any additional flags may be entered. Leave this field empty, unless otherwise advised by the NovaTec support team.

## Account settings

The account settings are the settings usually required to authorise the user with the SIP service provider

### Account

The account or user name.

### Password

The password for the account.

### Simplified digest

If this option is checked, then simplified digest will be used during the authorisation process.

### Basic authorisation

If this option is checked, then basic authorisation will be used.

### Proxy authorisation

If this option is checked, proxy authorisation will be used (preliminary).

### Reserved 1

Reserved for future use. Do not activate this option unless advised to do so by the NovaTec support team.

**Please note, that encryption is only available if correctly set up, and the correct procedures have been carried out. See the section System encryption options for more information.**

### May use alternative encryption methods

If this option is checked, then alternative encryption methods may be used (if available).

### Encryption setting

Here, the encryption mode may be set. Possible values are:

- Do not use  
Encryption should not be used for this user.
- Try to use  
Encryption should be used for this user as default, however if no encryption capability is available (either on this system, or the called party) the call should be made anyway.
- Must use  
Encryption **must be** used by this user. If no encryption capability is available (either on this system, or the called party) the call **will not** be completed.

### Handling profile

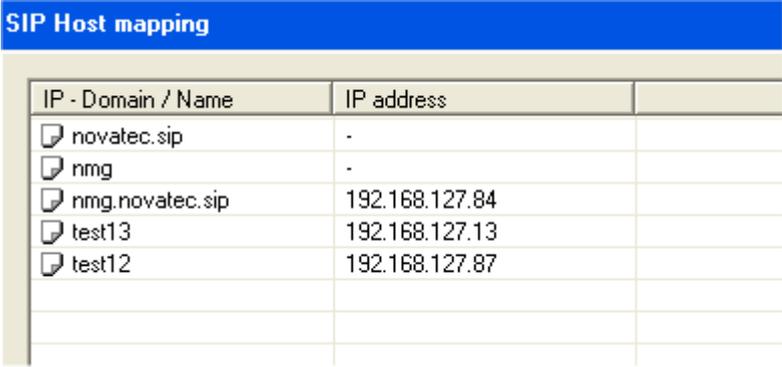
The encryption handling profile that is to be used for this user.

### Additional flags

If no RTP stream is received for a configurable period, the SIP session will be closed. To configure the timer, monitoring the RTP stream, insert a Txxx.  
Where xxx is the time in seconds (default setting is T1800 = 30min).

## Host mapping

In this section, the host mapping entries are created and administered. The information provided here is used by the NMG in much the same way as the LMHosts file on the Windows operating systems.



| IP - Domain / Name                       | IP address     |  |
|--|----------------|--|
| <input type="checkbox"/> novatec.sip     | -              |  |
| <input type="checkbox"/> nmg             | -              |  |
| <input type="checkbox"/> nmg.novatec.sip | 192.168.127.84 |  |
| <input type="checkbox"/> test13          | 192.168.127.13 |  |
| <input type="checkbox"/> test12          | 192.168.127.87 |  |
|  |                |  |
|  |                |  |

### IP - Domain / Name

This field contains the IP address, domain or alias (name) that is to be mapped to an IP address.

### IP address

This field contains the IP address that the previous field is to be mapped to. This must be a valid IP address, or in the case that the previous entry is to be mapped to the IP address of the CCU-3 derived board of this system, a dash - .

Here an explanation using the entries in the screenshot above.

### novatec.sip

This is mapped to the IP address of the CCU-3 derived board that was entered here.

### tmg.novatec.sip

This entry is mapped to the IP address 192.168.127.84.

### test13

This entry is mapped to the IP address 192.168.127.87



**Edit Local mapping** ✖

Activate local mapping

External options

External Name  Wildcard

Internal options

Internal Number  Wildcard

Additional flags

Account options

Registrar

Account

Password

Register own address  No reverse mapping  Use for all addresses

Password is a digest  Allow insecure authorisation  Prefer own name

Additional flags

**Activate local mapping**

If this option is checked, then this mapping entry is active.

**External options****External name**

The external name.

**Wildcard**

If this option is checked, then the external name will be used with the wildcard for mapping purposes.

**Internal options****Internal Number**

The internal number (may correspond to a DDI number).

**Wildcard**

If this option is checked, then the internal number will be used with the wildcard for mapping purposes.

**Additional flags**

Additional flags for the internal options. Please leave this field empty, unless you are advised to change it by the NovaTec support team.

**Account options****Registrar**

Registrar Alias or IP address.

**Account**

Administrative user name, will be used as a external registration SIP name. It may also be used as an account name for authentication if no other information is provided.

**Password**

The password for the account.

**Register own address**

Register own address only if this option is checked.

**No reverse mapping**

Exclude from reverse mapping if this option is checked.

**Use for all addresses**

Map all the outgoing routes (otherwise bind to the registrar name/address) if this option is checked.

**Password is a digest**

Password is already a digest (i.e. MD5( CONCAT( <user>, ":", <realm>, ":", <password> ) )) if this option is checked.

**Allow insecure authorisation**

Allow the sending of a basic (plain text base64) password instead of digest if requested if this option is checked.

**Prefer own name**

Use own name instead of "registrar" (if present) if this option is checked.

**Additional flags**

Field for additional flags. Do not change this field unless advised to do so by the NovaTec support team.



## 1.3 Operating parameters

### Operating parameters

The operating parameters contain the various settings and options that are required for the normal day to day operation of the various NovaTec systems. These settings usually only require to be defined once on initial setup of a NovaTec system

### 1.3.1 Basic configuration

## Basic configuration

When you load the basic configuration, all system settings for the equipment will be reset to pre-defined standard values.

This usually is only necessary on initial programming of the system. If the basic configuration is being loaded, the configuration data for your database will also have to be loaded.

To do this, please click on the button **Load basic configuration**. A window will now appear asking you whether you want to replace the existing data. Confirm this message with **Yes** . Then select the appropriate file from the following window.

Normally this will be the file **files.cfb** . Now click on **Open**. The file will now be loaded into the application. After you have prepared the configuration data, you can transmit the basic configuration together with the configuration database.

## 1.3.2 Remote maintenance

### Remote maintenance

It is possible to configure the target system by remote maintenance. Below you can see the various options for remote maintenance.

The screenshot shows a configuration window titled "Incoming connections" with several sections:

- Allow remote access via ISDN:** A checked checkbox. Below it is a text input field for "ISDN telephone numbers that have access for maintenance." To the right of this field are "New" and "Delete" buttons.
- Number of remote access:** A text input field containing "55" and a "Dialing plan" dropdown menu set to "Dialing plan 1".
- Sub-address:** Two text input fields labeled "Out" and "In".
- Allow remote access via TCP/IP:** A checked checkbox. Below it are text input fields for "IP" (empty) and "Group mask" (containing "255 . 255 . 255 . 255"). To the right of the IP field is a "New" button.
- Allowed IP addresses:** A large empty text area. To its right is a "Delete" button.

#### Allow remote access via ISDN

To allow remote access via ISDN active this option

#### ISDN telephone numbers that have access for maintenance

Lists the numbers that have remote access rights. To add telephone numbers, add them in the edit field and click **New**. The number will appear in the bottom list. To delete a number, mark it and click **Delete**

**Note**

Numbers that are entered here can **ONLY** be used for maintenance calls, and not for normal telephone calls. If you have activated the option **Allow remote access via ISDN** and do not enter any numbers here, then **no access is possible via ISDN**

**Number of remote access**

The number the PABX sends as the calling party when carrying out call-home events

**Dialing plan**

This the dialing plan to be used for the system to call home (when using ISDN)

**Sub-address**

DSS1 protocol settings

**Out**

The sub address value in the DSS1 protocol that is sent during (ISDN) remote maintenance routines. **Unless otherwise specified by the NovaTec support, this field should be left empty**

**In**

The sub address value that must be present in the DSS1 protocol when an incoming (ISDN) remote maintenance action is to be carried out. **Unless otherwise specified by the NovaTec support, this field should be left empty**

**Allow remote access via TCP/IP**

Click this option to allow remote maintenance via TCP/IP. This option is only valid when the system is configured with a CCU-3. To specifically allow access from only certain PC systems, enter the IP address of the PC system that is to have access. Once these settings are transferred to the target system, only PC systems with the entered IP addresses have access to the target system via TCP/IP. It is also possible to "Mask" the IP addresses, using the **Group mask field**. The standard setting is "255.255.255.255". This means that only the IP address entered into the IP field has access to the target system. If however you change the standard **Group mask field** to say "255.255.255.0", then all systems whose first three IP address fields correspond to the IP address in the field IP have access to the target system

Here are two examples

|            |                 |
|------------|-----------------|
| IP         | 192.168.0.25    |
| Group mask | 255.255.255.255 |

Any PC system has access to the target system, regardless of the IP address

|            |               |
|------------|---------------|
| IP         | 192.168.5.0   |
| Group mask | 255.255.255.0 |

PC systems with IP addresses from 192.168.5.0 to 255 have access to the target system

**Allowed IP addresses**

Here is the list of IP addresses that have access to the system

To delete an entry, click it so that it is highlighted and click **Delete**

### 1.3.3 System time settings

## System time settings

The System Time Settings allows you to configure the system to update it's internal clock dependent on the options activated.

The screenshot shows the 'System Time Settings' configuration window. It is organized into several sections:

- Time configuration:**
  - Active options:** Three checkboxes are shown: 'ISDN' (unchecked), 'Call Home events, Configuration' (checked), and 'NTP Server' (checked). Under 'NTP Server', there are three radio buttons: 'Daily' (unchecked), 'Weekly' (unchecked), and 'Monthly' (checked).
  - Priority order:** A list box containing 'Call Home events, Configuration' and 'NTP Server', with 'NTP Server' selected.
- NTP Server settings:**
  - Current selected NTP Server:** A dropdown menu showing 'time.nist.gov'.
  - Delete selected NTP Server:** A button.
- System Timezone:**
  - Current Timezone:** A dropdown menu showing '(GMT +01:00) Central Europe (CET)'.
- Daylight Saving Time settings:**
  - Enable Daylight Saving Time:** A checkbox (unchecked).
  - Start:** A date and time picker showing 'Mo, 08.03.2004' and '00:00'.
  - End:** A date and time picker showing 'Di, 09.03.2004' and '12:00'.

#### Time configuration

With these options you can set how the internal clock is to be synchronized

#### Active options

##### ISDN

The system clock is synchronized with each successful outgoing connection, provided that the ISDN service has this feature in the D-Channel protocol switched on

##### Call Home events, configuration

The system clock will be actualised on each Call Home event, provided that this option is activated in the {link Network Management System} application

**NTP**

The system clock will be synchronized using a NTP Server. The period of how often this occurs is set using the radio buttons **Daily** , **Weekly** or **Monthly** . Please note, **Monthly** is classified as 30 days

**Priority order**

This is where the priorities of the activated options are set. The higher in the list, then the higher the priority. You can use the two arrows to move the highlighted option up or down in the priority list

**NTP Server settings**

Here you can designate which NTP server is to be used to synchronize the internal clock. Please note this option is only valid when a CCU-3 is configured in the system. As well as the three default NTP Servers, you have the possibility of providing up to seven extra NTP Servers, either using the domain name or IP address. Please note, you must provide a valid domain name or IP address. Only simple checking is carried out on the domain name and IP address. The button below allows you to delete an NTP Server that is no longer required. To choose and or delete an NTP Server the option "NTP Server" (see above) must be activated. The three default NTP servers cannot be deleted

**System Timezone**

Here you have the ability to choose which time zone the system is located in

**Daylight Saving Time settings**

Please note that the Daylight Saving Time **Start** and **End** dates must be set **each** year to work accurately

**Enable Daylight Saving Time**

Enable the Daylight Saving Time options

**Start**

Here you may set the start date of daylight saving

**End**

Here you may set the end date of daylight saving



### 1.3.5 Local area options

## Local area options

The local area options are used by various modules within the firmware and **must** correspond to the locale where the NMG system is installed and operated from.

| Operating parameters - Local area options |                                 |
|---|---------------------------------|
| National prefix digit(s) (e.g. 0)         | <input type="text" value="0"/>  |
| International prefix digit(s) (e.g. 00)   | <input type="text" value="00"/> |
| International country code (e.g. 49)      | <input type="text" value="49"/> |

#### National prefix digit(s)

The digit(s) that are required to be dialed for national numbers, for example in Germany, **0** is the prefix that signifies a national number.

#### International prefix digit(s)

The digit(s) that are required to be dialed for international numbers, for example in Germany, **00** is the prefix that signifies an international number, in South Africa this would be **09**.

#### International country code

The digit(s) of the country, in which the NMG is installed. If the NMG is installed in Germany, the digits would be **49** (without the leading zero's). In the UK this would be **44**, South Africa would be **27**.

## 1.4 Call home settings

### Call Home settings

Call Home enables a target system (ALCR, NovaTec) to connect to a server (the NMS), whenever a certain configured event is triggered. The server in its turn then can perform the appropriate action (if any).

## 1.4.1 Call home

### Call Home

The following operations are possible

- Firmware update**
- Configuration update**
- Read the trace memory**
- Read the log file**
- Read the call data memory**
- Synchronize the target system time with the server time**

There are two types of event, System events and Time events. Below you can see some of the various events and there status

| Call Home - Call Home Events   |                               |                                |                 |
|--|-------------------------------|--------------------------------|-----------------|
| Event  | First Server / Call Number    | Second Server / Call Number    | Call Home       |
| <input checked="" type="checkbox"/> Budget limit reached                   | Domain: soft15@novatec.de:802 | IP: 172.16.131.255:802         |                 |
| <input checked="" type="checkbox"/> Call data filled                       | IP: 172.16.131.253:802        | IP: 172.16.131.254:803         |                 |
| <input checked="" type="checkbox"/> Client Callback failure                | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> CPU-Usage Threshold-Event              | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> DHCP-Application NMS                   | not required                  | not required                   |                 |
| <input checked="" type="checkbox"/> EWU Board removed from system          | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> Falls short of ASR-limit               | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> Free RAM Threshold-Event               | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> GSM ASR event                          | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> ISDN ASR event                         | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> Layer 1 active                         | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> Layer 1 inactive                       | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> Layer 2 active                         | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> Layer 2 inactive                       | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> Layer1 or Layer2 inactive (deprecated) | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> Log filled                             | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> Ping timeout to TIME server            | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> Server Callback failure                | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> SIM removed from SCU                   | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> SIP ASR event                          | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> SOS Client unreachable                 | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> SOS SIM error                          | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> Systemstart default                    | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> Systemstart normal                     | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> Time event                             | IP: 172.16.131.253:802        | Domain: soft5@novatec.de:802   | every 1 minutes |
| <input checked="" type="checkbox"/> TIP Running errors                     | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> TIP Startup errors                     | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> Trace error                            | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> Trace fatal                            | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> Trace filled                           | IP: 172.16.131.253:802        | not required                   |                 |
| <input checked="" type="checkbox"/> Trace warning                          | IP: 172.16.131.253:802        | Domain: soft111@novatec.de:802 |                 |

Edit...

**System events**

When the system "fires" a system event the server will be notified and may carry out any actions required. The following system events are currently available.

**Budget limit reached**

The budget limit of a GSM-channel is reached. The budget level for GSM-Channels may be set here

**Call data filled**

The memory available for storing call data is exhausted (75 % full)

**Client Callback failure**

A NMG system that uses the CBS server (transparent call back application) triggers this call home event on the failure of a call back call.

**CPU-Usage Threshold**

The threshold of the CPU usage has been reached. The upper- and lower limits of the threshold can be configured.

**EWU Board removed from system**

A board ( at this moment in time, only the EWU board is supported) has been removed from the system whilst it was running.

**Falls short of ASR-limit**

The ASR of the system has fallen below the ASR-limit configured at NovaTec - System - Options

**Free RAM Threshold**

The threshold of the free memory size has been reached. The upper- and lower limits of the threshold can be configured.

**GSM ASR event**

The ASR of the GSM calls on the system has fallen below the ASR-limit configured at NovaTec - System - Options

**ISDN ASR event**

The ASR of the ISDN calls on the system has fallen below the ASR-limit configured at NovaTec - System - Options

**Layer 1 or Layer 2 inactive/active**

This event is sent when the Layer 1 or Layer 2 of an interface (ISDN or GSM) becomes inactive/active

**Note**

(This can only be sent via IP or V.24)

**Log filled**

The memory available for logging is exhausted (75 % full)

**Ping timeout to NIME server**

An SOS client has lost the TCP/IP connection to the NIME (CBS) server

**Note**

This event may also be sent when the TCP/IP connection fails

**Server Callback failure**

A NMG system that uses is configured as an CBS server (transparent call back application) triggers this call home event on the failure of a call back call.

**SIM removed from SCU**

A SIM card has been removed from the SIM reader of a SCU. This event is only applicable to systems that have SCU boards installed and configured.

**SIP ASR event**

The ASR of the SIP calls on the system has fallen below the ASR-limit configured at NovaTec - System - Options

**SOS Client unreachable**

The server no longer has an active connection to a client that has been configured to access the SIM server. This is usually due to a fault in the TCP/IP connection (internet) between client and server

**Note**

This event is only available when an SOS board is configured in the system

**SOS SIM error**

There has been an error or fault with one or more SIM's on the SIM server. This may be due to one of the following reasons

Communication fault between the SCU and the SIM card  
(no SIM card, invalid SIM card)

Hardware error on the SCU  
(SIM reader incorrectly fitted, SIM card incorrectly fitted, No SIMcard)

**Note**

This event is only available when an SOS board is configured in the system

**Systemstart default**

The system is running in default mode after a reset

**Systemstart normal**

The system is running in normal mode after a reset

**NLP Running errors**

The system will call home when any errors occur during the normal operation of the NLP application

**Note**

This event is only available when the system has been configured to use the NLP (Transparent) application and at minimum one of the following boards/modules installed in the system is configured to use NLP (Transparent):

- BCU
- V4U
- GSM2E

**NLP Startup errors**

The system will call home when any errors occur during the start up procedure of the NLP application

**Note**

This event is only available when the system has been configured to use the NLP (Transparent) application and at minimum one of the following boards/modules installed in the system is configured to use NLP (Transparent):

- BCU
- V4U
- GSM2E

**Trace error**

A trace error has occurred on the target system

**Trace fatal**

A fatal error has occurred on the target system

**Trace filled**

---

The memory available for tracing is exhausted

**Trace warning**

A trace warning has occurred on the target system

To configure the system events, double click on the event in the list, or mark it and click **Edit**. The following dialog will appear.

**Edit system event: Systemstart default**

Call Home active

First Server

ISDN

GSM

IP

Domain

TCP / IP Settings

172 . 16 . 131 . 253

Port 802

Port

Second server active

Second Server

ISDN

GSM

IP

Domain

TCP / IP Settings

172 . 016 . 131 . 254

Port 802

Port

OK Cancel

#### **Call Home active**

To activate/ de-activate the specific system event click this check box. Please note that when this check box is not activated, the following options are not available

#### **Second server active**

The second server is optional. To activate/ de-activate the second server click this check box. If the first server fails, the system can send events to the second server.

#### **V.24**

The event will be sent via V24.

#### **ISDN**

The event will be sent via the given telephone number

#### **TCP/IP settings**

**IP**

The IP address of the system where the event is to be sent to. The port must also be configured. Please note this option will only work when a CCU-3 is fitted in the target system

**Port**

Please supply the port on which the system where the event is to be sent is monitoring

**Domain**

The domain name of the system where the event is to be sent. This option allows the use of for example of the dyndns.org service. The Dynamic DNS service allows you to alias a dynamic IP address to a static host name

**Port**

Please supply the port on which the system where the event is to be sent is monitoring. In the case of using a domain name, this may not always be required.

### Time events

The Time event allows you to configure the target system to fire an event at a certain time. This may be a "one-off" event, or a cyclic event, depending on the settings you make. To edit the options for the Time event, double click the **Time event** in the list, or mark it and click **Edit** . The following dialog will appear

**Assignment Time-Events**

Call Home active

Start: Sa, 01.01.2005 16:00

End: Di, 21.12.2010 09:38

Call Home

Once

Every 1 minutes

First Server

ISDN

GSM

IP 172 . 16 . 131 . 253

Port 802

Domain

Port

Second server active

Second Server

ISDN

GSM

IP

Port

Domain soft5@novatec.de

Port 802

OK Cancel

### Call Home active

To activate/ de-activate the time event click this check box. Please note that when this check box is not activated, the following options are not available

**Second server active**

The second server is optional. To activate/ de-activate the seconde server click this check box. If the first server fails, the system can send events to the second server.

**Start**

The start time from when the **Time event** is to be active. Please note that times in the future may be entered, and work correctly. However no one can travel in time, especially **backwards** :-)

**End**

The time that the **Time event** ceases to be active

**Call Home Once**

The **Time event** is a "one-shot" event, and will only be sent **once**

**Every**

Here you have the ability to set cyclic **Time events** . In this example the **Time event** will be fired every 12 hours

**Interface**

Here you set the type of connection to be used when this event is fired

**V.24**

The event will be sent via V24.

**ISDN**

The event will be sent via the given telephone number

**TCP/IP settings****IP**

The IP address of the system where the event is to be sent to. The port must also be configured. Please note this option will only work when a CCU-3 is fitted in the target system

**Port**

Please supply the port on which the system where the event is to be sent is monitoring

**Domain**

The domain name of the system where the event is to be sent. This option allows the use of for example of the dyndns.org service. The Dynamic DNS service allows you to alias a dynamic IP address to a static host name

**Port**

Please supply the port on which the system where the event is to be sent is monitoring. n the case of using a domain name, this may not always be required.

**Note**

Call Home will only be performed for events which are set to **active**.

## 1.5 Advanced Least Cost Router

### Advanced Least Cost Router

As a result of the abolishment of the monopolies of the European telecommunications markets an ever increasing number of commercial network service providers have entered the market. Many offer significantly cheaper charges that can be used on a call-by-call basis.

Customers are now able to pre-dial the dialing code for the network service provider through which the telephone call will be routed, immediately before dialing the telephone number of the person they wish to call.

However, it is virtually impossible to manually compare charges to select the cheapest network service provider for each telephone call from the large number of offers available. For this reason the **Advanced Least Cost Router (ALCR)** has been developed.

On a call-by-call basis, it uses a database of geographical and charge information to automatically select the most cost-effective network service provider at the time the call is to be made. All the user needs to do is dial the telephone number of the person to whom he or she wishes to speak.

