Manual
Workshops (Excerpt)

Telephony Workshops

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Chapter 1 Telephony - Configuration access for users and special applications

1.1 Introduction

The system administrator can set up an individual configuration access for all users. The user can thus display your most important personal settings and individually customise some of these. For this, a **user name** and **password** must be entered in the user HTML configuration, and personal access authorised.

There are basically two different types of user access: Access that is defined freely by the administrator and the users that are assigned to the system phonebook, call records, hotel function and mini call center. The users created by the administrator have access to a restricted configuration interface. Users that assigned to applications can view the menu corresponding to the applications, as also available to the administrator.

Help on the configuration options available can be found on the online help system.

The **GUI** (Graphical User Interface) is used for configuration.

Requirements

- An **elmeg hybird 300** or **elmeg hybird 600**
- A boot image of version 9.1 Rev. 2 or later
- A configured basic scenario for telephony over VoIP or ISDN and optionally a configure scenario for hotel reception or mini call center, If configuring basic scenarios, please consult the instructions in the **Quick Install Guide** and the corresponding **Workshops**.

1.2 Configuration

1.2.1 Configuration access for users

Set up a separate configuration access for the users on your system via which they can modify telephony settings and can call up status information.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **Authorizations**.

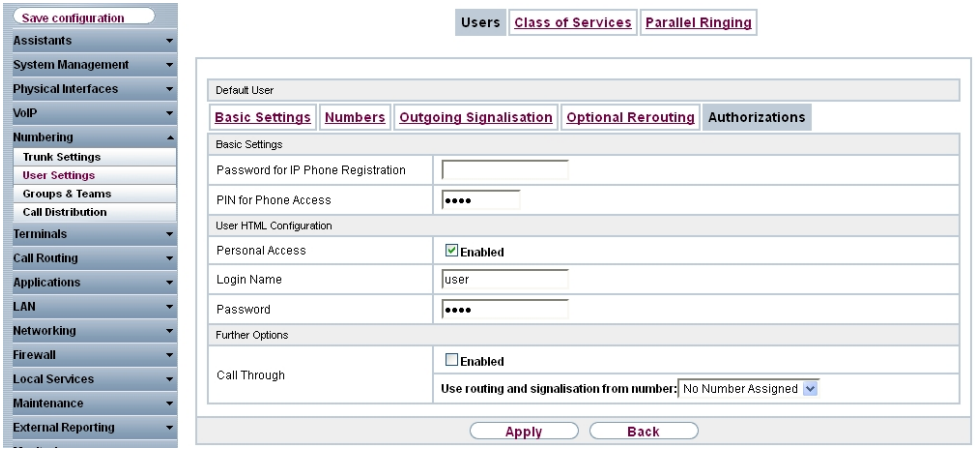


Fig. 1: **Numbering** -> **User settings** -> **Users** -> **Authorisations**

Proceed as follows:

(1) Enable **Personal Access**.
Enter a **Login Name** for this user, e.g. `user`.

(2) Enter a **Password** for this user, e.g. `user`. This is required for login on the user interface.

(3) Click **Apply**.

This concludes the configuration. The user can now log in with the user name and the password and change specific configurations using the HTML configuration.

Results:

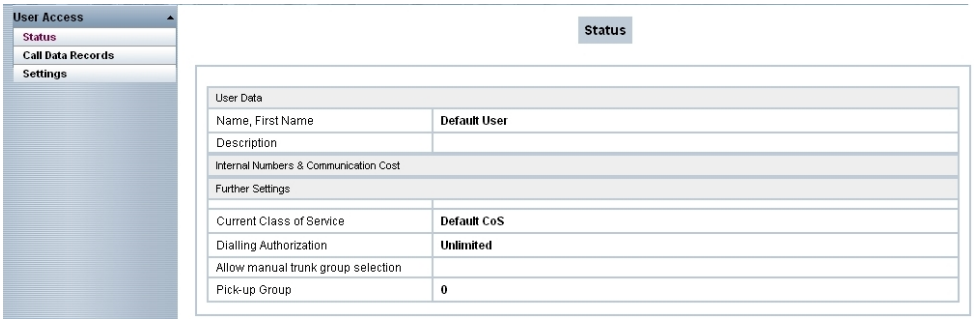


Fig. 2: User configuration interface

1.2.2 Applications

For the system phonebook, call records, hotel reception and mini call center management applications, configuration access can be set up by the administrator through which special tasks can be performed.

System Phonebook

In the **General** submenu define the user name and password for system phonebook administration.

(1) Go to **Applications** -> **System Phonebook** -> **General**.

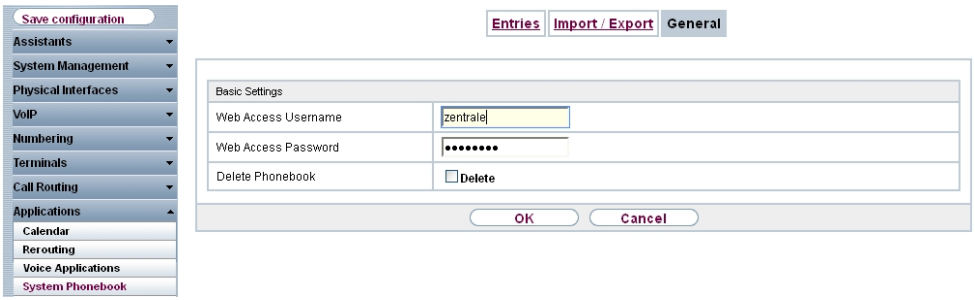


Fig. 3: **Applications**-> **System Phonebook** -> **General**

Proceed as follows:

(1) Enter a **Web Access Username** for the system phonebook administrator, e.g. `zentrale`. In the phone book area, the administrator can view and modify the phone book, as well as import and export data.

(2) Enter a **Web Access Password** for the system phonebook administrator, e.g. `zentrale`.

(3) Press **OK** to confirm your entries.

Results:

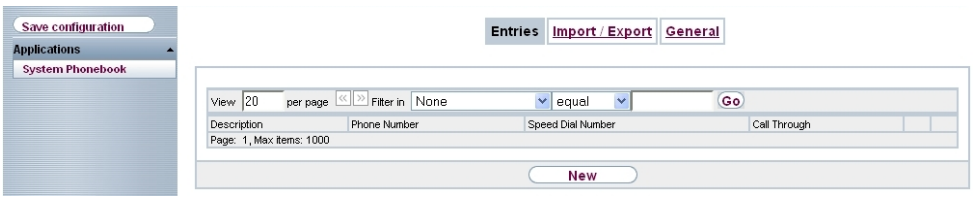


Fig. 4: Configuration access for system phonebook administrator

Connection data

You can set up a special configuration access to manage the system **call records** via which the data for incoming and outgoing calls can be viewed. The type and format of the data recorded can also be configured and the data records can be exported or deleted.

(1) Go to **Applications** -> **Call Data Records** -> **General**.

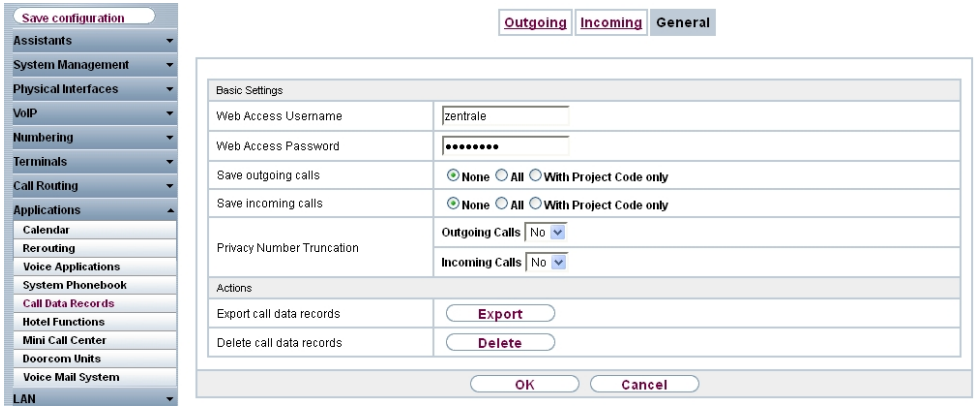


Fig. 5: **Applications** -> **Call Data Records** -> **General**

Proceed as follows:

(1) Enter a **Web Access Username** for the call records administrator, e.g. `zentrale`.

(2) Enter a **Web Access Password** for the call records administrator, e.g. `zentrale`.

(3) Press **OK** to confirm your entries.

Results:

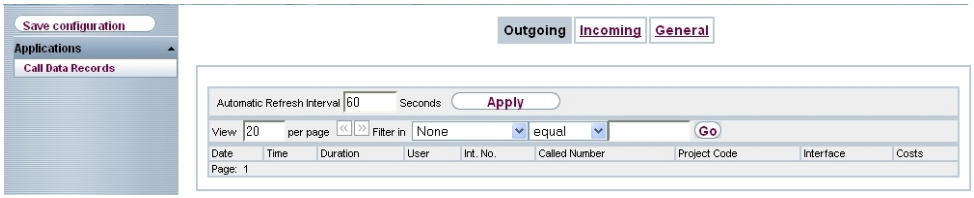


Fig. 6: Configuration access for call records administrator

Hotel functions

The administrator can set up a separate configuration access for the hotel reception so that it can manage hotel rooms and guests.

(1) Go to **Applications** -> **Hotel Functions** -> **General**.

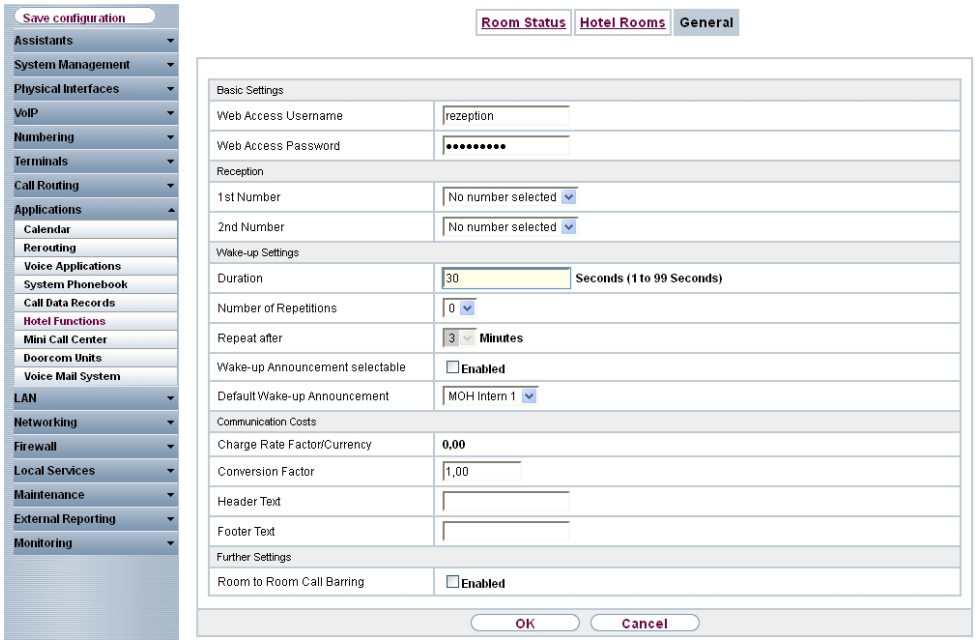


Fig. 7: **Applications** -> **Hotel Functions** -> **General**

Proceed as follows:

(1) Enter a **Web Access Username** for the user at reception, e.g. `rezeption`. The latter thus gains access to your system's reception functions.

(2) Enter a **Web Access Password** for the user at reception, e.g. `rezeption`.

(3) Press **OK** to confirm your entries.

Results:

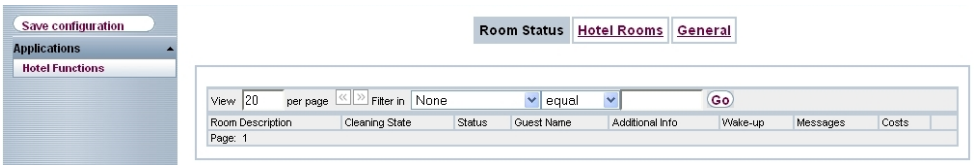


Fig. 8: Configuration access for hotel reception

Mini call centre

The mini call centre is an integrated call centre solution for up to 16 agents. In the **General** submenu you can set up an HTML web interface access for the mini call center line. The latter can then monitor the status of lines and agents, and modify the settings for lines and

agents.

(1) Go to **Applications** -> **Mini Call Center** -> **General**.

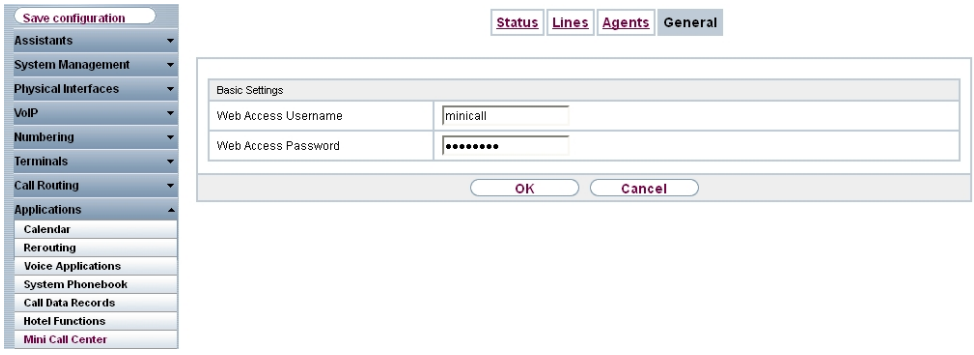


Fig. 9: **Applications** -> **Mini Call Center** -> **General**

Proceed as follows:

(1) Enter a **Web Access Username** for the mini call center administrator, e.g. *minicall*. When a user logs into the user interface under this name, he/she has access to the user interface with selected parameters for administration of the call centre.

(2) Enter a **Web Access Password** for the mini call center administrator, e.g. *minicall*.

(3) Press **OK** to confirm your entries.

Results:

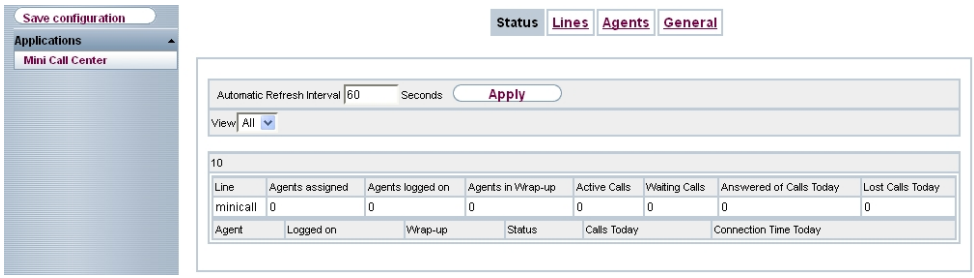


Fig. 10: Configuration access for mini call center administrator

1.3 Overview of configuration steps

Configuration access for users

Field	Menu	Value
Personal Access	**Numbering** -> **User settings** -> **Users** -> **Authorisations**	*Enabled*
Login Name	**Numbering** -> **User settings** -> **Users** -> **Authorisations**	e.g. *user*
Password	**Numbering** -> **User settings** -> **Users** -> **Authorisations**	e.g. *user*

System phonebook administration

Field	Menu	Value
Web Access Username	**Applications** -> **System Phonebook** -> **General**	e.g. *zentrale*
Web Access Password	**Applications** -> **System Phonebook** -> **General**	e.g. *zentrale*

Call records administration

Field	Menu	Value
Web Access Username	**Applications** -> **Call Data Records** -> **General**	e.g. *zentrale*
Web Access Password	**Applications** -> **Call Data Records** -> **General**	e.g. *zentrale*

Hotel reception

Field	Menu	Value
Web Access Username	**Applications** -> **Hotel Functions** -> **General**	e.g. *rezeption*
Web Access Password	**Applications** -> **Hotel Functions** -> **General**	e.g. *rezeption*

Mini call center administration

Field	Menu	Value
Web Access Username	**Applications** -> **Mini Call Center** -> **General**	e.g. *minicall*

Field	Menu	Value
Web Access Password	**Applications** -> **Mini Call Center** -> **General**	e.g. *minicall*

Chapter 2 Telephony - Setting up ISDN point-to-multipoint connections and ISDN telephones on the elmeg hybird

2.1 Introduction

The following section describes how to connect the **elmeg hybird** to an ISDN point-to-multipoint connection and how to connect ISDN telephones.

In the example scenario, all employees of a small company should be able to call via a standard ISDN point-to-multipoint connection (2 parallel connections, maximum 10 MSN) without restrictions. Each employee is assigned one MSN.

The **GUI** (Graphical User Interface) is used for configuration.

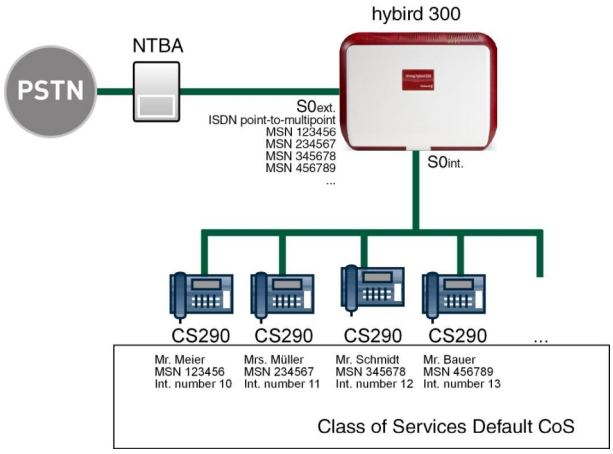


Fig. 11: Example scenario

Requirements

- An **elmeg hybird 300** or **elmeg hybird 600**
- ISDN telephones
- One ISDN point-to-multipoint connection with up to 10 MSN
- A boot image of version 9.1 Rev. 2 or later

2.2 Configuration

2.2.1 Establish external line

The port used for the external ISDN connection must be set up for the access type point-to-multipoint connection (P-MP).

Note

Before the configuration, make sure that a port on your module can be used as an external ISDN connection (coding plug for S0-TE inserted). For a description of the physical switching process, please read the corresponding chapter in the **Installation Manual**.

These assistants guide you through all of the settings required set up and configure an analogue, ISDN or VoIP connection.

Note

You can make changes to an ISDN connection via the GUI. If you start the PBX assistant for this ISDN connection again, all settings made via the GUI will be reset to their default values.

Go to the following menu to configure the ISDN P-MP connection:

(1) Go to **Assistants** -> **PBX** -> **Trunks** -> **New**.

(2) Choose under **Connection Type** *ISDN*.

(3) Click on **Next** to configure a new ISDN P-MP connection.

(4) Enter the data required for the connection.

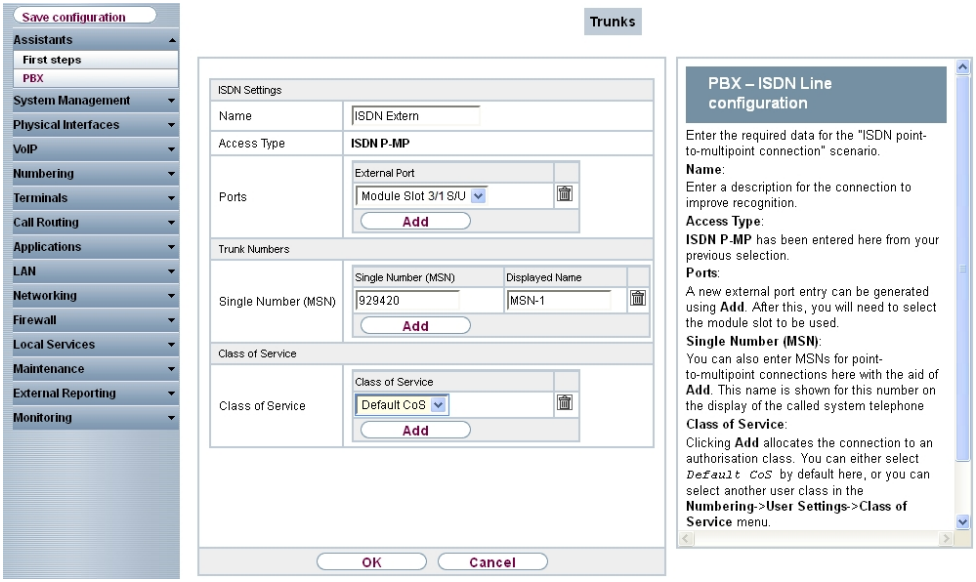


Fig. 12: **Assistants** -> **PBX** -> **New** -> **Next**

Proceed as follows:

(1) For easier recognition enter a description for the connection under **Name**, e.g. *ISDN Extern*.

(2) The **Access Type** *ISDN P-MP* cannot be changed, since it depends on your previous choices.

(3) Under **Ports** click **ADD** and select the entry *Module Slot 3/1 S/U*.

(4) Click **ADD** and enter a **Single Number (MSN)** and **Displayed Name** for all external multiple subscriber numbers, e.g *929420* and *MSN-1*.

(5) Under **Class of Service** click **ADD** and select the class *Default CoS* .

(6) Confirm with **OK**.

A successfully established ISDN multipoint connection is marked with a .

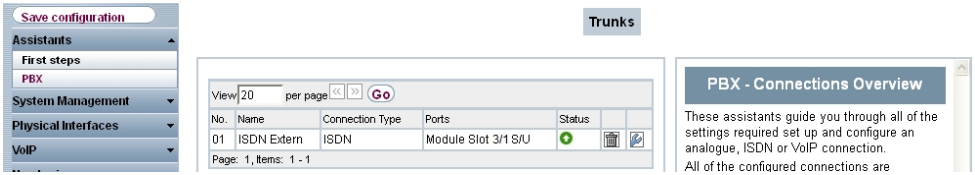


Fig. 13: **Assistants** -> **PBX** -> **Trunks**

2.2.2 Defining users

Users of your system receive internal numbers and are assigned to the predefined class of service to define the use of external lines and the general features. Assigning the configured external connections to one of the numbers determines which number is displayed for incoming calls.

The *Default Users* is configured by default. This can be adapted to suit individual requirements. For this, go to the following menu:

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **Default User** -> **Basic Settings**.

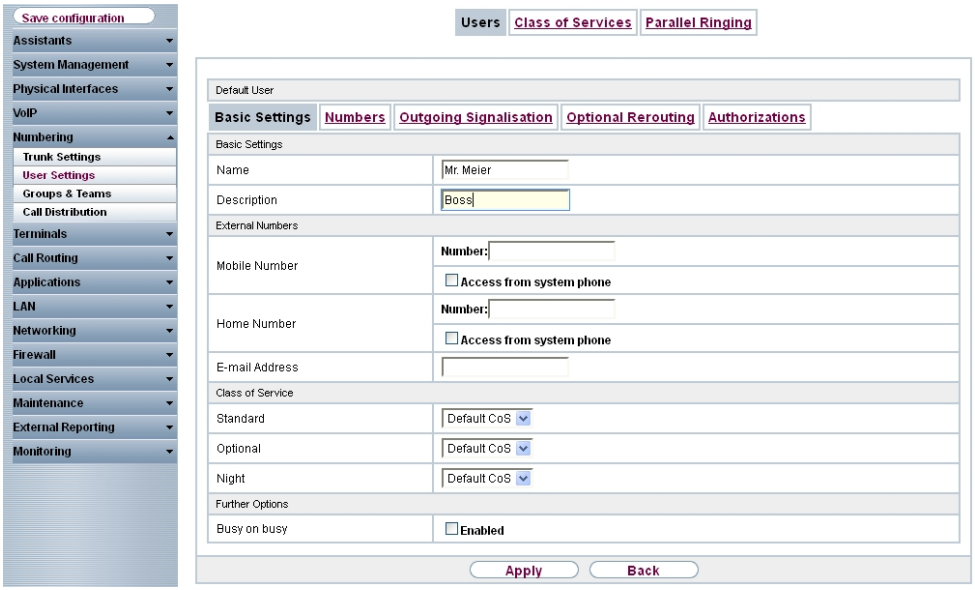


Fig. 14: **Numbering** -> **User Settings** -> **Users** -> **Default User** -> **Basic Settings**

Proceed as follows:

(1) Enter the **Name** of the user. The **name** is shown on the display of the system telephone. In the example, the **name** of the user is *Mr. Meier*.

(2) Enter additional information about the user under **Description**, e.g. *Boss*. This information is only provided for the administrator.

(3) Select **Class of Service Standard**, **Optional** and **Night** e.g. *Default CoS*.

(4) Click **Apply**.

In the **Numbers** submenu, the internal numbers are now entered and subsequently assigned to the terminals. Depending on the type, one or more numbers can be assigned per

terminal.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **Mr. Meier** -> **Numbers**.

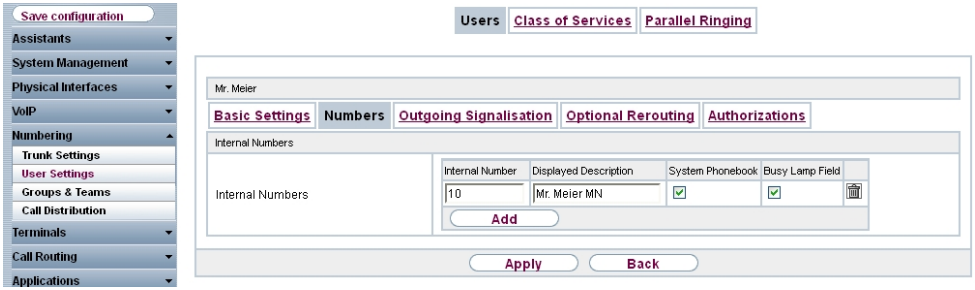


Fig. 15: **Numbering** -> **User Settings** -> **Users** -> **Mr. Meier** -> **Numbers**

Proceed as follows:

(1) Click **Add**.

(2) Under **Internal Numbers** enter the internal numbers that are subsequently assigned to the terminals, e.g. `10`.

(3) Under **Displayed Description** enter the description that is shown on the display of system telephones, e.g. `Mr. Meier MN`.

(4) Select the **System Phonebook** to add internal numbers to the system phonebook.

(5) Click **Apply**.

In the **Outgoing Signalisation** menu, select the number for the user to be displayed when a called party receives a call.

For an outgoing call, if the remote subscriber should not see the number assigned to your own connection, one of the system-configured numbers can be selected here for display. If no number is defined, the system transmits no number to the provider.

Go to the following menu:

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **Mr. Meier** -> **Outgoing Signalisation** -> **Internal Number 10**->.

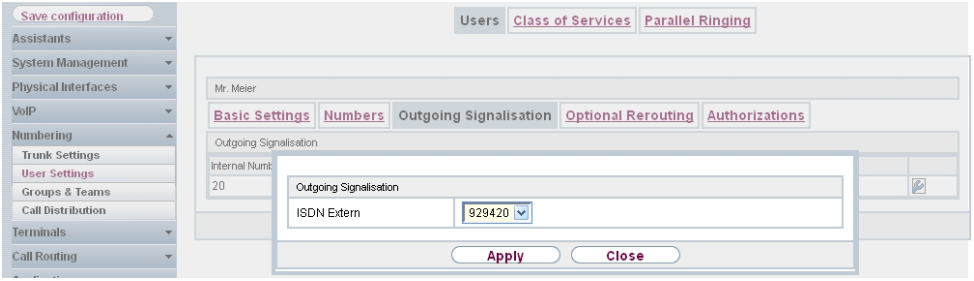


Fig. 16: **Numbering** -> **User Settings** -> **Users** -> **Mr. Meier** -> **Outgoing Signalisation** -> **Internal Number 10**->

Proceed as follows:

(1) Under **ISDN Extern** select the outgoing signalisation, e.g. *929420*.

(2) Click **Apply**.

Create a user profile for all users in your system by selecting **Numbering** -> **User Settings** -> **Users** -> **New** and assign all new users the class of service *Default CoS* and individual internal and external numbers.

In the **Optional Rerouting** menu, for example, you can define to which co-worker calls should be routed.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **Mr. Meier** -> **Optional Rerouting**.

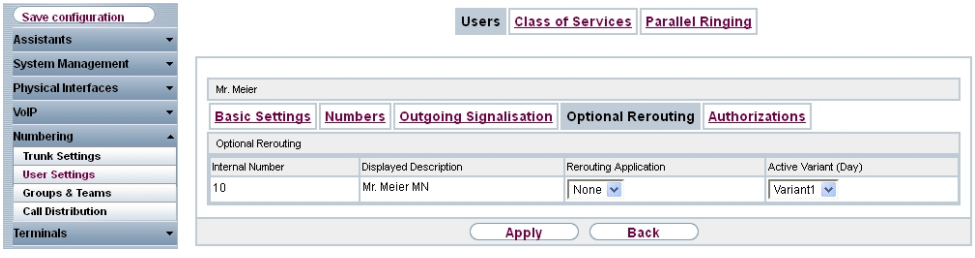


Fig. 17: **Numbering** -> **User Settings** -> **Users** -> **Mr. Meier** -> **Optional Rerouting**

2.2.3 Setting up call distribution

Incoming calls should be distributed to a specific user depending on the external number. To do this, set up a call distribution for the preset external numbers on the configured internal numbers of the user.

The preconfigured external numbers for your external connection are listed in the **Number-**

ing -> **Call Distribution** -> **Incoming Distribution** menu.

Choose for a table entry to carry out a call distribution.

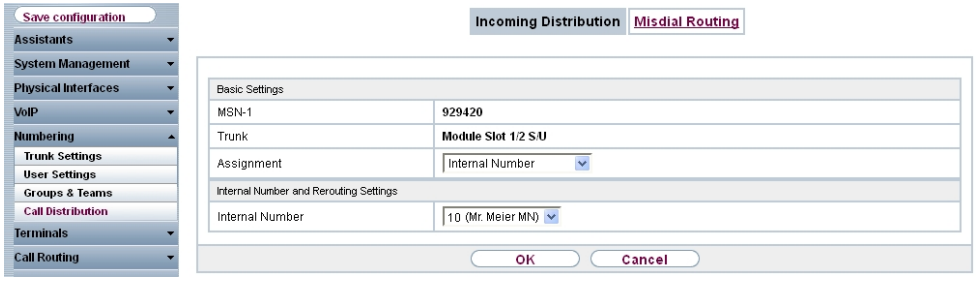


Fig. 18: **Numbering** -> **Call Distribution** -> **Incoming Distribution** -> **929420**

Proceed as follows:

(1) Leave **Assignment** set to *Internal Number*.

(2) Select the **Internal Number** to which the incoming calls shall be forwarded to the selected external number *929420*, e.g. *10 (Mr. Meier MN)*.

(3) Click **OK**.

2.2.4 Setting up and assigning terminals

In the **Terminals** menu, assign the configured internal numbers to the terminals and set additional functions according to terminal type.

(1) Go to **Terminals** -> **Other phones** -> **ISDN** -> **New**.

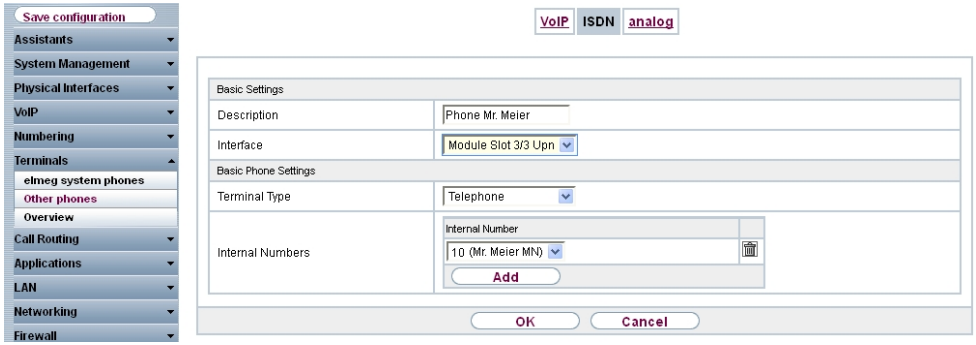


Fig. 19: **Terminals** -> **Other phones** -> **ISDN** -> **New**

Proceed as follows:

(1) Enter a **Description** for the terminal, e.g. *Phone Mr. Meier*.

(2) Select the **Interface** to which the terminal is connected, e.g. *Module slot 3/3 Upn*.

(3) Leave **Terminal Type** set to *Telephone*.

(4) Click **Add** to select the **Internal Numbers** to be assigned to the terminal, e.g. *10 (Mr. Meier MN)*.

(5) Click **OK**.

Next assign a terminal to all other users in your system by selecting **Terminals** -> **Other phones** -> **ISDN** -> **New**.

This concludes the configuration. Users in your system can receive calls to their individual external numbers via their assigned ISDN telephones and make unlimited calls via the external connection.

Save the current configuration as the boot configuration by clicking the **Save Configuration** button.

2.3 Overview of configuration steps

Establish external line

Field	Menu	Value
Connection Type	**Assistants** -> **PBX** -> **Trunks** -> **New**	*ISDN*
Name	**Assistants** -> **PBX** -> **Trunks** -> **Next**	e. g. *ISDN Extern*
Ports	**Assistants** -> **PBX** -> **Trunks** -> **Next**	*Module Slot 3/1 S/U*
Single Number (MSN)	**Assistants** -> **PBX** -> **Trunks** -> **Next**	e. g. *929420* and *MSN-1*
Class of Service	**Assistants** -> **PBX** -> **Trunks** -> **Next**	*Default CoS*

Defining users

Field	Menu	Value
Name	**Numbering** -> **User Settings** -> **Users** -> **Default User** ->**Basic Settings**	e.g. *Mr. Meier*
Description	**Numbering** -> **User Settings** -> **Users** -> **Default User** ->**Basic Settings**	e.g. *Boss*

Field	Menu	Value
Standard	**Numbering** -> **User Settings** -> **Users** -> **Default User** -> **Basic Settings**	e.g. *Default CoS*
Optional	**Numbering** -> **User Settings** -> **Users** -> **Default User** -> **Basic Settings**	e.g. *Default CoS*
Night	**Numbering** -> **User Settings** -> **Users** -> **Default User** -> **Basic Settings**	e.g. *Default CoS*
Internal Numbers	**Numbering** -> **User Settings** -> **Users** -> **Mr. Meier** -> **Numbers**	e.g. *10*
Displayed Description	**Numbering** -> **User Settings** -> **Users** -> **Mr. Meier** -> **Numbers**	e.g. *Mr. Meier MN*
System Phonebook	**Numbering** -> **User Settings** -> **Users** -> **Mr. Meier** -> **Numbers**	Enabled
ISDN Extern	**Numbering** -> **User Settings** -> **Users** -> ->**Mr. Meier** -> **Outgoing Signalisation** -> **Internal Number 10**	e.g. *929420*

Setting up call distribution

Field	Menu	Value
Assignment	**Numbering** -> **Call Distribution** -> **Incoming Distribution** -> **929420**	*Internal number*
Internal Number	**Numbering** -> **Call Distribution** -> **Incoming Distribution** -> **929420**	e.g. *10 (Mr. Meier MN)*

Setting up and assigning terminals

Field	Menu	Value
Description	**Terminals** -> **Other phones** -> **ISDN** -> **New**	e.g. *Phone Mr. Meier*

Field	Menu	Value
Interface	**Terminals** -> **Other phones** -> **ISDN** -> **New**	e.g. *Module Slot 3/3 Upn*
Terminal Type	**Terminals** -> **Other phones** -> **ISDN** -> **New**	*Telephone*
Internal Numbers	**Terminals** -> **Other phones** -> **ISDN** -> **New**	e.g. *10 (Mr. Meier MN)*

Chapter 3 Telephony - Setting up ISDN point-to-point connections and ISDN systems telephones on the elmeg hybird

3.1 Introduction

The following section describes how to connect the **elmeg hybird** to an ISDN point-to-point connection and how to connect ISDN system telephones.

The **GUI** (Graphical User Interface) is used for configuration.

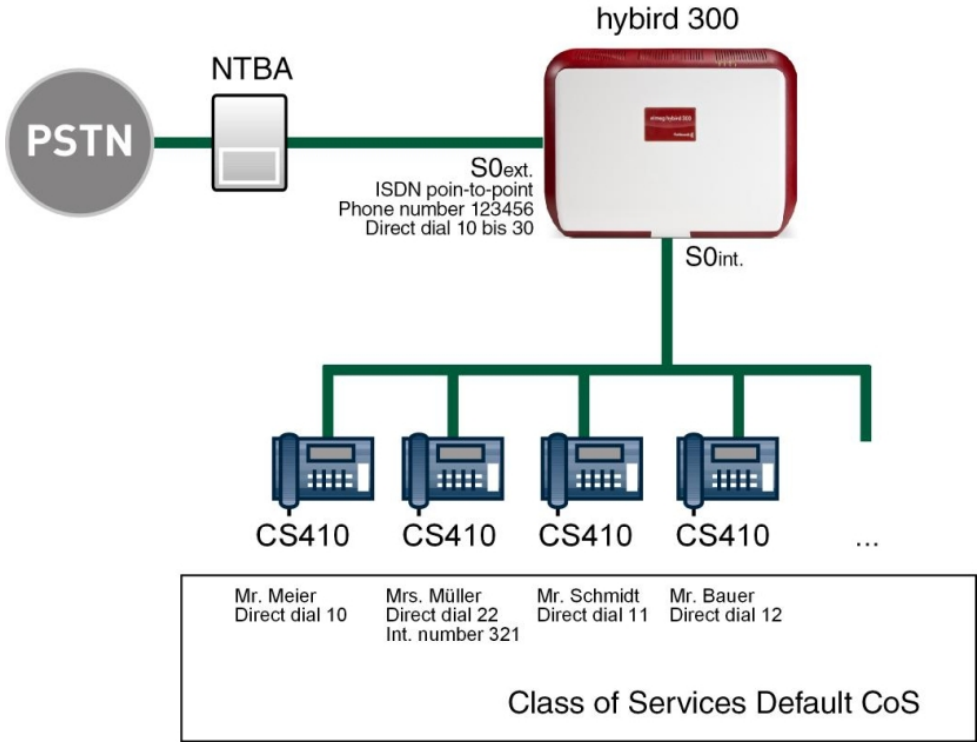


Fig. 20: Example scenario

Requirements

- An **elmeg hybird 300** or **elmeg hybird 600**

- **elmeg** ISDN system telephones
- An ISDN point-to-point connection
- A boot image of version 9.1 Rev. 2 or later

3.2 Configuration

3.2.1 Configuring an ISDN port

The port used for the external ISDN connection must be set up for the access type point-to-point connection (P-P).

Go to the following menu to configure your type of ISDN connection:

(1) Go to **Assistants** -> **PBX** -> **Trunks** -> **New**.

(2) Choose under **Connection Type** `ISDN (P-P)`.

(3) Click on **Next** to configure a new ISDN P-P connection.

(4) Enter the data required for the connection.

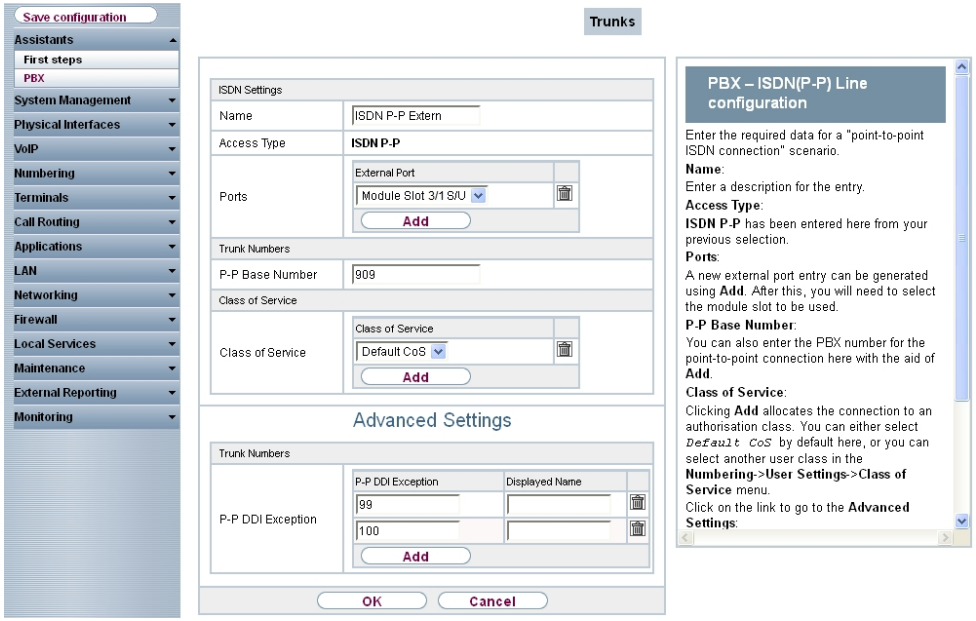


Fig. 21: **Assistants** -> **PBX** -> **New** -> **Next**

Proceed as follows:

(1) For easier recognition enter a description for the connection under **Name**, e.g. `ISDN`

Extern.

(2) The **Access Type** *ISDN P-MP* cannot be changed, since it depends on your previous choices.

(3) Under **Ports** click **ADD** and select the entry *Module Slot 3/1 S/U*.

(4) Enter a **P-P Base Number,** e.g. 909.

(5) Under **Class of Service** click **ADD** and select the class *Default CoS* .

(6) Click on **Advanced Settings**.

(7) Under **P-P DDI Exception** click on **ADD** and enter the direct dial number that - according to your numbering plan - is supposed to be routed to a distinct internal number, e.g. *99* and *100*.

(8) Confirm your settings with **OK**.

A sucessfully established ISDN point-to-point connection is marked with a .

3.2.2 Defining users

Users of your system receive internal numbers and are assigned to the predefined class of service to define the use of external lines and the general features. Assigning the configured external connections to one of the numbers determines which number is displayed for incoming calls.

The *Default Users* is configured by default. This can be adapted to suit individual requirements. For this, go to the following menu:

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **Default User** -> **Basic Settings**.

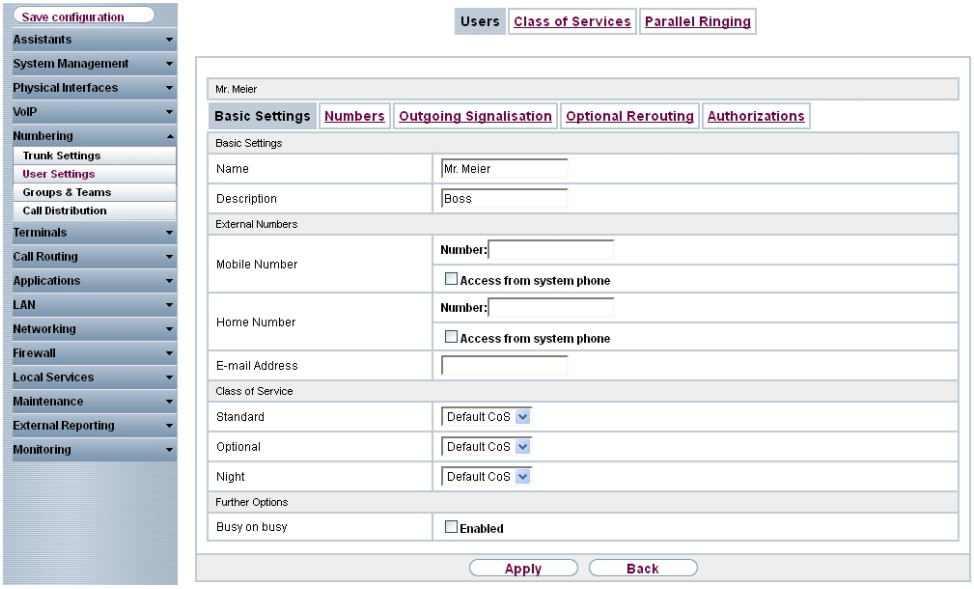


Fig. 22: **Numbering** -> **User Settings** -> **Users** -> **Default User** -> **Basic Settings**

Proceed as follows:

(1) Enter the **Name** of the user. The **Name** is shown on the display of the system telephone. In the example, the **name** of the user is `Mr. Meier`.

(2) Enter additional information about the user under **Description**, e.g. `Boss`. This information is only provided for the administrator.

(3) Select **Class of Service Standard**, **Optional** and **Night** e.g. `Default CoS`.

(4) Click **Apply**.

The direct dialling range numbers that you have been assigned by the network provider are entered in the **Numbers** submenu along with your individual internal numbers. Depending on the type, one or more numbers can be assigned per terminal.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **Mr. Meier** -> **Numbers**.

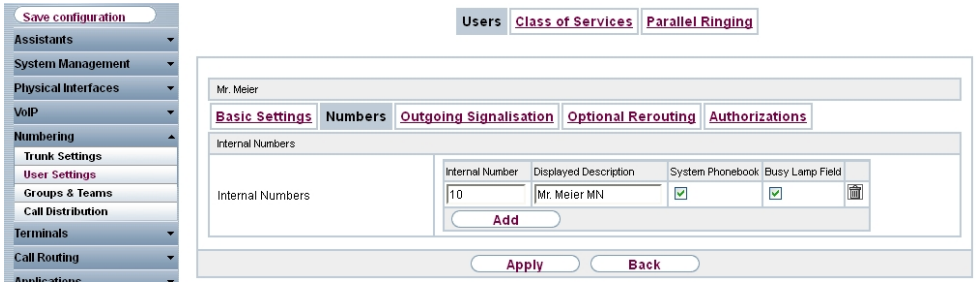


Fig. 23: **Numbering** -> **User Settings** -> **Users** -> **Mr. Meier** -> **Numbers**

For direct dialling range numbers according to the number range that are to be reached directly, proceed as follows:

(1) Click **Add**.

(2) Under **Internal Number** enter the direct dialling range number according to the number range, e.g. *10*.

(3) Under **Displayed Description** enter the description that is shown on the display of system telephones, e.g. *Mr. Meier MN*.

(4) Select the **System Phonebook** to add internal numbers to the system phonebook.

(5) Click **Apply**.

For direct dialling range numbers that are to be forwarded to an individual internal number, proceed as follows:

(1) Click **Add**.

(2) Under **Internal Number** enter an individual internal number, e.g. *321*.

(3) Under **Displayed Description** enter the description that is shown on the display of system telephones, e.g. *Ms. Müller*.

(4) Select the **System Phonebook** to add internal numbers to the system phonebook.

(5) Click **Apply**.

The individual internal numbers are assigned to the chosen direct dialling range numbers according to number range in a later step during **Incoming Distribution**.

In the **Outgoing Signalisation** menu, select the number for the user to be displayed when a called party receives a call.

For an outgoing call, if the remote subscriber should not see the number assigned to your own connection, one of the system-configured numbers can be selected here for display. If no number is defined, the system transmits no number to the provider.

Go to the following menu:

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **Mr. Meier** -> **Outgoing Signal-**

isation -> **Internal Number 10**.

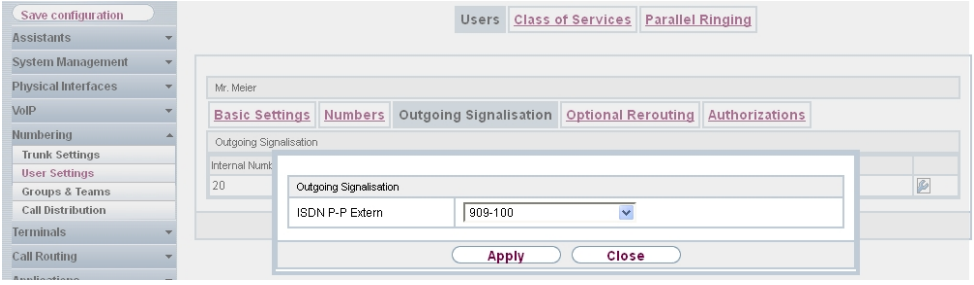


Fig. 24: **Numbering** -> **User Settings** -> **Users** -> **Mr. Meier** -> **Outgoing Signalisation** -> **Internal Number 10**

Proceed as follows:

(1) Under **ISDN P-P Extern** select *909-100*.

(2) Click **Apply**.

Repeat this configuration step for each user in your system.

In the **Optional Rerouting** menu, for example, you can define to which co-worker calls should be routed.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **Mr. Meier** -> **Optional Rerouting**.

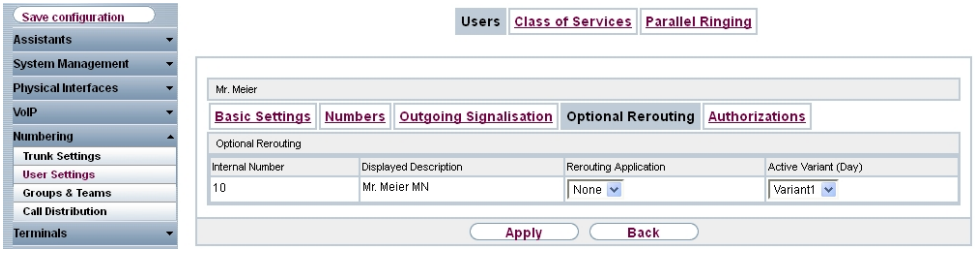


Fig. 25: **Numbering** -> **User Settings** -> **Users** -> **Mr. Meier** -> **Optional Rerouting**

3.2.3 Setting up call distribution

Incoming calls should be distributed to a specific user depending on the external number.

If the user has been assigned a direct dialling range number according to number range as an internal number, incoming calls are forwarded automatically to the terminal assigned to the user.

If an incoming call to a direct dialling range number according to number range is forwarded to an individual internal number, you will need an incoming distribution for the preset P-P DDI Exception.

The preconfigured P-P DDI Exception for your external connection are listed in the **Numbering** -> **Call Distribution** -> **Incoming Distribution** menu.

Choose for a table entry to carry out a call distribution.

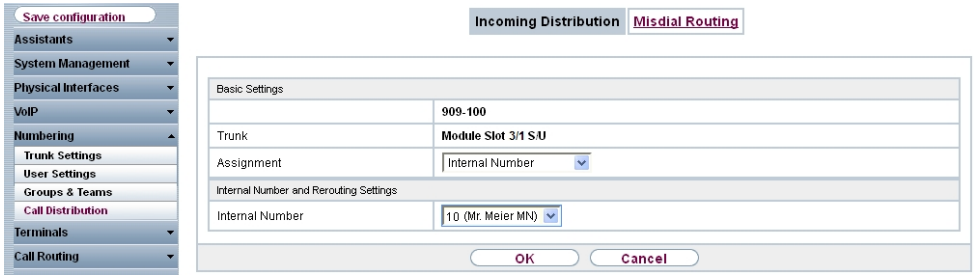


Fig. 26: **Numbering** -> **Call Distribution** -> **Incoming Distribution** ->

Proceed as follows:

(1) Leave **Assignment** set to *Internal Number*.

(2) Select the **internal number** to which the incoming calls shall be forwarded, e.g. *10 (Mr. Meier MN)*.

(3) Click **OK**.

Repeat this configuration step for all configured direct dial exceptions.

3.2.4 Setting up and assigning terminals

In the **Terminal** menu, assign the configured internal numbers to the terminals and set additional functions according to terminal type.

(1) Go to **Terminals** -> **elmeg System Phones** -> **System Phone** -> ->**General**.

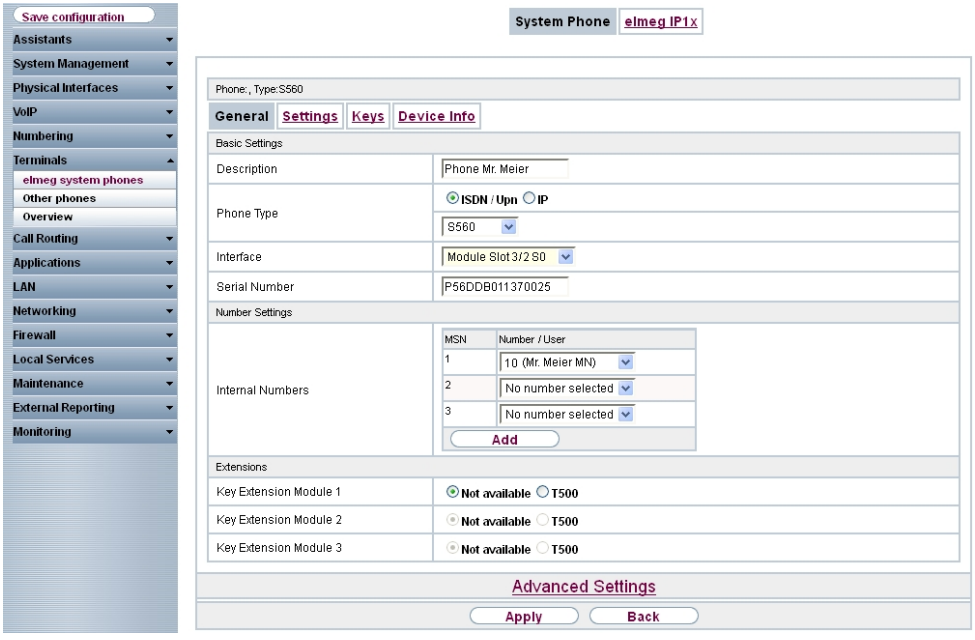


Fig. 27: **Terminals** -> **elmeg System Phones** -> **System Phone** -> ->**General**

Proceed as follows:

(1) Enter a **description** for the terminal, e.g. *`Phone Mr. Meier`*.

(2) Select the **Internal Numbers** to be assigned to the terminal, e.g. *`10 (Mr. Meier MN)`*.

(3) Click **Apply**.

Once the general configuration of the telephone has been enabled with **Apply**, you will see additional menus for the individual configuration of the system telephone. On the **Settings** page, for example, you can configure settings for the use of a headset, call waiting, do not disturb and advanced settings for features. On the **Keys** page you can assign various functions to the individual keys of the telephone. The **Device Info** page shows a summary of all of the most important telephone settings.

Next assign a terminal to all other users in your system by selecting **Numbering** -> **Terminal Assignment** -> **System Phone** -> **New**.

This concludes the configuration. Backup the current configuration with the key **Save Configuration** as the boot configuration.

3.3 Overview of configuration steps

Configuring an ISDN port

Field	Menu	Value
Connection Type	**Assistants** -> **PBX** -> **Trunks** -> **New**	*ISDN (P-P)*
Name	**Assistants** -> **PBX** -> **Trunks** -> **Next**	e. g. *ISDN (P-P) Extern*
Ports	**Assistants** -> **PBX** -> **Trunks** -> **Next**	*Module Slot 3/1 S/U*
P-P Base Number	**Assistants** -> **PBX** -> **Trunks** -> **Next**	e. g. *909*
Class of Service	**Assistants** -> **PBX** -> **Trunks** -> **Next**	*Default CoS*
(P-P) DDI Exception	**Assistants** -> **PBX** -> **Trunks** -> **Next** -> **Advanced Settings**	e. g. *99* and *100*

Defining users

Field	Menu	Value
Name	**Numbering** -> **User Settings** -> **Users** -> **Default User** ->**Basic Settings**	e.g. *Mr. Meier*
Description	**Numbering** -> **User Settings** -> **Users** -> **Default User** ->**Basic Settings**	e.g. *Boss*
Default	**Numbering** -> **User Settings** -> **Users** -> **Default User** -> **Basic Settings**	e.g. *Default CoS*
Optional	**Numbering** -> **User Settings** -> **Users** -> **Default User** -> **Basic Settings**	e.g. *Default CoS*
Night	**Numbering** -> **User Settings** -> **Users** -> **Default User** -> **Basic Settings**	e.g. *Default CoS*
Internal Numbers	**Numbering** -> **User Settings** -> **Users** -> **Mr Meier**	e.g. *10*

Field	Menu	Value
	-> **Numbers**	
Displayed Description	**Numbering** -> **User Settings** -> **Users** -> **Mr Meier** -> **Numbers**	e.g. *Mr. Meier MN*
System Phonebook	**Numbering** -> **User Settings** -> **Users** -> **Mr Meier** -> **Numbers**	*Enabled*
ISDN P-P Extern	**Numbering** -> **User Settings** -> **Users** -> ->**Mr Meier** -> **Outgoing Signalisation** -> **Internal Number 10**	e.g. *909-100*

Setting up call distribution for direct dial exceptions

Field	Menu	Value
Assignment	**Numbering** -> **Call Distribution** -> **Incoming Distribution** ->	*Internal number*
Internal Number	**Numbering** -> **Call Distribution** -> **Incoming Distribution** ->	e.g. *321 (Ms. Müller)*

Setting up and assigning terminals

Field	Menu	Value
Description	**Terminals** -> **elmeg System Phones** -> **System Phone** -> **General**	e.g. *Phone Mr. Meier*
Internal Numbers	**Terminals** -> **elmeg System Phones** -> **System Phone** -> **General**	e.g. *10 (Mr. Meier MN)*

Chapter 4 Telephony - Setting up a mini call center on the elmeg hybird

4.1 Introduction

The mini call centre is an integrated call centre solution for up to 16 agents. It provides the ideal solution for small groups with high dynamic telecommunication volumes (e.g insides sales, support, order acceptance/processing, customer service). Here, a specific solution with its own administrator has been integrated.

In the example, a mini call center is set up with one line and four agents. The business hours of the mini call center are 6 am to 6 pm. The signalling variants of the mini call center are automatically switched through the internal system calendar. During business hours, calls that are received on the external ISDN connection for the mini call center are signalled automatically to all agents. Outside of business hours, an announcement is played back immediately from the tape. On Saturdays and Sundays, the announcement is played back all day.

GUI is used for configuration.

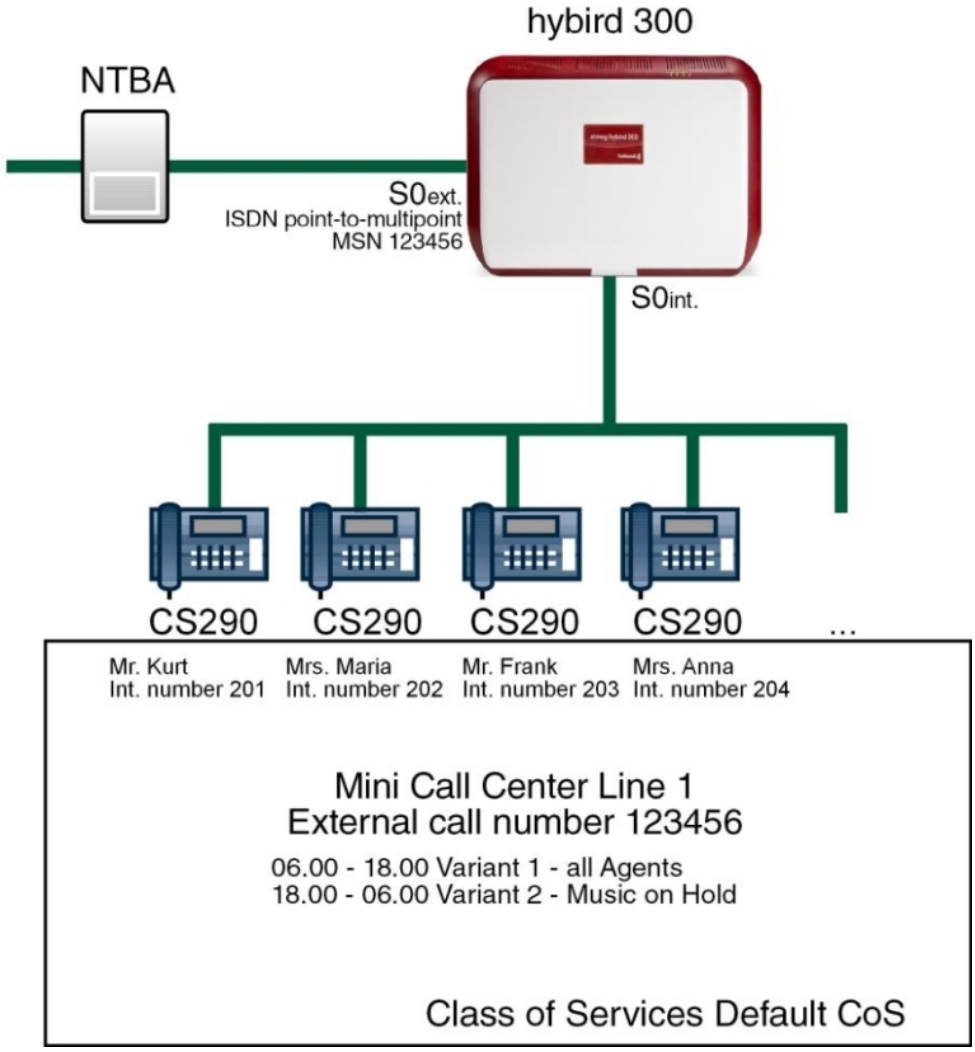


Fig. 28: Example scenario

Requirements

- An **elmeg hybird 300** or **elmeg hybird 600**
- System phone
- A boot image of version 9.1 Rev. 2 or later
- An external ISDN connection
- Correctly entered system time

4.2 Configuration

4.2.1 Configuring an ISDN port

The port used for the external ISDN connection must be set up for the access type point-to-multipoint connection (P-MP).

Note

Before the configuration, make sure that a port on your module can be used as an external ISDN connection (coding plug for S0-TE inserted). For a description of the physical switching process, please read the corresponding chapter in the **Installation Manual**.

Go to the following menu to configure the ISDN P-MP connection:

(1) Go to **Assistants** -> **PBX** -> **Trunks** -> **New**.

(2) Choose under **Connection Type** *ISDN*.

(3) Click on **Next** to configure a new ISDN P-MP connection.

(4) Enter the access data required for the connection.

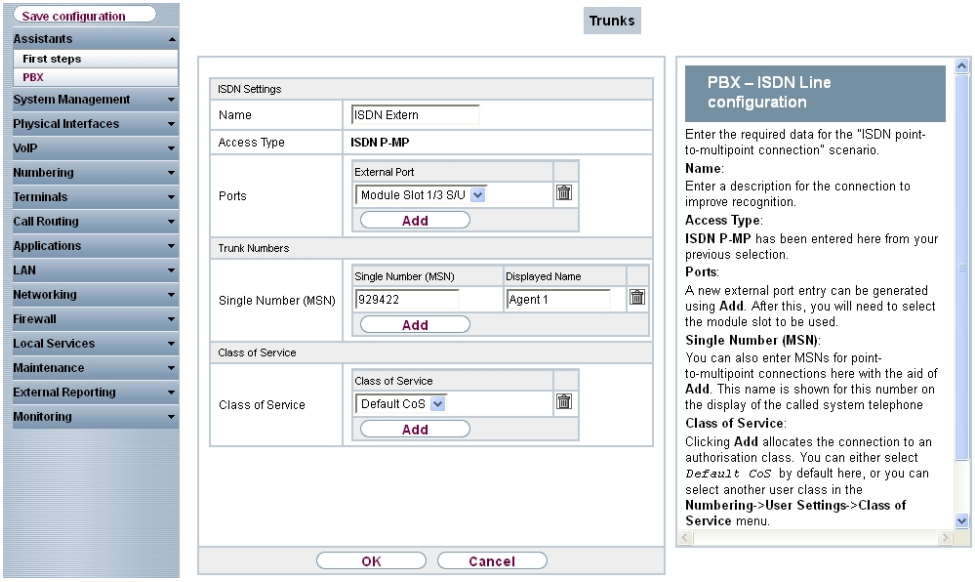


Fig. 29: **Assistants** -> **PBX** -> **New** -> **Next**

Proceed as follows:

(1) For easier recognition enter a description for the connection under **Name**, e.g. *ISDN Extern*.

(2) The **Access Type** *ISDN P-MP* cannot be changed, since it depends on your previous choices.

(3) Under **Ports** click **ADD** and select the entry *Module Slot 3/1 S/U*.

(4) Click **ADD** and enter a **Single Number (MSN)** and **Displayed Name** for all external multiple subscriber numbers, e.g *929420* and *MSN-1*.

(5) Confirm your settings with **OK**.

A successfully established ISDN multipoint connection is marked with a .

4.2.2 Defining a class of service

The **Class of Services** menu defines the functions and features for classes of users with different authorization levels. Users of your systems receive individual authorizations when they are allocated to an class of services.

The authorisation class *Default CoS* is configured by default. Leave this set to the default settings and create a new class of service for your mini call center. For this, go to the following menu:

(1) Go to **Numbering** -> **User Settings** -> **Class of Services** -> **New** -> **Basic Settings**.

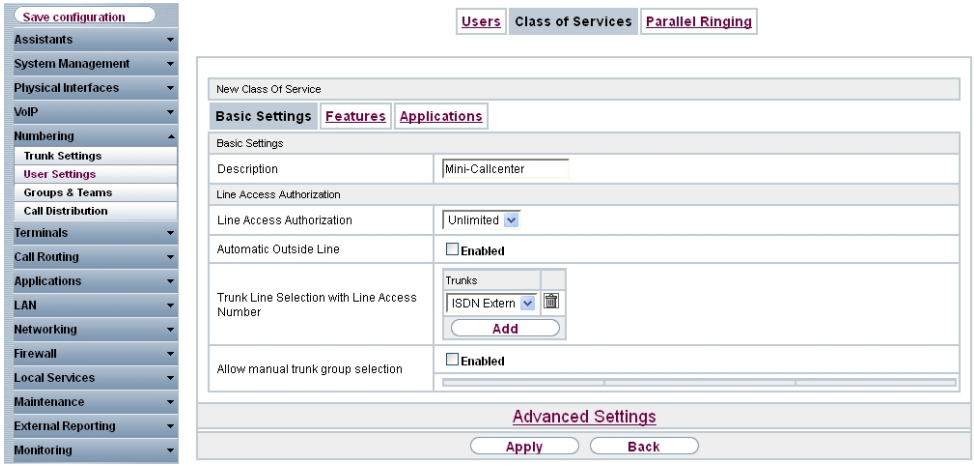


Fig. 30: **Numbering** -> **User Settings** -> **Class of Services** -> **New** -> **Basic Settings**

Proceed as follows:

(1) Enter *Mini Call Center* as the **Description** for the user group.

(2) Leave the **Line Access Authorization** set to *Unlimited*.

(3) Choose **Add** under **Trunk Line Selection with Line Access** to select the configured connection, in this example *ISDN Extern*.

(4) Click **Apply**.

4.2.3 Defining users

Each agent of your mini call center must be entered as a **user** of your system. As a result, all agents receive internal numbers and are assigned to the predefined class of service to define the use of external lines and the general features. Assigning the configured external connections to one of the numbers determines which number is displayed for incoming calls.

The *Default Users* is configured by default. Leave this set to the default settings and create new users for your mini call center agents. For this, go to the following menu:

(1) Go to **Numbering** -> **User Settings** ->**Users** -> **New** -> **Basic Settings**.