To achieve optimal performance, information given to the ALCR must be entered accurately and completely. This is because the ALCR calculates the costs and selects a connection based on the information given by the user.

A feature integrated into the ALCR is the automatic fee generation capability, enabling a connected ISDN PABX system to be supplied with charge data for further processing.

The ALCR configuration shell is constructed using a tree-like structure. You should therefore work systematically from top to bottom to ensure that the necessary data will be entered correctly.

## 1.5.1 Options

### Options

Here you may can adjust the basic settings of the ALCR module of the NMG system

Advanced Least Cost Router - Options

Typical call duration  Seconds

Base currency

Standard charge generation

Enable Number Portability

#### Typical call duration

Enter the average duration of your telephone calls in seconds here. The cost basis of individual network providers varies from charging for exact seconds of usage to blocks of 60 seconds or above (1/1, 60/60, 240/240). The ALCR module calculates the most cost-effective provider based on the time span you have entered here.

#### Base currency

This text is inserted into the various currency options within the ALCR module and it's settings

#### Standard charge generation

The ALCR offers the opportunity to display the charges of an alternative network service provider on your ISDN terminal equipment, regardless of whether a cheaper provider is being used or not. This can be advantageous for the commercial use of telephone connections (e. g. pay phones). To use this function, activate the field **Standard charge generation** and select the desired service network provider.

#### Enable Number Portability

The NMG is now capable of not only routing GSM calls using the target prefix, but also by using the information retrieved from **Number Dipping** servers. This service is provided by a number of companies. To use this function, this option has to be activated. For more information about Number dipping, please read the corresponding help section.

#### Import...

Clicking this button, allows the import of ALCR data from another configuration. After clicking the **Import...** button, a dialog will appear that allows the choosing of the source configuration. Follow the instructions that appear to import the ALCR data.

#### ALCR

When importing ALCR data, the previous data will be deleted and overwritten with that of the source configuration. If the import process is corrupted in any way (i.e. invalid source database etc.) the previous data cannot be retrieved! Also, the Trunkgroup / Callback profiles of each NSP must be re-

set.

## 1.5.2 Number portability settings

### Number portability settings

Up until now, the routing of GSM calls to a the corresponding home provider was just a case of creating a dialing plan based on the prefix of the target number. However since the introduction of **Number Porting**, that is a mobile user can change the provider, but keep his previously assigned MSISDN. For example a German T-Mobile user with the MSISDN 0170520xxxx can change to O2, but keep the MSISDN. Using the normal dialing plan, this call would normally be routed to a GSM interface with a T-Mobile SIM card, but as the MSISDN is now a O2 user, this is now a "Cross Net" call, which could incur increased costs, than the normal "On Net" scenario.

To circumvent this short coming, many companies provide a **Number Dipping** service, whereby before routing a call, the MSISDN can be queried to get the home provider of that MSISDN, and therefore route the call using a GSM channel that uses the same provider of the target MSISDN ( an "On Net" call).

At this moment in time, the NovaTec hardware platforms support two **Number Dipping** providers, [Nquire](#) and [End2End](#). To use the Number portability functions provided by the NovaTec hardware platforms, a account by one of the afore mentioned **Number Dipping** providers must be obtained.

**Please note that the Number portability can only be used in conjunction with the ALCR**

### 1.5.2.1 Dipping providers

## Dipping providers

Here, dependant on the **Number Dipping** service provider you have an account for, the basic settings are carried out. Please not that this form is only editable when the option **Enable Number Portability** is active in the ALCR options.

| Advanced Least Cost Router - Number dipping provider |         |  |
|--|---------|--|
| Status   | Name    |  |
| ● Active   | Nquire  |  |
| ● Inactive   | End2End |  |
|  |         |  |
|  |         |  |
|  |         |  |
|  |         |  |
|  |         |  |
|  |         |  |
|  |         |  |
|  |         |  |

This form shows a list of all the currently configured providers.

#### Status

The current status of the provider. This may be **Active** or **Inactive**. Also this is signified by a small LED, whereby **green** signifies **active**, and **red** signifies **inactive**.

#### Name

A descriptive name of the provider.

## Creating a new provider

To create a new provider, click the **New** button and the **Create a new number dipping provider** dialog will be shown.

Provider is active

**Provider details**

Provider name:

Provider type:

User name:

Password:

Provider server address / IP:

Provider port:

Provider specific flags:

**Connection options**

Timeout:

Keep alive ping time:

Keep alive ping sequence:

**Query options**

Send string:

Receive string:

The following values represent the codes returned from the provider, that signify the accuracy of the returned query.

Certain:

Recent:

Cached:

Guess:

Unknown:

Default result on error, or unknown:

Min. return code for success:

OK Cancel

**Provider is active**

This activates - deactivates the provider.

**Provider details****Provider name**

A descriptive name, used internally to identify the provider.

**Provider type**

The type of provider. At this moment, three types of provider are supported.

- [NQuire](#)
- [End2End](#)
- [Raw TCP/IP](#)

**User name**

The user name used to authorize a connection to a provider. This option may not be available, if the chosen provider does not require this information.

**Password**

The user name used to authorize a connection to a provider. This option may not be available, if the chosen provider does not require this information.

**Provider server address / IP**

Here the IP address, or the domain name of the number dipping providers server is entered.

**Provider port**

Here the port that is used to connect to the number dipping service providers server is entered.

**Provider specific flags**

Any provider specific options / settings can be carried out on the dialog that is shown when this button is clicked. At this moment only the End2End provider requires any provider specific settings. Please see this section for more information. This option may not be available, if the chosen provider does not require this information.

**Connection options****Timeout**

The timeout value in milli-seconds, that the NovaTec hardware will wait before aborting the query process.

**Keep alive ping time**

The time, in which the NovaTec will periodically send a "Keep alive" packet to the dipping service providers server, to keep the current connection active. If this option is set to 0, then no "Keep alive" packets will be sent. This will automatically be set to zero (0) if End2End as the provider type is chosen.

**Keep alive ping sequence**

The sequence sent to number dipping providers server to keep the current connection active. This option may not be available, if the chosen provider does not require this information.

## Query options

### Send string

This is the query string sent to the number dipping service provider. It contains mnemonics that are replaced by the NovaTec hardware when the query is sent to the server. This option may not be available, if the chosen provider does not require this information. This string is heavily provider dependant. In the example above, for Nquire, the string needs to be terminated with the escape sequence "\n".

### Receive string

This is the string that is received from the number dipping service provider. It contains mnemonics that are replaced by the NovaTec hardware when the query is sent to the server. This option may not be available, if the chosen provider does not require this information. This string is heavily provider dependant. In the example above, for Nquire, the string needs to be terminated with the escape sequence "\n".

Supported mnemonics:

#### **msisdn**

The standard MSISDN ( i.e. mobile number, with prefixed international dialing code without leading zeros)

#### **res**

The result code (accuracy) of the returned result from the number dipping server.

#### **mcc**

The **M**obile **C**ountry **C**ode of the home GSM provider of the queried number.

#### **mnc**

The **M**obile **N**etwork **C**ode of the home GSM provider of the queried number.

Each mnemonics must be preceded by a % character.

#### **?**

Wildcard, any number of digits / characters may be present

#### **.**

Punctuation mark (dot). Exactly 1digit / character is expected. As an example, if the MCC is expected, (this is 3 digits) then three dots would be entered ...

### **Certain**

The query returned a result that is a certain match of the MSISDN and the returned GSM home provider.

### **Recent**

The query returned a result that is a recent match of the MSISDN and the returned GSM home provider.

### **Cached**

The query returned a result that is a cached match of the MSISDN and the returned GSM home provider. This may not be reliable.

### **Guess**

The query returned a result based on the mobile prefix of the MSISDN. This may not be reliable.

### **Unknown**

The query returned a result that the MSISDN number is unknown, or the GSM home provider of that MSISDN is unknown.

### **Default return on unknown or error**

This is the standard error result that should be used if an unknown result is returned, or an unknown error occurs.

**Min. return code for success**

This is the minimum state that **must be returned** by the query before the NovaTec hardware uses the result in the routing of the call to the MSISDN passed in the query. Possible values are:

- **Certain**
- **Recent**
- **Cached**
- **Guess**

## Editing a provider

To edit a providers settings, choose the provider from the list and click the **Edit** button. The same dialog shown above will appear, allowing you to make any changes to the properties of the provider.

## Providers

### Nquire

Nquire provide a number dipping service, that is accessed via TCP/IP from equipment that have a fixed IP address. More information about the Nquire service can be obtained on the [web site](#) of Nquire.

### End2End

End2End provide a number dipping service for international MSISDNs. The protocol implemented in the NovaTec hardware uses the End2End DNS protocol. This service requires that the equipment that carries out the queries have a static IP address.

At present they allow two types of profile to be used, service profile 8, and service profile 16. The type of service profile to be used is set in the **Provider specific flags / options** dialog



More information about the End2End service can be obtained by using the following contact details

Tel. +49 931 329 32 0  
Fax +49 931 329 32 111  
email: [messaging@end2endmobile.com](mailto:messaging@end2endmobile.com)

### Raw TCP/IP

This is not a provider specific type, but a generic type, that may be used to cover a provider not yet officially supported by the NovaTec hardware.



---

**For the help file, the first entry in the list (Guernsey) for the Nquire dipping provider will be used as an example.**

**GSM provider**

Textual description of the GSM provider. Used internally and for display purposes.

**GSM Network ID**

This is the international standard GSM network ID, used to identify a specific GSM provider. A list of GSM Network IDs can be obtained from the file **carrier.txt** in the NovaTec application directory. This is the value that is used by the NovaTec hardware internally to identify the GSM provider.

**Prop. MNC**

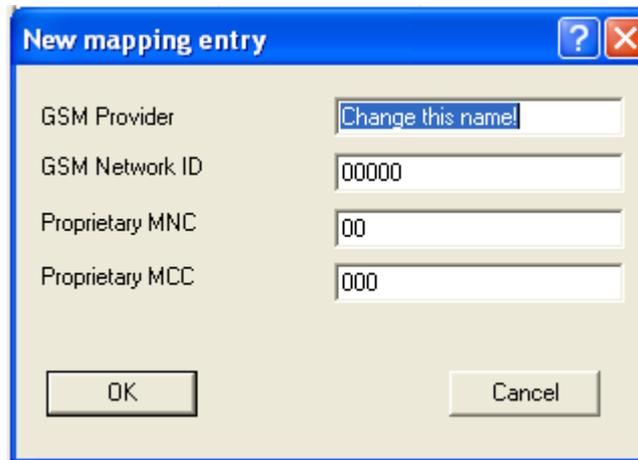
The proprietary **Mobile Network Code (55)** returned from the dipping provider, when the GSM provider (23455) has been identified.

**Prop. MCC**

The proprietary **Mobile Country Code (234 UK)** returned from the dipping provider, when the GSM providers country (23455) has been identified.

### Creating a new mapping entry

To create a new mapping entry, click the button **New...**, a dialog will be shown that allows you to create a new mapping entry.



The screenshot shows a dialog box titled "New mapping entry". It has a blue title bar with a question mark icon and a close button (X). The dialog contains four input fields:

- GSM Provider: Change this name!
- GSM Network ID: 00000
- Proprietary MNC: 00
- Proprietary MCC: 000

At the bottom of the dialog are two buttons: "OK" and "Cancel".

#### GSM Provider

This is the textual description to identify a mapping entry for a specific GSM provider.

#### GSM Network ID

This is the international GSM Network ID of a GSM provider. This ID is used internally to route calls to MSISDNs using the number dipping function. A list of the various world wide GSM Network ID is contained in the file **carrier.txt** in the installation directory of the NovaTec application.

#### Proprietary MNC

This is the proprietary **M**obile **N**etwork **C**ode returned from the number dipping provider, that is to be mapped to the GSM Network ID entered above.

#### Proprietary MCC

This is the proprietary **M**obile **C**ountry **C**ode returned from the number dipping provider, that is to be mapped to the GSM Network ID entered above.

As an example:

The GSM provider Manx ( GSM Network ID 23458) is to be mapped to the proprietary values returned from an Nquire server. The following information should be entered:

#### GSM Provider

Manx

#### GSM Network ID

23458

#### Proprietary MNC

58

#### Proprietary MCC

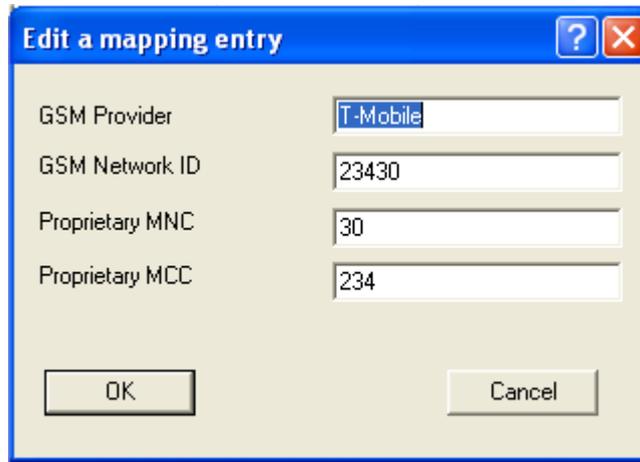
234

Once you are satisfied with the values you have entered, click **OK**. To cancel creating a new mapping entry, click **Cancel**. Please note that if you use multiple dipping providers, only one dipping provider can use a mapping entry for a specific GSM provider. This means that if you were using a second dipping provider (for example End2End) then the GSM provider **Manx** could not be used as a mapping entry for the End2End number dipping provider. If a mapping entry is already present, or is already assigned to another dipping provider, you will receive an error message.



### Editing a mapping entry

To edit an existing entry, choose the mapping entry from the list, and click **Edit...** A dialog as shown below will appear.



The screenshot shows a dialog box titled "Edit a mapping entry". It contains four text input fields with the following values:

| Field           | Value    |
|-----------------|----------|
| GSM Provider    | T-Mobile |
| GSM Network ID  | 23430    |
| Proprietary MNC | 30       |
| Proprietary MCC | 234      |

At the bottom of the dialog are two buttons: "OK" and "Cancel".

Here, the various values of the mapping entry can be modified. Once you are satisfied with the changes, click **OK** to save the changes. To abort editing, click the **Cancel** button.

### Importing mapping entries

To ease the administration of multiple systems, you can import mapping entries from various file formats. The contents of the files **must** however adhere to a specific format. This format is shown in detail below:

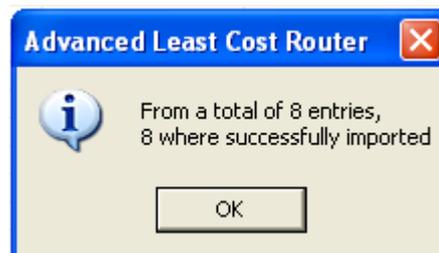
Guernsey,23455,234,55

Hutchinson 3G,23420,234,20

Jersey,23450,234,50

The name of the GSM provider is the first value, the GSM Network ID is the second, the proprietary country code is the third, and the proprietary network is the fourth value. Each of the values are separated by a comma ','

To import mapping entries, click the **Import** button, and you will be asked to choose the file from which the mapping entries are to be imported from. Once you have chosen the file, any valid entries are imported. Once the import process has completed, a message box will be shown, that displays how many entries were found in the file, and the number of entries that were successfully imported.



### Exporting mapping entries

To export any existing mapping entries, click the **Export** button, and a dialog will appear asking you to choose the location, the file name and the file type into which you wish to export the mapping entries. If no errors occur during the export process, then you will see no further messages. Below are the contents of an export file, showing the format created.

; NovaTec Number Dipping - Mappings import/export file

; This file contains the mapping entries required for the

; NovaTec Number Dipping settings.

; The Format is:

; GSM Provider Name, GSM Network ID (Mcc+Mnc), Proprietary MCC, Proprietary MNC

; Each entry must be on a separate line in the file

; Created 14:06 Thursday, November 16, 2006

Guernsey,23455,234,55

Hutchinson 3G,23420,234,20

Jersey,23450,234,50

Manx,23458,234,58

O2,23410,234,10

Orange,23433,234,33

T-Mobile,23430,234,30

Vodafone,2

3415,234,15

### 1.5.2.3 Target numbers assignment

## Target numbers assignment

On this form, the numbers that are to be queried by a specific provider, and the default GSM provider ID are entered. Please note that this form is only editable when the option **Enable Number Portability** is active in the ALCR options.

Advanced Least Cost Router - Numbers to query / Default GSM provider

Nquire

| Number / Prefix | Default Network ID |  |
|-----------------|--------------------|--|
| 0770.....       | 23410              |  |
| 07710.....      | 23410              |  |
| 07711.....      | 23410              |  |
| 07712.....      | 23410              |  |
| 07713.....      | 23410              |  |
| 07714.....      | 23410              |  |
| 07715.....      | 23410              |  |
| 07717.....      | 23415              |  |
| 07718.....      | 23410              |  |
| 07719.....      | 23410              |  |
| 07720.....      | 23410              |  |
| 07721.....      | 23415              |  |
| 07729.....      | 23410              |  |
| 07730.....      | 23410              |  |
| 07731.....      | 23410              |  |
| 07732.....      | 23410              |  |
| 07733.....      | 23415              |  |
| 07734.....      | 23410              |  |
| 07736.....      | 23410              |  |
| 07739.....      | 23410              |  |
| 07740.....      | 23410              |  |
| 07741.....      | 23415              |  |
| 07742.....      | 23410              |  |
| 07743.....      | 23410              |  |
| 07745.....      | 23410              |  |
| 07746.....      | 23410              |  |

New...
Edit...
Delete
Import
Export

Please note, only active Dipping providers are shown on this form.

#### Number / Prefix

This is the prefix / number that is to be queried on a number dipping server. The above example shows all UK mobile prefixes. As UK mobile numbers have a length of 11 digits, a wildcard character (the punctuation mark / dot) is used to signify a wildcard digit for all undefined digits not explicitly entered. This allows the number dipping function on the NovaTec hardware, to accurately filter all mobile numbers.

#### Default Network ID

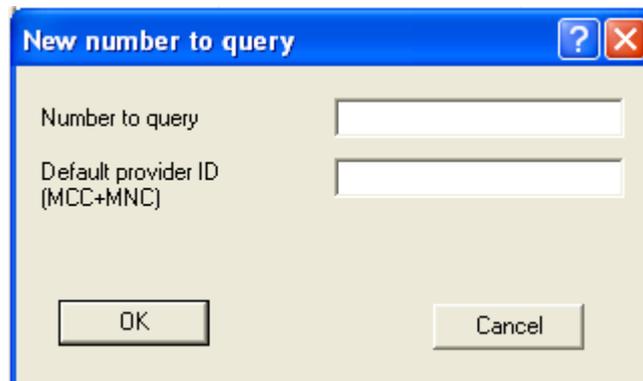
This is the default home provider of a specific mobile prefix. An example 23410 is O2, and before the number porting was available, any MSISDNs beginning with 0770xx were automatically O2 customers. So for 0770xx the default Network ID is entered, so that even if no dipping information

---

is available, the MSISDN is routed using the default Network ID (in this case O2)

### Creating new numbers to query

To create a new number to query, click the **New...** button, and the dialog shown below will appear.



The screenshot shows a dialog box titled "New number to query" with a blue header bar containing a question mark icon and a close button. The dialog has a light beige background. It contains two text input fields: "Number to query" and "Default provider ID (MCC+MNC)". Below the fields are two buttons: "OK" and "Cancel".

#### Number to query

This is the prefix / number that is to be queried.

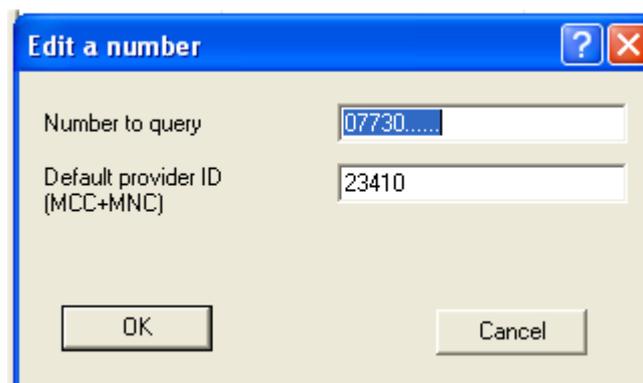
#### Default provider ID (MCC+MNC)

This is the default Network provider ID, that this prefix / number belonged to before number porting was available.

Once you are satisfied with the values entered, click the **OK** button and the information will be saved. If you wish to abort the creation of a new number to query, click the **Cancel** button.

### Editing existing number

To edit an existing number, choose the number from the list, and click **Edit...** a dialog like that shown below will appear.



The screenshot shows a dialog box titled "Edit a number" with a blue header bar containing a question mark icon and a close button. The dialog has a light beige background. It contains two text input fields: "Number to query" (with the value "07730....." and a blue selection highlight) and "Default provider ID (MCC+MNC)" (with the value "23410"). Below the fields are two buttons: "OK" and "Cancel".

Make any changes to the number, and click **OK** to save the changes. To abort editing, click **Cancel**.

### Importing numbers

To ease the administration of multiple systems, you can import numbers from various file formats. The contents of the files **must** however adhere to a specific format. This format is shown in detail below:

0770.....,23410

07710.....,23410

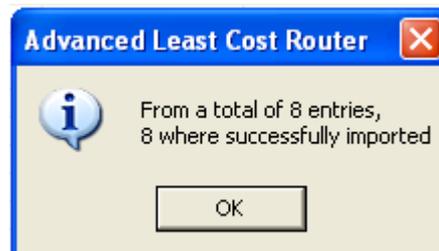
07711.....,23410

07712.....,23410

07713.....,23410

The number to query the first value, the GSM Network ID is the second. Each of the values are separated by a comma ','

To import numbers, click the **Import** button, and you will be asked to choose the file from which the numbers are to be imported from. Once you have chosen the file, any valid entries are imported. Once the import process has completed, a message box will be shown, that displays how many entries were found in the file, and the number of entries that were successfully imported.



**Exporting numbers**

To export numbers, click the **Export** button, and you will be asked the location, the file name and file type of the file that is to be created containing the exported numbers. If no errors occur, then you will see no message boxes. Below is part of the contents of an exported numbers file:

```
; NovaTec Number Dipping - Numbers import/export file  
  
; This file contains the numbers required for the  
  
; NovaTec Number Dipping settings.  
  
; The Format is:  
  
; The number / prefix to query, The default GSM Network ID for the number / prefix  
  
; Each entry must be on a separate line in the file  
  
  
  
; Created 14:32 Thursday, November 16, 2006
```

```
0770.....,23410  
07710.....,23410  
07711.....,23410  
07712.....,23410  
07713.....,23410  
07714.....,23410  
07715..
```

...,23410

### 1.5.3 Database

## Database

All independent data, i.e. data unrelated to any network service provider, can be found under this configuration option. This includes information on bank holidays as well as the Telephone Number Directory and the Premium rate services.