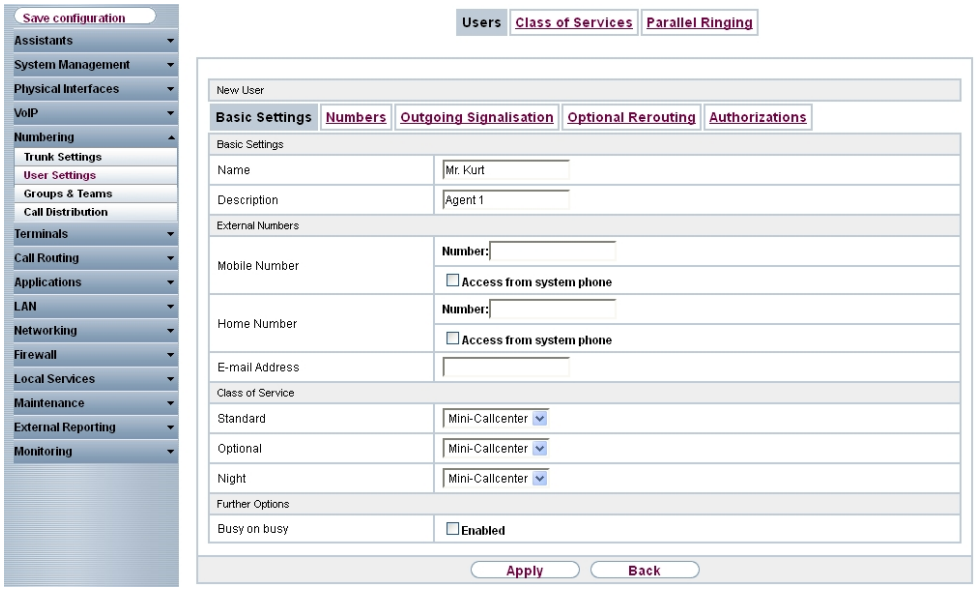


Fig. 31: **Numbering** -> **User Settings** -> **Users** -> **New** -> **Basic Settings**

Proceed as follows:

(1) Enter the **Name** of the agent. In the example, the **Name** of the agent is *Mr. Kurt*.

(2) Enter additional information about the agent under **Description**, e.g. *Agent 1*. This information is only provided for the administrator.

(3) Select **Class of Service Standard**, **Optional** and **Night** e.g. *Mini Call Center*.

(4) Click **Apply**.

In the **Numbers** submenu, the internal numbers are now entered and subsequently assigned to the terminals. Depending on the type, one or more numbers can be assigned per terminal.

(1) Go to **Numbering** -> **User Settings** -> **Users**-> **Mr. Kurt** -> **Numbers**.

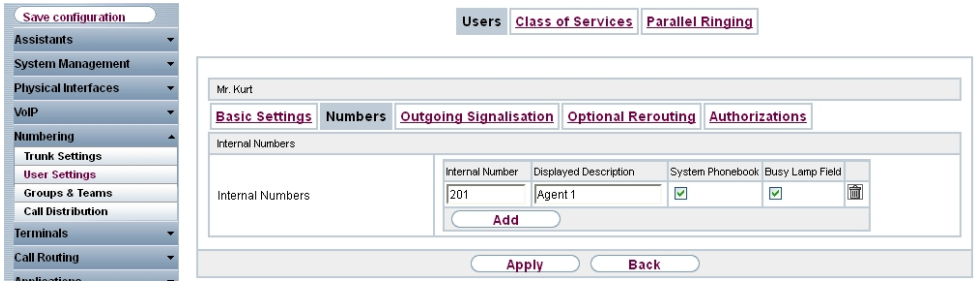


Fig. 32: **Numbering** -> **User Settings** -> **Users** -> **Mr Kurt** -> **Numbers**

Proceed as follows:

(1) Click **Add**.

(2) Under **Internal Numbers** enter the internal numbers that are subsequently assigned to the terminals, e.g. `201`.

(3) Under **Displayed Description** enter the description that is shown on the display of system telephones, e.g. `Agent 1`.

(4) Select the **System Phonebook** to add internal numbers to the system phonebook.

(5) Click **Apply**.

In the **Outgoing Signalisation** menu, select the number for the agent to be displayed when a called party receives a call.

For an outgoing call, if the remote subscriber should not see the number assigned to your own connection, one of the system-configured numbers can be selected here for display. If no number is defined, the system transmits no number to the provider.

Go to the following menu:

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **Mr. Kurt** -> **Outgoing Signalisation** ->**Internal Numbers 201**.

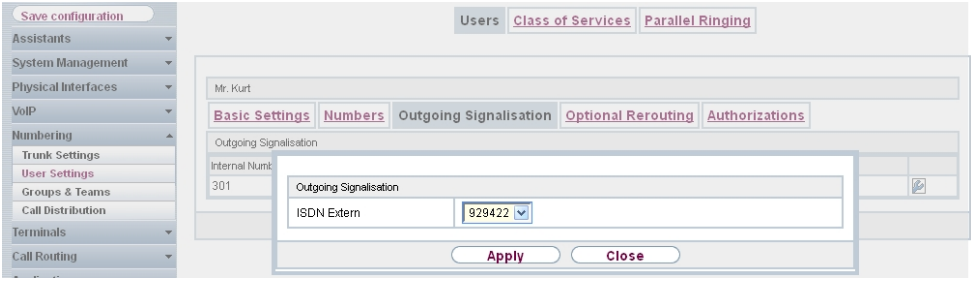


Fig. 33: **Numbering** -> **User Settings** -> **Users** -> **Mr. Kurt** -> **Outgoing Signalisation** -> **Internal Numbers 201**

Proceed as follows:

(1) Under **ISDN Extern** select the outgoing signalisation, e.g. *929422*.

(2) Click **Apply**.

Create a user profile for all agents in your mini call center by selecting **Numbering** -> **User Settings** -> **Users** -> **New** and assign all new users the class of service *Mini Call Center* and individual internal and joint external numbers *929422*.

Results:

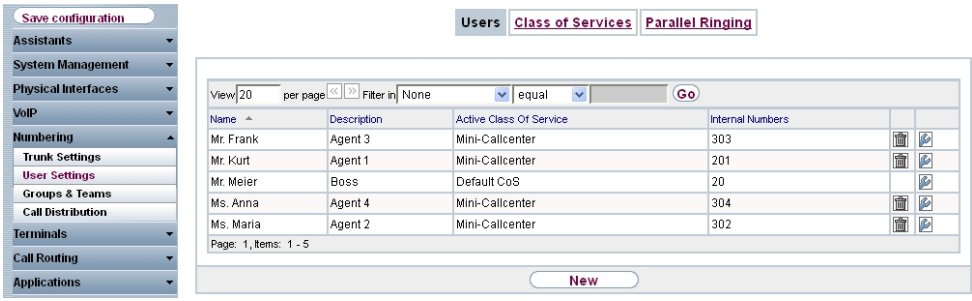


Fig. 34: **Numbering** -> **User Settings** -> **Users**

4.2.4 Setting up call distribution

Incoming calls to the external number of your mini call center should be distributed immediately to the mini call center. To do this, set up a call distribution for the preset external numbers on the mini call center function.

The preconfigured external numbers for your external connection are listed in the **Numbering** -> **Call Distribution** -> **Incoming Distribution** menu.

Choose for the table entry of the mini call center to carry out a call distribution.

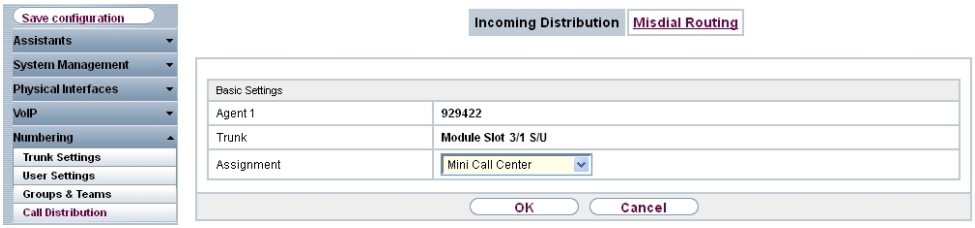


Fig. 35: **Numbering** -> **Call Distribution** -> **Incoming Distribution** ->

Proceed as follows:

(1) Select the **Assignment** *Mini Call Center* .

(2) Click **OK**.

4.2.5 Setting up and assigning terminals

In the **Terminal Assignment** menu, assign the configured internal numbers of the agents to the terminals and set additional functions according to terminal type.

(1) Go to **Terminals** -> **elmeg System Phones** -> **System Phone** -> -> **General**.

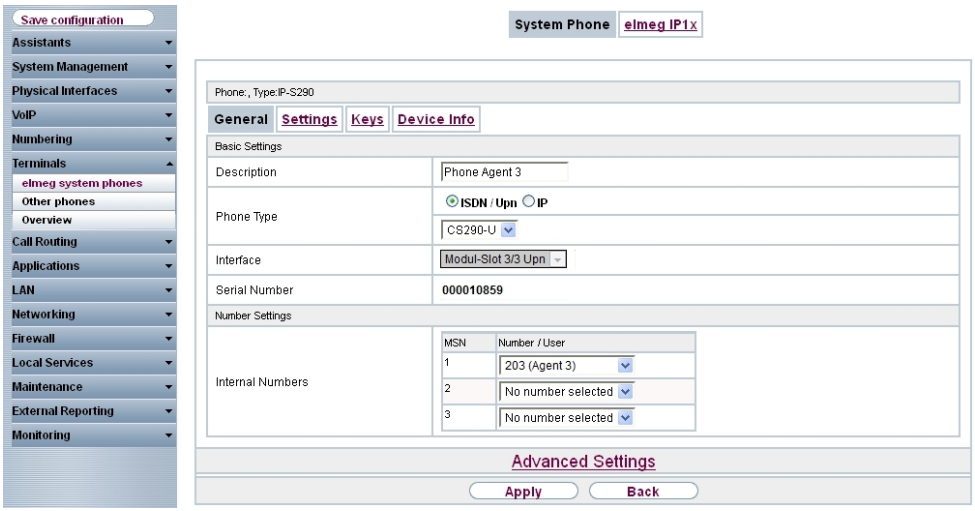


Fig. 36: **Terminals** -> **elmeg System Phones** -> **System Phone** -> -> **General**

Proceed as follows:

(1) Enter a **Description** for the terminal, e.g. *Phone Agent 3*.

(2) If the terminal is already connected, the read value is displayed in the **Serial Number**

field.

(3) Select the **Internal Numbers** to be assigned to the terminal, e.g. *203 (Agent 3)*.

(4) Click **Apply**.

Enable the use of headsets on the **Settings** page.

(1) Go to **Terminals** -> **elmeg System Phones** -> **System Phone** -> **Settings**.

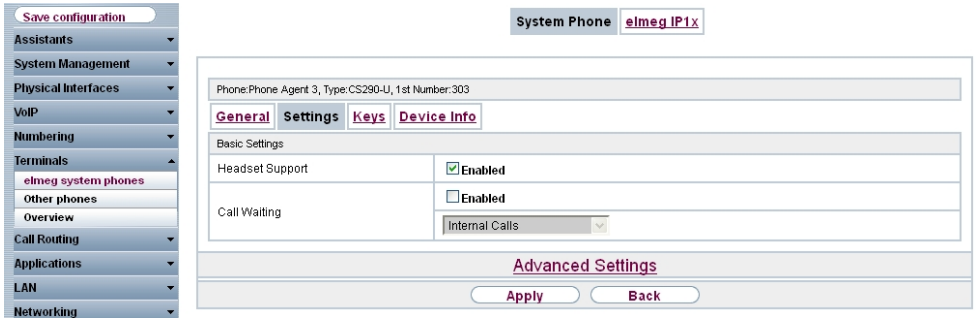


Fig. 37: **Terminals** -> **elmeg System Phones** -> **System Phone** -> **Settings**

Proceed as follows:

(1) Enable **Headset Support**.

(2) Click **Apply**.

On the **Keys** page you can configure the individual keys of the telephone with specific functions.

(1) Go to **Terminals** -> **elmeg System Phones** -> **System Phone** -> **Keys** -> **Key 1** .

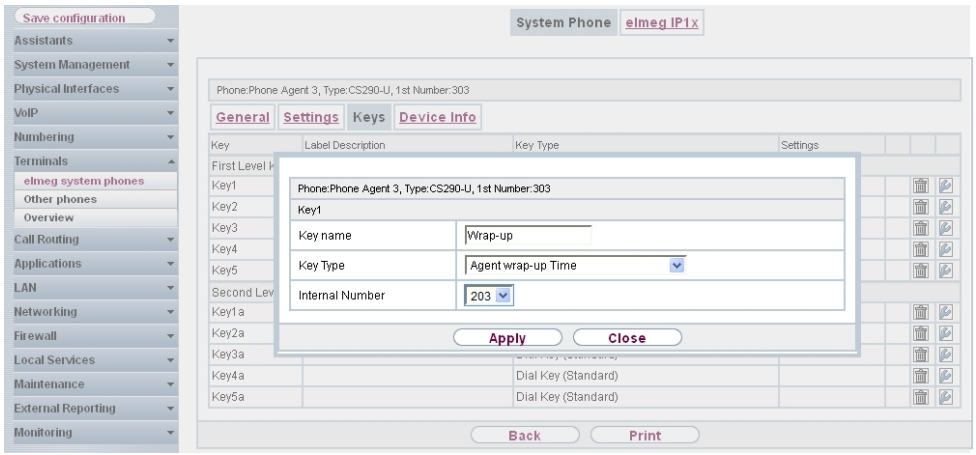


Fig. 38: **Terminals** -> **elmeg System Phones** -> **System Phone** -> **Keys** -> **Key 1**

Proceed as follows:

(1) Enter a suitable description for the key under **Key name**, e. g. *Wrap-up*.

(2) Select the required **Key Type**, e.g. *Agent wrap-up Time*.

(3) Select the **Internal Numbers**, e.g. *203*.

(4) Click **Apply**.

Next set up other keys according to the requirements of the respective agents.

Next assign a terminal to all other agents in your mini call center by selecting **Terminals** -> **elmeg System Phones** -> **System Phone** -> **New**.

Results:

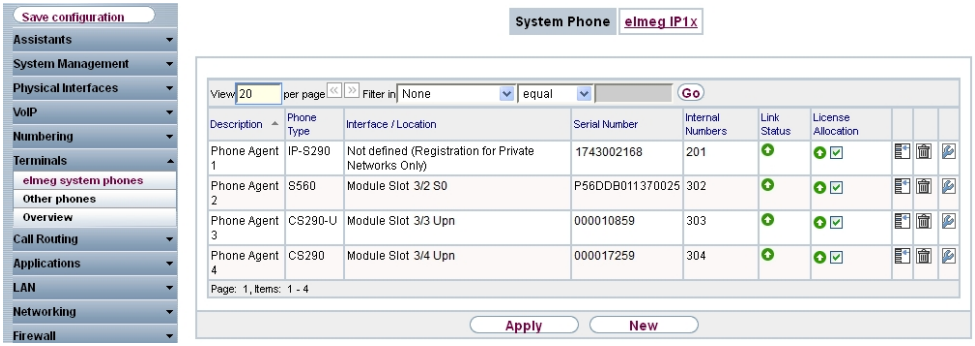


Fig. 39: **Terminals** -> **elmeg System Phones** -> **System Phone**

4.2.6 Setting up a mini call center line

For a mini call center you need a line to be set up for this function.

(1) Go to **Applications** -> **Mini Call Center** -> **Lines** -> **New**.

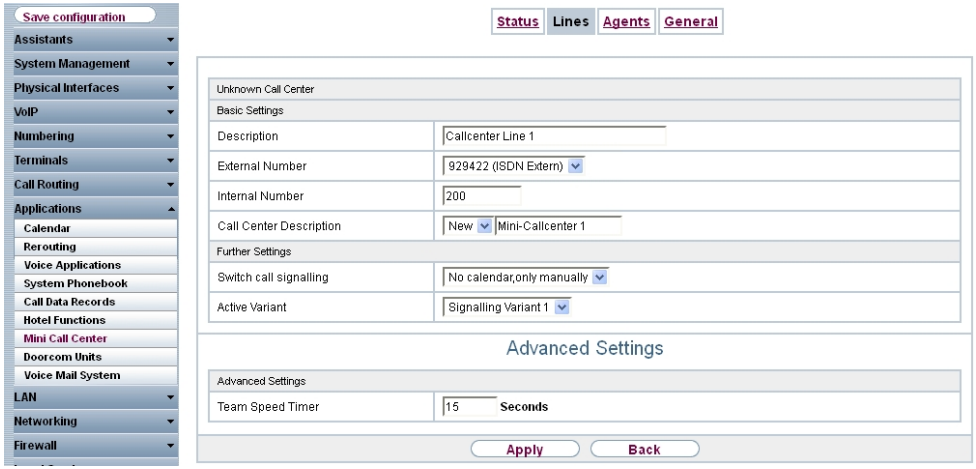


Fig. 40: **Applications** -> **Mini Call Center** -> **Lines** -> **New**

Proceed as follows:

(1) Enter a **description** for the line, e.g. `Callcenter Line 1`.

(2) Select the **External Number** for the line, e.g. `929422 (ISDN Extern)`.

(3) Enter the **Internal Number**, e.g. `200`.

(4) Under **Call Center Description** enter the name for the new Mini-Callcenter, e.g. `Mini-Callcenter 1`.

(5) Click **Apply**.

For the call center line you can see up various signalling variants that are switched by calendar for example.

Leave **Applications** -> **Mini Call Center** -> **Lines** -> **Call Center Line 1** -> **Variant 1** set to the default settings:

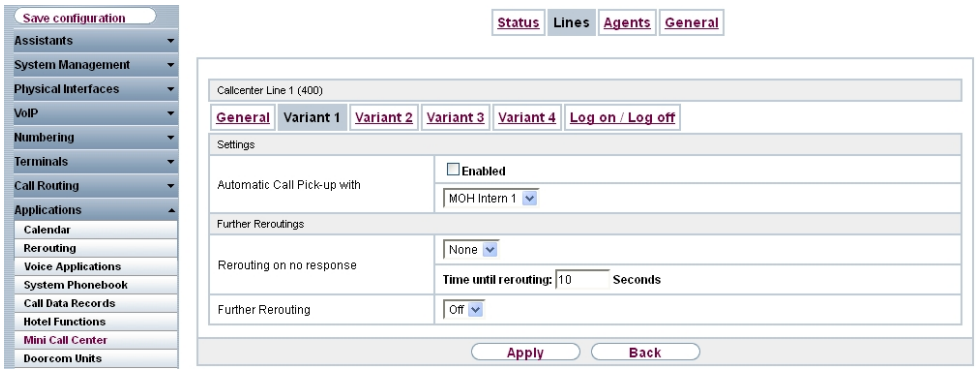


Fig. 41: **Applications** -> **Mini Call Center** -> **Lines** -> **Call Center Line 1** -> **Variant 1**

(1) Go to **Applications** -> **Mini Call Center** -> **Lines** -> **Call Center Line 1** -> **Variant 2**.

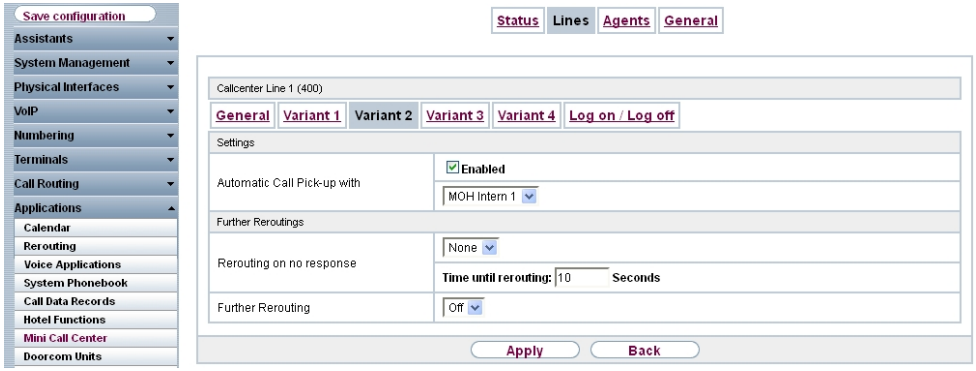


Fig. 42: **Applications** -> **Mini Call Center** -> **Lines** -> **Call Center Line 1** -> **Variant 2**

Proceed as follows:

(1) Enable **Automatic Call Pick-up with** and select the file to be announced automatically outside of business hours, e.g. `MoH Wave 1`.

(2) Click **Apply**.

4.2.7 Configuring agents

In this step, you configure the agents for your mini call center.

(1) Go to **Applications** -> **Mini Call Center** -> **Agents** -> **New**.

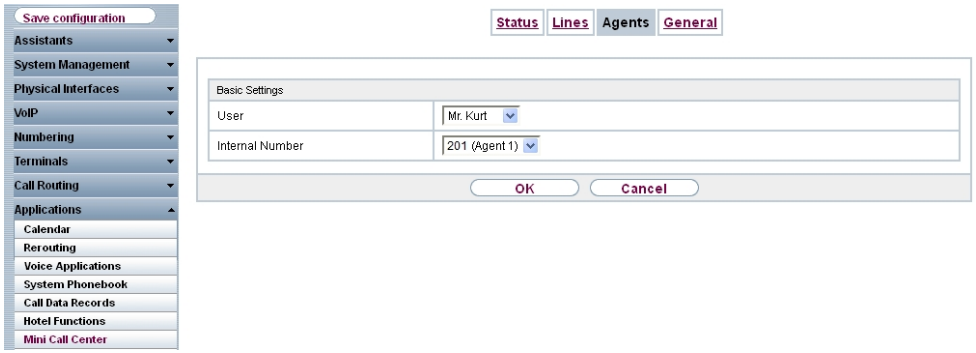


Fig. 43: **Applications** -> **Mini Call Center** -> **Agents** -> **New**

Proceed as follows:

(1) Select the **User**, e.g. `Mr. Kurt`.

(2) Select the **Internal Numbers** of the user to be used for the mini call center, e.g. `201`

(Agent 1).

(3) Click **OK**.

The advanced settings view for the agent is displayed:

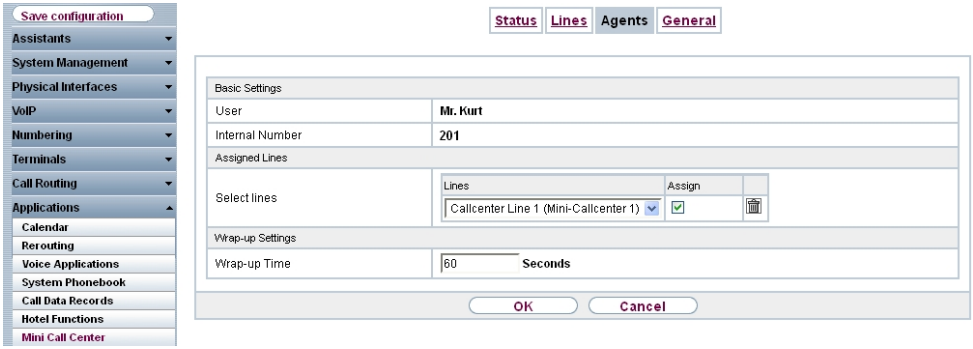


Fig. 44: **Applications** -> **Mini Call Center** -> **Agents** -> **Mr Kurt**

Proceed as follows:

(1) Under **Select Line** select the call center **lines** for which the agent is to operate, e.g. *Callcenter Line 1 (Mini-Callcenter 1)*.

(2) Click **OK**.

Then create an agent profile for each agent of your call center.

Results:

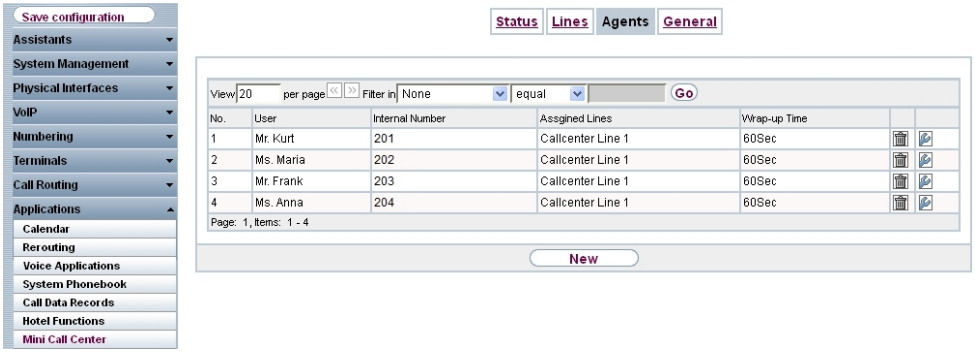


Fig. 45: **Applications** -> **Mini Call Center** -> **Lines** -> **Call Center Agent**

4.2.8 Creating a team calendar

You can enter the business hours of your mini call center in the system's internal calendar. The individual signalling variants of your mini call center line are automatically switched through the calendar.

(1) Go to **Applications** -> **Calendar** -> **Calendar** -> **New**.

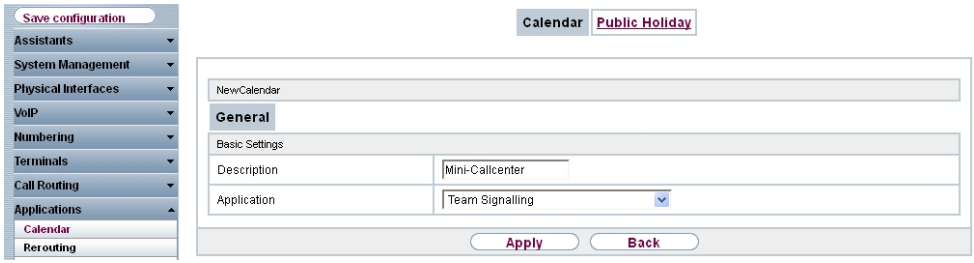


Fig. 46: **Applications** -> **Calendar** -> **Calendar** -> **New**

Proceed as follows:

(1) Enter a **description** for the calendar, e.g. *Mini Callcenter*.

(2) Leave **Application** set to *Team Signalling*.

(3) Click **Apply**.

Next set up the business hours for the individual days of the week.

(1) To do this, go to **Applications** -> **Calendar** -> **Calendar** -> **Mini Call Center** -> **Mon**.

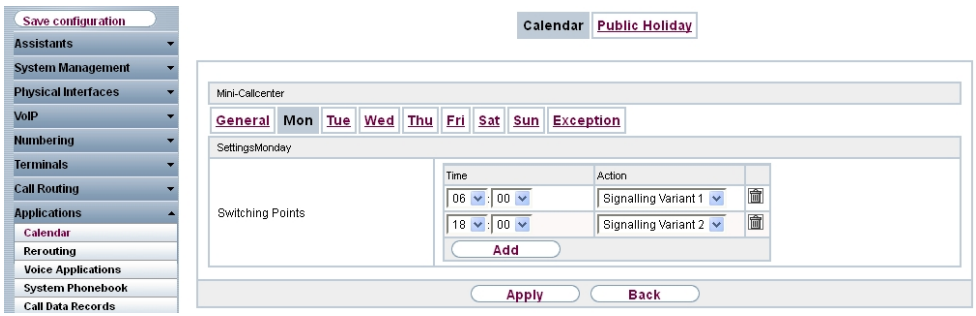


Fig. 47: **Applications** -> **Calendar** -> **Calendar** -> **Mini Call Center** -> **Mon**

Proceed as follows:

(1) Under **Switching Points** click **Add** twice. On the first line select *06:00* for example for **Time** and for action e.g. *Signalling Variant 1*, in the second line *18:00* and

Signalling Variant 2.

(2) Click **Apply**.

Next set up the business hours for the other days of the week in the same way as for Monday.

(1) To do this, go to **Applications** -> **Calendar** -> **Calendar** -> **Mini Call Center** -> **Tue - Fri** .

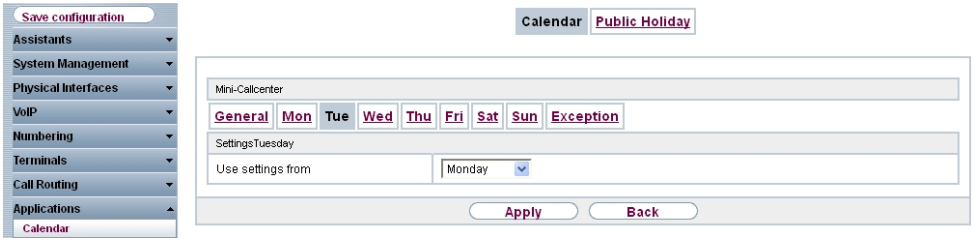


Fig. 48: **Applications** -> **Calendar** -> **Calendar** -> **Mini Call Center** -> **Tue - Fri**

Proceed as follows:

(1) Under **Apply settings from** select *Monday*.

(2) Click **Apply**.

Next set up the business hours for Saturday and Sunday.

(1) To do this, go to **Applications** -> **Calendar** -> **Calendar** -> **Mini Call Center** -> **Sat + Sun**.

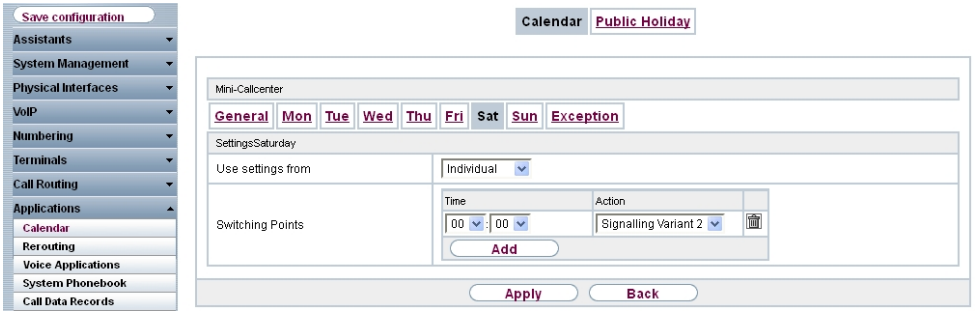


Fig. 49: **Applications** -> **Calendar** -> **Calendar** -> **Mini Call Center** -> **Sat + Sun**

Proceed as follows:

(1) Leave the **Apply settings from** set to *Individual*.

(2) Under **Switching Points** click **Add** once. Select *00:00* for the **Time** and for action *Signalling Variant 2*.

(3) Click **Apply**.

Now assign the calendar you have created to the mini call center.

(1) To do this, go to **Applications** -> **Mini Call Center** -> **Lines** -> **Call Center Line** -> **General**

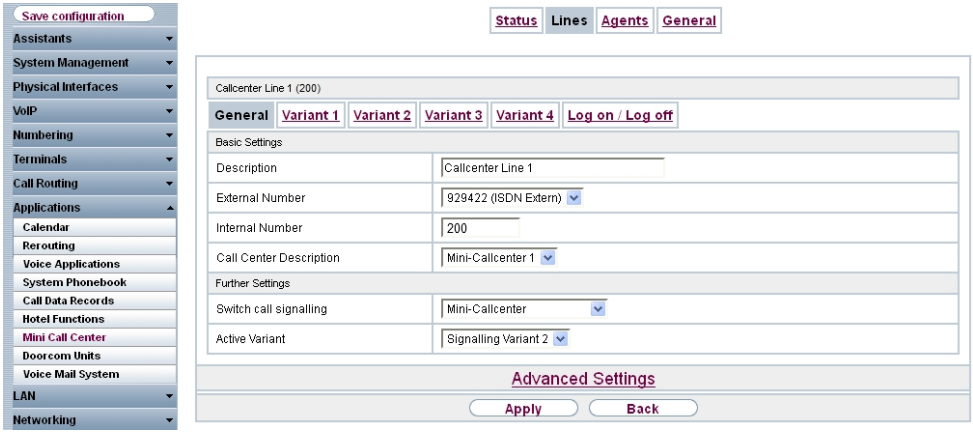


Fig. 50: **Applications** -> **Mini Call Center** -> **Lines** -> **Call Center Line** -> **General**

Proceed as follows:

(1) Select the *Mini-Callcenter* calendar created previously for **Switch call signalling**.

(2) Under **Active Variant** select the signalling variant required actively at the time of saving the configuration, e.g. *Signalling Variant 2*, if the configuration is saved outside of business hours.

(3) Click **Apply**.

This concludes the configuration. You have set up a mini call center with one line and four agents. The business hours of the mini call center are 6 am to 6 pm. The signalling variants of your mini call center are automatically switched through the internal system calendar. During business hours, calls that are received on the external ISDN connection for the mini call center are signalled automatically to all agents. Outside of business hours, an announcement is played back immediately from the tape. On Saturdays and Sundays, the announcement is played back all day.

Result:

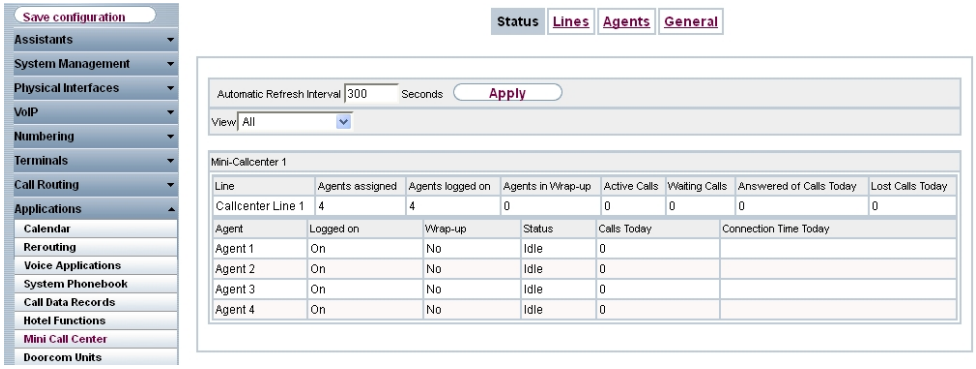


Fig. 51: **Applications** -> **Mini Call Center** -> **Status**

Save the current configuration as the boot configuration by clicking the **Save Configuration** button.