### 1.5.3.1 Bank holidays

## Bank holidays

On bank holidays either the weekend charge or a special charge will apply. For this reason details of regional bank holidays must be entered here. The ALCR comes complete with entries of bank holidays valid throughout the whole of Germany. However, because the structure of bank holidays across the country varies, some specific bank holidays will have to be added (e.g. All Hallows). All dates that have been entered are displayed in this window. These can be sorted either by date or alphabetically by clicking the headline column.

### Bank holidays can generally be differentiated into two types

#### Fixed bank holidays

These bank holidays occur on the same date every year (e.g. Christmas). They are marked with a red letter symbol in front of the date. Only the day and month are displayed.

#### Variable bank holidays

These bank holidays occur each year on a different date (e.g. Easter). They are marked with a blue letter symbol in front of the date. In addition, the date includes the year.

### Creating a new bank holiday

Click on the **"Insert"** button. The window Creating a new bank holiday entry appears. Please enter the name of the bank holiday (e.g. All Hallows) in the upper row. The lower row is dedicated to the date. Please enter the date in the format DD.MM.YY. You do not need to enter the year if

The bank holiday is a fixed bank holiday

The bank holiday is a variable bank holiday in the current year

If it is a fixed bank holiday, you must also activate the field Every year by clicking on it. When this is done you do not need to update it. All variable bank holidays must be updated every year.

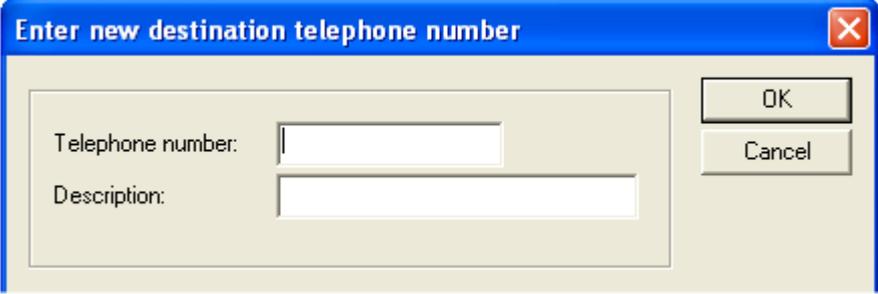
### Editing bank holidays

Mark the row that contains the date you want to change, so that it is highlighted. Click on the **Edit** button (or press Enter) and the window **Editing bank holidays** will pop up with the date of the holiday you want to change. Make the desired changes and confirm by clicking **Ok**.

### Deleting bank holidays

Mark the row that contains the bank holiday you wish to delete, so that it is highlighted. After clicking on the **Delete** button (or pressing Del), you will be asked again if you really want to delete the holiday. Confirm this by clicking **Yes..**





The image shows a dialog box titled "Enter new destination telephone number". It has a blue title bar with a close button (X) in the top right corner. The main area is light beige and contains two text input fields. The first field is labeled "Telephone number:" and the second is labeled "Description:". To the right of these fields are two buttons: "OK" and "Cancel".

Enter the telephone number / prefix or GSM Network ID in the field **Telephone number**. If you enter a GSM Network ID, **please prefix it with a dollar sign '\$'**. Enter a textual description of this number (for example, international S.A.) in the field **Description**.

#### **Editing a dialing code**

Mark the row containing the dialing code to be edited, so that it is highlighted. By clicking on the **Edit** button (or pressing Enter) the dialog **Edit destination telephone number** will be displayed, containing the data to be edited. Make the desired changes and confirm the changes by clicking on **Ok**

#### **Import**

Import telephone numbers from an existing ALCR or Configuration database. The existing numbers **are not** overwritten. A dialog box will be shown to allow the choice between importing from an ALCR or Configuration database

#### **Deleting a dialing code**

Mark the row containing the dialing code to be edited, so that it is highlighted. By using Shift + Up/Down keys you can mark more than one entry. After clicking on the **Delete** button (or pressing **Del** on the keyboard), you will be asked again if you really want to delete the dialing code. To confirm the deletion of the dialing code(s) click **Yes**

#### **Note**

Deleting a dialing code will also delete any assignments associated with the dialing code(s) that are deleted.

### 1.5.3.3 Premium rate services

## Premium rate services

Here you can set up premium rate services and call barring that will apply to **all** network service providers. All dialing codes are displayed that have been entered in the Telephone number directory options. These can be sorted either by telephone number or alphabetically by clicking on the corresponding column heading.

In the **description** column a range of possible values can be entered

#### **Call barred**

Access to any telephone number with this dialing code is blocked for all network service providers.

#### **Cut-String**

This dialing code will be deleted from the beginning of numbers being dialed. This prevents the user selecting an expensive network service provider. The ALCR cuts off this manually selected dialing code and replaces it using the cheapest network service provider found in the database.

#### **Transparent**

The selected telephone number will be routed without any modification. This means that Least Cost Routing will not apply to this telephone number.

#### **no premium rate service**

The selected phone number / dialing code will be removed from this directory.

## 1.5.4 Network Service Provider

### Network Service Provider

The core data of all entered network providers are listed in this window. They can be sorted either by the dialing code for the network service provider or alphabetically by clicking the appropriate column header. The Network service provider column lists the full name of the providers. In each row, in front of the name of the network service provider is a symbol with a tick or a cross. This indicates whether or not the network service provider is activated for least cost routing or not. The tick indicates activated, empty indicates that the service is inactive.

In the Short form column, the short form of the name is displayed. This name will be displayed in the other categories of the configuration application.

#### Creating or editing a network service provider

Click on the corresponding button. The following dialog will appear.

**Edit network service provider**

Core data

Network service provider (NSP) accessible

NSP Name: 02 GSM

Shortform of NSP: 02

Dialling code for NSP: 1004

Use Network ID: 23410

Display NSP dialing code in Terminal Equipment

Dialing attempts: 1

Trunk group: 02

Call back profile: not assigned

NSP type

Landline

Pre-selection

Call by Call without registration

Call by Call with registration

Initiate charge signal

None

Take over from trunk line

Generate from ALCR

OK

Cancel

## Core data

### **Network service provider(NSP) is accessible**

This option is used to included or exclude the provider for use calculating the Least Cost Routing. If this option is inactive, then no connections will be routed via this provider.

### **NSP name**

Enter an explanatory name of the NSP

### **Shortform of NSP**

Enter a short form of the above entered name of the NSP

### **Dialing code of NSP**

Enter the dialing code of the NSP (e.g. 01033). The number will automatically be transferred to the telephone number directory.

### **Use Network ID**

If this option is checked, enter the GSM Network ID that this provider is to service, i.e. mobile calls to a MSISDN whose home provider is that defined by the GSM Network ID entered here will be routed to the Trunk group that is assigned to this **NSP**. Please note that this option is only available if the Enable number portability is enabled.

### **Display NSP dialing code in Terminal Equipment**

If this option is activated, then the provider selected by the ALCR will be displayed on any terminals connected to the system

### **Dialing attempts**

Determines the number of dialing attempts the ALCR will undertake when all lines available with this network service provider are busy. This does not mean that the telephone number you are attempting to reach is engaged. If these dialing attempts are unsuccessful, the ALCR will automatically try the next most cost-effective provider. Please bear in mind that as each dialing attempt takes time, therefore a connection will be slower under these circumstances.

### **Trunk group**

Assigns the NSP to a predefined Trunk group.

### **Call back profile**

Assigns the NSP to a predefined Call back profile

## **Note**

Either a Trunk group **OR** a Call back profile may be assigned, not both

## **NSP type**

This option defines the NSP type. Possible settings are

### **Landline**

The network service provider to be entered is also your telecommunications company. It is therefore not necessary to pre-dial any network service provider dialling code. It is possible to enter more than one network service provider of this type, but only one provider can be set to **Network service provider(NSP) is accessible**

### **Pre-selection**

All outgoing long distance telephone calls are being routed via this provider. It is possible to enter more than one network service providers of this type, but only one provider can be set to **Network service provider(NSP) is accessible**

### **Call by Call without registration**

This potential supplier offers its services without a pre-existing contract. Access is provided by dialling the code for the network service provider before the telephone number of the recipient of the call. The charges for the call will be included within the telephone bill from

your telephone company. You do not receive a bill directly from the network service provider

**Call by Call with registration**

The services of this potential supplier are only available with a pre-existing contract. In this case, access is provided by dialling the code for the network service provider before the telephone number of the recipient of the call. The charges for the call will be billed directly

**Initiate charge signal**

This option defines how the accrued connection costs will be transmitted to your PABX system

**None**

If you do not require the charging signal, choose this option

**Take over from trunk line**

If your network service provider provides the charge information, choose this option

**Generate from ALCR**

If the charge information is not available, the ALCR is able to generate this information from the data that has been entered.

**Copying a network service provider**

If you wish to transfer part of the data from an existing network service provider, you can also use the **Copy** function. All corresponding settings in the Regional charge categories, Time charge categories, Assign telephone numbers and Call barring settings will be copied as well. To do this, select the NSP to be copied by clicking the appropriate list row. Then click the **Copy** button. The Copy network service provider dialog will be displayed and will contain the data from the network service provider. You can then proceed as with a editing/creating an entry

**Note**

Deleting a NSP profile here will also delete all the corresponding settings assigned to this profile!

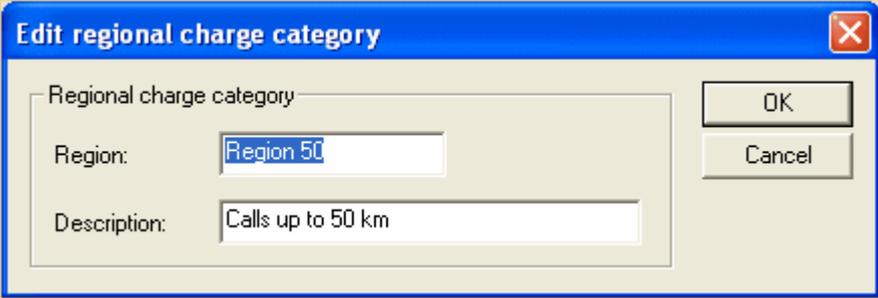
### 1.5.4.1 Regional charge categories

## Regional charge categories

In the Regional charge categories window you can enter the charge categories of every network service provider. However, the charge range cannot not be defined as yet. All currently entered charges are listed alphabetically within the windows of the respective network service providers

### Creating or editing a regional charge category

To edit or create a regional charge, select the desired network service providers tab page and click the corresponding button (**Edit** or **New** ) and the following dialog will appear



### Region

Enter a description of the region (for example **50 km** )

### Description

The "official" name of the region, for example **Region 50**

Click the **Ok** button once you are satisfied with the settings

### Copying a regional charge category

To copy a regional charge category select the regional charge to be copied from and click the button **Copy**, a dialog will appear with the **Region** and **Description** preset to the same values of the regional charge category that is the source. Please change the values to the ones you require

### Deleting a regional charge category

To delete a regional charge category, select the regional charge to be deleted and click the **Delete** button. After confirming the deletion, the data that is assigned to this category will be removed from the configuration

### 1.5.4.2 Time charge categories

## Time charge categories

In the Regional charge categories and time charge categories window every charge will be assigned to its valid time zone. All currently entered charges are listed alphabetically in the window of the appropriate network service provider. They can be sorted either by the time charge category or the region by clicking the appropriate column header

### Editing or creating a time charge category

To edit or create a time charge category, click the corresponding button and the following dialog will appear

The dialog box is titled "Charge rates according to time period". It features a blue title bar with a close button (X) in the top right corner. The main content area is light beige and contains several sections:

- Name:** A text input field containing "Weekdays - 00:00 to 00:00".
- Provider:** A text input field containing "BT".
- Region:** A dropdown menu currently showing "Region 50".
- Date/Weekday:** A section with three radio button options:
  - For Weekdays:** Selected. Includes checkboxes for Monday, Tuesday, Wednesday, Thursday, and Friday (all checked), and Saturday and Sunday (unchecked).
  - For Bank holidays:** Unselected.
  - Date:** Unselected. Includes "Start:" and "End:" text boxes.
- Time:** A section with "Start:" and "End:" text boxes, both containing "00:00".
- Cost:** A section with "Dial:" and "Call:" text boxes. "Dial:" contains "0" and "Call:" contains "0.2". Both have "FR" labels to their right.
- Connection:** A table with three empty rows and two columns. To its right are "New", "Edit", and "Delete" buttons.

At the bottom right of the dialog are "OK" and "Cancel" buttons.

#### Name

Enter the name of the time charge category. This row is provided purely as a comment row for your assistance and will be displayed in the column **Time charge category**. We would advise you to use a standard method of description (e.g. Mon-Fri 08 –12 Hr) as this will help subsequent sorting. However, entering a time charge category name is not necessary. If no name has been entered, the application automatically processes a time charge category name from the entered charge times.

#### Provider

The short form name of the provider to whom this category is to be assigned to. This field is not editable

#### Region

All regions that have been entered in this providers Regional charge category, will appear here. Please select the region that is applicable.

#### Date/Weekday

Allocate the day on which the charge is valid. If nothing is entered the charge will be valid on all

days.

**Time**

Enter the time at which the charge is valid. In case of a single charge level for a full day enter 00:00 for both **begin** and **end**. The time information must always be entered with a colon, (e.g. 00:00, 23:00 etc.)

**Cost**

The Cost field offers different charging possibilities.

**Dial**

In cases where the network service provider charges a fixed amount for dialing, enter this charge here

**Call**

In cases where a fee is charged for a connection even when the called subscriber did not answer, please enter this charge here

**Connection**

The actual connection costs should be entered here. To edit or create a connection rate click the corresponding button and the following dialog will appear.

The dialog box is titled "Insert new charge rate" and features a close button (X) in the top right corner. It is divided into two main sections. The first section, "Start monitoring the charged time", contains two radio button options: "At start of conversation" (which is selected) and "Seconds after conversation starts" (which has an empty text input field next to it). The second section, "Charged time", contains two text input fields: "Duration of a unit:" and "Unit Price:". To the right of the "Duration of a unit:" field is the label "Seconds", and to the right of the "Unit Price:" field is the label "\$". On the right side of the dialog, there are three buttons: "OK", "Cancel", and "Help".

Now select the Start of the conversation option and enter the call duration and the unit price. Then click on **Ok**. The entry will now be transferred to the list. If the provider changes the charge level after the telephone conversation has been running for a specific length of time, this can also be entered. To proceed, click once again on **New** and select the option **Seconds after conversation starts**. Enter the call duration after which the charge level changes. Enter the changed charge level as before and confirm with **Ok**

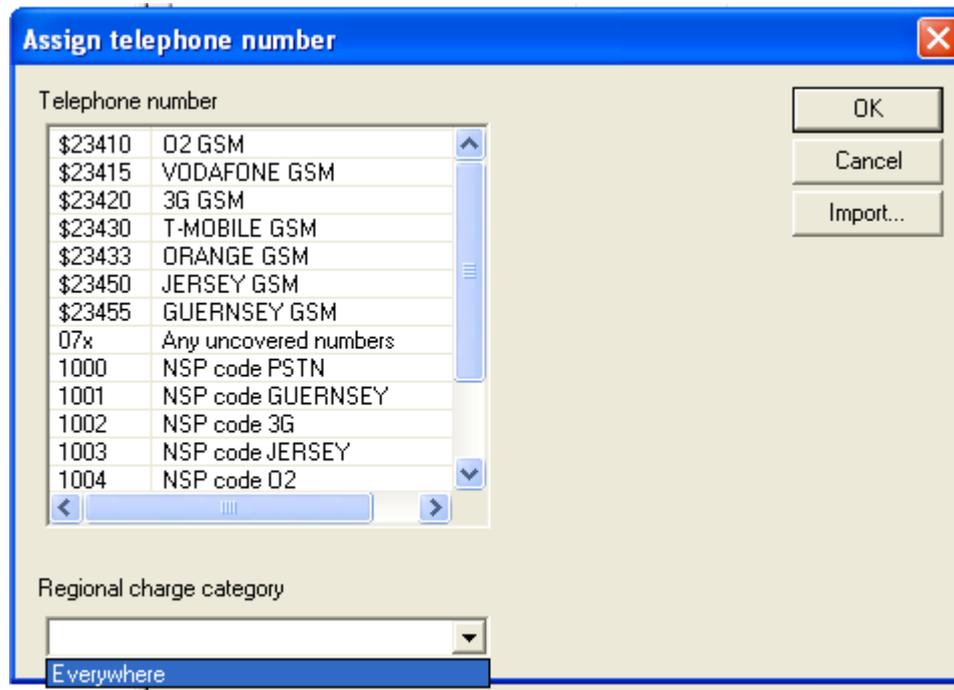
**Note**

To enter a charge that is similar to an existing one, you can also use the **Copy** function. All data relating to the existing charge will then be transferred and displayed. You only need to change the differences. To proceed, click on the charge to be copied and then click **Copy**. Continue as with a new entry.



### Assigning a dialling code

To assign a dialling code, first select the appropriate network service provider. Then click **New** . The following dialog will appear



#### Telephone number

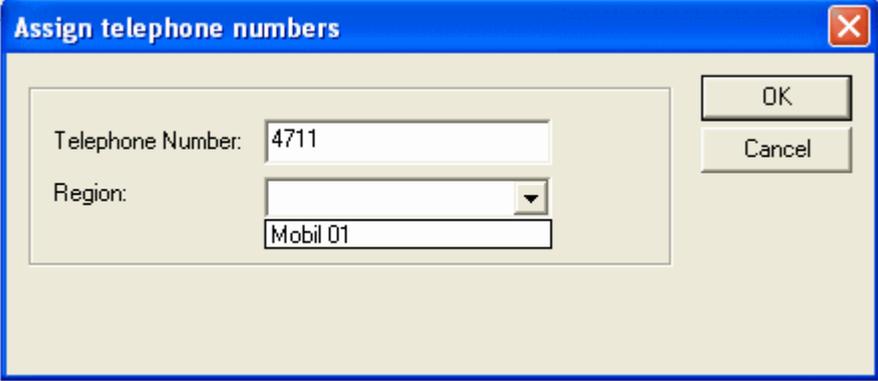
List of telephone numbers that may be assigned a regional charge category, also the GSM Network IDs are also shown.

#### Regional charge category

Available regional charge categories that may be assigned to a telephone number. Check the corresponding regional numbers row in the list. Now select the valid charge zone from the combobox at the bottom of the dialog. Then click on **Ok**. The entry will now be transferred to the list for this network service provider.

**Individual assignment**

This is the same as Assigning a dialling code. The only difference is the in how the assignment is made. Once clicked the following dialog will appear



The screenshot shows a dialog box titled "Assign telephone numbers". It features a blue title bar with a close button (X) in the top right corner. The main area is light beige and contains two input fields. The first field is labeled "Telephone Number:" and contains the text "4711". The second field is labeled "Region:" and is a dropdown menu currently displaying "Mobil 01". To the right of these fields are two buttons: "OK" and "Cancel".

**Telephone number**

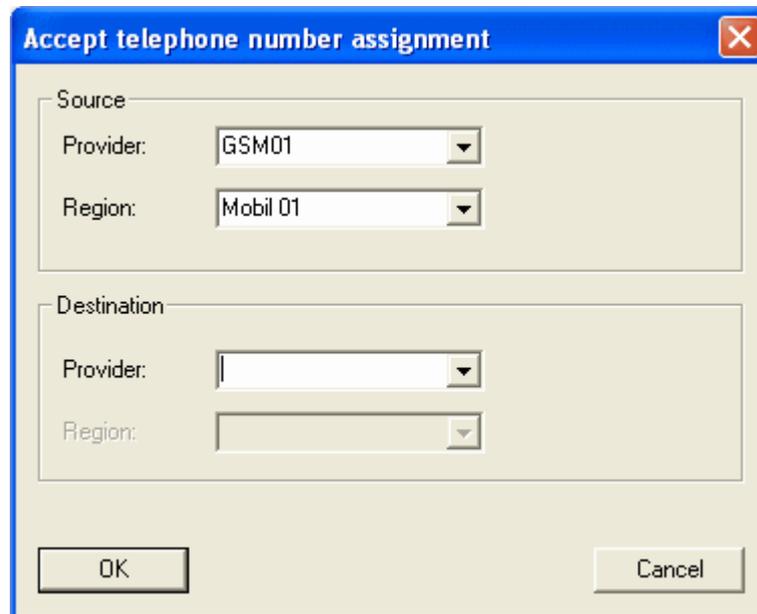
Here you can enter the telephone number/ prefix that is to be assigned to a regional charge category.

**Region**

Available regional charge categories that may be assigned to a telephone number. If the number/prefix that you have entered in **Telephone number** is not in the telephone number directory an error message will be shown.

**Accept (copy)**

With this option, it is possible to assign the numbers from a specific providers region category, to the region category of another provider. The destination providers region and tariff times **MUST** be present, but no telephone numbers should be present



The screenshot shows a dialog box titled "Accept telephone number assignment". It is divided into two main sections: "Source" and "Destination".

- Source:** Contains two dropdown menus. "Provider" is set to "GSM01" and "Region" is set to "Mobil 01".
- Destination:** Contains two empty dropdown menus for "Provider" and "Region".

At the bottom of the dialog are two buttons: "OK" and "Cancel".

**Source**

Source assignment

**Provider**

Available network service providers

**Region**

Available regional charge categories

**Destination**

Destination assignment

**Provider**

Available destination network service providers

**Region**

Available regional charge categories (only selectable when a valid destination provider has been chosen.)