4.3 Overview of configuration steps

Configuring an ISDN port

Feld	Menü	Wert
Connection Type	**Assistants** -> **PBX** -> **Trunks** -> **New**	*ISDN*
Name	**Assistants** -> **PBX** -> **Trunks** -> **Next**	z. B. *ISDN Extern*
Ports	**Assistants** -> **PBX** -> **Trunks** -> **Next**	*Module Slot 3/1 S/U*
Single Number (MSN)	**Assistants** -> **PBX** -> **Trunks** -> **Next**	e. g. *929422* and *Agent 1*
Class of Service	**Assistants** -> **PBX** -> **Trunks** -> **Next**	*Default CoS*

Defining a class of service

Field	Menu	Value
Description	**Numbering** -> **User Settings** -> **Class of Services** -> **New** -> **Basic Settings**	e.g. *Mini Callcenter*
Line Access Authorisation	**Numbering** -> **User Settings** -> **Class of Services** -> **New** -> **Basic Settings**	*Unlimited*
Trunk Line Selection with	**Numbering** -> **User Set-**	e.g. *ISDN Extern*

Field	Menu	Value
Line Access Number	**tings** -> **Class of Services** -> **New** -> **Basic Settings**	

Defining users

Field	Menu	Value
Name	**Numbering** -> **User Settings** -> **Users** -> **New** -> **Basic Settings**	e.g. *Mr. Kurt*
Description	**Numbering** -> **User Settings** -> **Users** -> **New** -> **Basic Settings**	e.g. *Agent 1*
Standard	**Numbering** -> **User Settings** -> **Users** -> **New** -> **Basic Settings**	e.g. *Mini-Callcenter*
Optional	**Numbering** -> **User Settings** -> **Users** -> **New** -> **Basic Settings**	e.g. *Mini-Callcenter*
Night	**Numbering** -> **User Settings** -> **Users** -> **New** -> **Basic Settings**	e.g. *Mini-Callcenter*
Internal Numbers	**Numbering** -> **User Settings** -> **Users** -> **Mr. Kurt** -> **Numbers**	e.g. *201*
Displayed Description	**Numbering** -> **User Settings** -> **Users** -> **Mr. Kurt** -> **Numbers**	e.g. *Agent 1*
System Phonebook	**Numbering** -> **User Settings** -> **Users** -> **Mr. Meier** -> **Numbers**	Enabled
ISDN Extern	**Numbering** -> **User Settings** -> **Users** -> **->Mr. Meier** -> **Outgoing Signalisation** -> **Internal Number 201**	e.g. *929422*

Setting up call distribution

Field	Menu	Value
Assignment	**Numbering** -> **Call Distribu-**	*Mini-Callcenter*

Field	Menu	Value
	tion -> Incoming Distribution -> 929422	

Setting up and assigning terminals

Field	Menu	Value
Description	**Terminals -> elmeg System Phones -> System Phone -> New-> General**	e.g. *Phone Agent 3*
Internal Number	**Terminals -> elmeg System Phones -> System Phone -> New-> General**	e.g. *203 (Agent 3)*
Headset support	**Terminals -> elmeg System Phones -> System Phone -> Telephone Agent 3 ->Settings**	*Enabled*
Key name	**Terminals -> elmeg System Phones -> System Phone -> Telephone Agent 3 -> Keys -> Key 1**	e.g. *Wrap-up*
Key type	**Terminals -> elmeg System Phones -> System Phone -> Telephone Agent 3 -> Keys -> Key 1**	e.g. *Agent Wrap-up Time*
Internal Number	**Terminals -> elmeg System Phones -> System Phone -> Telephone Agent 3 -> Keys -> Key 1**	e.g. *203*

Setting up a mini call center line

Field	Menu	Value
Description	**Applications -> Mini Call Center -> Lines ->New**	e.g. *Callcenter Line 1*
External Number	**Applications -> Mini Call Center -> Lines ->New**	e.g. *929422 (IDN Extern)*
Internal Number	**Applications -> Mini Call Center -> Lines ->New**	e.g. *200*
Call Center Description	**Applications -> Mini Call Center -> Lines ->New**	Mini-Callcenter 11

Field	Menu	Value
Automatic call acceptance with	**Applications -> Mini Call Center -> Lines -> Call Center Line 1 -> Variant 2**	*Enabled* and e.g. *MoH Wave1*

Configuring agents

Field	Menu	Value
Users	**Applications -> Mini Call Center -> Lines -> Call Center Agent-> New**	e.g. *Mr. Kurt*
Internal Number	**Applications -> Mini Call Center -> Lines -> Call Center Agent-> New**	e.g. *201 (Agent 1)*
Select lines	**Applications -> Mini Call Center -> Agents -> ->Mr. Kurt**	e.g. *Callcenter Line 1*
Post processing time	**Applications -> Mini Call Center -> Agents -> ->Mr. Kurt**	e.g. *60* seconds

Creating a team calendar

Field	Menu	Value
Assignment	**Applications -> Calendar -> Calendar -> New**	e.g. *Mini-Callcenter*
Application	**Applications -> Calendar -> Calendar -> New**	e.g. *Team Signalling*
Switching Point	**Applications -> Calendar -> Calendar -> Mini Call Center** -> **Mo**	e.g. *06:00* and *Signalling Variant 1*
Switching Point	**Applications -> Calendar -> Calendar -> Mini Call Center** -> **Mo**	e.g. *18:00* and *Signalling Variant 2*
Import settings from	**Applications -> Calendar -> Calendar -> Mini Call Center** -> **Tu-Fr**	e.g. *Monday*
Import settings from	**Applications -> Calendar -> Calendar -> Mini Call Center** -> **Sa+Su**	e.g. *Individual*
Switching Point	**Applications -> Calendar ->**	e.g. *00:00* and *Sig-*

Field	Menu	Value
	Calendar -> **Mini Call Center** -> **Sa+Su**	*nalling Variant 2*

Assigning a mini call center line

Field	Menu	Value
Switch call signaling	**Applications** -> **Mini Call Center** -> **Lines** -> **Call Center Line** -> **General**	*Mini-Callcenter*
Active Variant	**Applications** -> **Mini Call Center** -> **Lines** -> **Call Center Line** -> **General**	e.g. *Signalling Variant 2*

Chapter 5 Telephony - Configuring the hotel application on the elmeg hybird 300

5.1 Introduction

The following describes configuration of the hotel application. The **elmeg hybird 300** features comprehensive hotel functions, e.g., guest data, room information and waking hours. Operation of these functions proceeds from reception telephones via the **elmeg hybird 300** system menu or the GUI

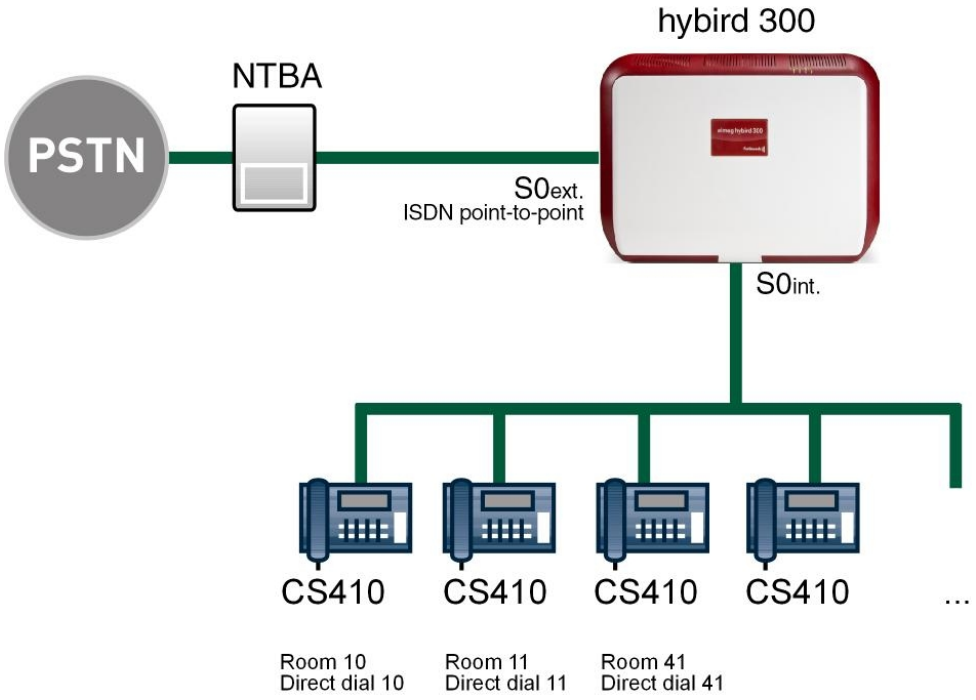


Fig. 52: Example scenario

Prerequisites

(1) An already configured **elmeg hybird 300** or **elmeg hybird 600** with a boot image from Version 9.1 Rev. 2

(2) Connected and configured system telephones, e.g., elmeg CS410, CS410-U or IP-S400 with firmware v5.01.

(3) An external ISDN connection.

5.2 Configuration

5.2.1 Hotel functions

The administrator can set up an individual configuration access for the hotel reception, so that the latter can administer the hotel rooms and guests.

(1) Go to **Applications**-> **Hotel Functions** -> **General**.

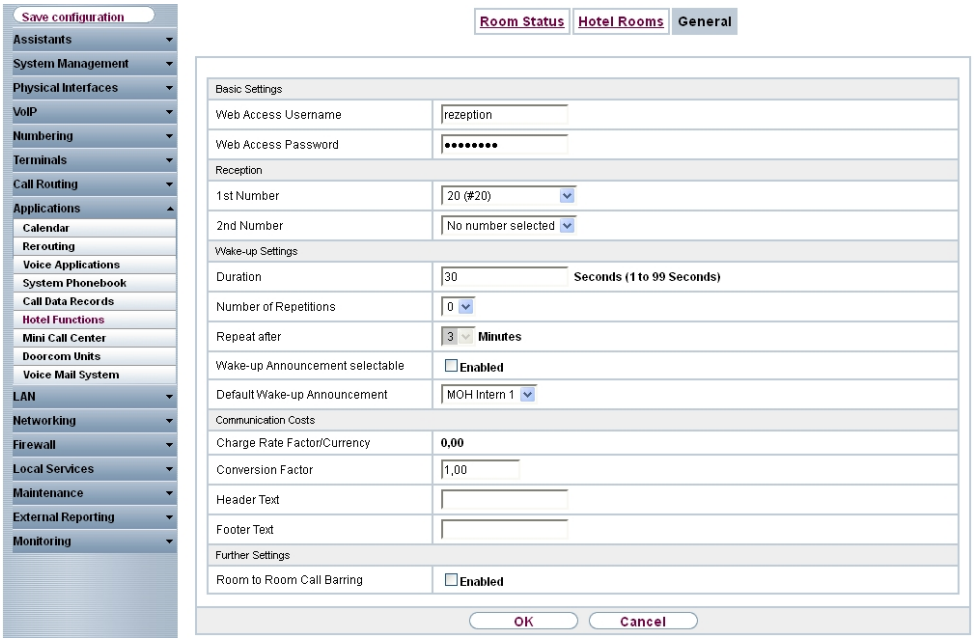


Fig. 53: **Applications**-> **Hotel Functions**-> **General**

Proceed as follows:

(1) Enter a **Web Access Username** for the user at the reception, e.g. *rezeption*. The latter thus gains access to your system's reception functions.

(2) Enter a **Web Access Password** for the user at the reception, e.g. *rezeption*.

(3) For **1st Number** select the first internal telephone number for the reception, e.g. *20 (#20)*.

(4) Under **Duration** enter the period for which a wake-up call is to be signalled to the guest, here *30* seconds, for example.

(5) Under **Number of Repetitions** enter the number of repetitions for the wake-up call,

e.g. *3*.

(6) Under **Repetitions after**, enter the time after which a wake-up call to the guest should be renewed (if he/she has accepted the initial one, there are no more wake-up calls), e.g. *3* minutes.

(7) Select the **Default Wake-up Announcement** to be used by default for wake-up calls *MOH Intern 1*. All preset and additionally-loaded Wave files in the system can be selected.

(8) **Charge Rate Factor/Currency** displays the system-wide exchange rate and currency. These values are configured under **System Management** -> **Global Settings** -> **System**.

(9) Under **Conversion Factor** enter the cost factor by which an external call shall be multiplied.

(10) You can enter a header text **Header Text** with a maximum 78 characters. This text is printed as a header over every bill of charges. If you leave the text field empty, no header is printed.

(11) Enter a **Footer Text** to be printed as a footer under every bill of charges.

(12) You can the **Room to Room Call Barring**. The function is activated by choosing *Enabledt* .

(13) Press **OK** to confirm your entries.

5.2.2 Creating the hotel room

In the next step, you define the name of the room and the internal telephone number.

(1) Go to **Applications** -> **Hotel Functions** -> **Hotel Rooms** -> **New**.

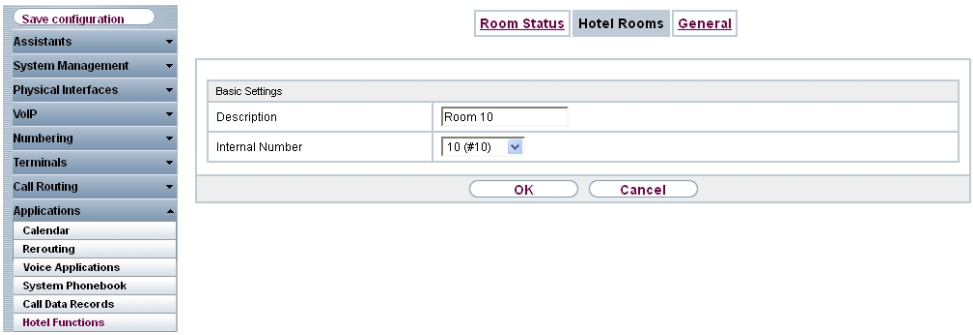


Fig. 54: **Applications** -> **Hotel Functions** -> **Hotel Rooms** -> **New**

Proceed as follows:

(1) In **Description** enter a description for the hotel room, e.g. *Room 10*.

(2) For **Internal Number** select a configured internal number to be assigned to this hotel

room, e.g. `10 (#10)`.

(3) Press **OK** to confirm your entries.

Create more hotel rooms in the same manner.

Results:

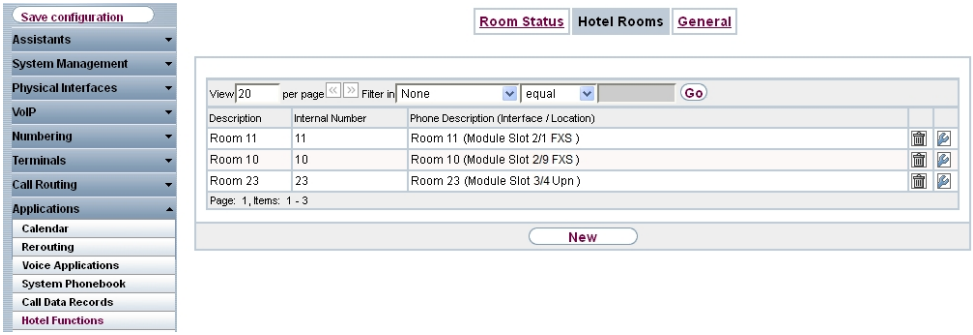


Fig. 55: **Applications** -> **Hotel Functions** -> **Hotel Rooms**

5.2.3 Room status

In the **Room Status** submenu, information on the room, the guests and additional settings is entered.

(1) Go to **Applications**-> **Hotel Functions** -> **Room Status** .

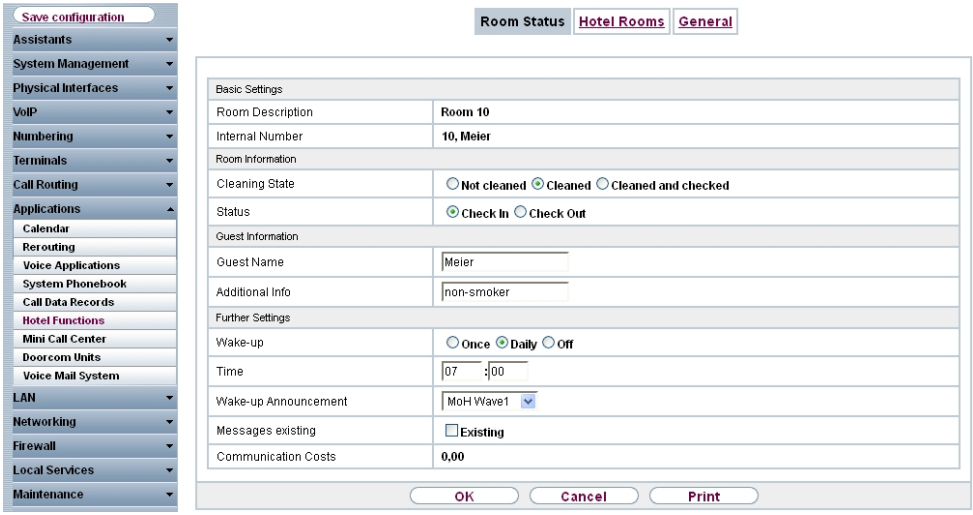


Fig. 56: **Applications** -> **Hotel Functions** -> **Room Status**

Proceed as follows:

(1) **Room Description** displays the room description, here *Room 10* for example. The entry cannot be changed.

(2) The **Internal Number** indicates the configured internal number of the hotel room and the name of the guest, e.g. *10, Meier*.

(3) Under **Cleaning State** select *Clean*, for example. The status can also be modified on the room telephone through a code procedure.

(4) Enter the **Status** of the guest occupying this hotel room, e.g. *Check-in*. This status can also be set by a reception telephone.

(5) Enter the **Guest Name** e.g. *Meier*.

(6) Where required, enter **Additional Info** on the guest, e.g. *non-smoker*.

(7) Under **Wake-up** select whether the guest is to be woken, here, for example *Daily*.

(8) Enter the **Time** at which the guest wishes to be woken, e.g. *07:00*.

(9) Select the **Announcement** with which the guest wishes to be woken. All preset and additionally-downloaded Wave files in the system are available, e.g. *MOH Intern 1*.

(10) Under **Message Info** select whether the guest should be informed of messages taken for him/her at the reception. When enabled, this function signals the presence of a message at the room telephone. For this, in menu **Numbering**-> **User Settings** -> **Authorisation Classes** -> **Performance Features**->**Advanced Settings** the option receive **MWI Information** must be on *activated*.

(11) **Connection costs** displays current connection charges for this telephone.

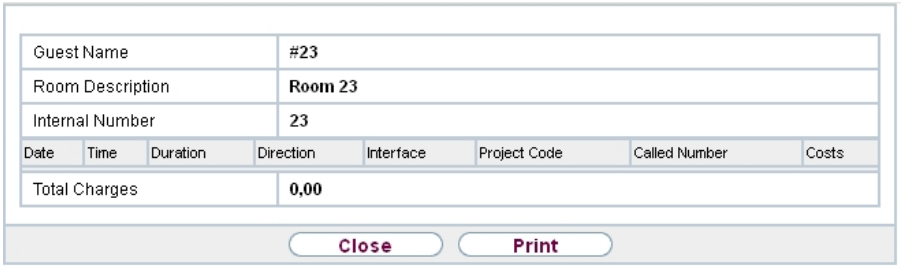


Fig. 57: Fees expression

(12) Press **OK** to confirm your entries.

Results:

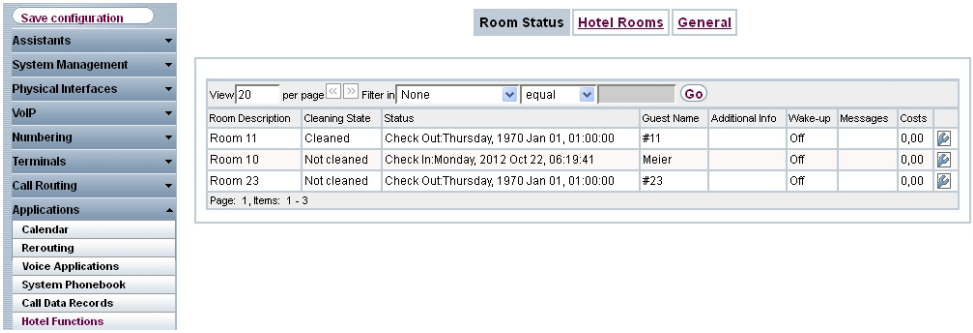


Fig. 58: **Applications** -> **Hotel Functions** -> **Room Status**

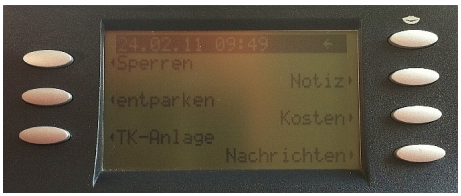
5.3 Operation via the reception telephone

The administrator at the reception can view and modify the **Hotel Functions** area, e.g. check-in, check-out, configure wake-up calls, or print out charge data.

To edit **Hotel Functions** proceed as follows:

(1) Press the cursor key at right next to the **OK**key on your telephone.

(2) Press the key at left next to the **PBX** display text.



(3) By pressing the key at right next to the display text, you arrive at the **Hotel Functions**menu.

Check-in

With **Check-in**, the room telephone dial permission is switched to direct outward dialling.

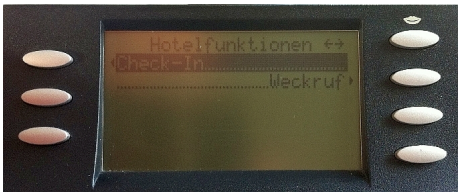
Proceed as follows:

(1) In the **Hotel Functions** menu, enter the room number via the numeral keyboard, e.g.

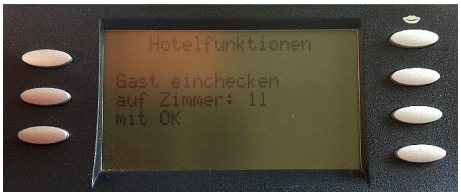
11.

(2) Confirm with **OK**.

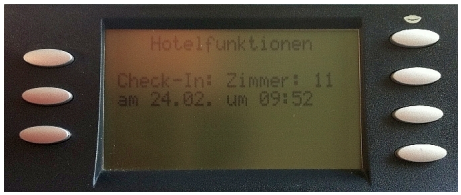
(3) Press the key at left next to the **Check-in** display text.



(4) Confirm guest **Check-In** in room 11 with **OK**.



Date and time are set automatically.



Configure wake-up call

Over the **Hotel Functions** menu, you can configure a one-time or daily **Wake-Up Call**. Once the wake-up call has been set up, an individual announcement or music to wake the guest can be selected.

Note

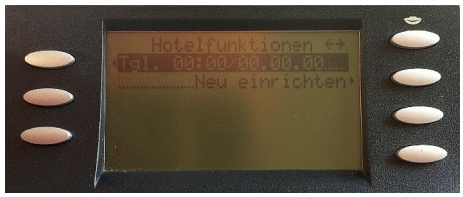
This setting at the reception telephone is only displayed if, during the elmeg hybird configuration via GUI, the function *Individual Wake-Up Call* is activated in the **Applications**-> **Hotel Functions** ->**General** menu.

Proceed as follows:

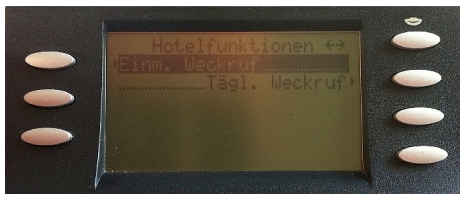
(1) In the **Hotel Functions** menu, enter the room number for which you wish to set up the wake-up call, e. g. *11*.

(2) Press the key at left next to the **Wake-Up** display text.

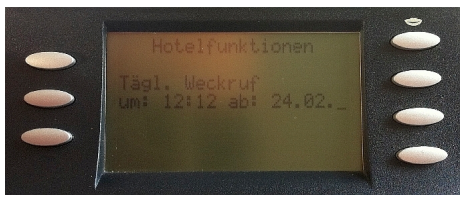
(3) Select how the guest is to be woken: *Daily* or *New setup*.



(4) You can then choose between *One-time Wake-Up Call* and *Daily Wake-Up Call*.

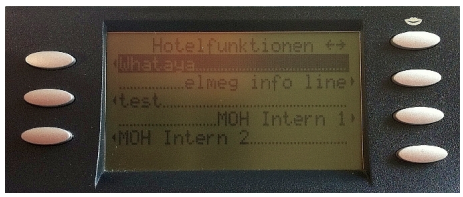


(5) Enter the time at which the guest wishes to be woken. The date is set automatically.



(6) Press **OK** to confirm your entries. The settings are saved.

(7) Now select the individual announcement or music.



(8) Confirm with **OK**.

The **wake-up call** is completed.

Check-out and printing of charge data on serial interface 2.

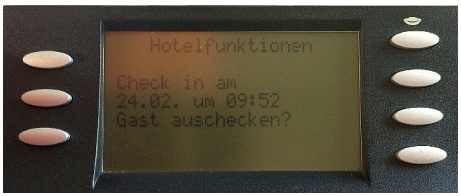
With **Check-Out**, dial permission is reset to internal.

Proceed as follows:

(1) In the **Hotel Functions** menu, enter the room number of the guest to be checked out, e. g. *11*.

(2) Press the key at right next to the **Check Out** display text. You'll see date and time of guest check-in.

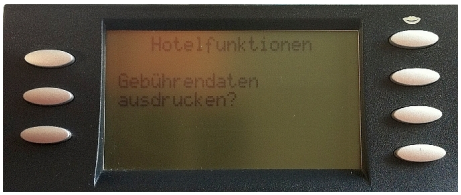
(3) Confirm **Check guest out?** with **OK**.



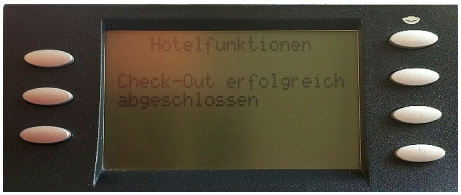
(4) The accrued telephone charges for room 11 are displayed.

(5) Confirm with **OK**.

(6) You can now **Print charge data**.



(7) Confirm with **OK**.



Check-Out was successful.

Save charge data

In order to save the charge data, the following settings must be performed on the elmeg hybird in the GUI.

(1) Go to **Numbering** -> **User Settings**-> **Class of Services** -> **Applications**.

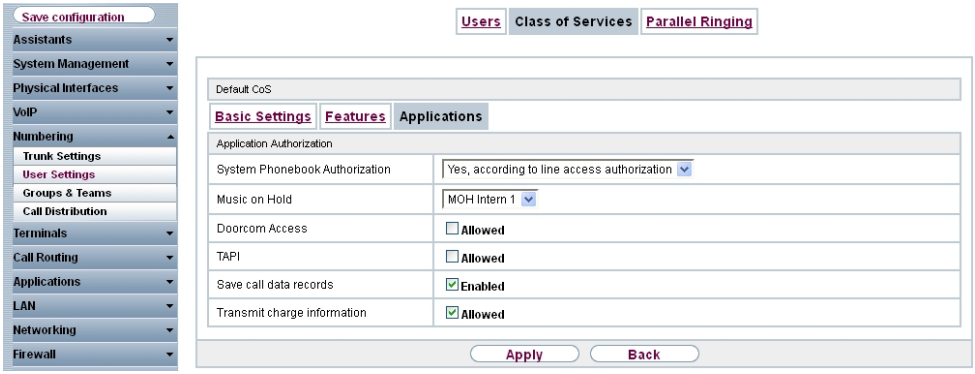


Fig. 59: **Numbering** -> **User settings** -> **Class of Services** -> **Applications**

Proceed as follows:

(1) Enable the option **Save call data records**.

(2) In **Transmit charge information** select `Allowed`.

(3) Click **Apply**.

Go to the following menu to save connection data in the system:

(1) Go to **Applications**-> **Call Data Records** -> **General**.

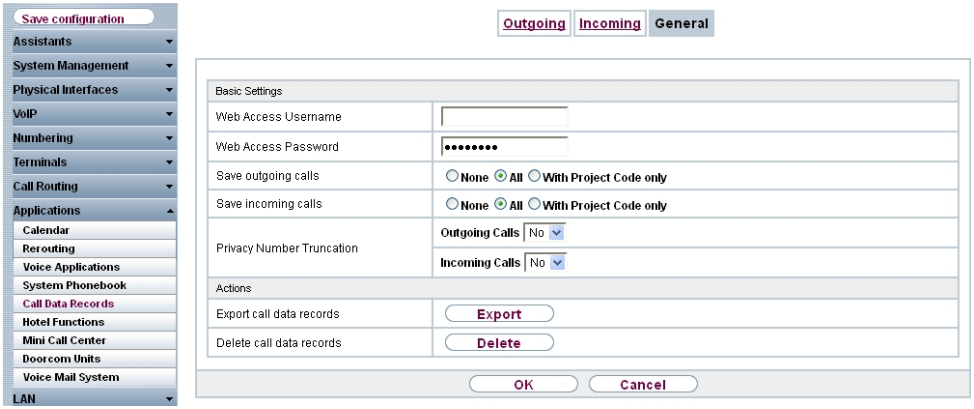


Fig. 60: **Applications** -> **Call Data Records** -> **General**

Proceed as follows:

(1) In **Save outgoing calls** select *All*.

(2) In **Save incoming calls** select *All*.

(3) Select whether to save the number in abbreviated form.
If, for data privacy reasons, the number is to be only partially displayed, you can select the number of positions not to be displayed. For **Outgoing Calls** and **Incoming Calls**, you can separately enter the number of hidden digits, e.g. *3* The hiding of digits occurs from right to left.

(4) Press **OK** to confirm your entries.

5.4 Overview of configuration steps

Set up user access

Field	Menu	Value
Web Access Username	**Applications**-> **Hotel Functions**-> **General**	e.g. *rezeption*
Web Access Password	**Applications**-> **Hotel Functions**-> **General**	e.g. *rezeption*
1 st Number	**Applications**-> **Hotel Functions**-> **General**	e.g. *20 (#20)*
Duration	**Applications**-> **Hotel Functions**-> **General**	e.g. *30* seconds
Number of Repetitions	**Applications**-> **Hotel Functions**-> **General**	e.g. *3*
Repeat after	**Applications**-> **Hotel Functions**-> **General**	e.g. *3* minutes
Default wake-up announcement	**Applications**-> **Hotel Functions**-> **General**	e.g. *MOH Intern 1*
Room to Room Call Barring	**Applications**-> **Hotel Functions**-> **General**	Disabled

Creating the hotel room

Field	Menu	Value
Description	**Applications** -> **Hotel Functions** -> **Hotel Rooms** ->**New**	e.g. *Room 10*
Internal Number	**Applications** -> **Hotel Functions** -> **Hotel Rooms** ->**New**	e.g. *10 (#10)*

Room status

Field	Menu	Value
Cleaning State	**Applications** -> **Hotel Functions** -> **Room status**	e.g. *Cleaned*
Status	**Applications** -> **Hotel Functions** -> **Room status**	e.g. *Checked in*
Guest Name	**Applications** -> **Hotel Functions** -> **Room status**	e.g. *Meier*

Field	Menu	Value
Additional info	**Applications** -> **Hotel Functions** -> **Room status**	e.g. *Non-smoker*
Wake-up	**Applications** -> **Hotel Functions** -> **Room status**	e.g. *Daily*
Time	**Applications** -> **Hotel Functions** -> **Room status**	e.g. *07:00*
Wake-up Announcement	**Applications** -> **Hotel Functions** -> **Room status**	e.g. *MOH Intern 1*

Save charge data

Field	Menu	Value
Save call data records	**Numbering** -> **User settings** -> **Class of Services** -> **Applications**	*Enabled*
Transmit charge information	**Numbering** -> **User settings** -> **Class of Services** -> **Applications**	*Allowed*

Save connection data

Field	Menu	Value
Save outgoing connection	**Applications** -> **Call Data Records** -> **General**	*All*
Save incoming connection	**Applications** -> **Call Data Records** -> **General**	*All*
Privacy Number Truncation Outgoing Calls	**Applications** -> **Call Data Records** -> **General**	e.g. *No*
Privacy Number Truncation Incoming Calls	**Applications** -> **Call Data Records** -> **General**	e.g. *No*

Chapter 6 Telephony - Connecting the elmeg hybird 300/600 to an S2M interface

6.1 Introduction

There is no S2M module for the **elmeg hybird 300/600**, so at the exchange the connection to the S2M has to be established using the **bintec RT4402** media gateway.

The subscribers/telephones log into the **elmeg hybird 300/600** in the usual way. The **elmeg hybird 300/600**, in turn, uses the **bintec RT4402** media gateway as the SIP provider. **bintec RT4402** ensures that all the calls are routed via the S2M line. Other connections, for example an Internet SIP provider or a point-to-multipoint connection, can also be set up on the **bintec RT4402** at the same time, of course. Appropriate call routing can then be used to assign the connections to different subscribers and/or telephone systems.

Here, though, it is only the connecting of an **elmeg hybird 300/600** to the S2M that is described.

The GUI is used to do the configuration.