**Deleting an assignment**

Select the assignment you want to delete by clicking the corresponding list row. Then click **Delete** or press the **Del** key. You will be asked once again if you are sure you want to delete the assignment. Confirm this message to really delete the assignment, otherwise click **No** to abort deleting the assignment

#### 1.5.4.4 Call barring

### Call barring

In the Call Barring window you can block individual dialling codes for each network service provider on a provider by provider basis. The numbers can be sorted either alphabetically or numerically by clicking the appropriate column header of the list

#### Entering a new barred number

Select the network service provider, then click **New** or press the **Enter** key. You can also double click the list item. A new window appears and in this you select the corresponding dialling code. Then click on **OK** . The entry will now be transferred to the list of the selected network service provider

#### Deleting a barred number

Select the appropriate network service provider, then click **Delete** or press the **Del** key. Another window appears and in this you will be asked if you are sure you want to delete the barred number. Click on **Yes** if this is the case

#### Note

To bar all network service providers from accessing specific dialling codes please use the Premium rate services settings

## 1.6 B-Channel Assignment

### B-Channel Assignment

The settings that can be made under this part of the configuration make it possible to assign any desired number (may it be a system defined subscriber number, an external number or a prefix) with one or more specific B-channels

The following steps are necessary to achieve this goal

Create a profile

Assign the desired dialing numbers and related B-channels to the profile

Assign the profile(s) to available interfaces

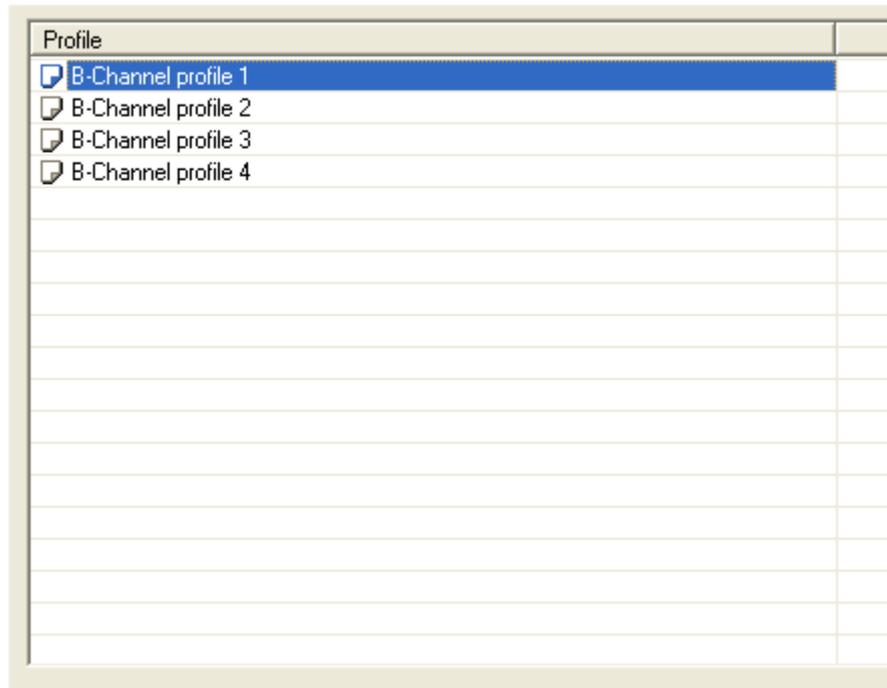
#### **Note**

B-channel assignment can only be applied to S2M interfaces that are configured as (L3-)Slave. These settings are useful when the E1 has multiple numbers assigned, for example when the system is used in conjunction with a Siemens EWSD switch

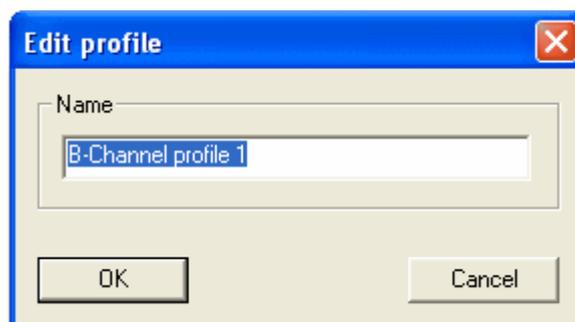
## 1.6.1 Basic profile

### Basic profile

This option provides a list of all available B-channel profiles. The notion B-channel profile is used to describe a list of dialling numbers (either system defined subscriber numbers, external subscriber numbers or prefixes/country codes), which are assigned to use a fixed set of B-channels of a specific S2M interface

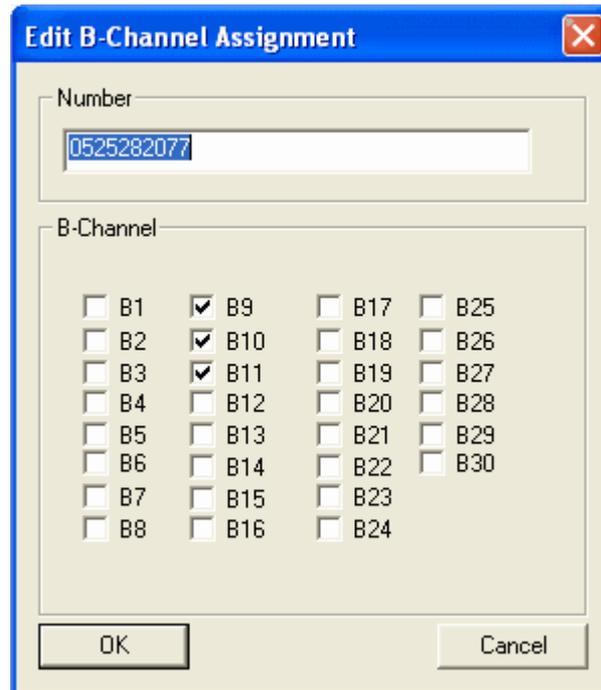


To edit or create a new profile click the corresponding button and the following dialog will appear



Enter a unambiguous and unique name for the profile



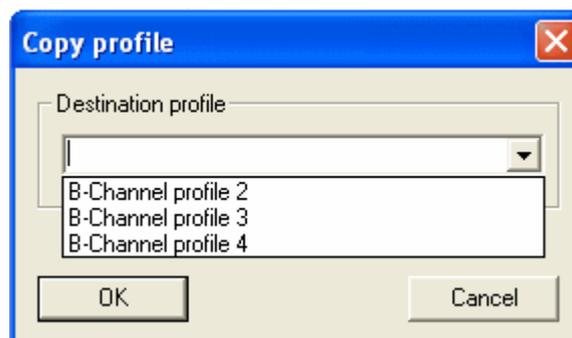


The dialog box titled "Edit B-Channel Assignment" features a blue title bar with a close button. It contains a "Number" field with the value "0525282077" and a "B-Channel" section with a grid of checkboxes for channels B1 through B30. Channels B9, B10, and B11 are checked. At the bottom are "OK" and "Cancel" buttons.

| Channel | Checked                             |
|---------|-------------------------------------|
| B1      | <input type="checkbox"/>            |
| B2      | <input type="checkbox"/>            |
| B3      | <input type="checkbox"/>            |
| B4      | <input type="checkbox"/>            |
| B5      | <input type="checkbox"/>            |
| B6      | <input type="checkbox"/>            |
| B7      | <input type="checkbox"/>            |
| B8      | <input type="checkbox"/>            |
| B9      | <input checked="" type="checkbox"/> |
| B10     | <input checked="" type="checkbox"/> |
| B11     | <input checked="" type="checkbox"/> |
| B12     | <input type="checkbox"/>            |
| B13     | <input type="checkbox"/>            |
| B14     | <input type="checkbox"/>            |
| B15     | <input type="checkbox"/>            |
| B16     | <input type="checkbox"/>            |
| B17     | <input type="checkbox"/>            |
| B18     | <input type="checkbox"/>            |
| B19     | <input type="checkbox"/>            |
| B20     | <input type="checkbox"/>            |
| B21     | <input type="checkbox"/>            |
| B22     | <input type="checkbox"/>            |
| B23     | <input type="checkbox"/>            |
| B24     | <input type="checkbox"/>            |
| B25     | <input type="checkbox"/>            |
| B26     | <input type="checkbox"/>            |
| B27     | <input type="checkbox"/>            |
| B28     | <input type="checkbox"/>            |
| B29     | <input type="checkbox"/>            |
| B30     | <input type="checkbox"/>            |

Enter/edit the telephone number that is to be assigned to this profile and the B-Channels assigned to it and click **OK** to save it, or **Cancel** to abort any changes

You also have the ability to copy telephone number/B-Channel assignments from one profile to another. Simply click the button marked **Copy** and the following dialog will appear

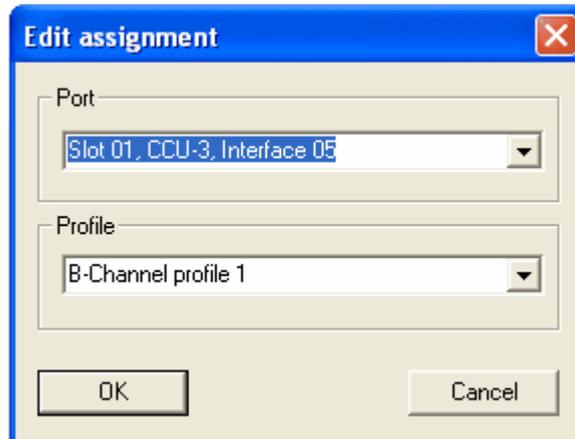


The dialog box titled "Copy profile" features a blue title bar with a close button. It contains a "Destination profile" dropdown menu with a list of options: "B-Channel profile 2", "B-Channel profile 3", and "B-Channel profile 4". At the bottom are "OK" and "Cancel" buttons.

You can now may choose the destination profile to which the entries are to be copied to



click" the entry. The following dialog will appear



Choose which **Port** is to be assigned a profile from the drop down list box, and then which **Profile** from the second. Click **OK** to save the assignment, or **Cancel** to abort

**Note**

Only one profile may be assigned to a port

## 1.7 SMS / VSMSC - Email

### SMS <--> Email / VSMSC

On the following pages, the various options for the SMS to Email, Email to SMS and the Virtual SMS Center applications can be set.

## 1.7.1 SMS <-> Email settings

### SMS Email

On this page the various options that affect both email and SMS messaging are present.

Activate SMS <-> Email

Internal SMTP (Email -> SMS)

Listening port

Max transfer retries

Retry transfer delay  minutes

Optional prefix

External SMTP (SMS -> Email)

Mail Server port

Mail Server IP

Max transfer retries

Retry transfer delay  minutes

Access

Use SMS access control lists

Use Email access control lists

Use the following Email address as the recipient for the administration emails

Outgoing Emails

Optional prefix

Domain postfix

"Catch all" options

Activate "Catch all"

"Catch all" address

"Catch all" mode

#### Activate SMS <-> Email

Sets the current state of the SMS <-> Email application. If this is un checked, then the changing of settings is not possible.

**Internal SMTP (Email -> SMS)****Listening port**

This is the port in which the system internal SMTP server listens for incoming mails from the corporate SMTP server. Normally the standard port (25) is the appropriate value, however the NMG system administrator has the opportunity to change this if required

**Max transfer retries**

This value sets the maximal amount of times the system will try to re-send a SMS on failure. Once this limit is reached, the system will cancel the operation, and the sender will receive a email informing him/her of this failure

**Retry transfer delay**

This is the time span the system uses between each attempt to send an SMS message on failing on the initial attempt. The standard value is 60 minutes (1 hour). The smallest possible time span is 1 minute, the largest is 1440 minutes (24 hours)

**Optional prefix**

This prefix may be used when sending a email to an mobile recipient. Some mail clients do not allow a mobile phone number as a valid email address, therefore this prefix can be used to overcome this. The prefix will cut off by the NMG system (before passing through the SMS alias lists).

**External SMTP (SMS -> Email)****Mail server port**

This is the port that the corporate SMTP server "listens" on. The NMG system sends emails to the corporate SMTP server via this port. The preset value (25) is normally the standard setting. If the corporate SMTP server has another value set, then change this value to that of the corporate SMTP server. If this value is incorrectly set, then the NMG system cannot send emails

**Mail server IP**

This is the IP address of the corporate SMTP server. This value **MUST** be set correctly. If this is not the case, then the NMG system cannot send emails. The IP address can be obtained from your system administrator

**Max transfer retries**

This value sets the maximal amount of times the system will try to re-send a email on failure. Once this limit is reached, the system will cancel the operation

**Retry transfer delay**

This is the time span the system uses between each attempt to send an email on failing on the initial attempt. The standard value is 60 minutes (1 hour). The smallest possible time span is 1 minute, the largest is 1440 minutes (24 hours)

**Access****Use SMS access control lists**

Activate this option if you wish to control which mobile users have access to the SMS to email service. If this option is activated and you have not defined any SMS access lists, or assigned them to the GSM channels, then this option has no influence on the access to the service (i.e. as if the option were disabled). To create, edit or assign SMS access lists, this option must be enabled

**Use Email access control list**

Activate this option if you wish to control which email addresses have access to the Email to SMS service. If this option is activated and you have not defined a email access list, then no one has access to the Email to SMS service. To create, edit or delete entries in the email access list this option must also be enabled

**Use the following Email address as the recipient for administration emails**

When administering the system via email, the emails must be sent to this email address. This is **NOT** an optional setting. This must be a valid email address recognized by the corporate SMTP server. If this is not the case, then email administration will not be available

**Outgoing Emails****Optional prefix**

Here you may enter an optional prefix that will be added to the email address of the sender

**Domain postfix**

Here you must enter the Domain of your mail server. This setting is not optional

**Note**

To allow the use of the SMS<->Email functions, the GSM profiles must be explicitly set to allow the sending of SMS messages. If this is not the case, then the messages cannot be sent.

**"Catch all" options**

The "Catch all" options allow the NMG to route incoming SMS->Email messages to a specific email address, if for some reason the NMG is unable to parse the SMS for the recipient email addressee.

**Activate "Catch all"**

Activates or de activates the "Catch all" functionality

**"Catch all" address**

The email address, or the domain postfix to be used for the catch all functionality

**"Catch all" mode**

The mode of "Catch all" to be used. At the moment there are two modes of operation

**Automatic address generation**

If this mode is chosen, then the NMG will generate the email address where undeliverable SMS -> Email message are to be sent to. Using the hardware port descriptor of the GSM channel from which the SMS message came from, and the domain postfix from the "Catch all" address field. For example, @tmg has been entered in the "Catch all" field, then the address generated would be **SMS\_0xA512@tmg.com**.

**Use Catch all address**

In this mode, the NMG sends any undeliverable SMS->Email messages to the mail address entered in the "Catch all" field. Please be aware that in this case, the address entered **must be** a valid email address

### Testing the SMS - Email Server

To test the function of the SMS - Email Server, you can connect to the server using a telnet session, and simulate the sending of an email via SMS. Here is a short example of this procedure.

```
telnet
192.168.127.56 25
HELO SOFT8
MAIL FROM: phbe@novatec.de
RCPT TO: 01705202222@tmg.novatec.de
DATA
Hi Phil, how is the help coming on?
```

(dependant on the telnet client being used, the signaling of the end of data may be CTRL++, or <enter>.<enter>)

### QUIT

#### Explanation

The telnet session is opened and connects to the server at **192.168.127.56** using port **25**. The **HELO SOFT8** lets the server know who is contacting it.

The **MAIL FROM: phbe@novatec.de** is the sender information the server requires. The **RCPT TO: 01705202222@tmg.novatec.de** is the recipient of the email, in this case a mobile number. The **DATA** is the actual payload that is sent via SMS to the recipient.

After signaling the end of the **DATA** section, the quit ends the telnet session. If the server is correctly set up, then the recipient will receive an SMS. Also, dependant on the settings under Email settings, the sender **phbe@novatec.de** may receive confirmation of the sending of the SMS.

#### Considerations

Due to the many various mail server setups and servers that are available (MS Exchange, Linux/Unix MailTo, Lotus Notes etc) this is just a brief and general overview on how to integrate the NovaTec SMS <-> Email application into an existing environment.

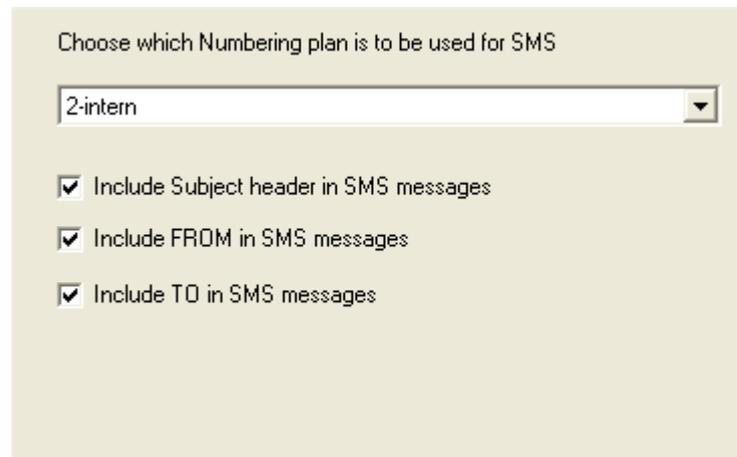
Within the company network, a unambiguous domain name should be given to identify the NMG system within the network, in the above example it is **tmg.novatec.de**.

This domain name should be mapped to the IP address that has been setup **here**. The "main" mail server should be setup to forward any mails with the domain postfix **tmg** to the NovaTec system. This allows the use of the SMS<->Email application without any changes to the mail clients within the company

### 1.7.1.1 SMS settings

## SMS settings

These settings are specific for the SMS service



The screenshot shows a configuration window with a title bar that reads "Choose which Numbering plan is to be used for SMS". Below the title bar is a dropdown menu with "2-intern" selected. Underneath the dropdown are three checked checkboxes:

- Include Subject header in SMS messages
- Include FROM in SMS messages
- Include TO in SMS messages

### **Choose which Numbering plan is to be used for SMS**

Choose which numbering plan is to be used for the SMS service. You **must** choose a valid numbering plan, even if you are not planning on using the SMS to Email feature. The valid numbering plan types which are valid for the SMS service are dialing plans and immediate calls. The short code dialing plans cannot be used. If there are no choices available from the drop-down box, please create a valid dialing plan. If no dialing plan is specified, during the data processing a error message will be shown



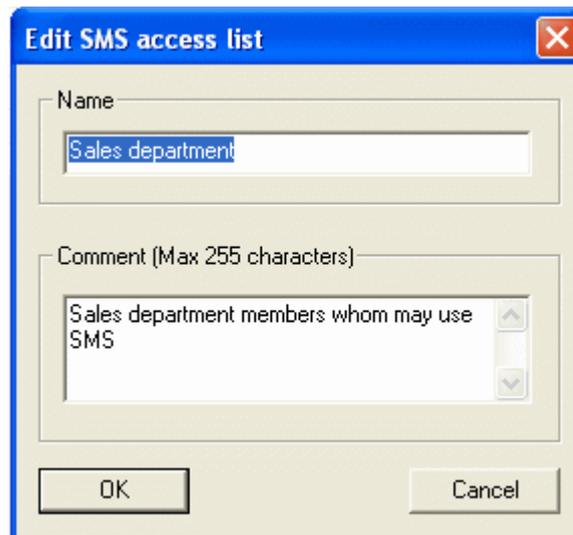
Enter the name of the list. It is advised to use a descriptive name to allow for easier configuration. The name must be unique

#### Comment

This field is provided for your convenience for your own comments. There is no requirement to enter anything in this field

#### Editing a SMS access list

To edit a new SMS access list, highlight the list entry and click the button, or "double-click" the list entry and the following dialog will appear



The image shows a dialog box titled "Edit SMS access list". It has a blue title bar with a close button (X) in the top right corner. The dialog is divided into two main sections. The first section is labeled "Name" and contains a text input field with the text "Sales department" inside. The second section is labeled "Comment (Max 255 characters)" and contains a text area with the text "Sales department members whom may use SMS". At the bottom of the dialog, there are two buttons: "OK" on the left and "Cancel" on the right.

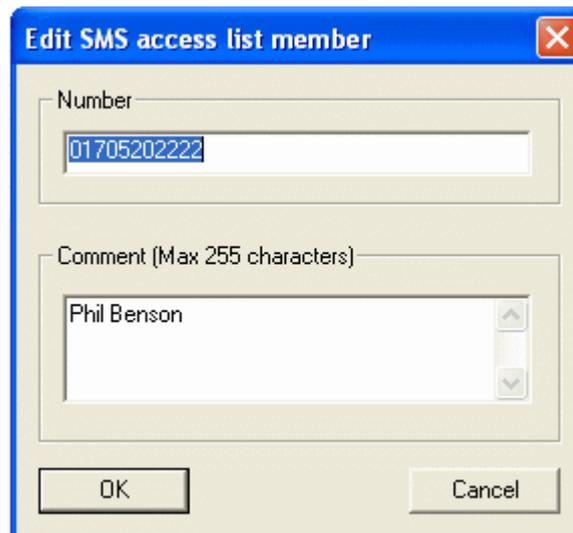
You may edit the values as required. Click **OK** to save any changes, or **Cancel** to abort

#### 1.7.1.1.1.1 Assignments

## Assignments

Here you can see the access lists that have been created in the SMS access lists. To edit the various access lists, click the tab with the name of the list to see its contents



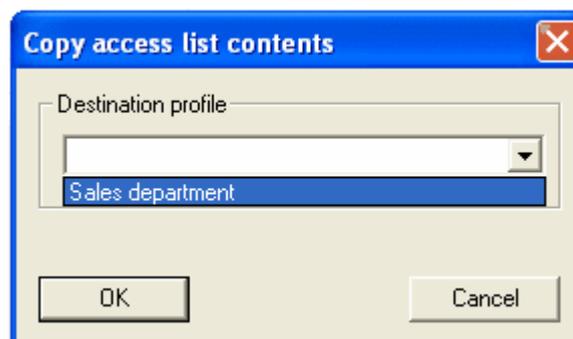


The dialog box titled "Edit SMS access list member" has a blue title bar with a close button. It contains two input fields: "Number" with the value "01705202222" and "Comment (Max 255 characters)" with the value "Phil Benson". At the bottom, there are "OK" and "Cancel" buttons.

You may edit the values as required. Click **OK** to save any changes, or **Cancel** to abort

#### **Copying the contents of one access list to another**

To copy the contents of one access list to another, select the source access list and click the **Copy** button, the following dialog will appear



The dialog box titled "Copy access list contents" has a blue title bar with a close button. It contains a "Destination profile" dropdown menu with "Sales department" selected. At the bottom, there are "OK" and "Cancel" buttons.