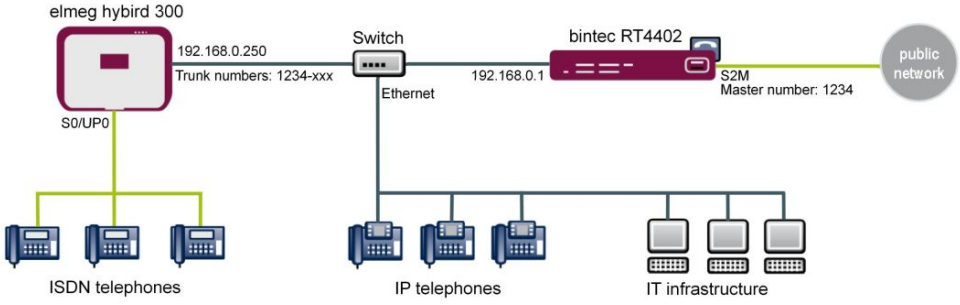


Fig. 61: Example scenario

Requirements

These requirements must be met:

- The S2M interface must be switched on and functional
- **bintec RT4402** basic configuration (e. g. IP address, Internet access) with Version 7.9.6 patch 6 or later
- **elmeg hybird 300** or **elmeg hybird 600** basic configuration (e. g. IP address, sub-

scribers, terminals) with Version 7.9.1 patch 4 or later

- Sufficient SIP channel licences for the **elmeg hybird 300** or **elmeg hybird 600**

6.2 Configuration

6.2.1 The configuration for the bintec RT4402

In our example, the GUI can be accessed on the IP address 192.168.0.1.

First, set up the S2M interface on the device. To do this, go to the following menu:

(1) Go to **Physical Interfaces** -> **ISDN Ports** -> **ISDN Configuration**-> **<pri2-4 (TE)>**.

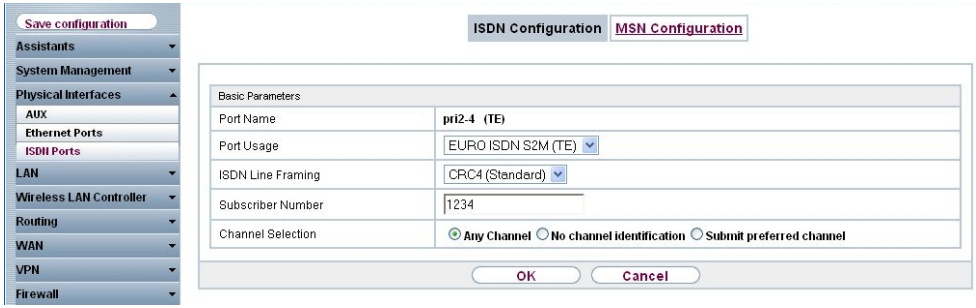


Fig. 62: **Physical Interfaces** -> **ISDN Ports** -> **ISDN Configuration** -> **<pri2-4 (TE)>**

Proceed as follows:

(1) Under **Port Usage**, select the protocol that you wish to use for the ISDN port, in this case *EURO ISDN S2M (TE)*.

(2) Under **ISDN Line Framing**, select *CRC4 (Standard)*.

(3) Under **P-P Base Number**, enter the base number for the connection, e. g. *1234*.

(4) Under **Channel Selection**, select *Any Channel*. The device tells the PABX that any channel is possible. The exchange of the PABX selects the channel to be used.

(5) Confirm with **OK**.

Next, the access data for the **elmeg hybird 300/600** is configured on the **bintec RT4402**. To do this, go to the following menu:

(1) Go to **VoIP** -> **Media Gateway** -> **SIP Accounts** -> **New**.

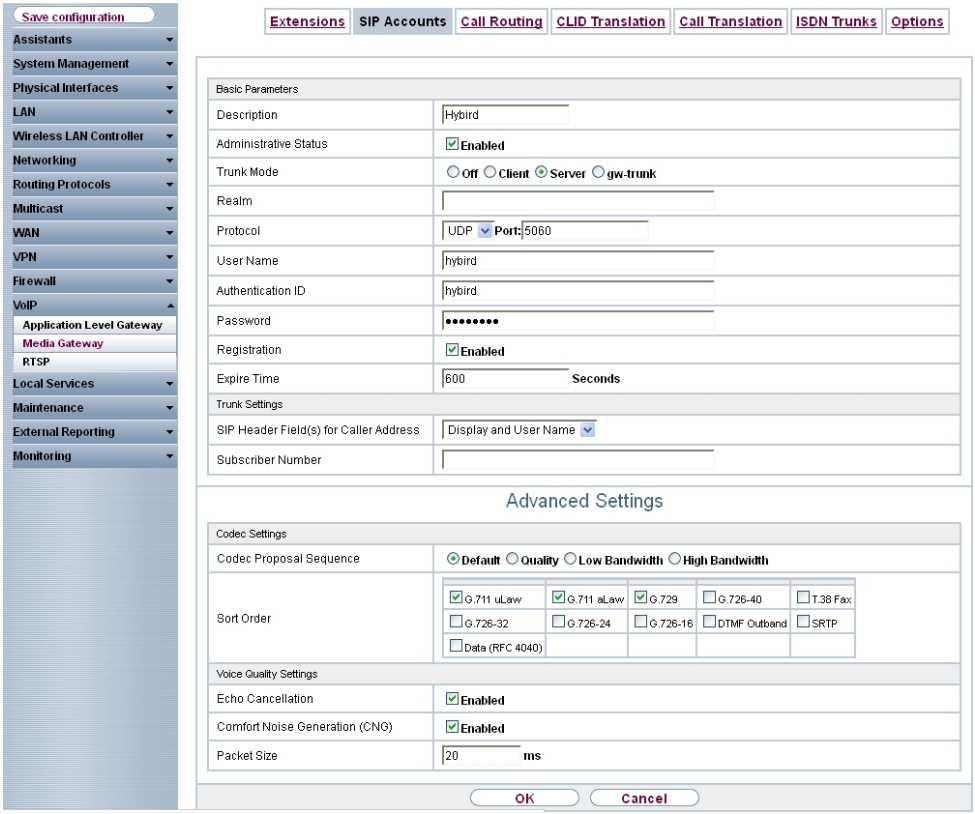


Fig. 63: **VoIP** -> **Media Gateway** -> **SIP Accounts** -> **New**

Proceed as follows:

(1) Under **Description**, enter any name for the SIP account, e. g. *Hybird*.

(2) Enable the **Administrative Status**.

(3) Set the **Trunk Mode** to *Server*. The media gateway is operated as a server.

(4) Specify the **User Name**, e. g. *hybird*.

(5) Under **Authentication ID**, enter a name that is to be used for the authentication, e. g. *hybird*.

(6) Specify a **Password**, e. g. *supersecret*.

(7) Enable the **Registration** option.

(8) Under **Validity**, enter the time in seconds after which the current registration becomes invalid so that a new registration request is sent, here e. g. *600*.

(9) Set **SIP Header Field(s) for Caller Address** to *Display and User Name*. The so-called "p-preferred-identity" field is added to the SIP header so that it can transmit the sender ID there.

(10) Leave the remaining settings unchanged and confirm them with **OK**.

In the **Advanced Settings** menu you can, if you wish, make **Codec Settings** or **Voice Quality Settings**.

In the **Call Routing** menu, you can specify the conditions for routing calls. Define a list with rules or rule chains that are used to manipulate the indicated destination numbers.

(1) Go to **VoIP** -> **Media Gateway** -> **Call Routing** -> **New**.

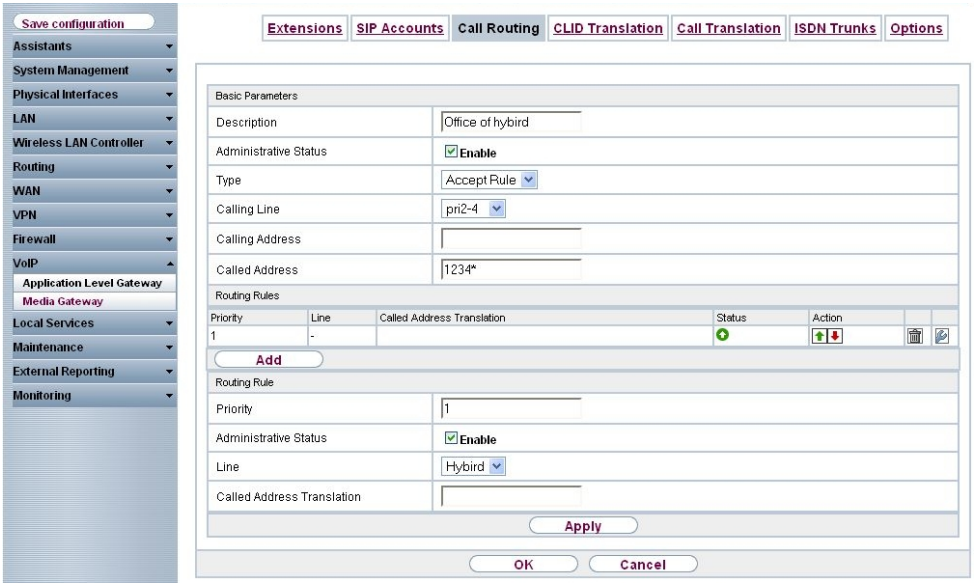


Fig. 64: **VoIP** -> **Media Gateway** -> **Call Routing** -> **New**

Proceed as follows:

(1) Under **Description**, enter the name of the entry, e. g. *Exchange to hybird*.

(2) Enable the **Administrative Status**.

(3) Under **Type**, select *Allow*. The calls are forwarded.

(4) Under **Calling Line**, select the *pri2-4* S2M line that has been configured.

(5) Under **Calling Address** you can restrict the application of the entry to a particular caller.

(6) Under **Called Address** enter *1234**. The * symbol means that, at the end of a character string, any other characters may follow. Any calls that come into the **bintec RT4402** with the root number 1234 are put through to **elmeg hybird 300/600**.

(7) You add a **routing rule** with **Add**.

(8) To specify the order of the filtering rules, under **Priority** enter, e. g., *1*.

(9) Enable the **Administrative Status**.

(10) Under **Line**, select the SIP account for the outgoing call, here *Hybird*.

(11) Under **Called Address Translation**, you can enter how the number is to be manipulated before it is used for dialling.

(12) Confirm with **OK**.

Next, a second route is set up which routes the connection from the **elmeg hybird 300/600** to the exchange.

(1) Go to **VoIP** -> **Media Gateway** -> **Call Routing** -> **New**.

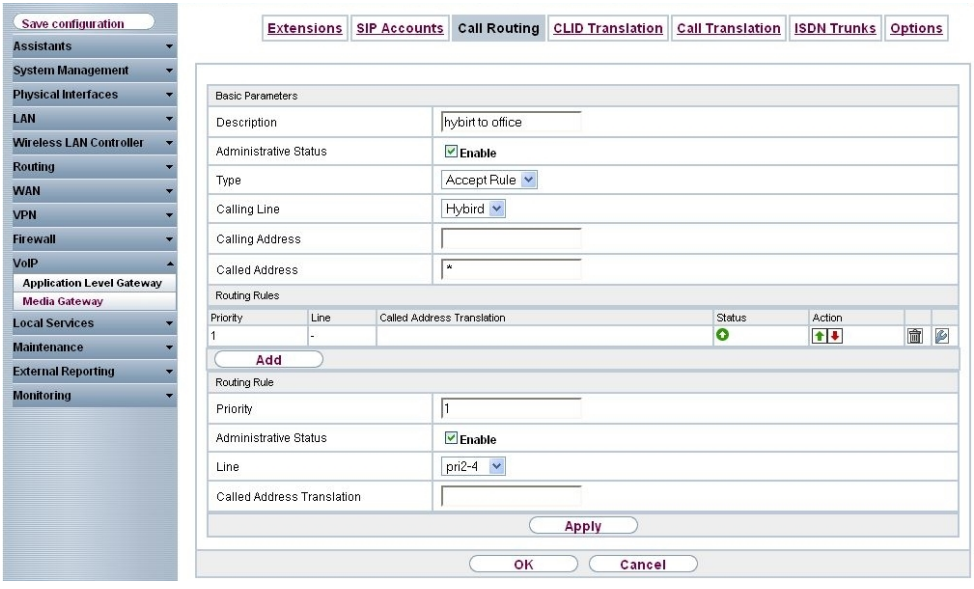


Fig. 65: **VoIP** -> **Media Gateway** -> **Call Routing** -> **New**

Proceed as follows:

(1) Under **Description**, enter the name of the entry, e. g. *hybird to exchange*.

(2) Enable the **Administrative Status**.

(3) Under **Type**, select *Allow*.

(4) Under **Calling Line**, select the description of the SIP account for the **elmeg hybird 300/600** e. g. *hybird*.

(5) Under **Calling Address** you can restrict the application of the entry to a particular caller.

(6) Under **Called Address** enter * for outgoing connections.

(7) You add a **routing rule** with **Add**.

(8) To specify the order of the filtering rules, under **Priority** enter, e. g., `1`.

(9) Enable the **Administrative Status**.

(10) Under **Line**, select the line to which the call is to be routed, here `pri2-4`.

(11) **Called Address Translation** may be left empty if the number does not need to be modified.

(12) Confirm with **OK**.

In the final step, the media gateway is enabled. To do this, go to the following menu:

(1) Go to **VoIP** -> **Media Gateway** -> **Options**.

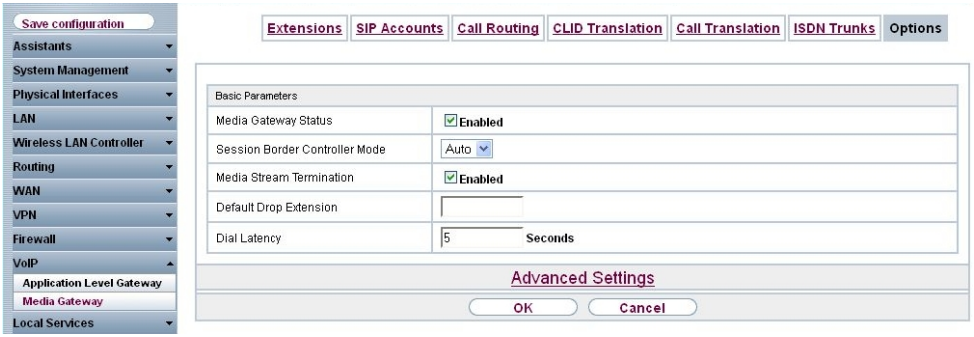


Fig. 66: **VoIP** -> **Media Gateway** -> **Options**

Proceed as follows:

(1) Enable the **status of the media gateway**.

(2) Set the **Session Border Controller Mode** to `Auto`. The session border controller does the call routing for all the extensions that exactly match an existing SIP account.

(3) Enable the **Media Stream Termination** function. The RTP sessions are terminated on the media gateway.

(4) Under **Dialling break**, enter the maximum delay time before the system assumes the call number entered is complete and starts the SIP dialling process, e. g. `5` seconds. This timeout is reset each time that a button is pressed.

(5) Confirm with **OK**. The media gateway is now enabled.

This concludes the configuration on the **bintec RT4402**. To create a bootable backup of the configuration, exit the **GUI** with **Save configuration** and confirm with **OK**.

6.2.2 Configuring the elmeg hybird 300/600

The **bintec RT4402** media gateway appears as the SIP provider for the **elmeg hybird 300/600**. So the settings below are very similar to those involved in setting up a SIP exchange connection.

Open the configuration interface for the **elmeg hybird 300/600**. In our example, the GUI can be accessed on the IP address 192.168.0.250.

First you configure the SIP provider. To do this, go to the following menu:

(1) Go to **VoIP** -> **Settings** -> **SIP Provider** -> **New**.

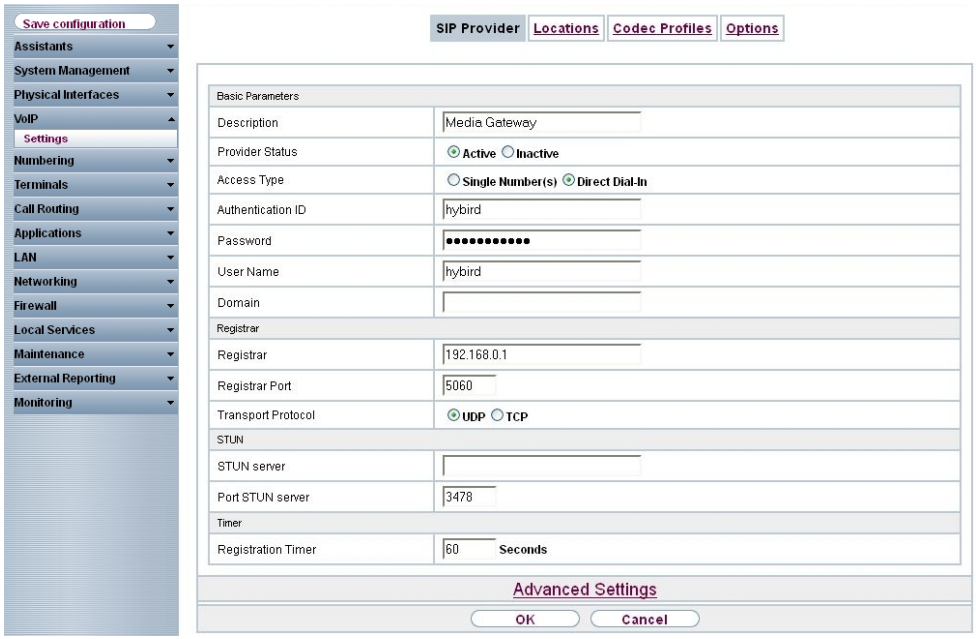


Fig. 67: **VoIP** -> **Settings** -> **SIP Provider** -> **New**

Proceed as follows:

(1) Under **Description**, enter a name for the SIP provider, e. g. *MediaGateway*.

(2) Enable the **Provider Status**.

(3) Under **Access Type**, select *Direct Dial-In*.

(4) Enter your provider's **Authentication ID**, e. g. *hybird*. The ID must be exactly the same as the ID in the media gateway.

(5) Enter the **Password** that has been created in the media gateway, e. g. *supersecret*.

(6) The **User Name** is also the same as the name in the media gateway, here *hybird*.

(7) Under **Domain** you may enter an additional domain name or an additional IP address.

Note

Note: Enter a name or IP address only if this is explicitly specified by the provider.

(8) Under **Registrar**, enter the media gateway's IP address, here *192.168.0.1*.

(9) Under **Port Registrar**, enter the number of the port that is to be used for the connection to the server, e. g. *5060*.

(10) Select the **Transport Protocol** *UDP*.

(11) Under **Registration Timer**, enter the time in seconds within which the SIP client must re-register to prevent the connection from disconnecting automatically, e. g. *60* seconds.

(12) Go to **Advanced Settings**.

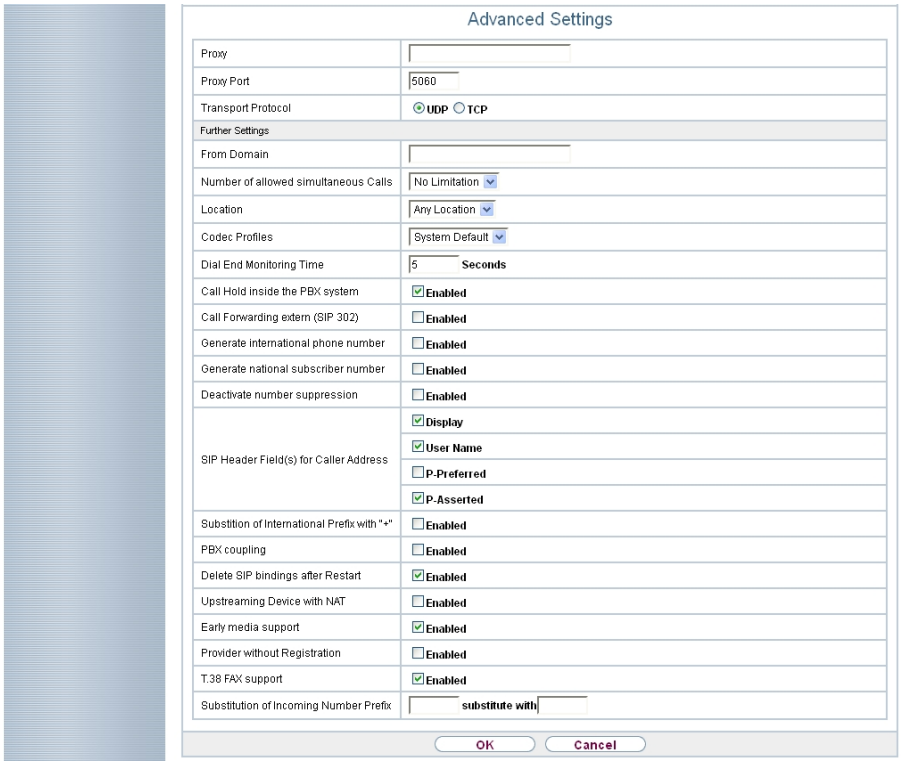


Fig. 68: **Advanced Settings**

(13) Under **SIP Header Field(s) for Caller Address**, select the position of the sender ID (e. g. number) for outgoing calls in the SIP header.

In order for incoming numbers to be displayed, activate the option *Display* , *User Name* and *P-Asserted*.

(14) Leave the remaining settings unchanged and confirm them with **OK**.

After about one minute, registration with the provider has taken place and the **Status** is automatically set to (active).

You modify the status of the SIP providers by pressing the button or button in the **Action** column.

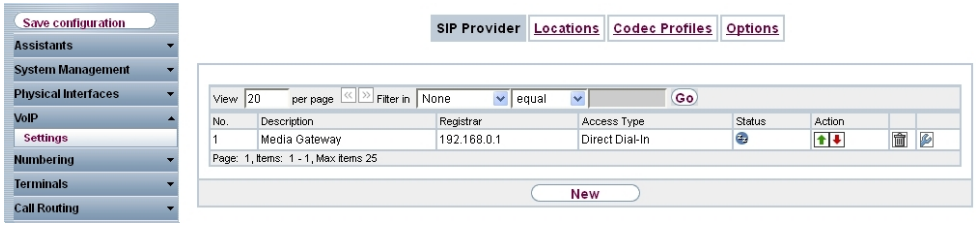


Fig. 69: **VoIP** -> **Settings** -> **SIP Provider**

Next, the master subscriber number needs to be set up for this SIP provider.

(1) Go to **Numbering**-> **Trunk Settings** -> **Numbers**-> **New**.

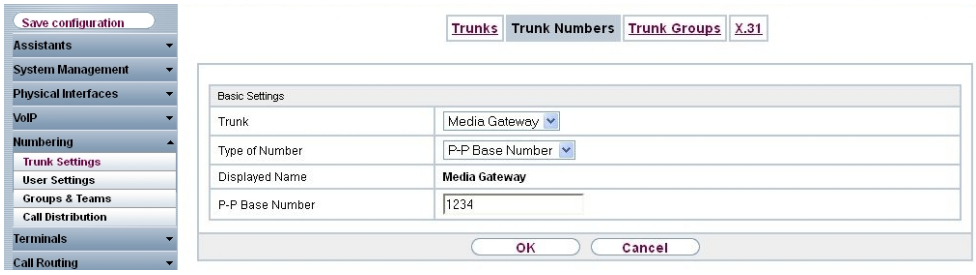


Fig. 70: **Numbering** -> **Trunk Settings** -> **Numbers** -> **New**

Proceed as follows:

(1) Under **Trunk**, select the connection for which you wish to configure the number, here *MediaGateway*.

(2) Under **Type of Number**, select *P-P Base Number*.

(3) Under **P-P Base Number**, enter the base number for your connection (without the direct dial number), e. g. *1234*.

Note

S2M interfaces with active CLIP no screening require the base number with area code to be specified under **P-P Base Number**, for example *09111234*.

(4) Confirm with **OK**.

If incoming calls are to be routed to a different internal number, enter a direct dial exception for the point-to-point connection in the **Numbers** menu.

(1) Go to **Numbering**-> **Trunk Settings** -> **Numbers**-> **New**.

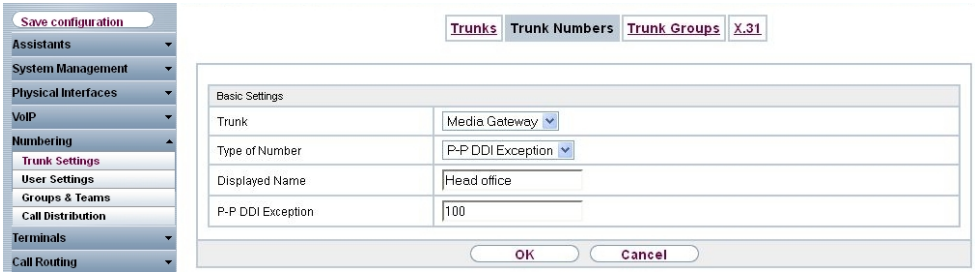


Fig. 71: **Numbering** -> **Trunk Settings** -> **Numbers** -> **New**

Proceed as follows:

(1) Under **Trunk**, select the connection for which you wish to configure the number, here *MediaGateway*.

(2) Under **Type of Number**, select *P-P DDI Exception*.

(3) Under **Displayed Name**, you enter the name to be displayed for this number in the called system telephone's display, e. g. *Head Office*.

(4) For P-P DDI Exception, enter the direct dial number, as on the numbers list, which is to be routed to a different internal number, e. g. *100*.

(5) Confirm with **OK**.

The **Class of Services** menu is used to specify the functions and features for classes of users with different permissions. Your system's users are given their individual permissions by being assigned to a class of service.

The *Default CoS* class of service is configured by default. It can be adjusted to suit one's specific needs. To do this, go to the following menu:

(1) Go to **Numbering** -> **User Settings** -> **Class of Services** -> **Default CoS** -> **Basic Settings**.

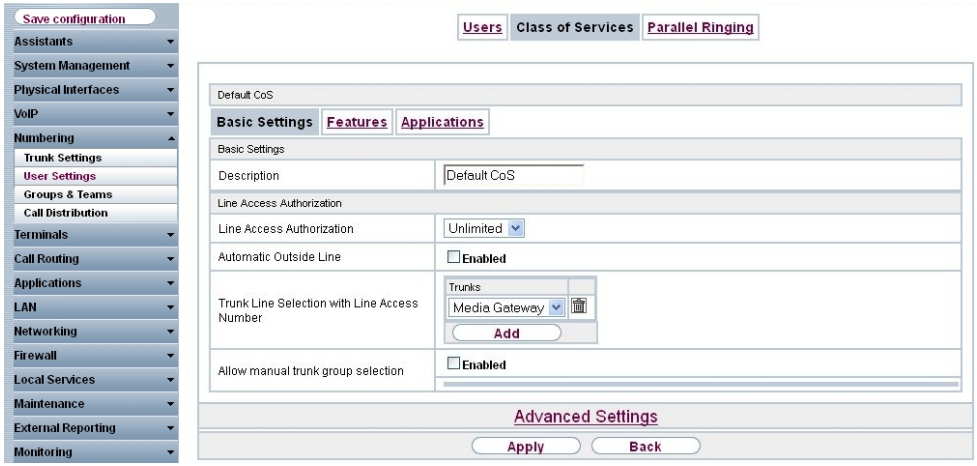


Fig. 72: **Numbering** -> **User settings** -> **Class of Services**-> **Default CoS** -> **Basic Settings**

Proceed as follows:

(1) Leave the **Description** *Default CoS* for the user group.

(2) For **Dialling Authorization** leave e. g. *Unrestricted* .

(3) For **Trunk Line Selection with Line Access Number** use **Add** to select the connection that has just been configured, in our example *Media Gateway*.

(4) Click **Apply**.

In the next step you configure the users of your system and their class, and you assign them internal numbers.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **Default User** -> **Basic Settings**.

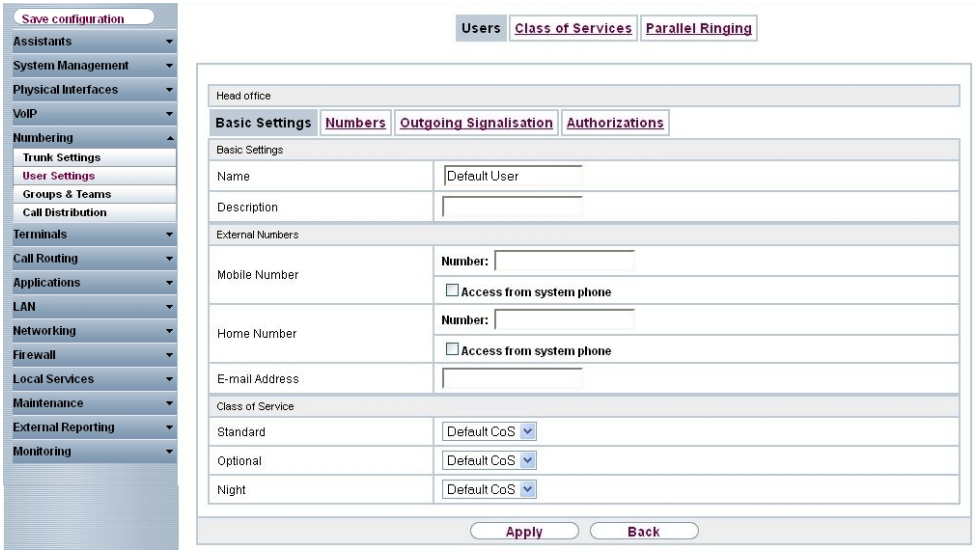


Fig. 73: **Numbering** -> **User settings** -> **Users** -> **Default User** -> **Basic Settings**

Proceed as follows:

(1) For **Class of Services Standard**, **Optional** and **Night**, select e. g. `Default CoS`.

(2) Click **Apply**.

Now the direct dial numbers that the network operator has assigned you and your individual internal numbers are entered in the **Numbers** submenu. Depending on the type, one or more numbers can be assigned per terminal.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **Default User** -> **Numbers**.

Fig. 74: **Numbering** -> **User settings** -> **Users** -> **Default User** -> **Numbers**

For direct dial numbers that are to be directly accessible, proceed as follows:

(1) Click **Add**.

(2) For **Internal Number** enter the direct dial numberein, e. g. `140`.

(3) Check the **System Phonebook** box to add the internal numbers to the system phonebook.

(4) Click **Apply**.

In the **Outgoing Signalisation** menu, select which number is to be displayed for outgoing calls.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **Default User** -> **Outgoing Signalisation** ->**Internal Number 140**.

Fig. 75: **Numbering** -> **User Settings** -> **Users** -> **Default User** -> **Outgoing Signalisation** -> **Internal Number 140**.

Proceed as follows:

(1) For **Media Gateway** select the *Standard Direct Dial Signalisation*.

(2) Click **Apply**.

Example: Internally, the subscriber can be reached on number 140. If Standard Direct Dial Signalisation is selected, 1234 – 140 is transmitted externally. The subscriber can be reached on this number from outside, too.

Now the **elmeg hybird 300/600** has been set up and it can use the S2M on the **bintec RT4402** via SIP as the exchange connection. To create a bootable backup of the configuration, exit the **GUI** with **Save configuration** and confirm with **OK**.

6.3 Notes

In this scenario, the **elmeg hybird 300/600** uses the **bintec RT4402** as the SIP provider. This means that every call that runs from the **elmeg hybird 300/600** via the **bintec RT4402** takes up a SIP channel. So care should be taken that there are enough SIP channel licences available for external connections in the **elmeg hybird 300/600**. The same applies to the DSP channels. If you are calling from an S0, UP0 or analogue telephone via the media gateway to the outside, one DSP channel per call is required in the **elmeg hybird 300/600**. In the **elmeg hybird 300/600**, the call is converted from ISDN/analogue to SIP (one DSP channel required), and the call then goes by SIP to the media gateway, where it is converted back to ISDN/S2M. A DSP channel in the **bintec RT4402** is also used for this final conversion. As this device was equipped ex works with a 32-channel DSP, there is no need to worry here about the number of calls.