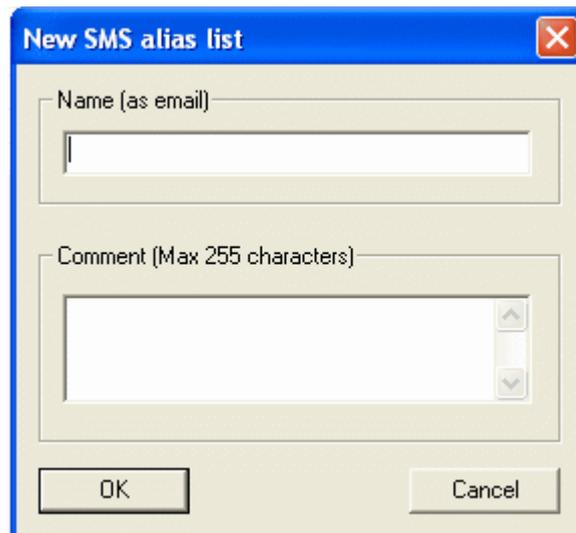
Choose the destination access list and click **OK**. Click **Cancel** to abort. When numbers are copied from one access list to another, any doublets will be overwritten



**Deleting an assignment**

To delete an assignment to a port(s), select the port(s), and then click the **Delete** button



**Name (as email)**

This is the name of the alias list, and also the recipient that the SMS should be sent to, when the members of the alias are to receive a message. It **must** have a correct email format and be known to the system (the domain ending must be a valid domain name, and be known to the Corporate SMTP mail server)

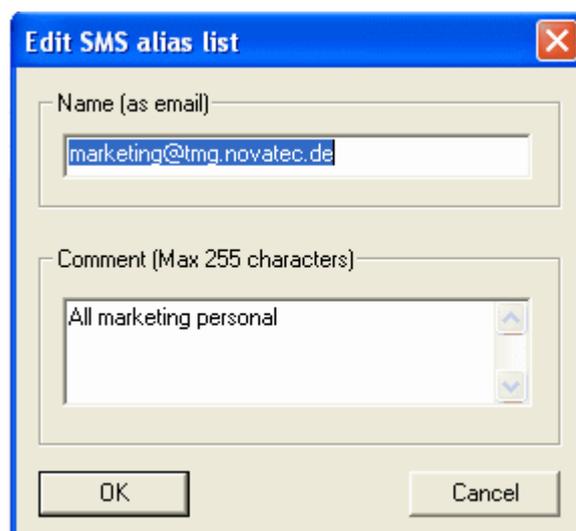
**Comment**

This field is provided for your convenience for your own comments. There is no requirement to enter anything in this field

After entering the required (an valid) values, click the button **OK** to save the alias list, or **Cancel** to abort creating an SMS alias list

**Editing an existing SMS alias list**

To edit an existing SMS alias list, select the alias to be edited and click the **Edit** button. You may also "double-click" the alias list to be edited. The following dialog will appear



Make changes as required and click the **OK** button. To abort any changes click the **Cancel** button



**Comment**

This field is provided for convenience for your own comments. There is no requirement to enter anything in this field

Once satisfied with your entries, click **OK** to save the changes, or click **Cancel** to abort adding a new member

**Editing a member in a SMS alias list**

To edit an existing member of the SMS alias list, select the entry in the list and then click **Edit**. You may also "double-click" the entry. The following dialog will appear

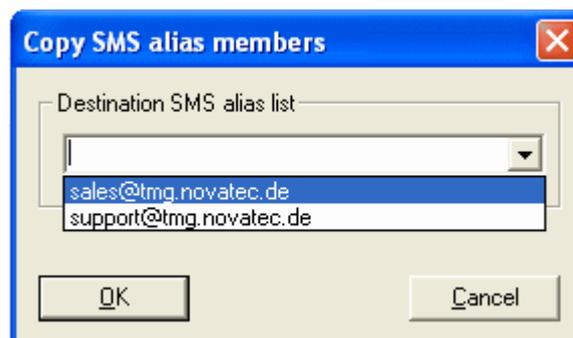


The dialog box titled "Edit SMS alias member" has a blue title bar with a close button (X) in the top right corner. It contains two main input areas: a text field labeled "Number / Email" containing the text "06498713548", and a text area labeled "Comment (Max 255 characters)" containing the text "Miranda's mobile". At the bottom of the dialog are two buttons: "OK" and "Cancel".

To save any changes you may have made, click the **OK** button. To abort any changes made click the **Cancel** button

**Copying members from one SMS alias list to another**

To copy members from one alias list to another, select the source SMS alias list using the **Tab** control, and click the button **Copy**, the following dialog will appear



The dialog box titled "Copy SMS alias members" has a blue title bar with a close button (X) in the top right corner. It contains a dropdown menu labeled "Destination SMS alias list" with two options: "sales@tmg.novatec.de" (which is selected and highlighted in blue) and "support@tmg.novatec.de". At the bottom of the dialog are two buttons: "OK" and "Cancel".

Select the destination SMS alias list, to where the members are to be copied and click the **OK** button. All members of the source SMS alias list will be copied to the destination SMS alias list. To abort, click the button **Cancel**

### 1.7.1.2 Email settings

## Email settings

Here the administrator accounts are created for Email administration access. The administration emails are sent to the system via the email address defined in the SMS Email settings under **Use the following Email address as the recipient for the administration emails**. The icons to the left of the administrator email addresses indicate the status of the email address. If the icon is grey, then the email address is not covered in the Email access list and **may** have problems carrying out any administration task. If the icon is coloured, then the email address is covered in the Email access list

The following email addresses have administrator rights:

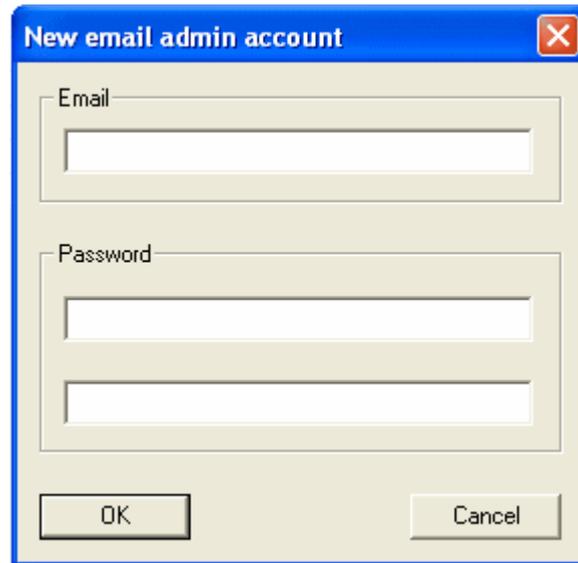
| Email address   | Password |  |
|---|----------|--|
|  lapa@novatec.de | *****    |  |
|  phbe@novatec.de | *****    |  |
|   |          |  |
|   |          |  |
|   |          |  |
|   |          |  |
|   |          |  |

Email confirmation settings

- User should receive email confirmation that email has been sent
- User should receive email on error

### Creating a new email administrator account

To create a new administrator account, click the **New** button and the following dialog will appear

**Email**

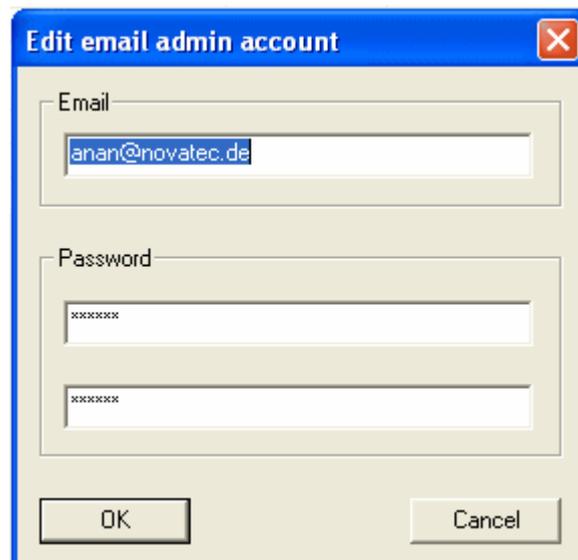
Enter the email address of the person who is to have the rights to administer the system via email. The person for whom this account is to be created **must** use this mail account to carry out any administrative functions

**Password**

Here a password must be entered (twice). The password must be at least six characters long to be valid. This password must be entered in the email that is to be sent to carry out any administrative functions

**Editing an email administrator account**

To edit an administrator account, select the account to be edited and click the **Edit** button. You may instead "double-click" the account. The following dialog will appear



Make changes as required and click **OK** to save them. To abort any changes made, click **Cancel**

**Email confirmation settings**

These options configure what email confirmations are sent from the system to an email sender, when the system has transmitted an email via SMS

**User should receive email confirmation that email has been sent**

The user will receive a confirmation email when the system has successfully carried out the

required service

**User should receive email on error**

The user will receive an email stating that an error has occurred while carrying out the requested service

## 1.7.1.2.1 Administrator email functions

## Administrator email functions

Here you can see the list of available email administrator functions, and their status

The **Function ID** column shows the ID of the function. The icon to the left indicates its status, when active, the icon is green, when in-active the icon is red.

The **Function description** column shows a brief description of what the function does

The **Status** column indicates if the function is activated or in-active

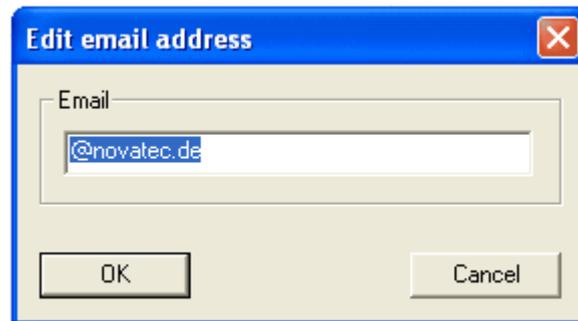
The following email admin functions are available

| Function ID | Function description            | Status  |  |
|-------------|---------------------------------|---------|--|
| ● 1         | Use Info text in SMS and Emails | Enabled |  |
|             |                                 |         |  |
|             |                                 |         |  |
|             |                                 |         |  |
|             |                                 |         |  |
|             |                                 |         |  |
|             |                                 |         |  |
|             |                                 |         |  |
|             |                                 |         |  |

### Editing a function

To edit the options of a email admin function, select the function to be edited and click the **Edit** button. You may also "double-click" the function. Dependent on which function has been chosen a dialog will appear. The following functions are available at this time Use info text in SMS and Emails



**Email**

Edit the email address of the person who is to have access to the Email to SMS service. It is also possible to enter just the domain name (for example @gmx.net). Click the button **OK** to save the changes, or click **Cancel** to abort

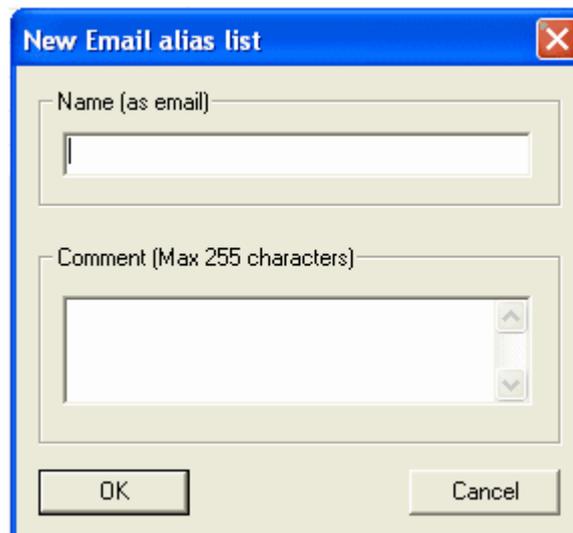
## Email aliases

One of the features of the SMS Email service is the ability to send an Email to more than one Mobile recipient, without having to type in all the recipients telephone numbers in the original Email message. This is achieved by using the so called **Email aliases**. An alias contains one or more recipients telephone numbers. Then when writing the email, the name of the alias is given as the recipient address, and all the entries in the alias list receive the message, as a SMS. Below you can see the currently available alias lists. The icon to the left of the alias list names indicate the state of the list. A coloured icon indicates the list has contents, a grey icon indicates that the list is empty

| Email alias lists   | Comment                            |
|---|------------------------------------|
|  developers_mobiles@tmg.novatec.de | Mobile numbers of the code hackers |
|  marketing_mobiles@tmg.novatec.de  | Mobile numbers of the sales people |
|  sales_mobiles@tmg.novatec.de      | Mobile numbers of the sales people |
|                                    |                                    |
|                                    |                                    |
|                                    |                                    |
|                                   |                                    |

### Creating an Email alias list

To create an Email alias list, click the **New** button and the following dialog will appear



The dialog box titled "New Email alias list" has a blue title bar with a close button (X) in the top right corner. It contains two input fields: "Name (as email)" with a text box below it, and "Comment (Max 255 characters)" with a text area below it. At the bottom, there are two buttons: "OK" and "Cancel".

#### Name (as email)

This is the name of the alias list, and also the recipient that the SMS should be sent to, when the members of the alias are to receive a message. It **must** have a correct email format and be known to the system (the domain ending must be a valid domain name, and be known to the Company SMTP mail server)

#### Comment

This field is provided for your convenience for your own comments. There is no requirement to enter anything in this field. After entering the required (an valid) values, click the button **OK** to save the alias list, or **Cancel** to abort creating an Email alias list

### Editing an existing Email alias list

To edit an existing Email alias list, select the alias to be edited and click the **Edit** button. You may also "double-click" the alias list to be edited. The following dialog will appear



The dialog box titled "Edit Email alias list" features a close button in the top right corner. It contains two input fields: "Name (as email)" with the text "developers\_mobiles@tmg.novatec.de" and "Comment (Max 255 characters)" with the text "Mobile numbers of the code hackers". At the bottom, there are "OK" and "Cancel" buttons.

Make changes as required and click the **OK** button. To abort any changes click the **Cancel** button

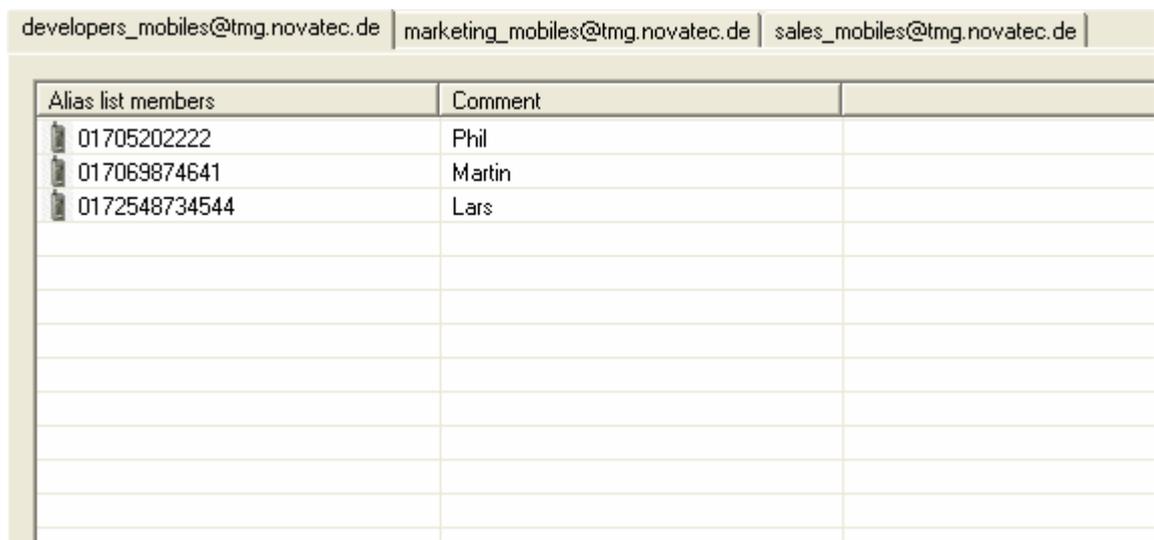
#### Note

The if the Email being sent contains data, for example a zip file, the data will be cut off and only the Email message body sent as an SMS

#### 1.7.1.2.3.1 Email alias assignment

## Email alias assignment

Here members are added to the alias list, as telephone numbers. To edit the various Email alias lists, click the tab with the name of the list to see it's contents.



| Alias list members | Comment |
|--------------------|---------|
| 01705202222        | Phil    |
| 017069874641       | Martin  |
| 0172548734544      | Lars    |
|                    |         |
|                    |         |
|                    |         |
|                    |         |
|                    |         |
|                    |         |
|                    |         |

### Adding a new member to the Email alias list

To add a new member to an Email alias list, click the **New** button and the following dialog will appear

A dialog box titled "New email alias entry" with a blue header bar and a red close button. It contains two input fields: "Number" (a text box) and "Comment (Max 255 characters)" (a text area with scroll arrows). At the bottom are "OK" and "Cancel" buttons.**Number**

Enter the telephone number of the member to be added to this list

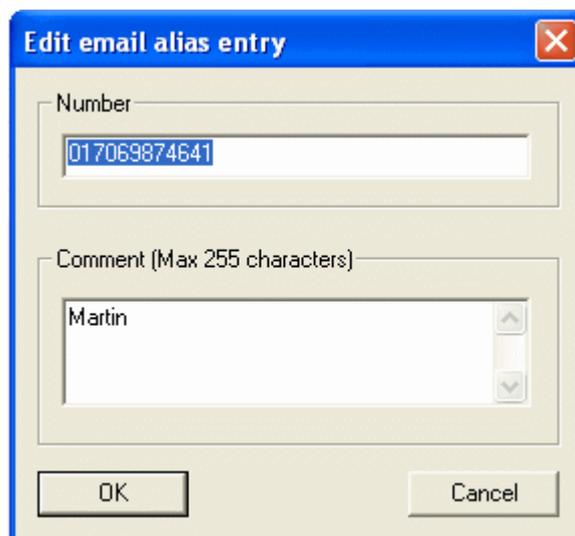
**Comment**

This field is provided for your convenience for your own comments. There is no requirement to enter anything in this field

Once satisfied with your entries, click **OK** to save the changes, or click **Cancel** to abort adding a new member

**Editing a member in a Email alias list**

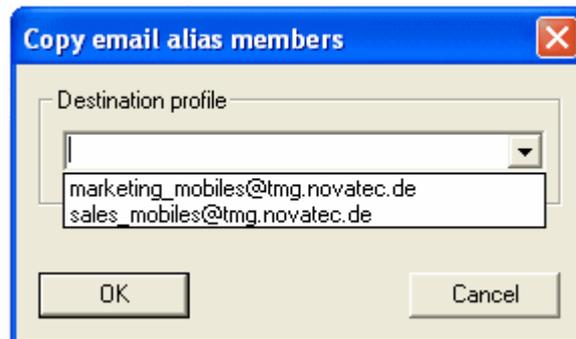
To edit an existing member of the Email alias list, select the entry in the list and then click **Edit**. You may also "double-click" the entry. The following dialog will appear

A dialog box titled "Edit email alias entry" with a blue header bar and a red close button. It contains two input fields: "Number" (a text box with "017069874641" selected) and "Comment (Max 255 characters)" (a text area with "Martin"). At the bottom are "OK" and "Cancel" buttons.

To save any changes you may have made, click the **OK** button. To abort any changes made click the **Cancel** button

**Copying members from one Email alias list to another**

To copy members from one alias list to another, select the source Email alias list using the **Tab** control, and click the button **Copy**, the following dialog will appear



Select the destination Email alias list, to where the members are to be copied and click the **OK** button. All members of the source Email alias list will be copied to the destination Email alias list. To abort, click the button **Cancel**

## 1.7.2 VSMSC settings

### VSMSC settings

In this section, the configuration of the NovaTec Virtual Short Message Service Center is undertaken. This is where operator and host profiles are created, and the routing from each operator profile a host profile or the internal SMS transmission is set. To activate the various options for editing, the check box **Activate virtual SMSC** must be set. As well as performing the normal functions of an SMSC, the NMG VSMSC can be used as a protocol converter, for example using a Operator profile using SMPP, routing to a Host profile that uses the UCP protocol to connect to the Network Service Providers "real" SMSC interface. The various options for the two types of profiles are explained in detail here



- TCP/IP
- Domain
- ISDN

**Note**

The RX connection mode is only available for the SMPP protocol

### Creating a new Operator profile

To create a new operator profile, click on the small arrow that is pointing down, on the right hand side of the **New** button. A pop up menu will appear, allowing you to choose the type of operator profile to be created.



After choosing which protocol is to be used by the profile, the profile properties dialog will be shown. After setting the various protocol specific options, and choosing **OK**, the profile will be created and shown in the above list. The various options for the profile are explained here

#### Note

At this moment in time, only the SMPP protocol is supported. But the UCP and SMS2000 protocols can be implemented on request

#### Deleting an Operator profile

To delete an operator profile, select the profile(s) to be deleted and choose **Delete**. **All** data associated with this profile will also be deleted



- TCP/IP
- Domain
- ISDN

**Note**

The RX connection mode is only available for the SMPP protocol

### Creating a new Host profile

To create a new host profile, click on the small arrow that is pointing down, on the right hand side of the **New** button. A pop up menu will appear, allowing you to choose the type of host profile to be created.



After choosing which protocol is to be used by the profile, the profile properties dialog will be shown. After setting the various protocol specific options, and choosing **OK**, the profile will be created and shown in the above list. The various options for the profile are explained here

#### Note

At this moment in time, only the SMPP protocol is supported. But the UCP and SMS2000 protocols can be implemented on request

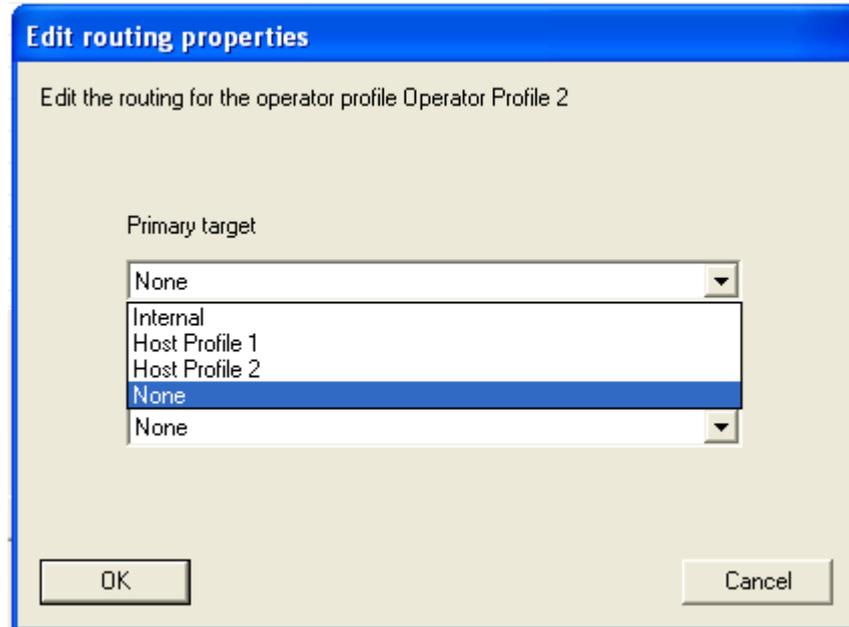
### Deleting a Host profile

To delete an host profile, select the profile(s) to be deleted and choose **Delete**. **All** data associated with this profile will also be deleted



### Editing the routing of a Operator Profile

To edit the routing options of an Operator profile, select the Operator profile that is to be edited, and choose **Edit**, and the following dialog will appear



#### Primary target

The primary Host profile that this Operator profile will be routed to. If the route that is chosen here, is for some reason unavailable, the Secondary target will be used (if set). Possible values are

- **Internal**
- **None**
- Any Host profiles that have previously been created using the page Host profiles

#### Secondary target

The secondary(backup) Host profile that this Operator profile will be routed to, if the primary target is unavailable. This is optional

Possible values are

- **Internal**
- **None**
- Any Host profiles that have previously been created using the page Host profiles

#### Note

**Internal** is the option that specifies that the internal SMS messaging of the NMG is to be used

**None** signifies that no target is to be used. In other words, deactivated.

The primary target **must** be specified (i.e. not **None**), otherwise during the processing of the configuration data, an error will occur

#### Note

If the option **Internal** is to be used, the dialing plan here **must** be set correctly!