6.4 Overview of Configuration Steps

Configuring the ISDN Port

Field	Menu	Value
Port Usage	**Physical Interfaces** -> **ISDN Ports** -> **ISDN Configuration** -> **<pri2-4 (TE)>**	*EURO ISDN S2M (TE)*
ISDN Line Framing	**Physical Interfaces** -> **ISDN Ports** -> **ISDN Configuration** -> **<pri2-4 (TE)>**	*CRC4 (Standard)*
Call number	**Physical Interfaces** -> **ISDN Ports** -> **ISDN Configuration** -> **<pri2-4 (TE)>**	e.g. *1234*
Channel Selection	**Physical Interfaces** -> **ISDN Ports** -> **ISDN Configuration** -> **<pri2-4 (TE)>**	*Any channel*

Creating a SIP account

Field	Menu	Value
Description	**VoIP** -> **Media Gateway** -> **SIP Accounts** -> **New**	e. g. *Hybird*
Administrative Status	**VoIP** -> **Media Gateway** -> **SIP Accounts** -> **New**	*Enabled*
Trunk Mode	**VoIP** -> **Media Gateway** ->	*Server*

Field	Menu	Value
	SIP Accounts -> **New**	
Protocol	**VoIP** -> **Media Gateway** -> **SIP Accounts** -> **New**	*UDP* and *5060*
User Name	**VoIP** -> **Media Gateway** -> **SIP Accounts** -> **New**	e. g. *hybird*
Authentication ID	**VoIP** -> **Media Gateway** -> **SIP Accounts** -> **New**	e. g. *hybird*
Password	**VoIP** -> **Media Gateway** -> **SIP Accounts** -> **New**	e. g. *supersecret*
Registration	**VoIP** -> **Media Gateway** -> **SIP Accounts** -> **New**	*Enabled*
Validity	**VoIP** -> **Media Gateway** -> **SIP Accounts** -> **New**	e. g. *600*
SIP Header Field(s) for Caller Address	**VoIP** -> **Media Gateway** -> **SIP Accounts** -> **New**	*Display and User Name*

Setting up a route

Field	Menu	Value
Description	**VoIP** -> **Media Gateway** -> **Call Routing** -> **New**	e. g. *Exchange to hybird*
Administrative Status	**VoIP** -> **Media Gateway** -> **Call Routing** -> **New**	*Enabled*
Type	**VoIP** -> **Media Gateway** -> **Call Routing** -> **New**	*Permit*
Calling Line	**VoIP** -> **Media Gateway** -> **Call Routing** -> **New**	*pri2-4*
Called Address	**VoIP** -> **Media Gateway** -> **Call Routing** -> **New**	e. g. *1234**
Priority	**VoIP** -> **Media Gateway** -> **Call Routing** -> **New**-> **Add**	*1*
Administrative Status	**VoIP** -> **Media Gateway** -> **Call Routing** -> **New**-> **Add**	*Enabled*
Line	**VoIP** -> **Media Gateway** -> **Call Routing** -> **New**-> **Add**	*Hybird*

Setting up two routes

Field	Menu	Value
Description	**VoIP** -> **Media Gateway** -> **Call Routing** -> **New**	e. g. *hybird to exchange*
Administrative Status	**VoIP** -> **Media Gateway** -> **Call Routing** -> **New**	*Enabled*
Type	**VoIP** -> **Media Gateway** -> **Call Routing** -> **New**	*Permit*
Calling Line	**VoIP** -> **Media Gateway** -> **Call Routing** -> **New**	*Hybird*
Called Address	**VoIP** -> **Media Gateway** -> **Call Routing** -> **New**	***
Priority	**VoIP** -> **Media Gateway** -> **Call Routing** -> **New**-> **Add**	*1*
Administrative Status	**VoIP** -> **Media Gateway** -> **Call Routing** -> **New**-> **Add**	*Enabled*
Line	**VoIP** -> **Media Gateway** -> **Call Routing** -> **New**-> **Add**	*pri2-4*

Enabling the media gateway

Field	Menu	Value
Media Gateway Status	**VoIP** -> **Media Gateway** -> **Options**	*Enabled*
Session Border Controller Mode	**VoIP** -> **Media Gateway** -> **Options**	*Auto*
Media Stream Termination	**VoIP** -> **Media Gateway** -> **Options**	*Enabled*
Dialling break	**VoIP** -> **Media Gateway** -> **Options**	e. g. *5* seconds

Setting up a SIP provider

Field	Menu	Value
Description	**VoIP** -> **Settings** -> **SIP Provider** -> **New**	e. g. *Media Gateway*
Provider status	**VoIP** -> **Settings** -> **SIP Provider** -> **New**	*Active*
Access Configuration	**VoIP** -> **Settings** -> **SIP Provider** -> **New**	*Direct dial-in*
Authentication ID	**VoIP** -> **Settings** -> **SIP Provider** -> **New**	e. g. *hybird*

Field	Menu	Value
Password	**VoIP** -> **Settings** -> **SIP Provider** -> **New**	e. g. *supersecret*
User Name	**VoIP** -> **Settings** -> **SIP Provider** -> **New**	e. g. *hybird*
Registrar	**VoIP** -> **Settings** -> **SIP Provider** -> **New**	*192.168.0.1*
Port Registrar	**VoIP** -> **Settings** -> **SIP Provider** -> **New**	*5060*
Transport protocol	**VoIP** -> **Settings** -> **SIP Provider** -> **New**	*UDP*
Registration Timer	**VoIP** -> **Settings** -> **SIP Provider** -> **New**	e. g. *60* seconds
SIP Header Field(s) for Caller Address	**VoIP** -> **Settings** -> **SIP Provider** -> **New**-> **Advanced Settings**	*Display*, *User Name*, *P-Asserted*

Entering external numbers

Field	Menu	Value
External connection	**Numbering** -> **Trunk Settings** -> **Numbers** -> **New**	e. g. *Media Gateway*
Type of Number	**Numbering** -> **Trunk Settings** -> **Numbers** -> **New**	*P-P Base Number*
P-P Base Number	**Numbering** -> **Trunk Settings** -> **Numbers** -> **New**	e. g. *1234*

Setting up a direct dial exception

Field	Menu	Value
External connection	**Numbering** -> **Trunk Settings** -> **Numbers** -> **New**	e. g. *Media Gateway*
Type of Number	**Numbering** -> **Trunk Settings** -> **Numbers** -> **New**	*Direct dial exception (P-P)*
Displayed name	**Numbering** -> **Trunk Settings** -> **Numbers** -> **New**	e. g. *Head Office*
Direct dial exception (P-P)	**Numbering** -> **Trunk Settings** -> **Numbers** -> **New**	e. g. *100*

Defining a class of service

Field	Menu	Value
Description	**Numbering** -> **User settings** -> **Class of Services**-	*Default CoS*

Field	Menu	Value
	> **Default CoS** -> **Basic Settings**	
Line access authorisation	**Numbering** -> **User settings** -> **Class of Services**-> **Default CoS** -> **Basic Settings**	*Unlimited*
Trunk Line Selection with Line Access Number	**Numbering** -> **User settings** -> **Class of Services**-> **Default CoS** -> **Basic Settings** ->**Add**	e. g. *MediaGateway*.

Defining a user

Field	Menu	Value
Default	**Numbering** -> **User settings** -> **Users** -> **Default User** ->**Basic Settings**	e. g. *Default CoS*
Optional	**Numbering** -> **User settings** -> **Users** -> **Default User** ->**Basic Settings**	e. g. *Default CoS*
Night	**Numbering** -> **User settings** -> **Users** -> **Default User** ->**Basic Settings**	e. g. *Default CoS*
Internal Numbers	**Numbering** -> **User settings** -> **Users** -> **Default User** ->**Numbers** -> **Add**	e. g. *140*
System phonebook	**Numbering** -> **User settings** -> **Users** -> **Default User** -> **Numbers**	*Enabled*
Media Gateway	**Numbering** -> **User Settings** -> **Users** -> **Default User** -> **Outgoing Signalisation** -> -> **Internal Number 140** .	e. g. *Standard Direct Dial Signalisation*

Chapter 7 Telephony - Connecting to the ISDN point-to-multipoint connection & ADSL connection

7.1 Introduction

This workshop describes the connecting of the **elmeg hybird 120/130** to an ISDN point-to-multipoint connection. In it, a SIP telephone, a standard ISDN telephone and an analogue telephone are each connected to the **elmeg hybird 120/130**. We then show the call assignment of individual telephony subscribers with external multiple subscriber numbers (MSN). An ADSL Internet connection will then be set up using the integrated ADSL/ADSL2+ modem.

Configuration is performed with the **GUI** (Graphical User Interface).

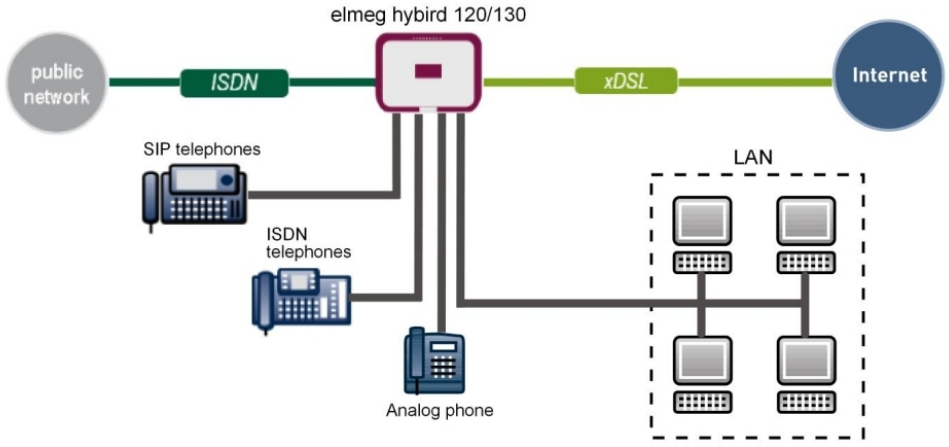


Fig. 76: Example scenario

Requirements

- An ADSL / ADSL2+ connection
- An ISDN point-to-multipoint connection
- An **elmeg hybird 120/130** system
- A SIP telephone, a standard ISDN telephone and an analogue telephone

- The **elmeg hybird 120/130** is used as a DHCP, DNS and time server in the network
- Connect the **elmeg hybird 120/130** to all terminals (PC, telephones) and connections (ADSL splitter and ISDN-NTBA) as indicated in the circuit diagram

7.2 Configuration

7.2.1 First steps

The first time you access the **elmeg hybird 120/130**'s web interface, you are prompted to change the password. You then see the system's status page. If the ISDN and ADSL interface have been connected correctly, the link status already shows a green arrow.

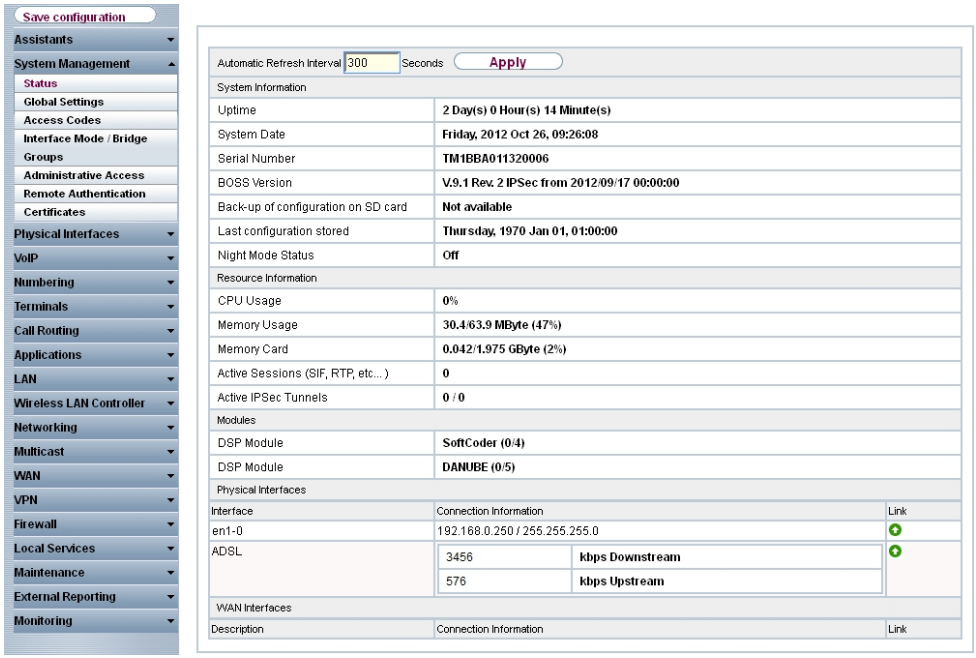


Fig. 77: **System Management** -> **Status**

You can use the wizard to adjust, for example, the **IP address** of the **elmeg hybird 120/130** and the **IP address range** of the integrated DHCP server.

Note

If these addresses are changed, all the IP terminals may need to be restarted in order to update their IP addresses by DHCP.

(1) Go to **Assistants** -> **First steps** -> **Basic Setup**.

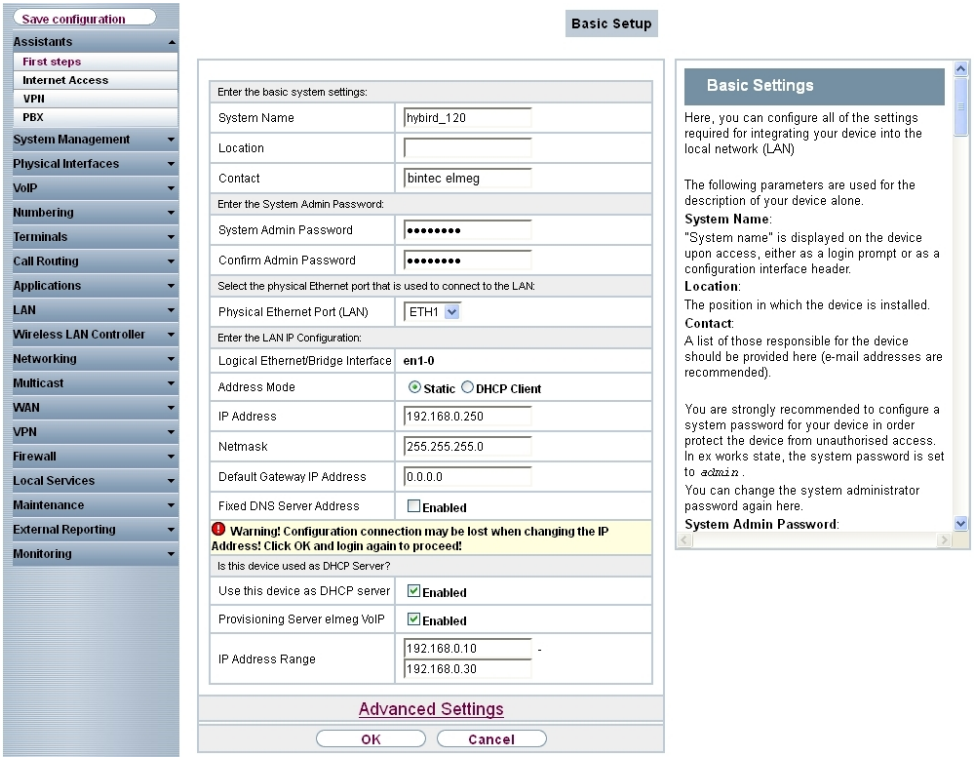


Fig. 78: **Assistants** -> **First steps** -> **Basic Setup**

7.2.2 Configuring Internet access

The Internet connection can be set up in a few steps via the Assistant. For this, go to the following menu:

(1) Go to **Assistants** -> **Internet Access**-> **Internet Access** -> **New**.

(2) For **Connection Type**, select `Internal ADSL Modem`.

(3) Click on **Next** to configure a new Internet connection.

(4) Enter the access data required for the connection.

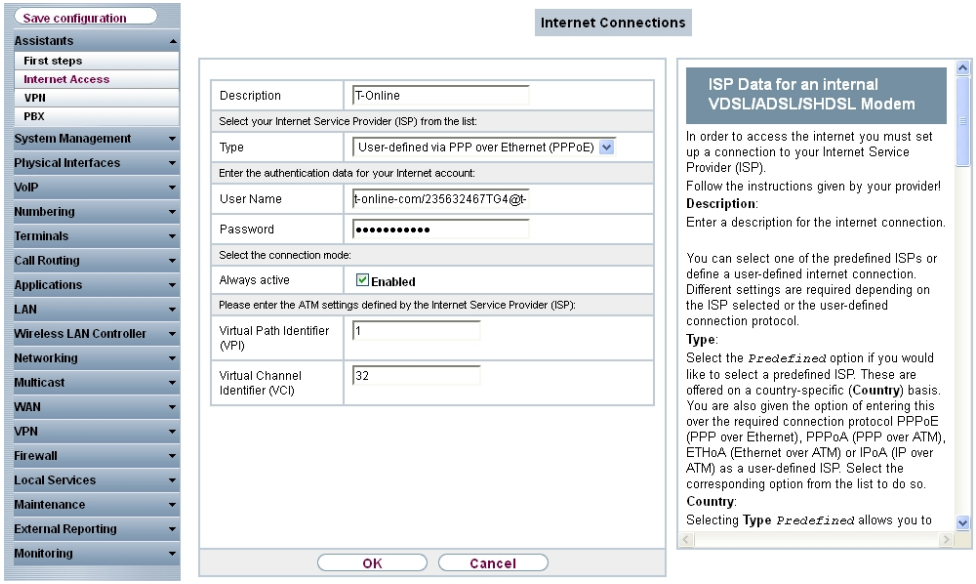


Fig. 79: **Assistants** -> **Internet Access** -> **Internet Access** -> **New** -> **Next**

Proceed as follows to set up the Internet connection:

(1) Under **Description** enter e.g. *T-Online*.

(2) Under **Type**, select *User-defined via PPP over Ethernet (PPPoE)*.

(3) Under **User Name** enter the data that you get from your provider, e. g. *t-online-com/235632467TG4@t-online.de*.

(4) For **Password**, enter the personal ID taken from provider order confirmation, e. g. *supersecret*.

(5) Select the option **Always active**.

(6) Press **OK** to confirm your entries.

The WAN connection status can then be controlled on the system's status page.

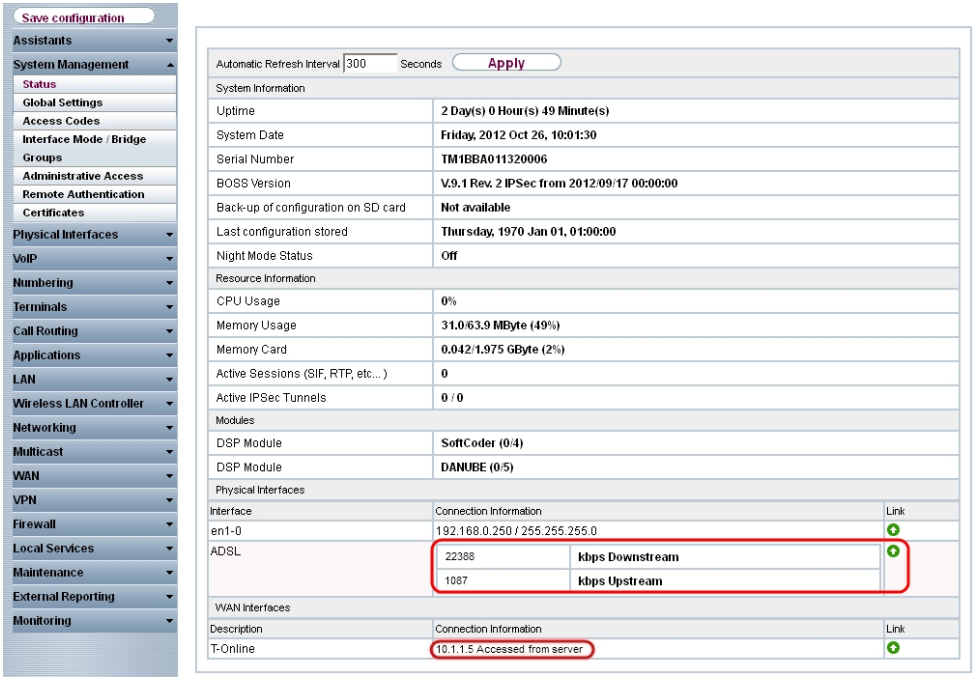


Fig. 80: **System Management** -> **Status**

7.2.3 Configure the external ISDN port to operate on the ISDN point-to-multipoint connection

In its ex works state, the **elmeg hybird 120/130** is ready to operate on a point-to-point ISDN access. The following setting needs to be made for the **elmeg hybird 120/130** to work on your point-to-multipoint ISDN connection.

Reconfiguration as an ISDN multipoint connection can be done via the assistant. For this, go to the following menu:

(1) Go to **Assistants** -> **PBX** -> **Trunks**.

(2) Delete the predefined entry *ISDN External* by clicking the icon.

(3) Use **New** to add a new connection.

(4) Under **Connection Type** select *ISDN*.

(5) Click on **Next**.

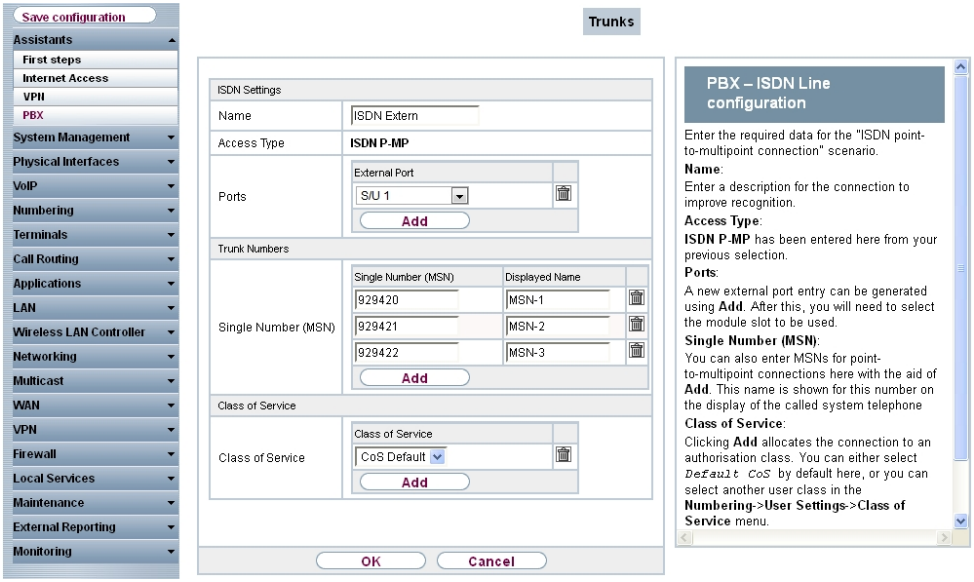


Fig. 81: **Assistants** -> **PBX** -> **Trunks** -> **Next**

Proceed as follows:

(1) Enter a **Name** for the connection, e.g. *ISDN Extern*.

(2) Under **Ports**, select a port from the list using the **Add** option, e.g. *S/U 1* .

(3) Under **Single Number (MSN)**, click on **Add** and enter a number, e.g. *929420*. Under **Displayed Name** enter a name for the connection, e.g. *MSN-1*. Proceed in the same way to add more **Single Numbers (MSN)** by clicking **Add**.

(4) Under **Class of Service**, click on **Add** and select the class *CoS Default* In the default configuration of **elmeg hybird 120/130** all predefined users are assigned to the class CoS Default.

(5) Confirm your settings with **OK**.

A successfully established ISDN multipoint connection is marked with a .

7.2.4 Connecting a SIP telephone

When the SIP telephone has been connected as shown in the circuit diagram, you can configure the connected SIP telephones.

In the next step, the SIP telephone user or a local number is assigned.

(1) Go to **Terminals** -> **Other phones** -> **VoIP** -> **New**.

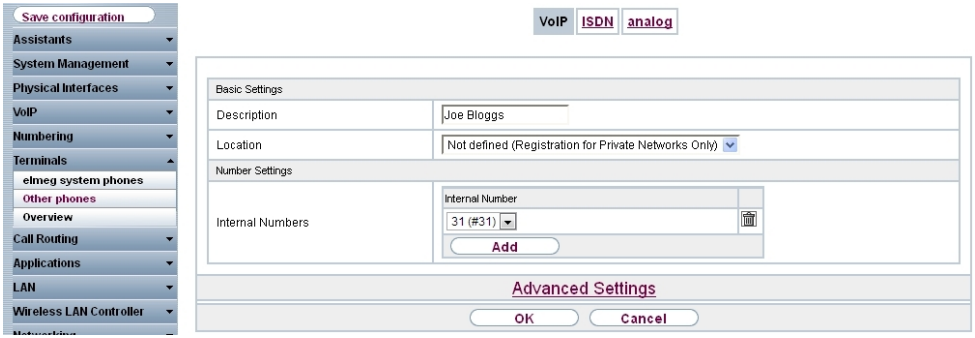


Fig. 82: **Terminals** -> **Other phones** -> **VoIP** -> **New**

Proceed as follows:

(1) Enter the name of the user under **Description**, e.g. *Joe Bloggs*.

(2) For a local terminal, select the predefined **Location** *Not defined (Registration for Private Networks Only)*.

(3) For **Internal Number**, select the entry, e. g. *31 (#31)*.

(4) Confirm with **OK**.

In the next step a name, e. g. *User 32*, can be issued to a subscriber to improve the overview.

(1) Go to **Numbering** -> **User Settings** -> **Users** -><**User 31**> ->**Basic Settings**.

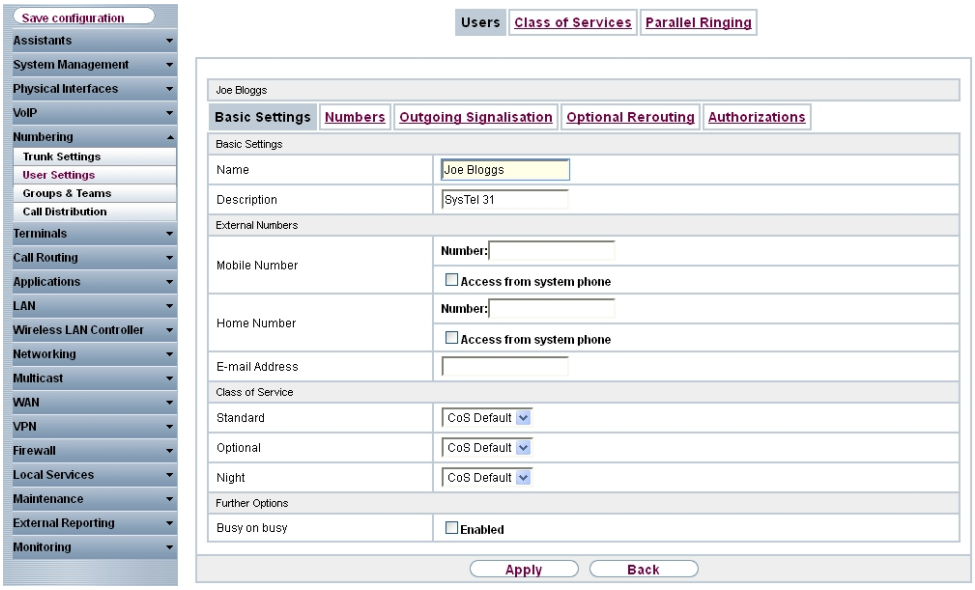


Fig. 83: **Numbering** -> **User Settings** -> **Users** -><**User 31**> ->**Basic Settings**

Proceed as follows:

(1) Enter the name of the user under **Name**, e. g. *Joe Bloggs*.

(2) Leave the remaining settings unchanged and confirm them with **Apply**.

For the caller's name to be displayed on internal calls, the following setting needs to be made in the **Numbers** submenu.

(1) Gehen Sie zu **Numbering** -> **User Settings** -> **Users** -> **<Joe Bloggs>** -> **Numbers**.

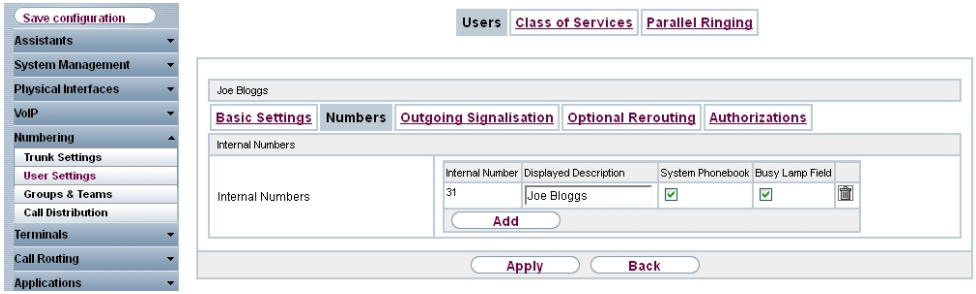


Fig. 84: **Numbering** -> **User Settings** -> **Users** -> **<Joe Bloggs>** -> **Numbers**

Proceed as follows:

(1) Enter the name that is to be displayed under **Displayed Description**, e. g. *Joe Bloggs*.

(2) Click **Apply**.

In the **Outgoing Signalisation** menu, select the number for the user that is to be displayed to the other party on outgoing calls. Here, select one of the multiple subscriber numbers (MSNs) that have been configured.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<Joe Bloggs>** -> **Outgoing Signalisation** -><**31**>.

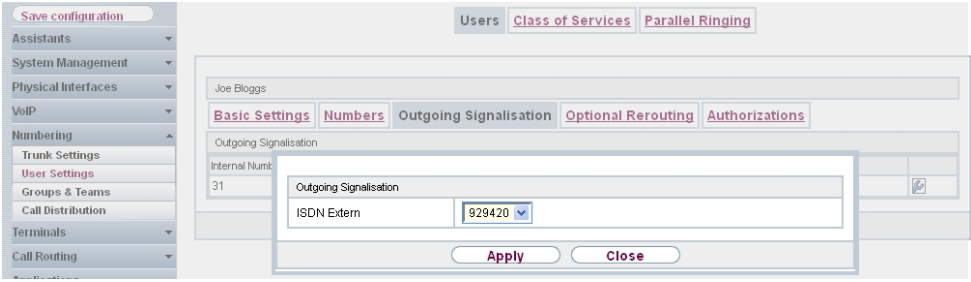


Fig. 85: **Numbering** -> **User Settings** -> **Users** -> **<Joe Bloggs>** -> **Outgoing Signalisation** -><**31**>

Proceed as follows:

(1) Under **ISDN Extern**, select the outgoing number, e. g. *929420*.

(2) Click **Apply**.

In the next configuration step, you define the **Incoming Distribution** i. e. specify with which external number the user *Joe Bloggs* can be reached.

Select with for the table entry with the required external number, e. g. *929420* to assign it to a user.

(1) Go to **Numbering** -> **Call Distribution** -> **Incoming Distribution** -><**929420**>.

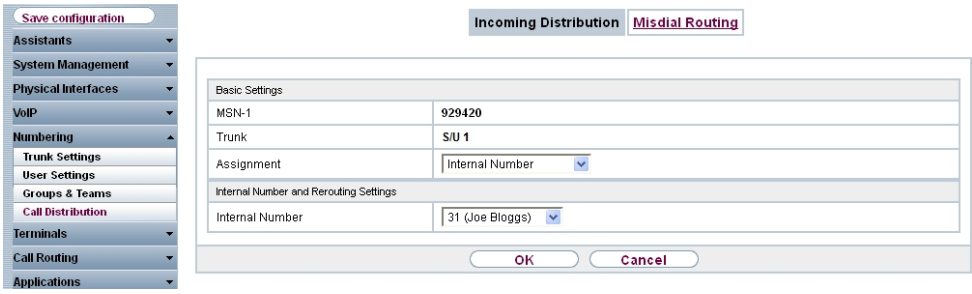


Fig. 86: **Numbering** -> **Call Distribution** -> **Incoming Distribution** -><**929420**>

Proceed as follows:

(1) Under **Assignment** select *Internal Number*.

(2) For **Internal Number**, select the entry *31 (Joe Bloggs)*.

(3) Confirm with **OK**.

7.2.5 Connect an ISDN telephone

In its ex works state, the **elmeg hybird 120/130** is already prepared for using two ISDN terminals (internal numbers 20 and 21). In this example, a standard ISDN telephone with the internal number 20, as shown on the circuit diagram, will be connected to the **elmeg hybird 120/130**.

Note

For the ISDN telephone to operate on the **elmeg hybird 120/130**, the multiple subscriber number (MSN) 20 needs to be manually configured.

(1) Go to **Terminals** -> **Other phones** -> **ISDN** -> **<Internal number 20>**.

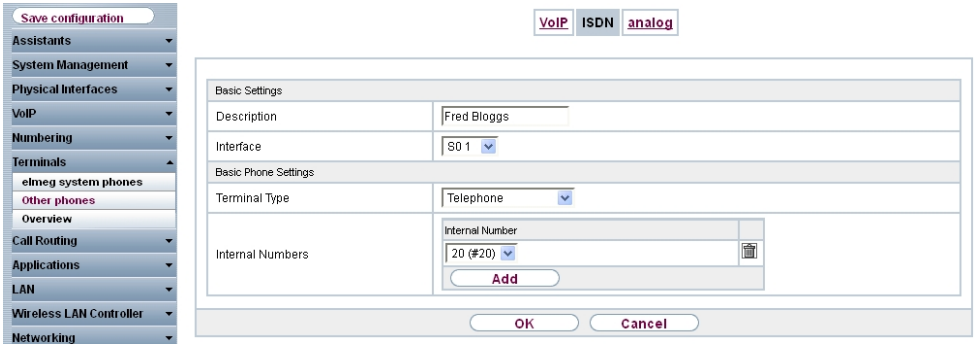


Fig. 87: **Terminals** -> **Other phones** -> **ISDN** -> **<Internal number 20>**

Proceed as follows:

(1) Enter a **Description** for the terminal, e. g. `Fred Bloggs`.

(2) Leave the **Terminal Type** set to `Telephone`.

(3) Confirm with **OK**.

In the next step a name will be given to the ISDN subscriber with the internal number 20 to improve the overview.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<User 20>** ->**Basic Settings**.

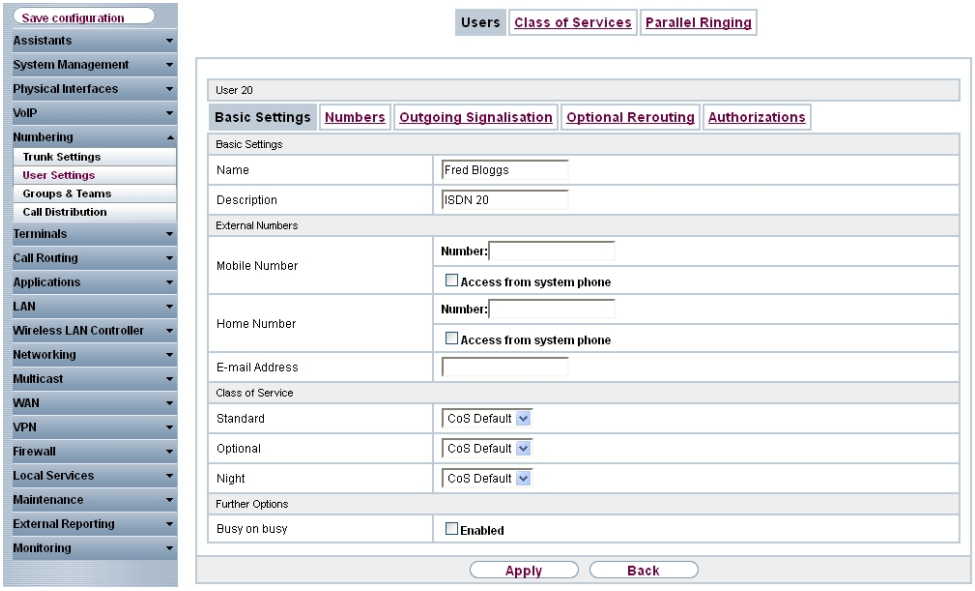


Fig. 88: **Numbering** -> **User Settings** -> **Users** -><**User 20**> -> **Basic Settings**

Proceed as follows:

(1) Enter the **Name** of the user. The **name** appears on a system telephone's display. In this example, the **name** of the user is `Fred Bloggs`.