## 1.8 SIM Server settings

### SIM Server settings

In this section, the configuration of the NovaTec Sea Of SIMs is undertaken. This is where the remote settings for the EWU and SCU boards are made. As the remote multiplexing is a very complex theme, it is advisable to carry out the planning before configuring the system

## 1.8.1 Client settings (EWU)

### Client settings (EWU)

In this section, the configuration of the clients are made (EWU). This section includes EWU remote profiles, and the assignment of these profiles to the EWU interfaces installed on the system, as well as the Cyclic SIM reallocation options.



Cyclic SIM reallocation options

Activate Cyclic SIM reallocation

Threshold

Timespan  at

#### Cyclic SIM reallocation options

This feature allows the Client systems to release the currently used SIM based on the parameters setup here. If used, the Client systems checks the value of the currently used budget / minutes at the time set, and if this value has not been reached, the Client will release the SIM, and then re - request another SIM from the SIM Server. This allows the SIM Server to reallocate a SIM dependant on it's settings. Please note that this option has no effect if the currently used SIM multiplexing profile is set to use Time / Date **and** the corresponding SIM Server is set to use the Pool mode.

#### Activate Cyclic SIM reallocation

Check this option to activate the Cyclic SIM reallocation on the Client system.

#### Threshold

This value represents the minimum value of units (time / currency) that must have been used by the SIM presently allocated. If this threshold has not been reached, the Client will release the SIM, and re request another based on the Multiplexing profile.

#### Timespan

This setting is used to set how often the Client should check the current value of units ( minutes or currency) against the **Threshold** value set. Possible values are:

- Daily at the time specified
- Every 12 hours since the last system restart
- Every 8 hours since the last system restart
- Every 6 hours since the last system restart
- Every 2 hours since the last system restart\*
- Every hour since the last system restart\*

\* Not recommend

Please bear in mind, that during the duration of the SIM reallocation, that this GSM channel will be unavailable for GSM traffic. Also, setting a very low threshold will may also cause unnecessary GSM downtime. It is recommended that the **Timespan** be set to daily at a time when the GSM traffic will be at a minimum. (for example after normal working hours). It is also prudent to stagger the time when Clients attempt Cyclic SIM reallocation to reduce the IP traffic between the SIM Server and the various Clients.





### Creating and editing remote profiles

To create a new remote profile, click the button New and the following dialog will appear

**Edit remote profile properties**

Base settings

Profile name: rem E-PLUS

Multiplexing profile: SimX profile 1 [SCU]

Server IP: 192 . 168 . 100 . 58

Server port: 807

Remote IMEI options

SIM1 use remote IMEI

SIM2 use remote IMEI

SIM3 use remote IMEI

SIM4 use remote IMEI

SIM5 use remote IMEI

Pool mode settings

Use Pool mode for SIM allocation

All SIMs use the same identifier

SIMs use individual identifiers

Identifier for all SIMs: POOL E-PLUS

SIM 2 Identifier: POOL E-PLUS

SIM 3 Identifier: POOL E-PLUS

SIM 4 Identifier: POOL E-PLUS

SIM 5 Identifier: POOL E-PLUS

Ok Cancel

**Profile name**

Enter a name for the remote profile. Please use an unambiguous name, as this makes the assignment and overview of the remote profiles easier

**Multiplexing profile**

Here you may choose the multiplexing profile that is to be used in the remote profile when connected to this server

**Server IP**

The IP address of the SIM server system that is to provide the remote SIM's for this remote profile. If SCU boards are installed in the same chassis, then the IP address 127.0.0.1 can be used, to access SIM's mounted in the SCU boards

**Server port**

The port on which the SOS server is listening for remote SIM requests. This setting must correspond to that of the SIM server system. If this setting is incorrect, then no remote SIM's will be available. If SCU boards are installed in the same chassis, and these boards are to be accessed using this profile, then the port should be left at the standard value of 807.

**Remote IMEI options**

At this moment, these feature is not implemented.

**Pool mode settings**

As well as the standard mode of Server operation, the Pool mode of operation is available, whereby SIMs may be "Pooled" (grouped together), and these Pools are "named". To access a SIM from this pool, the name of the pool must be entered here. To ease the configuration, "Dummy" SIM profiles should be created here. These "dummy" profiles are then available for choice in this dialog. The pool names of the "dummy" profiles created here **MUST** correspond the pool names used on the SIM server, otherwise the client will not be able to access the SIMs.

**Use Pool mode for SIM allocation**

If this option is checked, the client will attempt to access a SIM from the pool located on the SIM server. If the SIM server is not operating in the Pool mode, then the client **MAY NOT** receive a SIM, and therefore fail. You must ensure that the SIM server is running in Pool mode for correct operation.

**All SIMs use the same identifier**

All SIMs in this remote profile use the same Pool identifier to access SIMs on the SIM server. (As seen in the dialog example above)

**SIMs use individual identifiers**

Each SIM (within the multiplexing profile) uses an individual identifier to access a SIM from the SIM server.

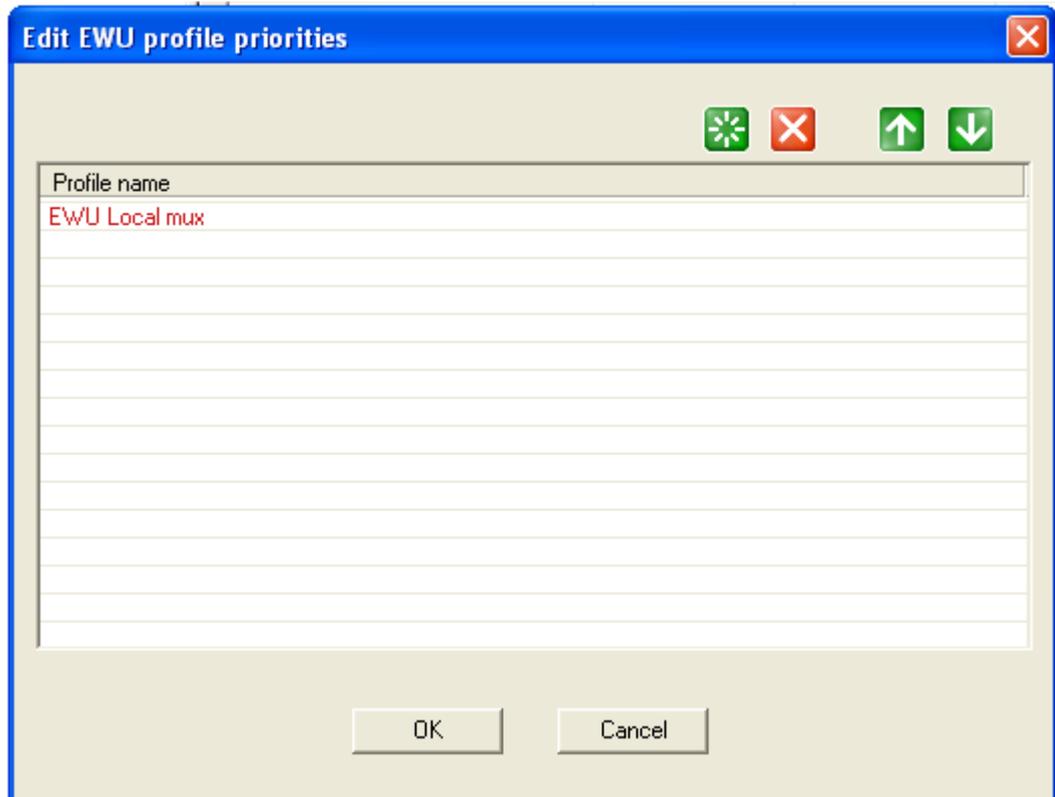
**Deleting a remote profile**

To delete a remote profile, choose the profile to be deleted and click Delete, and the profile will be removed.

**Note**

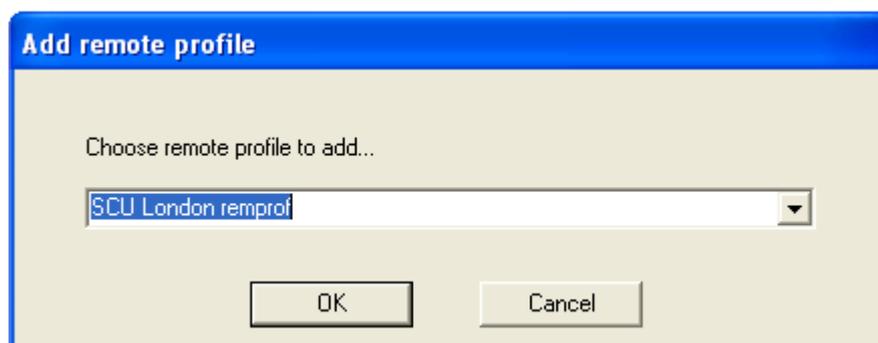
The profile will also be deleted from the Remote profile assignment!





This dialog displays the currently assigned remote profiles, and the order in which they are to be used. You may note that profiles have different colours. Profiles coloured **green** are remote profiles, the profile coloured **red** is the local profile. You may add and remove remote profiles assigned to this

interface in this dialog. To add a remote profile to the EWU interface, choose the  button and a dialog will appear that allows you to choose which remote profile to be added (as shown below).



To delete a remote profile from an EWU interface, select the remote profile to be removed and click the  button. After confirmation the remote profile will be removed from the EWU interface assignment. To change the order in which the remote and local profiles are to be used, select a profile and using the   buttons move the profile up or down in the priority list.

**Note**

The local profile cannot be deleted. Only the order in which it is used can be adjusted. If you do not wish to use local SIM's, this can be achieved by deactivating all the SIM's in the profile assigned as the local profile here

## 1.8.2 Server settings (SCU)

### Server settings (SCU)

In this section, the configuration of the server(s) are made (SCU's). This section includes SCU SIM profile assignment, client access profiles (which EWU's from which NMG systems are to have access) and the assignment of client access profiles to the SCU interfaces. Also the listening port, and mode of the Sim Server is set.

Listening port of the SIM server

Server IMEI options

Enable IMEI locking

(minutes)

Server mode

Standard mode

Pool mode

Pool mode options

Allocate using "Round Robin" method

Allocate using "Sequential" method

Allocate lowest budget first (Percentage)

Allocate highest budget first (Percentage)

Allocate lowest budget first (Value)

Allocate highest budget first (Value)

**Listening port of the SIM server**

Here, the listening port of the SIM server is set. This is the port on which the SIM server "listens" for SIM requests from client systems.

Do not assign a listening port for the Sim Server with the following values:

25, 80, 110, 800, 802, 809, 8080

or any "well known" ports such as FTP etc. If you have any doubts about which port to set please leave the standard port set to 807. If you do not have an SOS or SCU installed on the system, you will not be able to alter any of the settings associated with the SOS server

**Server IMEI options**

These options are not available at present.

### Server mode

The server mode, set which mode the server is to administer the SIM that are installed in the SCU boards on the chassis which is acting as a SIM server. There are two modes of operation, the Standard mode (this is the mode of operation that has been available up until now) and the Pool mode. The standard mode allows the individual assignment of one or more SIMs for a specific client. The Pool mode is allows a more flexible approach for SIM allocation no longer based on which client is accessing a system. It is recommended that the Pool mode be used, as this is allot easier to administrate and control.

### Pool mode options

The Pool mode options are only available when the Server mode is set to Pool mode. This setting determines how the SIMs in each pool are allocated to each client that request a SIM. The options are:

#### **Allocate using "Round Robin" method**

This method of allocation is the same method used in the "Round Robin" allocation of ports within a trunk group. For example, a Pool has 4 SIMs assigned, this Pool is called **4SIM**. A client requests a SIM from this pool, and it is assigned SIM1. A second client requests a SIM from this pool and is given SIM2. In the meantime, the first client has released SIM1 and this is now available for other clients. A third client requests a SIM, and although SIM1 is now available, it will be assigned SIM3. This ensures that all SIMs are allocated evenly. **This method does not take any budgeting into consideration!**

#### **Allocate using the "Sequential" method**

This method of allocation is the same method used in the "sequential" allocation of ports within a trunk group. For example, a Pool has 4 SIMs assigned, this pool is called **4SIM**. A client requests a SIM from this pool, and is assigned SIM1. A second client requests a SIM and is assigned SIM2, a third client requests a SIM and is assigned SIM three. In the meantime, the first client has released it's SIM (SIM1). A fourth client requests a SIM, and is assigned **SIM1**. **This method does not take any budgeting into consideration!**

#### **Allocate lowest budget first (Percentage) (At this moment disabled)**

#### **Allocate highest budget first (Percentage) (At this moment disabled)**

#### **Allocate lowest budget first (Value)**

#### **Allocate highest budget first (Value)**

These methods of allocation take the actual budget status of the SIMs within the Pool into consideration when allocating SIMs to a client. This allows the SIMs installed on a SIM server to be used in a more uniform fashion, i.e. an even spread of usage based on the budget, regardless of the actual total budget set. To clarify these methods, take the following scenario as an example of how the four methods work.

There are 4 SIM's in a pool called **4SIM**. SIM1 and SIM2 have a maximal budget of 1000 minutes, SIM3 and SIM4 have a maximal budget of 500 minutes. SIM1 has used 600 minutes of its total budget (40% rest budget, 400 minutes rest budget (as a absolute value))  
SIM2 has used 800 minutes of its total budget (20% rest budget, 200 minutes rest budget (as a absolute value) )  
SIM3 has used 450 minutes of its total budget (10% rest budget, 50 minutes rest budget (as a absolute value))  
SIM4 has used 400 minutes of its total budget (20% rest budget, 100 minutes rest budget (as a absolute value))

If the option **Allocate lowest budget first (Percentage)** is activated, then SIM3 would be assigned to the next client requesting a SIM from this pool.

if the option **Allocate highest budget first (Percentage)** is activated, then SIM1 would be assigned to the next client requesting a SIM from this pool.

If the option **Allocate lowest budget first (Value)** is activated, then SIM3 would be assigned to the next client requesting a SIM from this pool.

If the option **Allocate highest budget first (Value)** is activated, then SIM1 would be assigned to the next client requesting a SIM from this pool.

If in any of the above cases, two SIMs within a pool have exactly the same values (both

---

percentage and value) then the first SIM that the server finds, that matches the allocation criteria is allocated. This applies to both budgets set as minutes, or as total costs in the SIM profile for a SIM **ON THE SIM SERVER!** It is not advisable to mix different budget types within one and the same pool on the server, as this could cause discrepancies in the actual allocation of SIMs.

**Note**

It is not advisable to operate clients accessing both Pool mode servers, and Standard mode servers. This can lead to difficulties in the administration of both clients and the server.

### 1.8.2.1 SCU SIM assignment

## SCU SIM assignment

In this section, the SIM profiles are assigned to the SIM readers of the SCU interfaces. This procedure is analogue to that described in the section GSM settings -> Profiles -> Assignment

| SCU Interface  | SIM profile     |
|--|-----------------|
| <input type="checkbox"/> Slot 02, SCU, Interface 2, SIM 5            | SCU Budget 1000 |
| <input checked="" type="checkbox"/> Slot 02, SCU, Interface 3, SIM 1 | SCU Budget 1000 |
| <input type="checkbox"/> Slot 02, SCU, Interface 3, SIM 2            | SCU Budget 1000 |
| <input type="checkbox"/> Slot 02, SCU, Interface 3, SIM 3            | SCU Budget 1000 |
| <input type="checkbox"/> Slot 02, SCU, Interface 3, SIM 4            | SCU Budget 1000 |
| <input type="checkbox"/> Slot 02, SCU, Interface 3, SIM 5            | SCU Budget 1000 |
| <input type="checkbox"/> Slot 02, SCU, Interface 4, SIM 1            | SCU Budget 1000 |
| <input type="checkbox"/> Slot 02, SCU, Interface 4, SIM 2            | SCU Budget 1000 |
| <input type="checkbox"/> Slot 02, SCU, Interface 4, SIM 3            | SCU Budget 1000 |
| <input type="checkbox"/> Slot 02, SCU, Interface 4, SIM 4            | SCU Budget 1000 |
| <input type="checkbox"/> Slot 02, SCU, Interface 4, SIM 5            | SCU Budget 1000 |

#### SCU Interface

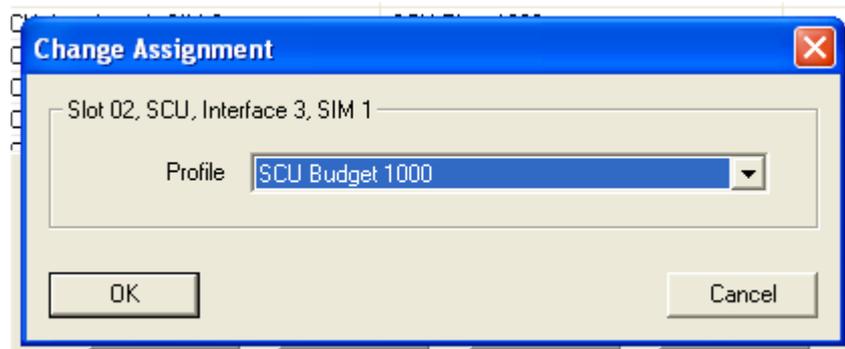
The physical SCU interface and the corresponding SIM readers for this interface

#### SIM profile

The SIM profile currently assigned to the SCU interfaces SIM reader

#### Editing and changing SIM profile assignments

To change or edit an assignment, select the appropriate row from the interfaces list, then click the Edit button or press Enter. You can also double click a list row. The following dialog will appear



Select the desired profile from the dialogs combobox, then click **OK**.

#### Note

To assign one SIM profile to one of more SCU interfaces, it is possible to mark several rows. To do this use the mouse with the pressed **Shift** or **Ctrl** key or use the **Arrow keys** and the **SpaceBar** with the pressed **Shift** or **Ctrl** key. The SIM profiles are created in the section GSM settings->Profiles

### 1.8.2.2 Client access profiles

## Client access profiles

On this page, Client Access Profiles are created. These profiles describe the client system(s) from which the SIM's installed on the server are to be allowed access to. Client Access Profiles must be created, for the clients to have access to the SIM's installed on the server

### Standard mode

Sim Server settings - Client access profiles

| Name  | System ID    | EWU slot | EWU interface |  |
|---|--------------|----------|---------------|--|
| <input type="checkbox"/> S6 SOS Client London 2 - 1 | 123456789123 | 2        | 1             |  |
| <input type="checkbox"/> S6 SOS Client London 2 - 2 | 123456789123 | 2        | 2             |  |
| <input type="checkbox"/> S6 SOS Client London 2 - 3 | 123456789123 | 2        | 3             |  |
| <input type="checkbox"/> S6 SOS Client London 2 - 4 | 123456789123 | 2        | 4             |  |
| <input type="checkbox"/> S6 SOS Client London 3 - 1 | 123456789123 | 3        | 1             |  |
| <input type="checkbox"/> S6 SOS Client London 3 - 2 | 123456789123 | 3        | 2             |  |
| <input type="checkbox"/> S6 SOS Client London 3 - 3 | 123456789123 | 3        | 3             |  |
| <input type="checkbox"/> S6 SOS Client London 3 - 4 | 123456789123 | 3        | 4             |  |
| <input type="checkbox"/> S6 SOS Client London 4 - 1 | 123456789123 | 4        | 1             |  |
| <input type="checkbox"/> S6 SOS Client London 4 - 2 | 123456789123 | 4        | 2             |  |
| <input type="checkbox"/> S6 SOS Client London 4 - 3 | 123456789123 | 4        | 3             |  |
| <input type="checkbox"/> S6 SOS Client London 4 - 4 | 123456789123 | 4        | 4             |  |
| <input type="checkbox"/> S6 SOS Client London 5 - 1 | 123456789123 | 5        | 1             |  |
| <input type="checkbox"/> S6 SOS Client London 5 - 2 | 123456789123 | 5        | 2             |  |
| <input type="checkbox"/> S6 SOS Client London 5 - 3 | 123456789123 | 5        | 3             |  |
| <input type="checkbox"/> S6 SOS Client London 5 - 4 | 123456789123 | 5        | 4             |  |
|   |              |          |               |  |
|   |              |          |               |  |

#### Name

The name of the client access profile. This name is used for reference only, to allow easier administration of the Client Access Profiles

#### System ID

This is the Back plane ID, the unique system identification number, that is used in the authorization process. If this number is incorrect, then client will not receive access to the required SIM's

#### EWU slot

This is the slot in which the EWU / GSM2E is installed on the client system. The slot number is part of the internal identification key used to distinguish between the various clients that have access to the system.

#### EWU interface

This is the interface of the EWU / GSM2E board on the client system.

**Adding a new Client Access Profile**

To add or create a Client Access Profile, click the New button and the following dialog will appear



The screenshot shows a dialog box titled "Create client access profile". It has a blue title bar with a close button in the top right corner. The dialog contains four input fields: "Profile name" (a text box), "EWU system ID" (a text box), "EWU slot" (a dropdown menu with "2" selected), and "EWU interface" (a dropdown menu with "1" selected). At the bottom of the dialog are two buttons: "OK" and "Cancel".

**Profile name**

The name of the profile. This is used to identify the profile. Please use a unambiguous name.

**EWU system ID**

This is the 12 character back plan id of the client system. This id can be retrieved using the TracelInfo Client application. Please read the corresponding help file for more information

**EWU slot**

This is the physical slot in which this particular EWU board is installed in

**EWU interface**

This is the physical interface of the EWU board chosen above

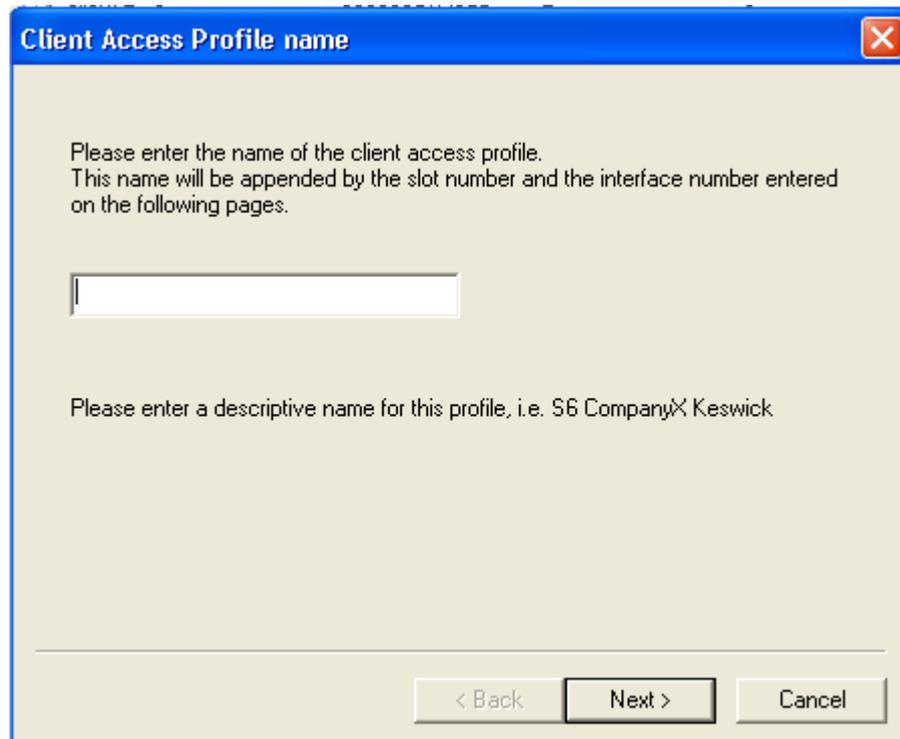
**Editing a Client Access Profile**

To edit a Client Access Profile, choose the profile to be edited from the list, and click Edit. A dialog similar to the one above will appear, and the various values can be edited. To save the changes made, click OK. To abort any changes click Cancel

### Client Access Profile Wizard

The Client Access Profile Wizard, is a tool that allows the creation of multiple Client Access Profiles, all from the same physical system. To use the wizard, click the button Wizard and the following dialog will appear

#### Client Access Profile name



Client Access Profile name

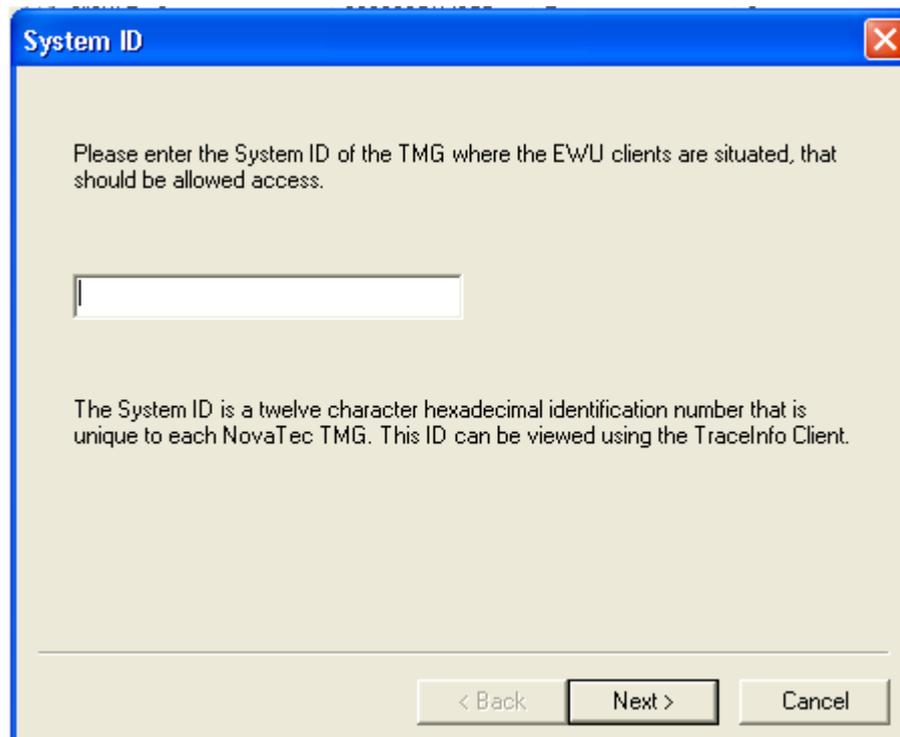
Please enter the name of the client access profile.  
This name will be appended by the slot number and the interface number entered  
on the following pages.

Please enter a descriptive name for this profile, i.e. S6 CompanyX Keswick

< Back    Next >    Cancel

Enter an unambiguous name for the profile and click **Next**

## System ID



The image shows a Windows-style dialog box titled "System ID". The dialog has a blue title bar with a close button (X) in the top right corner. The main area is light beige and contains the following text:

Please enter the System ID of the TMG where the EWU clients are situated, that should be allowed access.

Below the text is a single-line text input field.

Below the input field is the following text:

The System ID is a twelve character hexadecimal identification number that is unique to each NovaTec TMG. This ID can be viewed using the TracelInfo Client.

At the bottom of the dialog, there are three buttons: "< Back", "Next >", and "Cancel". The "Next >" button is highlighted with a black border.

Enter the System ID of the client that is to have access to the server

### Slot and interface properties

Slot and Interface properties

Please choose the start and end slots of the EWU's that are to be included in the client access profiles.  
The wizard will automatically include the interfaces 1 through to 4.

Start                      End

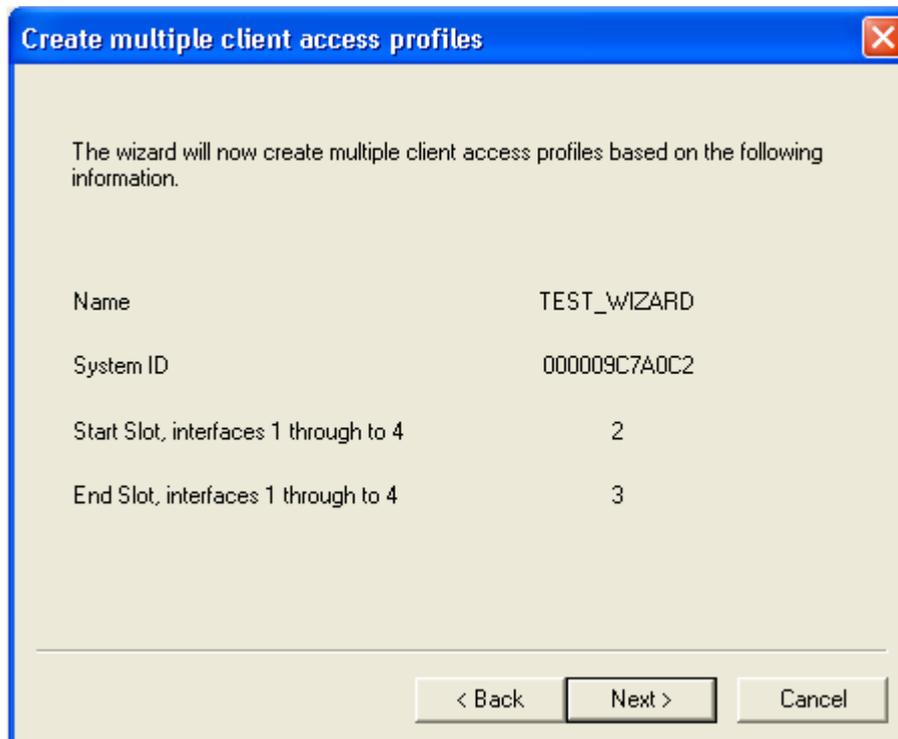
2                              3

Please note:  
You must make sure that the start and end slots are physically present and configured in the client TMG!

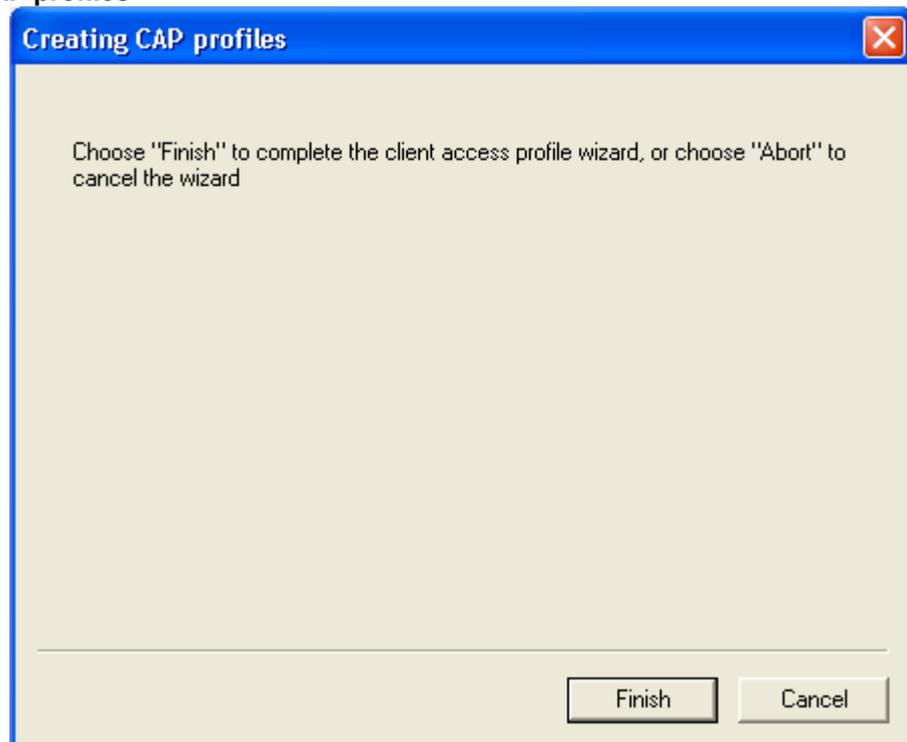
< Back      Next >      Cancel

Enter the start and end slot positions of the EWU boards that are to have access to the server. The wizard automatically include the interfaces 1 through to 4 for each EWU board

## Create multiple client access profiles



Here you see the current settings for the client access profiles that are to be created. Once you are content with the settings you have made, click **Next**

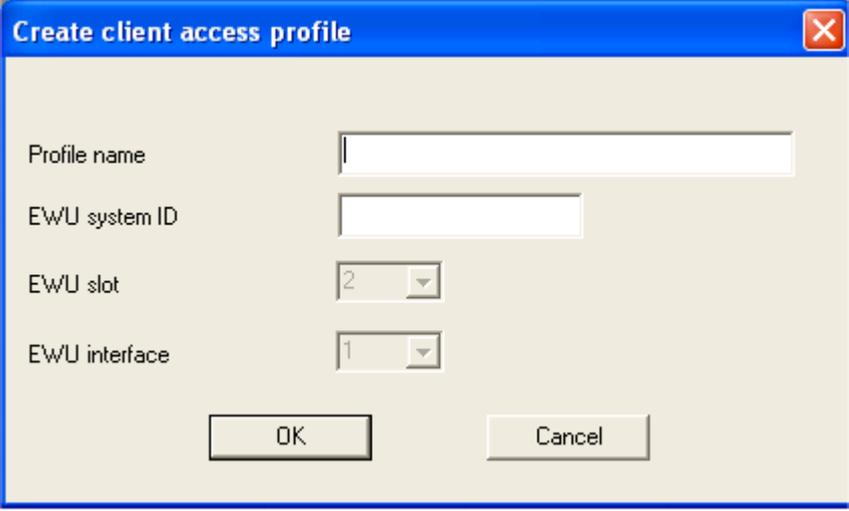
**Creating CAP profiles**

Choose the **Finish** button to create multiple client access profiles according to the previously entered data. If you do not wish to create client access profiles, choose **Cancel**



**Adding a new Client Access Profile**

To add or create a Client Access Profile, click the New button and the following dialog will appear



The screenshot shows a dialog box titled "Create client access profile". It contains the following fields and controls:

- Profile name:** A text input field.
- EWU system ID:** A text input field.
- EWU slot:** A dropdown menu with the value "2" selected.
- EWU interface:** A dropdown menu with the value "1" selected.
- Buttons:** "OK" and "Cancel" buttons at the bottom.

**Profile name**

The name of the profile. This is used to identify the profile. Please use a unambiguous name.

**EWU system ID**

This is the 12 character back plan id of the client system. This id can be retrieved using the TracelInfo Client application. Please read the corresponding help file for more information

**EWU slot**

Not applicable

**EWU interface**

Not applicable

**Editing a Client Access Profile**

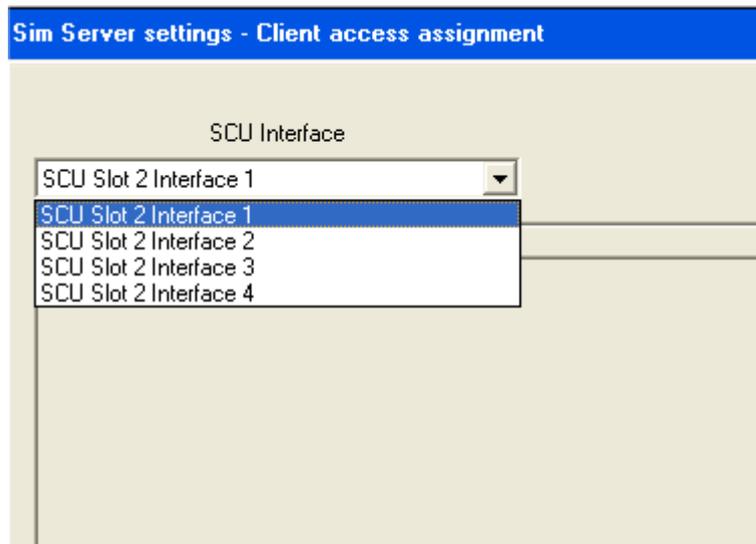
To edit a Client Access Profile, choose the profile to be edited from the list, and click Edit. A dialog similar to the one above will appear, and the various values can be edited. To save the changes made, click OK. To abort any changes click Cancel

## 1.8.2.2.1 Client access assignment

## Client access assignment

### Standard Mode

On this page, the Client Access Profiles (**CAP**) are assigned to the available SCU interfaces.



On clicking the combobox under the heading SCU Interface, all the available SCU interfaces are shown. Once an interface has been chosen, the currently assigned EWU Client Access Profiles (**CAP**) are shown in the list below the combobox.





## 1.9 CSD general options

### CSD general options

The CSD general options, are the global settings for the CSD application within the NMG system. This settings are required for all types of CSD operation.

**CSD Settings - CSD General settings**

Activate CSD settings

Global state machine options

|   |      |
|---|------|
| Idle timeout (in milliseconds)                    | 2000 |
| Inactivity timeout (in seconds)                   | 10   |
| Call setup timeout (in seconds)                   | 240  |
| Total connection time (in seconds) per connection | 120  |
| GSM transmission buffer block ticks               | 5    |
| Default speed                                     | 9600 |
| HDLC  | 0    |

#### Activate CSD settings

To be able to change any options for CSD, and to enable the CSD application within the NMG system, this check box must be activated.

**Global state machine options**

The global state machine options, define how the NMG hardware reacts under certain circumstances. As the name applies, these options are for all types of CSD, and in all circumstances.

**Idle timeout (in milliseconds)**

The time delay between accepting a connection and serving data transfers. This overcome some channel hazards in the GSM network.

**Inactivity timeout (in seconds)**

The maximum time interval that the channel stays connected without data being transferred.

**Call setup timeout (in seconds)**

The maximum time interval, in which the connection setup procedure should finish. This assures that resources are not kept in an inactive/unavailable state in extreme situations.

**Total connection time (in seconds) per connection**

The maximal connection time allowed per connection transaction. This prevents keeping a connection active on lost disconnect events in extreme situations.

**GSM transmission buffer block ticks**

The number of internal ISDN FIFO blocks being concatenated per internal transaction.

**Default speed**

The default transmission speed to be used.

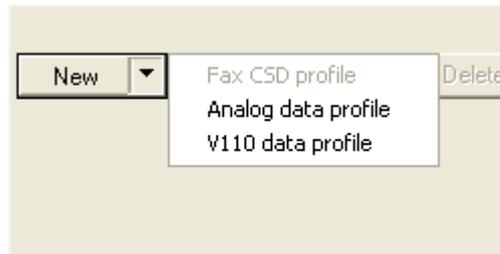
**HDLC**

Currently inactive.



**Creating a CSD profile**

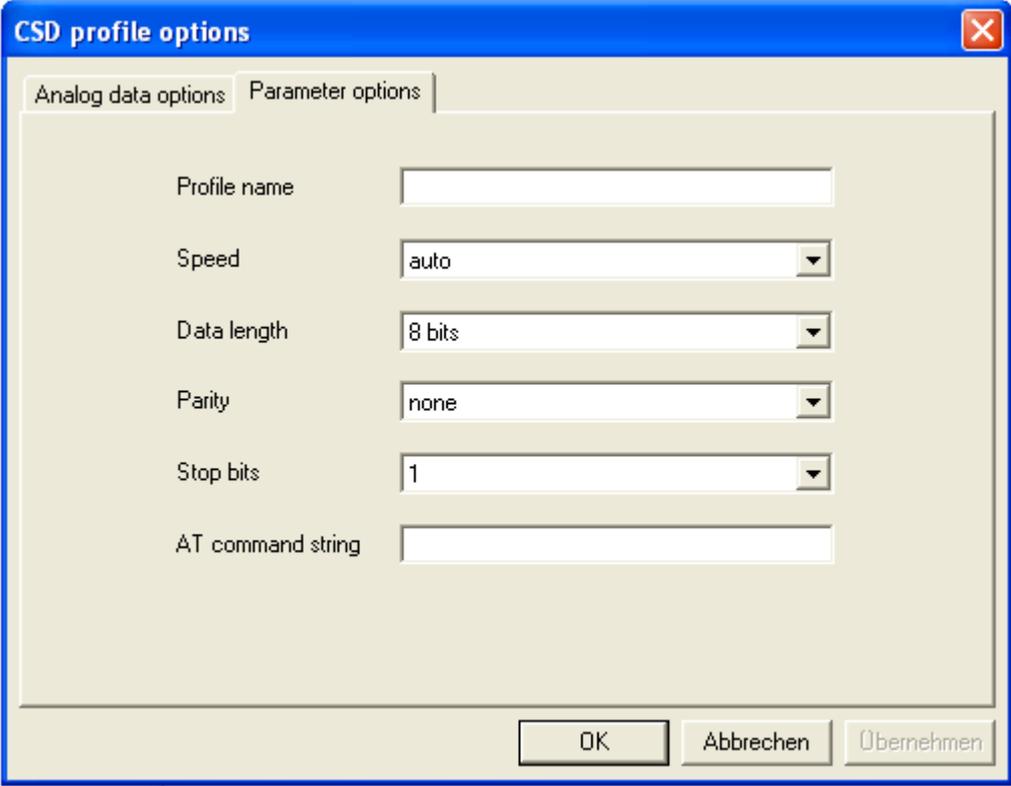
To create a new CSD profile, click on the arrow on the **New** button and choose from the pop-up menu that appears the type of CSD profile you would like to create. The following profiles are available at this moment.

**Editing a CSD profile**

- To edit a profile, select the profile that is to be changed from the list of profiles, and click the **Edit...** button, you may then make any changes. To cancel any changes, just click the **Cancel** button. To save any changes, click the **OK** button

## Analog data profile

### Parameter options



The screenshot shows a dialog box titled "CSD profile options" with a close button in the top right corner. It has two tabs: "Analog data options" and "Parameter options". The "Parameter options" tab is selected and contains the following fields:

- Profile name: Text input field.
- Speed: Dropdown menu with "auto" selected.
- Data length: Dropdown menu with "8 bits" selected.
- Parity: Dropdown menu with "none" selected.
- Stop bits: Dropdown menu with "1" selected.
- AT command string: Text input field.

At the bottom of the dialog, there are three buttons: "OK", "Abbrechen", and "Übernehmen".

#### Profile name

The name to be given to this profile. Although the name does not have to be unique, it should be unambiguous, to allow easier identification.

#### Speed

The data transfer speed (in bits per second) that is to be used to communicate with the target. Possible values are.

- auto
- 300
- 1200
- 2400
- 9600
- 14400
- custom

If **custom** is chosen, the **AT command string** must be entered correctly.

#### Data length

Changes the number of data bits you want to use for each character that is transmitted and received. The device you are communicating with must have the same setting that you choose here. Most characters are transmitted in seven or eight data bits.

#### Parity

Changes the type of error checking you want to use for the selected port. The computer or device you are communicating with must have the same setting that you choose here. You must choose one of the following:

##### None

No parity bit will be added to the data bits sent from this port. This will disable error checking.

**Mark**

The parity bit is added, but it is always set to 0.

**Space**

The parity bit is added, but it is always set to 1.

**Even**

The parity bit is set to 1 if it is needed to make the number of 1's in the data bits even. This will enable error checking.

**Odd**

The parity bit is added if it is needed to make the number of 1's in the data bits odd. This will enable error checking.