(2) Leave the remaining settings unchanged and confirm them with **Apply**.

For the caller's name to be displayed on internal calls, there is the option of configuring the relevant user name in the **Numbers** submenu.

(1) Gehen Sie zu **Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Numbers**.

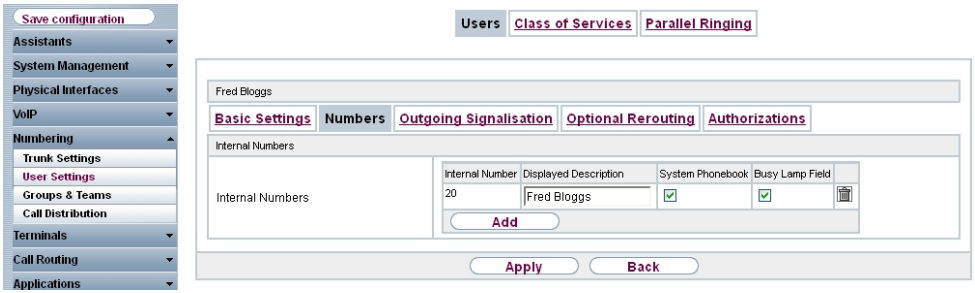


Fig. 89: **Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Numbers**

Proceed as follows:

(1) Enter the name that is to be displayed under **Displayed Description**, e. g. *Fred Bloggs*.

(2) Click **Apply**.

Now the **Outgoing Signalisation** submenu specifies which external number is to be signalled for this user on outgoing calls. Select one of the multiple subscriber numbers (MSNs) that have been configured.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Outgoing Signalisation** -><20>.

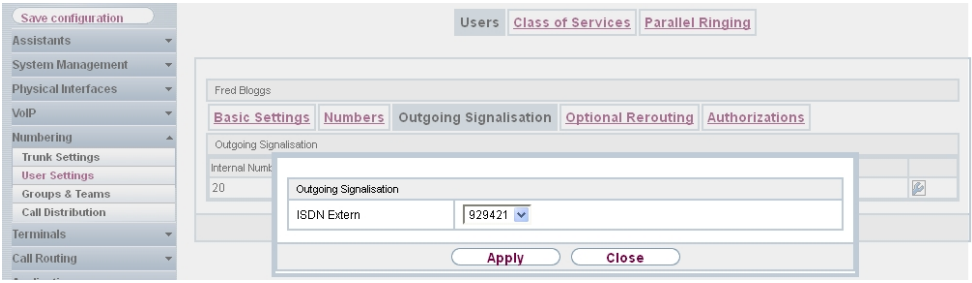


Fig. 90: **Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Outgoing Signalisation**-><20>

Proceed as follows:

(1) Under **ISDN Extern**, select the outgoing number, e. g. *929421*.

(2) Click **Apply**.

In the next configuration step, you define the **Incoming Distribution** i. e. specify with which external number the user *Fred Bloggs* can be reached.

Select with for the table entry with the required external number, e. g. *929421* to assign it to a user.

(1) Go to **Numbering** -> **Call Distribution** -> **Incoming Distribution** -><929421>.

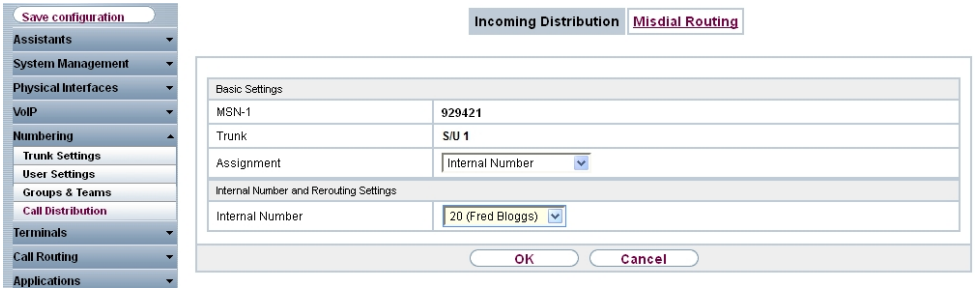


Fig. 91: **Numbering** -> **Call Distribution** -> **Incoming Distribution** -><**929421**>

Proceed as follows:

(1) Under **Assignment** select *Internal Number*.

(2) For **Internal Number**, select the entry *20 (Fred Bloggs)*.

(3) Confirm with **OK**.

7.2.6 Connect an analogue telephone

In its ex works state, the **elmeg hybird 120/130** is already prepared for using four analogue terminals (internal numbers 10 to 13). In this example, an analogue telephone with the internal number 10, as shown on the circuit diagram, will be connected to the **elmeg hybird 120/130**.

(1) Go to **Terminals** -> **Other phones** -> **analog** -> **<Internal number 10>** .

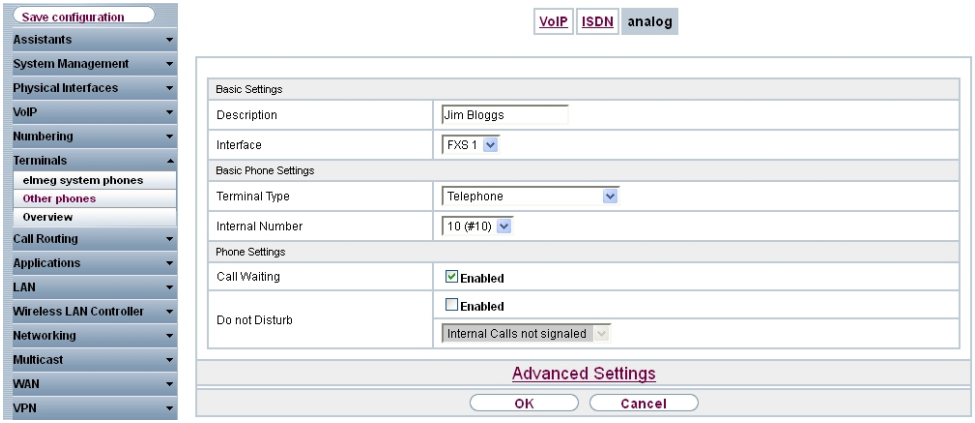


Fig. 92: **Terminals** -> **Other phones** -> **analog** -> **<Internal number 10>**

Proceed as follows:

(1) Enter a **Description** for the terminal, e. g. *Jim Bloggs*.

(2) Leave the **Terminal Type** set to `Telephone`.

(3) Confirm with **OK**.

In the **User Settings** menu, the analogue subscriber with the internal number 10 can be assigned a name to improve the overview.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<Jim Bloggs>** -> **Basic Settings**.

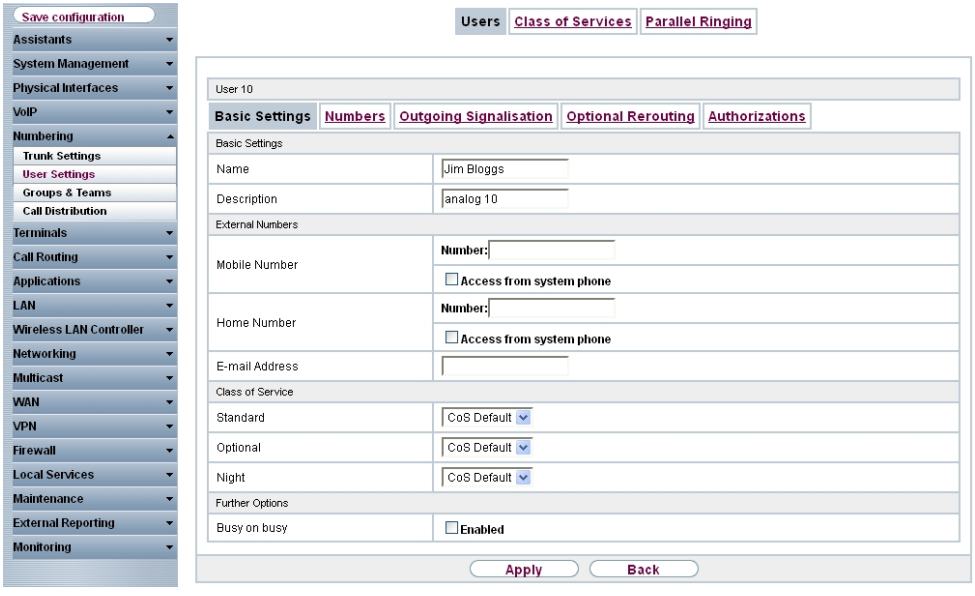


Fig. 93: **Numbering -> User Settings -> Users -> <Jim Bloggs> -> Basic Settings**

Proceed as follows:

(1) Enter the **Name** of the user. The **name** appears on a system telephone's display. In this example, the **name** of the user is `Jim Bloggs`.

(2) Leave the remaining settings unchanged and confirm them with **Apply**.

For the caller's name to be displayed on internal calls, there is the option of configuring the relevant user name in the **Numbers** submenu.

(1) Gehen Sie zu **Numbering** -> **User Settings** -> **Users** -> **<Jim Bloggs>** -> **Numbers**.

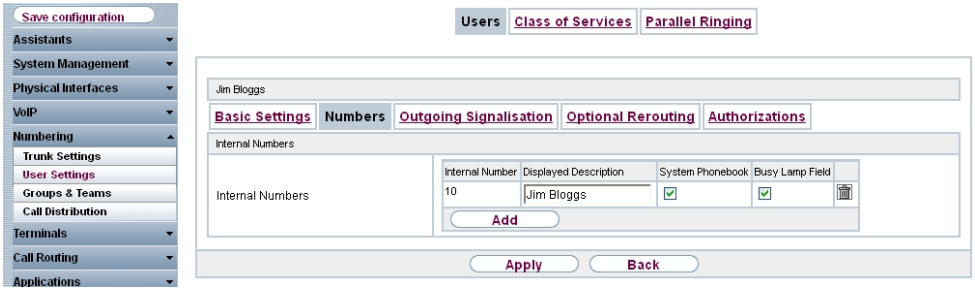


Fig. 94: **Numbering** -> **User Settings** -> **Users** -> **<Jim Bloggs>** -> **Numbers**

Proceed as follows:

(1) Enter the name that is to be displayed under **Displayed Description**, e. g. *Jim Bloggs*.

(2) Click **Apply**.

Now the **Outgoing Signalisation** submenu specifies which external number is to be signalled for this user on outgoing calls. Select one of the multiple subscriber numbers (MSNs) that have been configured.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<Jim Bloggs>** -> **Outgoing Signalisation** ->->.

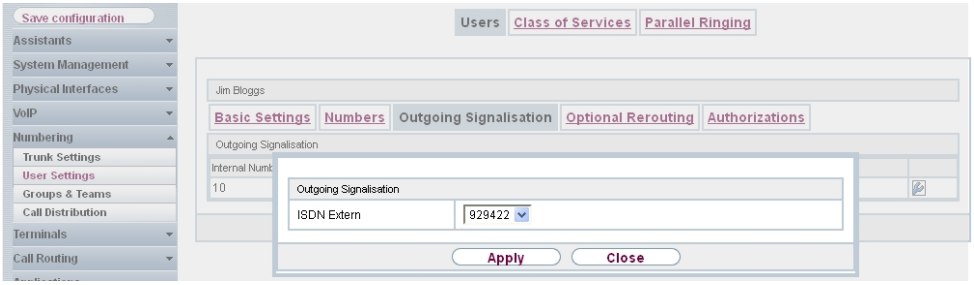


Fig. 95: **Numbering** -> **User Settings** -> **Users** -> **<Jim Bloggs>** -> **Outgoing Signalisation**->->

Proceed as follows:

(1) Under **ISDN Extern**, select the outgoing number, e. g. *929422*.

(2) Click **Apply**.

In the next configuration step, you define the **Incoming Distribution** i. e. specify with which external number the user *Jim Bloggs* can be reached.

Select with for the table entry with the required external number, e. g. *929422* to assign

it to a user.

(1) Go to **Numbering** -> **Call Distribution** -> **Incoming Distribution** -> **<929422>**.

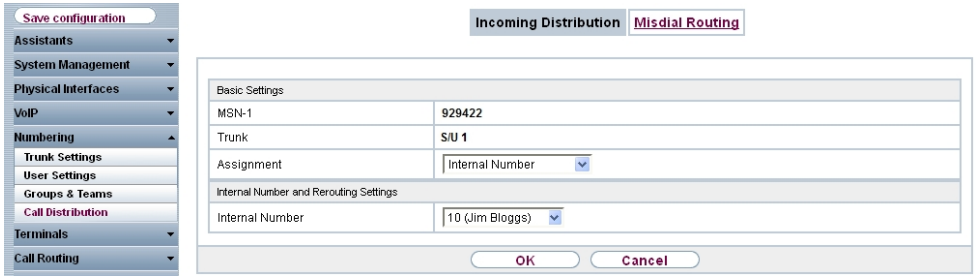


Fig. 96: **Numbering** -> **Call Distribution** -> **Incoming Distribution** -> **<929422>**

Proceed as follows:

(1) Under **Assignment** select *Internal Number*.

(2) For **Internal Number**, select the entry *10 (Jim Bloggs)*.

(3) Confirm with **OK**.

7.3 Overview of Configuration Steps

Configuring Internet access

Field	Menu	Value
Connection Type	**Assistants** -> **Internet Access** -> **Internet Connection** -> **New**	*Internal ADSL Modem*
Description	**Assistants** -> **Internet Access** -> **Internetverbindungen** -> **New** -> **Next**	*T-Online*
Type	**Assistants** -> **Internet Access** -> **Internetverbindungen** -> **New** -> **Next**	*User-defined via PPP over Ethernet (PPPoE)*
User Name	**Assistants** -> **Internet Access** -> **Internetverbindungen** -> **New** -> **Next**	e. g. *t-online-com/235632467TG4@t-online.de*
Password	**Assistants** -> **Internet Access** -> **Internetverbindungen** -> **New** -> **Next**	e. g. *supersecret*
Always active	**Assistants** -> **Internet Access** -> **Internetverbindungen** -> **New** -> **Next**	*Enabled*

Configure an ISDN point-to-multipoint connection

Field	Menu	Value
Connection Type	**Assistants** -> **PBX** -> **Trunks** -> **New**	*ISDN*
Name	**Assistants** -> **PBX** -> **Trunks** -> **Next**	e. g. *ISDN Extern*
Ports	**Assistants** -> **PBX** -> **Trunks** -> **Next**	*S/U 1*
Single Number (MSN)	**Assistants** -> **PBX** -> **Trunks** -> **Next**	e. g. *929420* and *MSN-1*, *929421* and *MSN-2*, *929422* and *MSN-3*
Class of Service	**Assistants** -> **PBX** -> **Trunks** -> **Next**	*Default CoS*

Connecting a SIP telephone

Field	Menu	Value
Description	**Terminals** -> **Other phones** -> **VoIP** -> **New**	e. g. *Joe Bloggs*
Location	**Terminals** -> **Other phones** -> **VoIP** -> **New**	*Not defined (Registration for Private Networks Only)*
Internal Numbers	**Terminals** -> **Other phones** -> **VoIP** -> **New**	e. g. *31 (#31)*
Name	**Numbering** -> **User Settings** -> **Users** -> **<User 31>** -> ->**Basic Settings**	e. g. *Joe Bloggs*
Displayed Description	**Numbering** -> **User Settings** -> **Users** -> **<Joe Bloggs>** -> **Numbers**	e. g. *Joe Bloggs*
ISDN Extern	**Numbering** -> **User Settings** -> **Users** -> **<Joe Bloggs>** -> **Outgoing Signalisation** ->->	e.g. *929420*
Assignment	**Numbering** -> **Call Distribution** -> **Incoming Distribution <929420>** ->	*Internal number*
Internal Number	**Numbering** -> **Call Distribution** -> **Incoming Distribution <929420>** ->	e. g. *31 (Joe Bloggs)*

Connect an ISDN telephone

Field	Menu	Value
Description	**Terminals** -> **Other phones** -> **ISDN** -> **<Internal number 20>** ->	e. g. *Fred Bloggs*
Terminal Type	**Terminals** -> **Other phones** -> **ISDN** -> **<Internal number 20>** ->	*Telephone*
Name	**Numbering** -> **User Settings** -> **Users** -> **<User 20>** -> ->**Basic Settings**	e. g. *Fred Bloggs*
Displayed Description	**Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Numbers**	e. g. *Fred Bloggs*
ISDN Extern	**Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Out-**	e.g. *929421*

Field	Menu	Value
	going Signalisation ->->	
Assignment	**Numbering** -> **Call Distribution** -> **Incoming Distribution <929421>** ->	*Internal number*
Internal Number	**Numbering** -> **Call Distribution** -> **Incoming Distribution <929421>** ->	e. g. *20 (Fred Bloggs)*

Connect an analogue telephone

Field	Menu	Value
Description	**Terminals** -> **Other phones** -> **analog** -> **<Internal number 10>** ->	e. g. *Jim Bloggs*
Terminal Type	**Terminals** -> **Other phones** -> **analog** -> **<Internal number 10>** ->	*Telephone*
Name	**Numbering** -> **User Settings** -> **Users** -> **<User 10>** -> ->**Basic Settings**	e. g. *Jim Bloggs*
Displayed Description	**Numbering** -> **User Settings** -> **Users** -> **<Jim Bloggs>** -> **Numbers**	e. g. *Jim Bloggs*
ISDN Extern	**Numbering** -> **User Settings** -> **Users** -> **<Jim Bloggs>** -> **Outgoing Signalisation**->->	e.g. *929422*
Assignment	**Numbering** -> **Call Distribution** -> **Incoming Distribution <929422>** ->	*Internal number*
Internal Number	**Numbering** -> **Call Distribution** -> **Incoming Distribution <929422>** ->	e. g. *10 (Jim Bloggs)*

Chapter 8 Telephony - Connecting to the ISDN point-to-point connection & ADSL connection

8.1 Introduction

This workshop describes the connecting of the **elmeg hybird 120/130** to an ISDN point-to-point connection with the main number *9678589* and a two digit direct dialing range) (numbers *0* to *99*). In it, a SIP telephone, a standard ISDN telephone and an analogue telephone are each connected to the **elmeg hybird 120/130**. We then show the call assignment of individual telephony subscribers with, in each case, one external direct dial number. An ADSL Internet connection will then be set up using the integrated ADSL/ADSL2+ modem.

Configuration is performed with the **GUI** (Graphical User Interface).

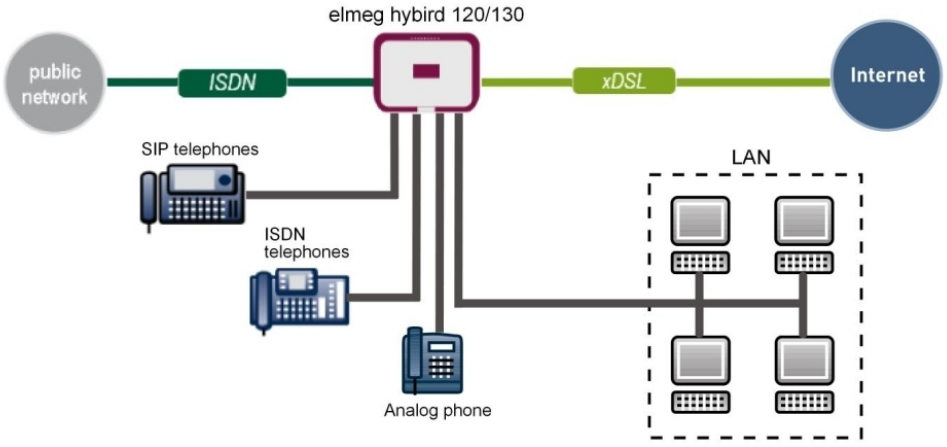


Fig. 97: Example scenario

Requirements

- An ADSL / ADSL2+ connection
- an ISDN point-to-point connection with a main number and direct dialing range
- An **elmeg hybird 120/130** system
- A SIP telephone, a standard ISDN telephone and an analogue telephone

- The **elmeg hybird 120/130** is used as a DHCP, DNS and time server in the network
- Connect the **elmeg hybird 120/130** to all terminals (PC, telephones) and connections (ADSL splitter and ISDN-NTBA) as indicated in the circuit diagram

8.2 Configuration

8.2.1 First steps

The first time you access the **elmeg hybird 120/130**'s web interface, you are prompted to change the password. You then see the system's status page. If the ISDN and ADSL interface have been connected correctly, the link status already shows a green arrow.

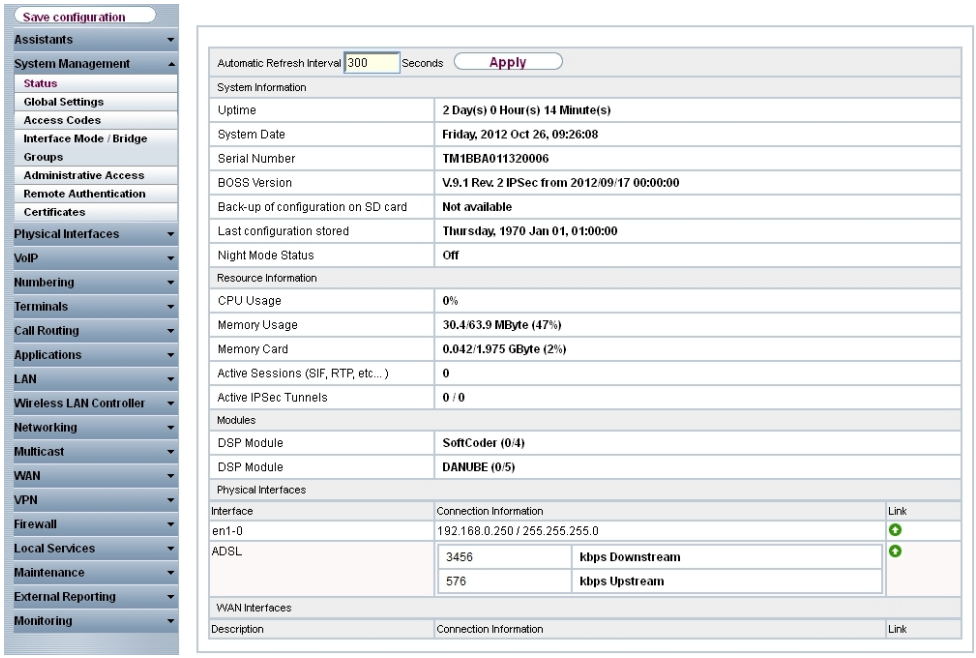


Fig. 98: **System Management** -> **Status**

You can use the wizard to adjust, for example, the **IP address** of the **elmeg hybird 120/130** and the **IP address range** of the integrated DHCP server.

Note

If these addresses are changed, all the IP terminals may need to be restarted in order to update their IP addresses by DHCP.

(1) Go to **Assistants** -> **First steps** -> **Basic Setup**.

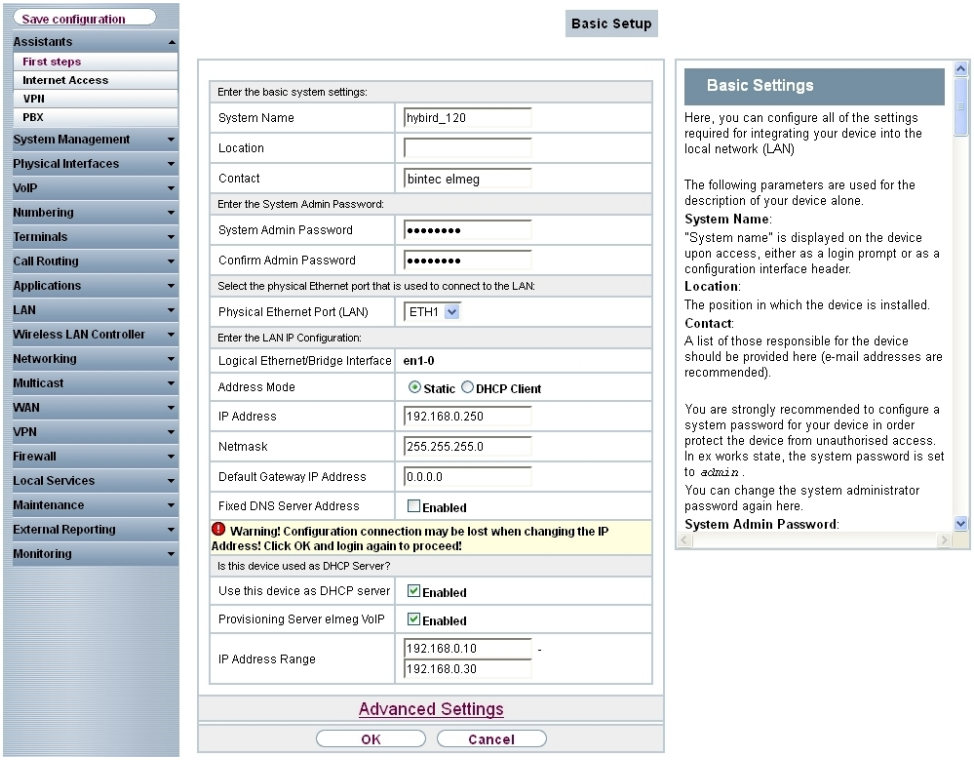


Fig. 99: **Assistants** -> **First steps** -> **Basic Setup**

8.2.2 Configuring Internet access

The Internet connection can be set up in a few steps via the Assistant. For this, go to the following menu:

(1) Go to **Assistants** -> **Internet Access**-> **Internet Access** -> **New**.

(2) For **Connection Type**, select `Internal ADSL Modem`.

(3) Click on **Next** to configure a new Internet connection.

(4) Enter the access data required for the connection.

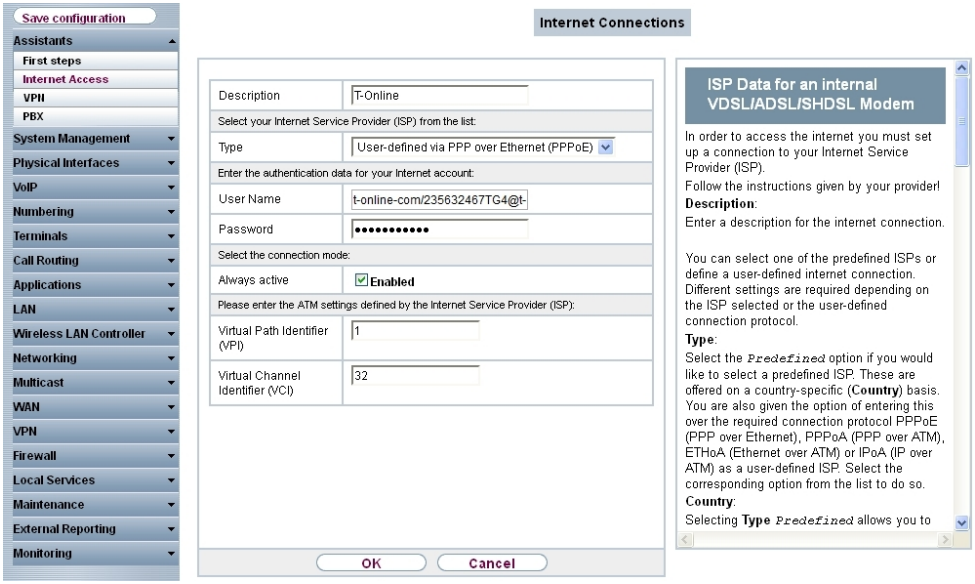


Fig. 100: **Assistants** -> **Internet Access** -> **Internet Access** -> **New** -> **Next**

Proceed as follows to set up the Internet connection:

(1) Under **Description** enter e.g. *T-Online*.

(2) Under **Type**, select *User-defined via PPP over Ethernet (PPPoE)*.

(3) Under **User Name** enter the data that you get from your provider, e. g. *t-online-com/235632467TG4@t-online.de*.

(4) For **Password**, enter the personal ID taken from provider order confirmation, e. g. *supersecret*.

(5) Select the option **Always active**.

(6) Press **OK** to confirm your entries.

The WAN connection status can then be controlled on the system's status page.

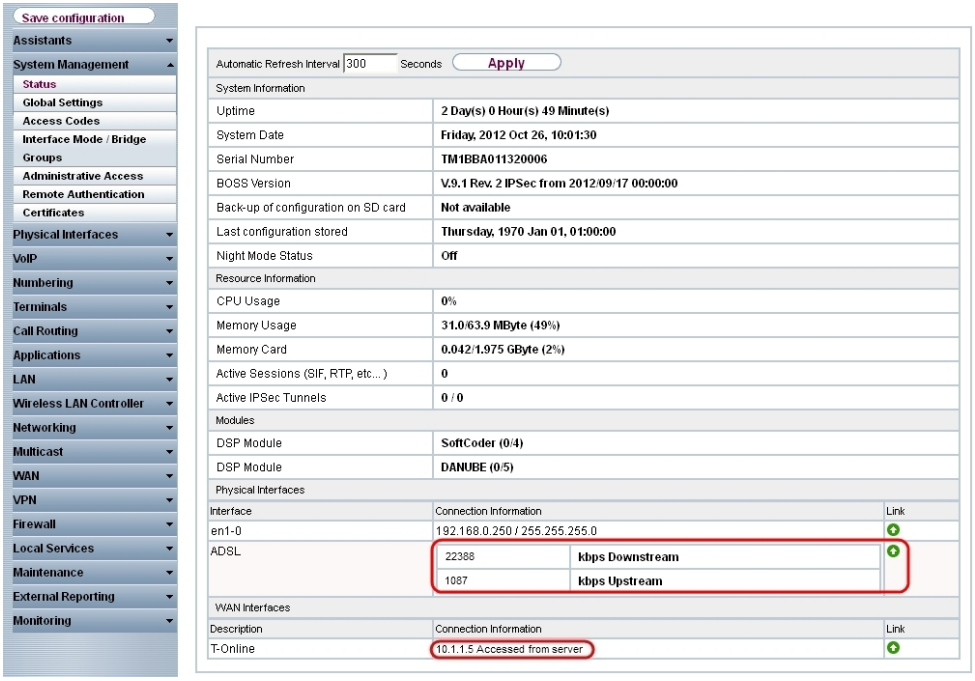


Fig. 101: **System Management** -> **Status**

8.2.3 Configure the external ISDN port to operate on the ISDN point-to-point connection

In its ex works state, the **elmeg hybird 120/130** is ready to operate on a point-to-point ISDN access. Proceed as follows in order to modify the existing ISDN point-point connection:

(1) Go to **Assistants** -> **PBX** -> **Trunks** -> **ISDN Extern** .

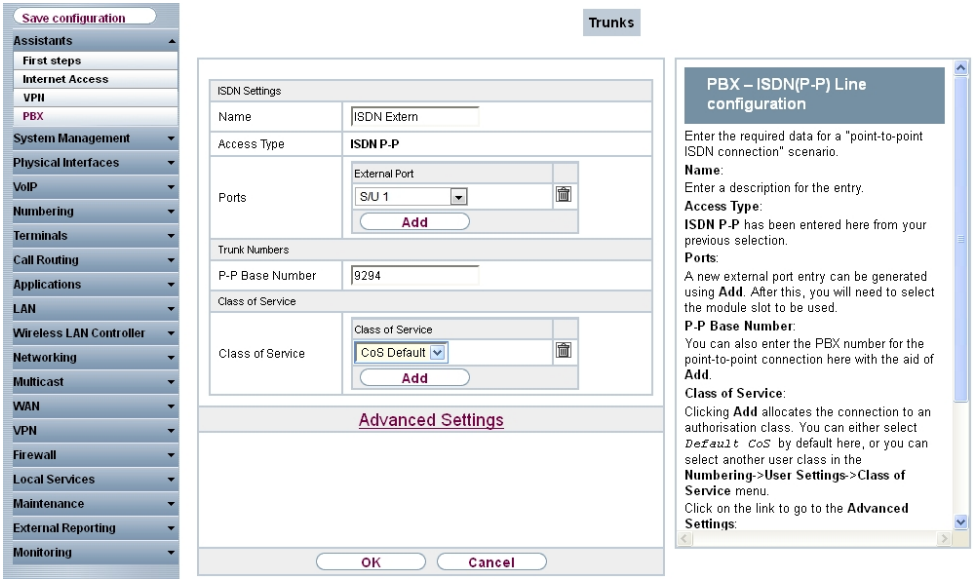


Fig. 102: **Assistants** -> **PBX** -> **Trunks** -> **ISDN Extern**

Proceed as follows:

(1) A **Name** has already been defined, here e.g. *ISDN Extern*.

(2) Under **Ports**, select a port from the list via the **Add** option, e.g. *S/U 1* ein.

(3) Under **P-P Base Number**, enter the base number, e.g. *9294*.

(4) Leave the **Class of Service** set to *CoS Default* .

(5) Confirm you settings with **OK**.

A successfully established ISDN point-to-point connection is marked with a .

8.2.4 Connecting a SIP telephone

When the SIP telephone has been connected as shown in the circuit diagram, you can configure the connected SIP telephones.