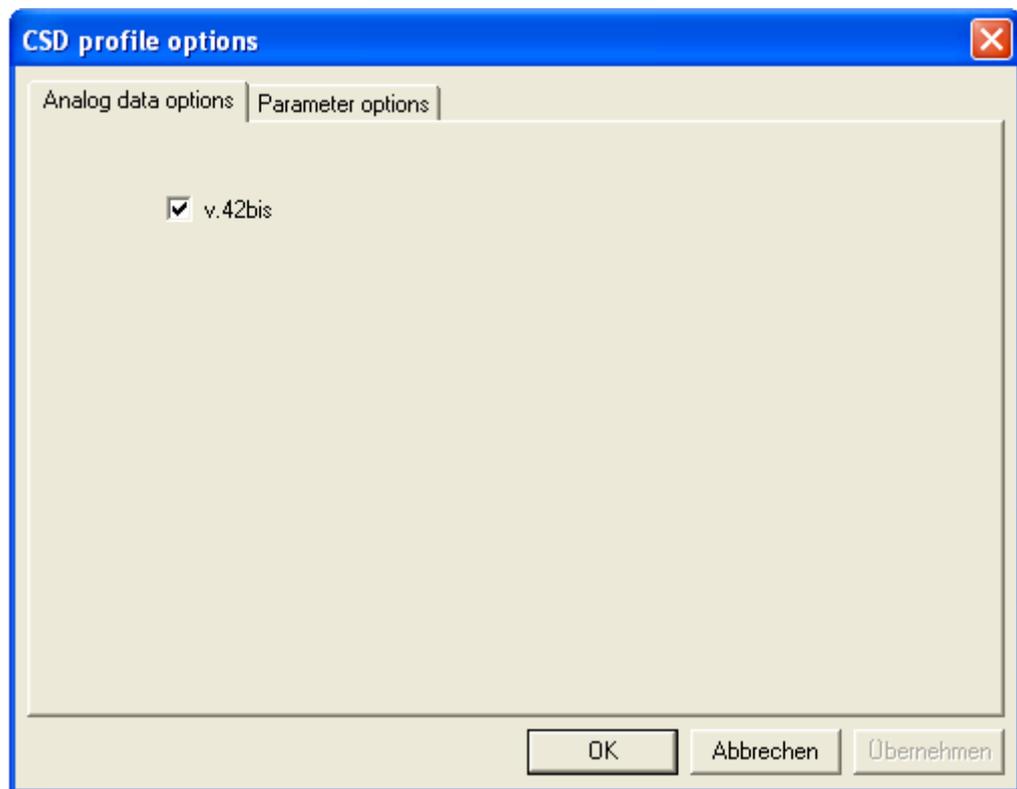
**Stop bits**

Changes the time between each character being transmitted (where time is measured in bits per second).

**AT command string**

With this setting, you may enter user specified information, which the profile will use to initiate and communicate with the target device. Please be aware that the **AT command string has priority over all other settings**. If you choose **custom** as the **speed** setting, you must enter a valid AT string to be used with this profile.

### Analog data options

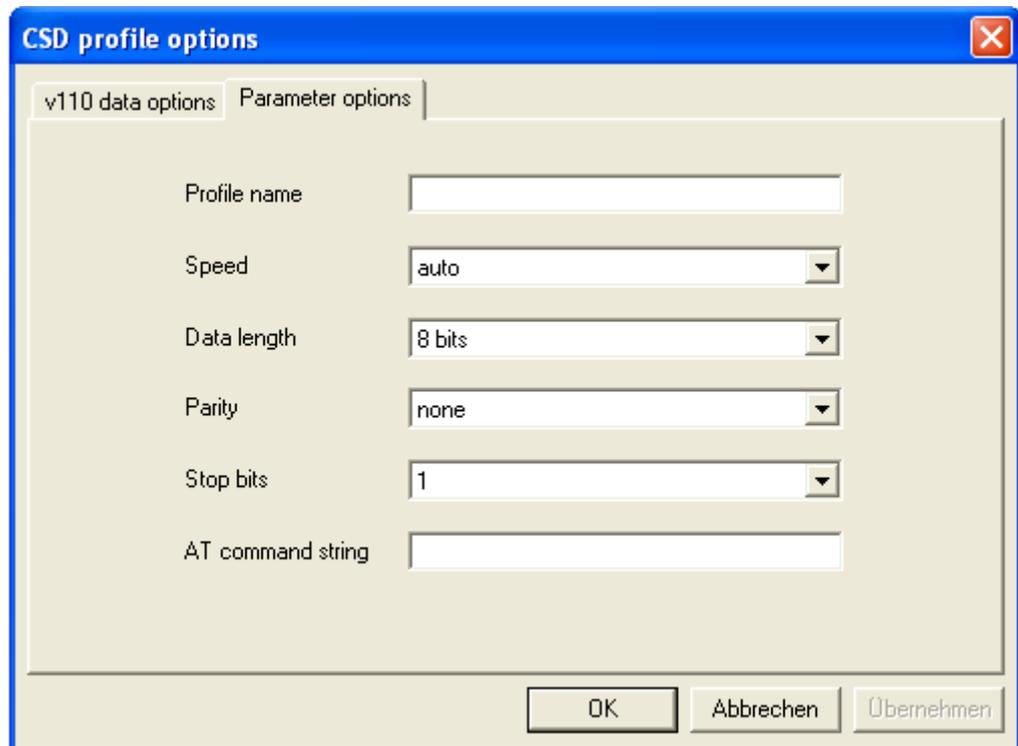


#### **v.42bis**

Compression standard used if applicable

## V110 data profile

### Parameter options



#### Profile name

The name to be given to this profile. Although the name does not have to be unique, it should be unambiguous, to allow easier identification.

#### Speed

The data transfer speed (in bits per second) that is to be used to communicate with the target. Possible values are.

- auto
- 300
- 1200
- 2400
- 9600
- 14400
- custom

If **custom** is chosen, the **AT command string** must be entered correctly.

#### Data length

Changes the number of data bits you want to use for each character that is transmitted and received. The device you are communicating with must have the same setting that you choose here. Most characters are transmitted using seven or eight data bits.

#### Parity

Changes the type of error checking you want to use for the selected port. The computer or device you are communicating with must have the same setting that you choose here. You must choose one of the following:

##### None

No parity bit will be added to the data bits sent from this port. This will disable error checking.

##### Mark

The parity bit is added, but it is always set to 0.

**Space**

The parity bit is added, but it is always set to 1.

**Even**

The parity bit is set to 1 if it is needed to make the number of 1's in the data bits even. This will enable error checking.

**Odd**

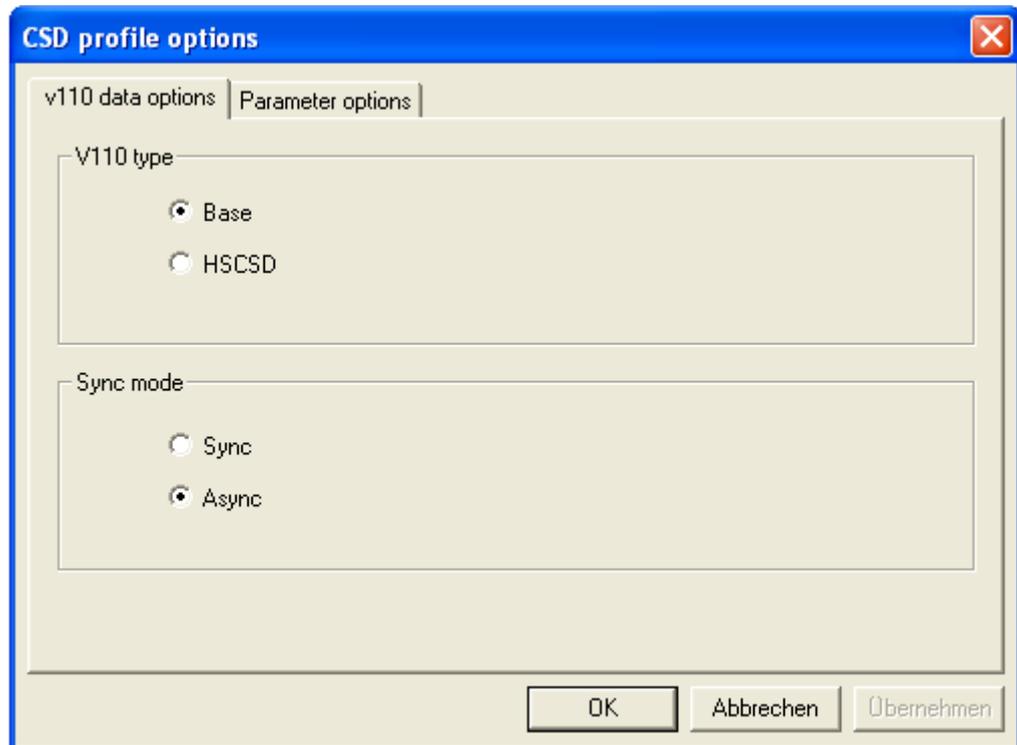
The parity bit is added if it is needed to make the number of 1's in the data bits odd. This will enable error checking.

**Stop bits**

Changes the time between each character being transmitted (where time is measured in bits per second).

**AT command string**

With this setting, you may enter user specified information, which the profile will use to initiate and communicate with the target device. Please be aware that the **AT command string has priority over all other settings**. If you choose **custom** as the **speed** setting, you must enter a valid AT string to be used with this profile.

**v110 data options****V110 type**

Compression standard to be used if applicable.

**Sync mode**

Switches between the mode to be used, **Sync** (synchronous) or **Async** (asynchronous).



**New**

Create a ISDN to GSM assignment

**Edit**

Edit a previously created assignment

**Delete**

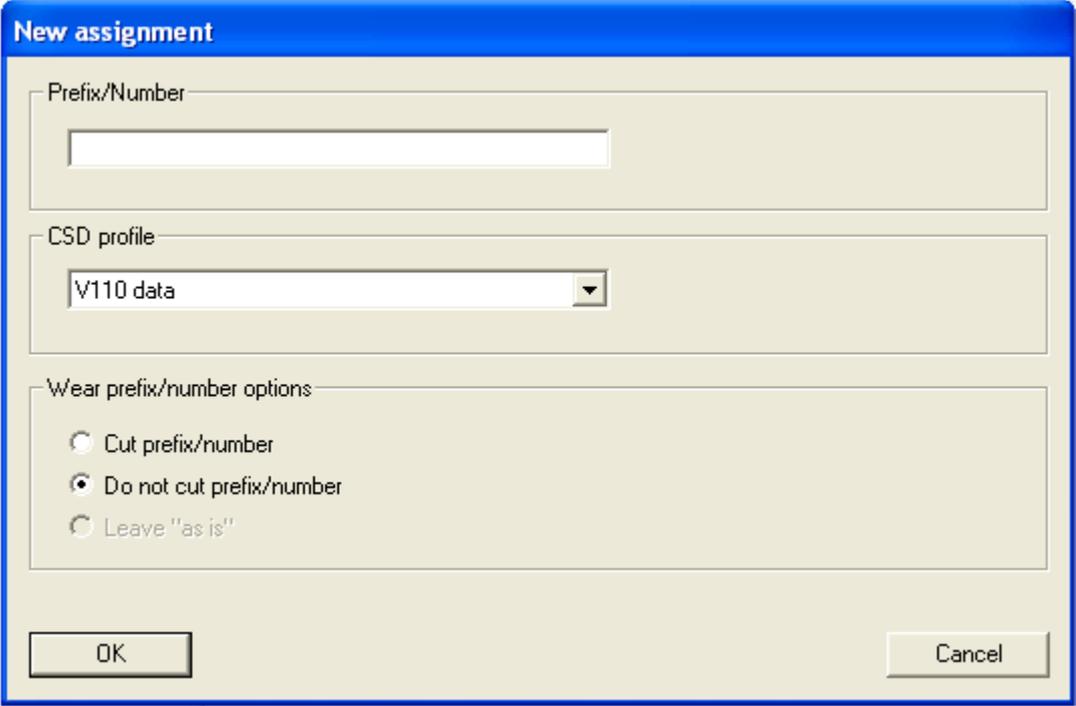
Delete a previously created assignment

**Import**

Import numbers/prefixes, assigning them the standard profile, with the option to cut the string deactivated. **Not yet implemented**

**Creating an assignment**

To create a new assignment, click the **New** button and the following dialog will appear:



The screenshot shows a dialog box titled "New assignment". It has three main sections:

- Prefix/Number:** A text input field.
- CSD profile:** A dropdown menu with "V110 data" selected.
- Wear prefix/number options:** Three radio buttons: "Cut prefix/number", "Do not cut prefix/number" (selected), and "Leave "as is"".

At the bottom, there are "OK" and "Cancel" buttons.

**Prefix/Number**

Enter the number or prefix of the target device that is to be assigned a specific CSD profile.

**CSD profile**

The name of the CSD profile that is to be assigned to the number or prefix entered in the previous field.

**Wear prefix/number options**

For each assignment, there are various options regarding the prefix/number. These are:

**Cut prefix/number**

The prefix or number will be cut from the number received by the NMG. This allows a grouping of devices to be contacted using one particular profile (for example all devices that are to be connected with the data rate 9600, could have the number 9600 prefixed to the actual number, and cut in the assignment profile. This allows the NMG system to assign a specific CSD profile to this group of devices).

**Do not cut prefix/number**

The prefix/number will not be altered in any way.

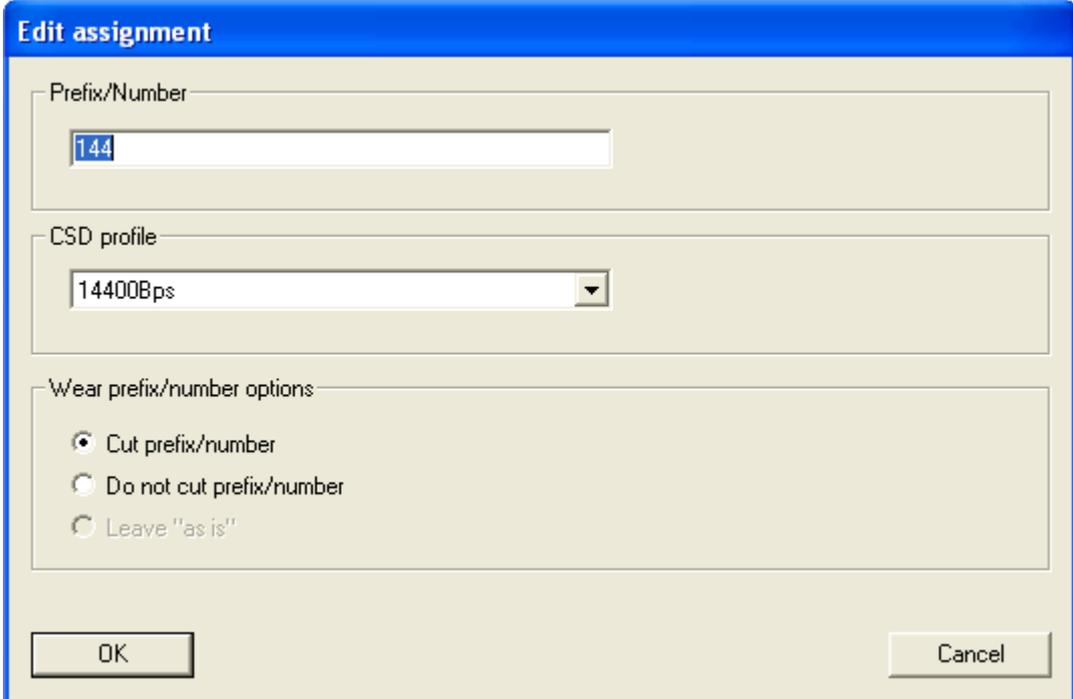
**Leave "as is"**

**This option is only selectable in the edit mode, and only when multiple assignments have been selected to be edited.**

To save the assignment, click the **OK** button. To abort creating an assignment, click the **Cancel** button.

### Editing a single assignment

To edit a single assignment, select the assignment from the list and click the **Edit** button and the following dialog will appear:



The screenshot shows a dialog box titled "Edit assignment". It has three main sections. The first section, "Prefix/Number", contains a text input field with the value "144". The second section, "CSD profile", contains a dropdown menu with "144008ps" selected. The third section, "Wear prefix/number options", contains three radio buttons: "Cut prefix/number" (which is selected), "Do not cut prefix/number", and "Leave "as is"". At the bottom of the dialog are two buttons: "OK" on the left and "Cancel" on the right.

#### Prefix/Number

Edit the number or prefix of the target device that is to be assigned to a specific CSD profile.

#### CSD profile

The name of the CSD profile that is to be assigned to the number or prefix entered in the previous field.

#### Wear prefix/number options

For each assignment, there are various options regarding the prefix/number. These are:

##### Cut prefix/number

The prefix or number will be cut from the number received by the NMG. This allows a grouping of devices to be contacted using one particular profile (for example all devices that are to be connected with the data rate 9600, could have the number 9600 prefixed to the actual number, and cut in the assignment profile. This allows the NMG system to assign a specific CSD profile to this group of devices)

##### Do not cut prefix/number

The prefix/number will not be altered in any way

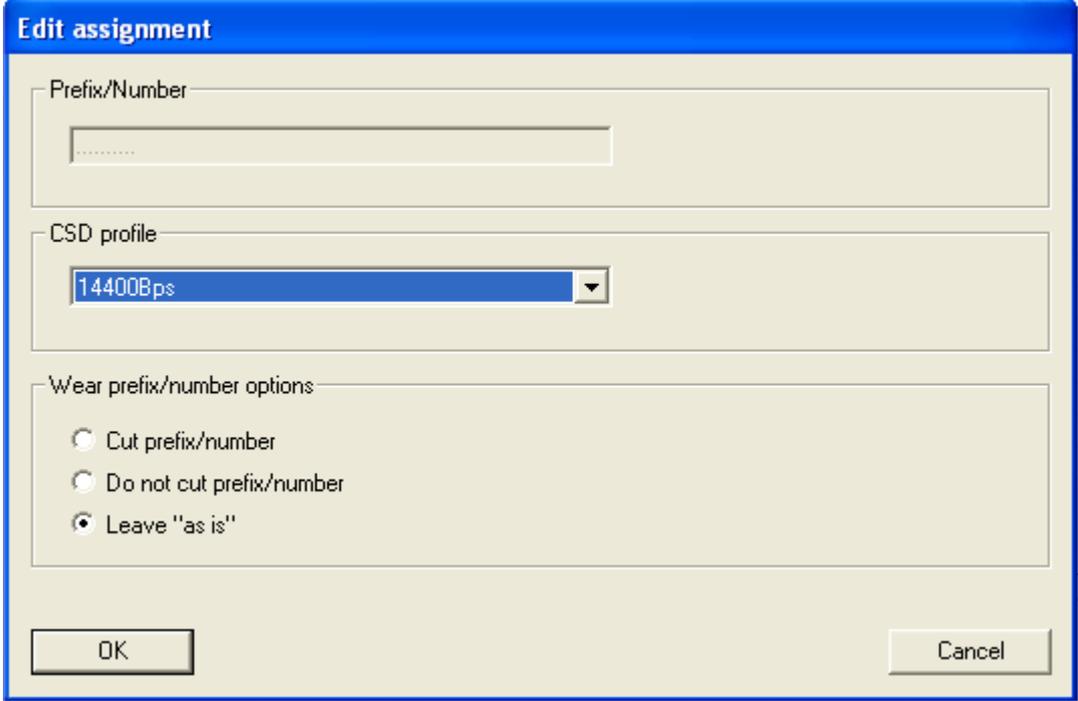
##### Leave "as is"

**This option is only selectable in the edit mode, and only when multiple assignments have been selected to be edited.**

To save any changes, click the **OK** button. To abort any changes to an assignment, click the **Cancel** button.

## Editing multiple assignments

To edit multiple assignments, select the assignments from the list and click the **Edit** button and the following dialog will appear:



The screenshot shows a dialog box titled "Edit assignment". It has three main sections. The first section, "Prefix/Number", contains a text input field. The second section, "CSD profile", contains a dropdown menu with "14400Bps" selected. The third section, "Wear prefix/number options", contains three radio buttons: "Cut prefix/number", "Do not cut prefix/number", and "Leave "as is" (which is selected). At the bottom of the dialog are "OK" and "Cancel" buttons.

### Prefix/Number

This field is not editable when multiple assignments are selected for editing.

### CSD profile

The name of the CSD profile that is to be assigned to the number or prefix entered in the previous field.

### Wear prefix/number options

For each assignment, there are various options regarding the prefix/number. These are:

#### Cut prefix/number

The prefix or number will be cut from the number received by the NMG. This allows a grouping of devices to be contacted using one particular profile (for example all devices that are to be connected with the data rate 9600, could have the number 9600 prefixed to the actual number, and cut in the assignment profile. This allows the NMG system to assign a specific CSD profile to this group of devices).

#### Do not cut prefix/number

The prefix/number will not be altered in any way.

#### Leave "as is"

The individual option for each assignment will not be changed, but left "as-is".

To save any changes, click the **OK** button. To abort any changes to an assignment, click the **Cancel** button.

## 2 What's new

### What's new

#### What's new in version 6.5

##### New Features

###### TLS Security Options

- It is possible to configure the SSL Verify Depth for MNT, SIP and NMS Tasks. The maximal possible Depth is 9. Previously, the SSL Verify Depths for MNT, SIP and NMS Tasks were fixed. MNT and NMS Task had a fixed depth of one, SIP Task has a fixed depth of 2.
- It is possible to import more than one CA-Certificate for MNT, SIP and NMS Tasks. The maximal number of CA-Certificates for each task is 12.
- It is possible to view the imported CA-Certificates.
- If a TLS-licence is imported successfully, NTConf will carry out the following checks and operations:
  - Disable all available IP services except SIP-TLS IP service with destination port/ send port /receive port = 5061 and "activated authorization" disabled.
  - If a SIP-TLS IP service is not configured yet, NTConf does this automatically, in this case, it will configure an activated SIP-TLS IP service, its destination port/ send port /receive port will be set to 5061 and activated authorization will be disabled.
  - NTConf will check the configuration under NIP->SIP (Voip)->Mapping Lists->User mapping and Local mapping. If mapping exists, NTConf will add in a port number 5061 to the IP address if this port number has not been configured.

###### Call Home

It is possible to configure a second ISDN-Number/ IP/Domain-address for Call Home. This second ISDN-Number/ IP/Domain-address is optional. Novatec firmware will first try to send its events to the first ISDN-Number/ IP/Domain-address. On failure, the firmware will switch to send its events to the second ISDN-Number/ IP/Domain-address after ca. 10 minutes.

###### Network options->TLS-Settings

- The SSL Verify Depth for NTConf, Call Server and TI-Cleint is not limited to one.
- Like previous release, "Network options->TLS-Settings" supports import of only **one** CA-Certificate.
- If the user wishes to have SSL Verify Depth greater than one, he has to use an editor to concatenate its CA-Certificates to **one** file for import.

##### Changes

None

##### Bug fixes

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