In the next step, the SIP telephone user or a local number is assigned.

(1) Go to **Terminals** -> **Other phones** -> **VoIP** -> **New**.

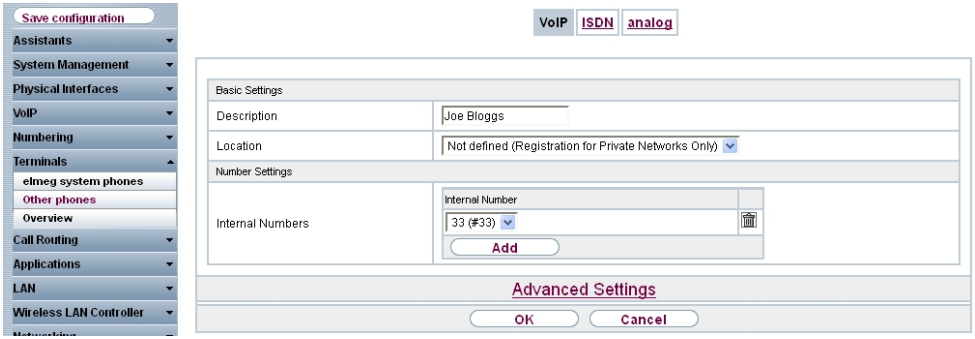


Fig. 103: **Terminals** -> **Other phones** -> **VoIP** -> **New**

Proceed as follows:

(1) Enter the name of the user under **Description**, e.g. *Joe Bloggs*.

(2) For a local terminal, select the predefined **Location** *Not defined (Registration for Private Networks Only)*.

(3) For **Internal Number**, select the entry *33 (#33)*.

(4) Confirm with **OK**.

In the next step a name, e. g. *User 33*, can be issued to a subscriber to improve the overview.

(1) Go to **Numbering** -> **User Settings**-> **Users** -> **<User 33>** ->**Basic Settings**.

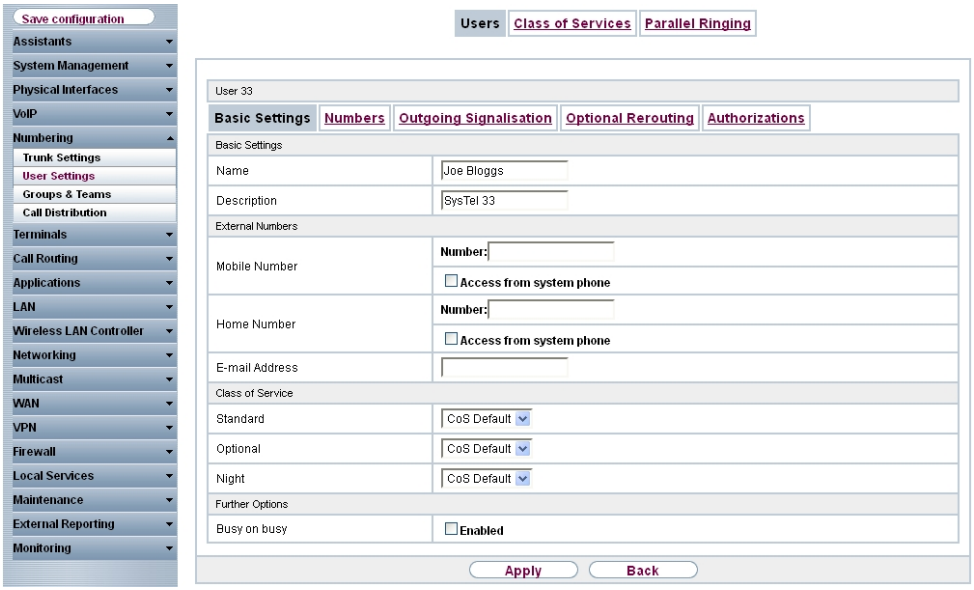


Fig. 104: **Numbering -> User Settings -> Users -> <User 33>** ->**Basic Settings**

Proceed as follows:

(1) Enter the name of the user under **Name**, e. g. *Joe Bloggs*.

(2) Leave the remaining settings unchanged and confirm them with **Apply**.

For the caller's name to be displayed on internal calls, the following setting needs to be made in the **Numbers** submenu.

(1) Gehen Sie zu **Numbering** -> **User Settings** -> **Users** -> **<Joe Bloggs>** -> **Numbers**.

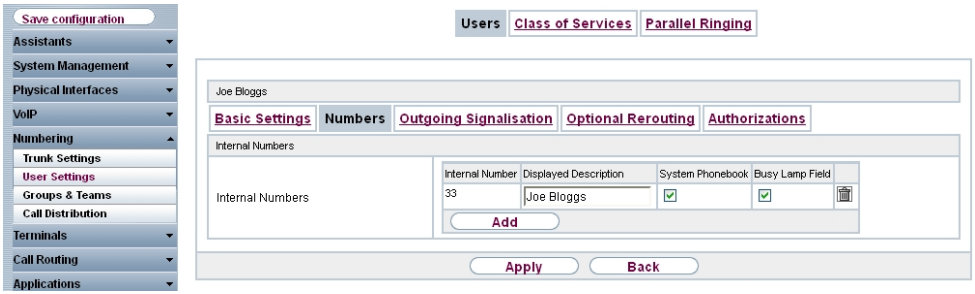


Fig. 105: **Numbering -> User Settings -> Users -> <Joe Bloggs>** -> **Numbers**

Proceed as follows:

(1) Enter the name that is to be displayed under **Displayed Description**, e. g. *Joe*

Bloggs.

(2) Click **Apply**.

In the **Outgoing Signalisation** menu, the default setting *default MSN* can be adopted with no changes. The outcome of this setting is that, on outgoing calls the main number with an attached extension number (e. g. Prefix + 9678589 + 33) is signalled as the outgoing number.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **Outgoing Signalisation**.

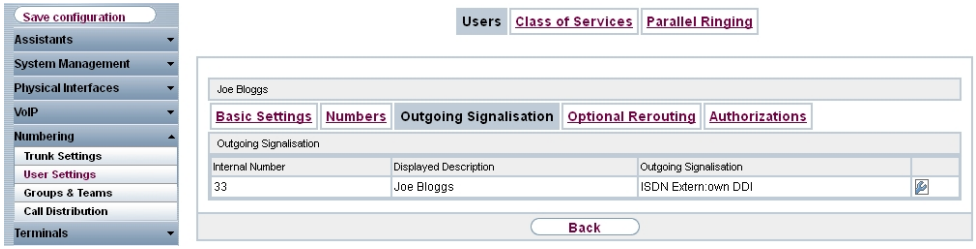


Fig. 106: **Numbering** -> **User settings** -> **Users** -> **Outgoing Signalisation**

The **elmeg hybird 120/130**, when operated on a point-to-point ISDN connection, uses an automated **call assignment**. As such, a call made to the external number incl. direct dialing number (e. g. Prefix + 9678589 + 33) is routed to the relevant local extension (e. g. internal number 33) with no further configuration.

8.2.5 Connect an ISDN telephone

In its ex works state, the **elmeg hybird 120/130** is already prepared for using two ISDN terminals (internal numbers 20 and 21). In this example, a standard ISDN telephone with the internal number 20, as shown on the circuit diagram, will be connected to the **elmeg hybird 120/130**.

(1) Go to **Terminals** -> **Other phonest** -> **ISDN** -><**Internal number 20**>.

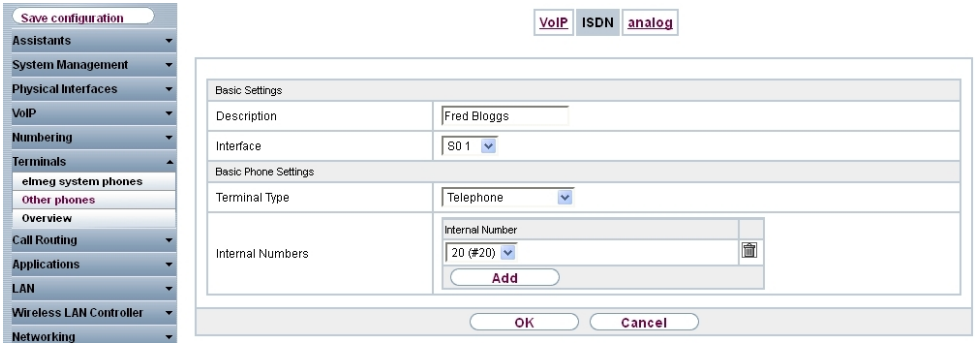


Fig. 107: **Terminals** -> **Other phonest** -> **ISDN** -> **<Internal number 20>**

Proceed as follows:

(1) Enter a **Description** for the terminal, e. g. *Fred Bloggs*.

(2) Leave the **Terminal Type** set to *Telephone*.

(3) Confirm with **OK**.

In the next step a name will be given to the ISDN subscriber with the internal number 20 to improve the overview.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<User 20>** ->**Basic Settings**.

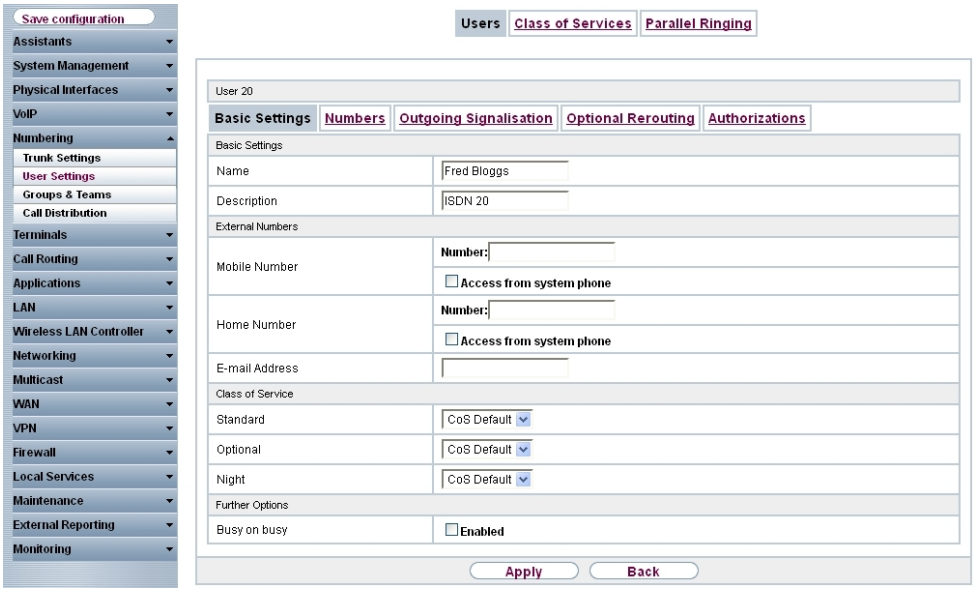


Fig. 108: **Numbering** -> **User Settings** -> **Users** -><**User 20**> ->**Basic Settings**

Proceed as follows:

(1) Enter the **Name** of the user. The **name** appears on a system telephone's display. In this example, the **name** of the user is *Fred Bloggs*.

(2) Leave the remaining settings unchanged and confirm them with **Apply**.

For the caller's name to be displayed on internal calls, there is the option of configuring the relevant user name in the **Numbers** submenu.

(1) Gehen Sie zu **Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Numbers**.

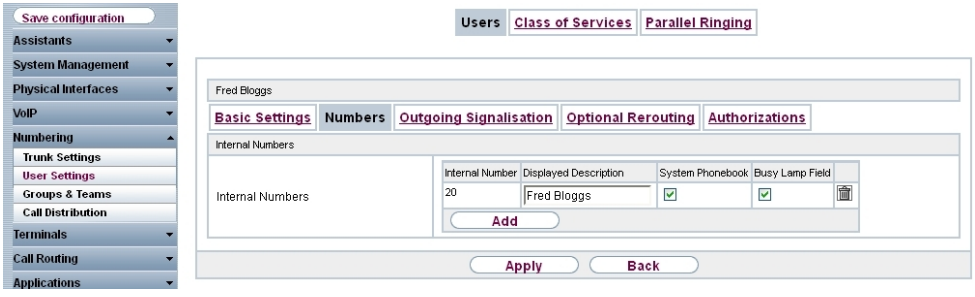


Fig. 109: **Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Numbers**

Proceed as follows:

(1) Enter the name that is to be displayed under **Displayed Description**, e. g. *Fred Bloggs*.

(2) Click **Apply**.

In the **Outgoing Signalisation** submenu, the default setting *default MSN* can be adopted with no changes. The outcome of this setting is that, on outgoing calls the main number with an attached extension number (e. g. Prefix + 9678589 + 20) is signalled as the outgoing number.

Go to **Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Outgoing Signalisation**.

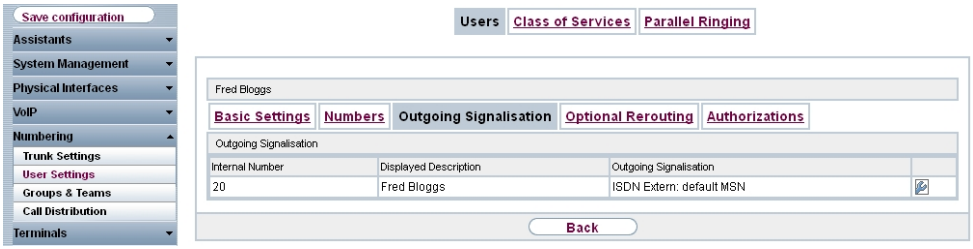


Fig. 110: **Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Outgoing Signalisation**

The **elmeg hybird 120/130**, when operated on a point-to-point ISDN connection, uses an automated **call assignment**. As such, a call made to the external number incl. direct dialing number (e. g. Prefix + 9678589 + 20) is routed to the relevant local extension (e. g. internal number 20) with no further configuration.

8.2.6 Connect an analogue telephone

In its ex works state, the **elmeg hybird 120/130** is already prepared for using four analogue terminals (internal numbers 10 to 13). In this example, an analogue telephone with the internal number 10, as shown on the circuit diagram, will be connected to the **elmeg hybird 120/130**.

(1) Go to **Terminals** -> **Other phones** -> **analog** -> **<Internal number 10>**.

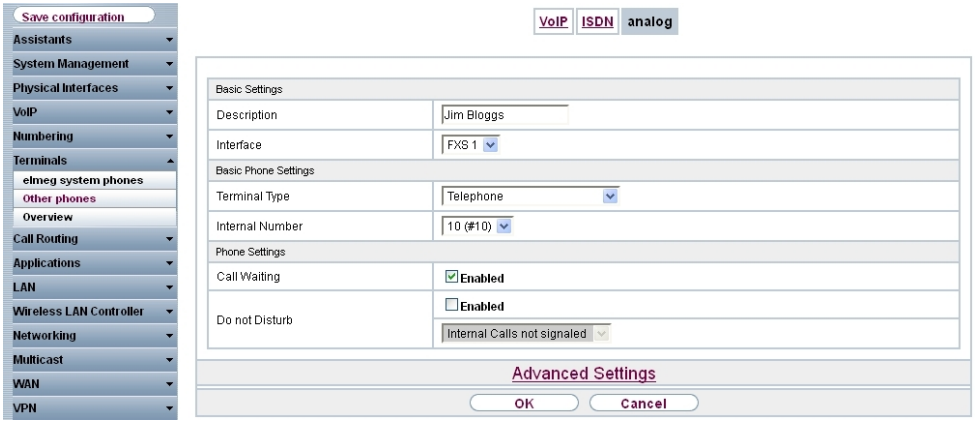


Fig. 111: **Terminals** -> **Other phones** -> **analog** -> **<Internal number 10>**

Proceed as follows:

(1) Enter a **Description** for the terminal, e. g. *Jim Bloggs*.

(2) Leave the **Terminal Type** set to *Telephone*.

(3) Confirm with **OK**.

In the **User Settings** menu, the analogue subscriber with the internal number 10 can be assigned a name to improve the overview.

(1) Go to **Numbering** -> **User Settings**-> **Users** -> **<User 10>** ->**Basic Settings**.

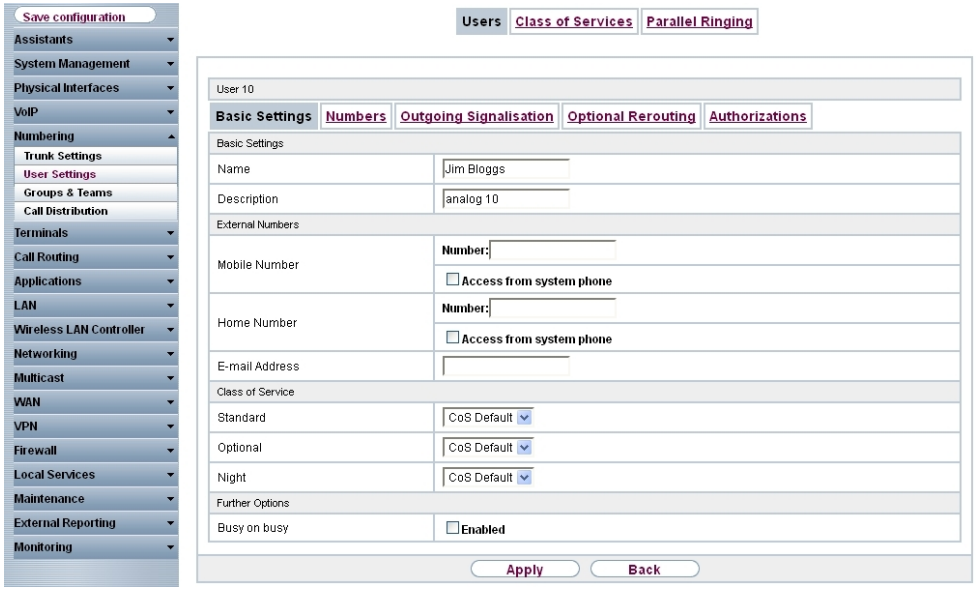


Fig. 112: **Numbering -> User Settings -> Users -> <User 10> ->Basic Settings**

Proceed as follows:

(1) Enter the **Name** of the user. The **name** appears on a system telephone's display. In this example, the **name** of the user is `Jim Bloggs`.

(2) Leave the remaining settings unchanged and confirm them with **Apply**.

For the caller's name to be displayed on internal calls, there is the option of configuring the relevant user name in the **Numbers** submenu.

(1) Gehen Sie zu **Numbering** -> **User Settings** -> **Users** -> **<Jim Bloggs>** -> **Numbers**.

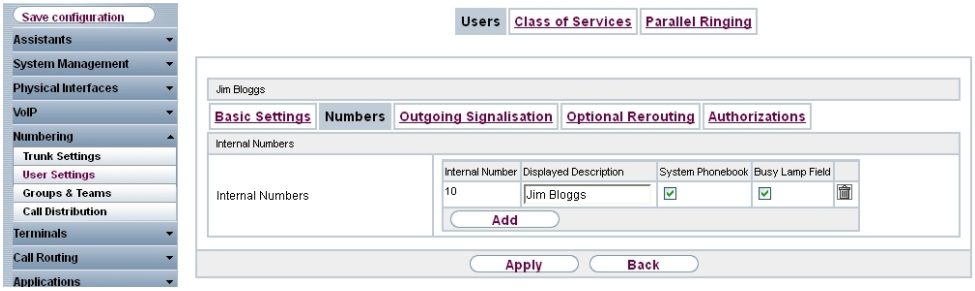


Fig. 113: **Numbering -> User Settings -> Users -> <Jim Bloggs>** -> **Numbers**

Proceed as follows:

(1) Enter the name that is to be displayed under **Displayed Description**, e. g. `Jim Bloggs`.

(2) Click **Apply**.

In the **Outgoing Signalisation** submenu, the default setting `odefault MSN` can be adopted with no changes. The outcome of this setting is that, on outgoing calls the main number with an attached extension number (e. g. Prefix + 9678589 + 10) is signalled as the outgoing number.

(1) Go to **Numbering -> User Settings -> Users -> <Jim Bloggs>** -> **Outgoing Signalisation**.

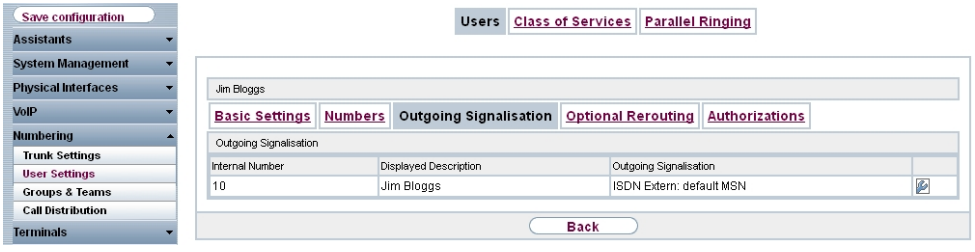


Fig. 114: **Numbering -> User Settings -> Users -> <Jim Bloggs>** -> **Outgoing Signalisation**

The **elmeg hybird 120/130**, when operated on a point-to-point ISDN connection, uses an automated call assignment. As such, a call made to the external number incl. direct dialing number (e. g. Prefix + 9678589 + 10) is routed to the relevant local extension (e. g. internal number 10) with no further configuration.

8.3 Overview of Configuration Steps

Configuring Internet access

Field	Menu	Value
Connector Type	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New**	*Internal ADSL Modem*
Description	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	e.g. *T-Online*
Type	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	*User-defined vie PPP over Ethernet (PPPoE)*
User Name	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	e. g. *t-online-com/ 7TB45QSYE8ET@t-online.de*
Password	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	e. g. *supersecret*
Always active	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	*Enabled*

Connecting a SIP telephone

Field	Menu	Value
Description	**Terminals** -> **Other phones** -> **VoIP** -> **New**	e. g. *Joe Bloggs*
Location	**Terminals** -> **Other phones** -> **VoIP** -> **New**	*Not defined (Registration for Private Networks Only)*
Internal Numbers	**Terminals** -> **Other phones** -> **VoIP** -> **New**	e. g. *33 (#33)*
Name	**Numbering** -> **User Settings** -> **Users** -> **<User 33>** -> ->**Basic Settings**	e. g. *Joe Bloggs*
Displayed Description	**Numbering** -> **User Settings** -> **Users** -> **<Joe Bloggs>** -> **Numbers**	e. g. *Joe Bloggs*

Connect an ISDN telephone

Field	Menu	Value
Description	**Terminals** -> **Other phones** -> **ISDN** -> **<Internal number 20>** ->	e. g. *Fred Bloggs*
Terminal Type	**Terminals** -> **Other phones** -> **ISDN** -> **<Internal number 20>** ->	*Telephone*
Name	**Numbering** -> **User Settings** -> **Users** -> **<User 20>** -> ->**Basic Settings**	e. g. *Fred Bloggs*
Displayed Description	**Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Numbers**	e. g. *Fred Bloggs*

Connect an analogue telephone

Field	Menu	Value
Description	**Terminals** -> **Other phones** -> **analog** -> **<Internal number 10>** ->	e. g. *Jim Bloggs*
Terminal Type	**Terminals** -> **Other phones** -> **analog** -> **<Internal number 10>** ->	*Telephone*
Name	**Numbering** -> **User Settings** -> **Users** -> **<User 10>** -> ->**Basic Settings**	e. g. *Jim Bloggs*
Displayed Description	**Numbering** -> **User Settings** -> **Users** -> **<Jim Bloggs>** -> **Numbers**	e. g. *Jim Bloggs*

Chapter 9 Telephony - Connecting to the ISDN point-to-multipoint connection & VDSL connection

9.1 Introduction

This workshop describes the connecting of the **elmeg hybird 120/130** to an ISDN point-to-multipoint connection. In it, a SIP telephone, a standard ISDN telephone and an analogue telephone are each connected to the **elmeg hybird 120/130**. We then show the call assignment of individual telephony subscribers with external multiple subscriber numbers (MSN). A VDSL Internet connection will then be set up using an external VDSL modem.

Configuration is performed with the **GUI** (Graphical User Interface).

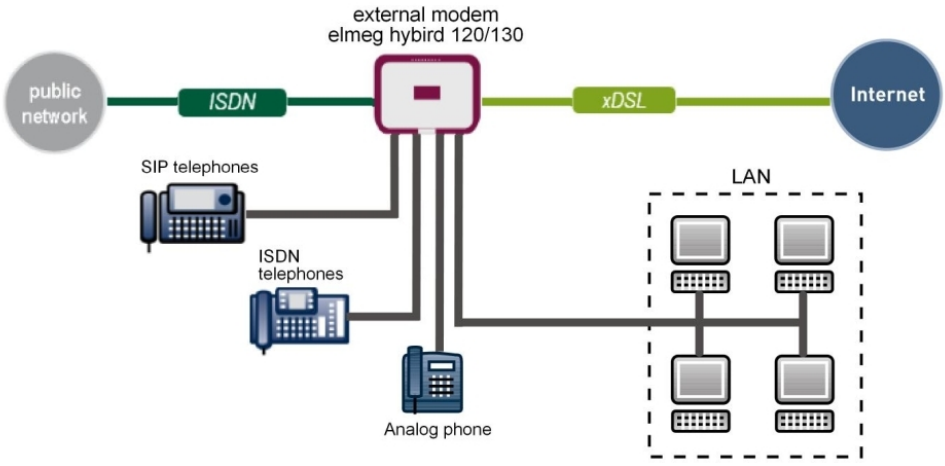


Fig. 115: Example scenario

Requirements

- a VDSL connection
- An ISDN point-to-multipoint connection
- an external VDSL modem (e. g. Speedport 221)
- An **elmeg hybird 120/130** system
- A SIP telephonet, a standard ISDN telephone and an analogue telephone

- The **elmeg hybird 120/130** is used as a DHCP, DNS and time server in the network
- Connect the **elmeg hybird 120/130** to all terminals (PC, telephones) and connections ISDN as indicated in the circuit diagram
- Connect the external VDSL modem to the 4th Ethernet port on the **elmeg hybird 120/130**

9.2 Configuration

9.2.1 First steps

The first time you access the **elmeg hybird 120/130**'s web interface, you are prompted to change the password. You then see the system's status page.

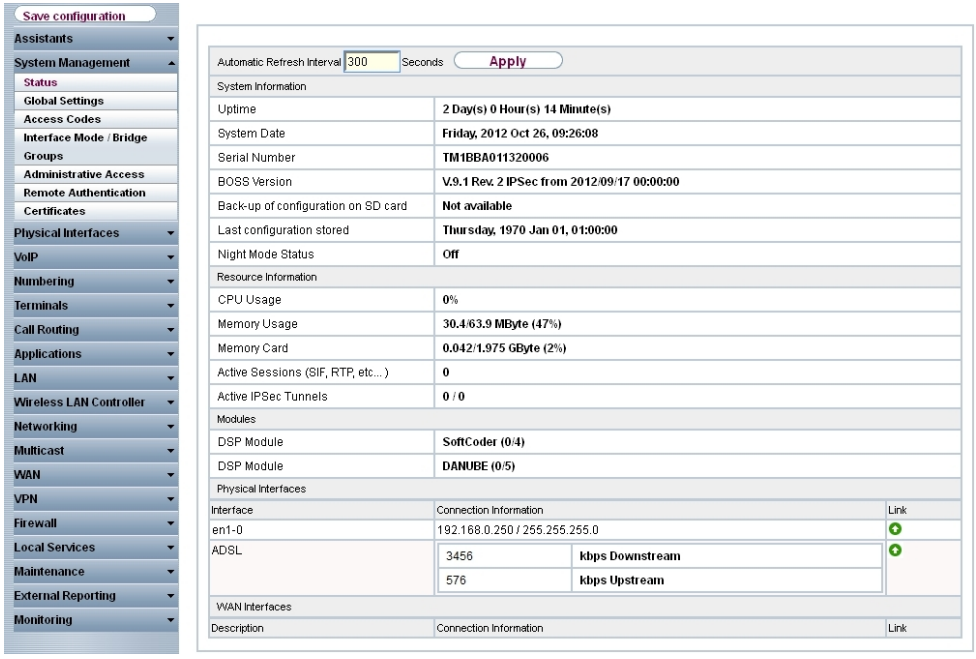


Fig. 116: **System Management** -> **Status**

You can use the wizard to adjust, for example, the **IP address** of the **elmeg hybird 120/130** and the **IP address range** of the integrated DHCP server.

Note

If these addresses are changed, all the IP terminals may need to be restarted in order to update their IP addresses by DHCP.

(1) Go to **Assistants** -> **First steps** -> **Basic Setup**.

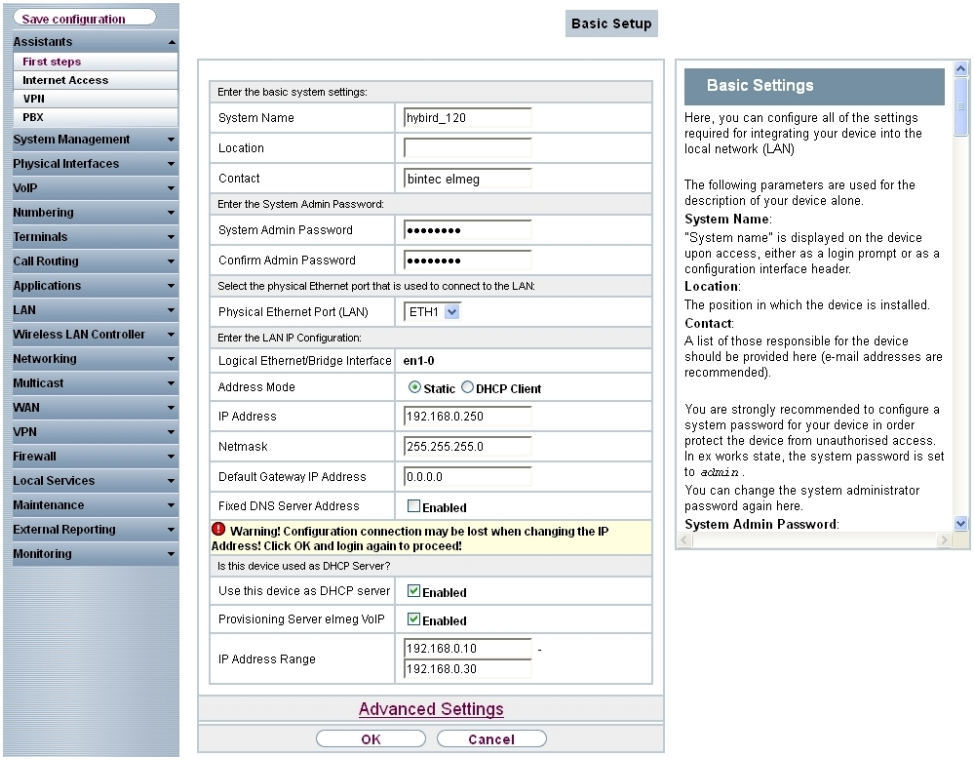


Fig. 117: **Assistants** -> **First steps** -> **Basic Setup**

9.2.2 Configuring Internet access

The Internet connection can be set up in a few steps via the Assistant. For this, go to the following menu:

(1) Go to **Assistants** -> **Internet Access**-> **Internet Access** -> **New**.

(2) For **Connection Type**, select `External xDSL Modem`.

(3) Click on **Next** to configure a new Internet connection.

(4) Enter the access data required for the connection.

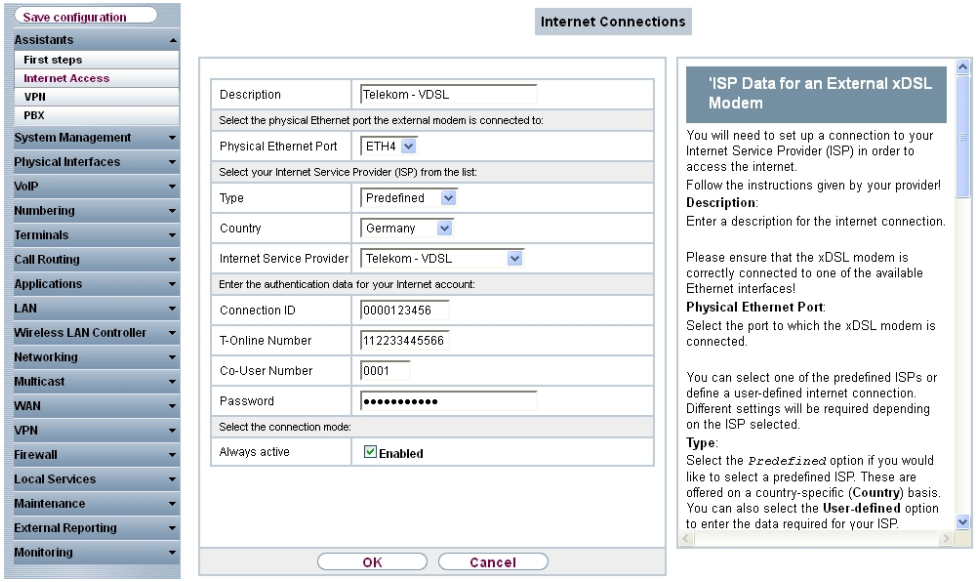


Fig. 118: **Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**

Proceed as follows to set up the Internet connection:

(1) Under **Description** enter e.g. *Telekom - VDSL*.

(2) For **Physical Ethernet Port**, select the network port with which the VDSL modem has been connected to the **elmeg hybird 120/130**. In our example, the port used is the *ETH4* Ethernet port, which is located next to the ADSL port. This setting reduces the 4 port switch on the **elmeg hybird 120/130** by one port, which separates the LAN and WAN connection.

(3) As the **Country**, select *Germany*.

(4) For **Internet Service Provider**, select *Telekom - VDSL*.

(5) Under **Connection ID**, enter the 12 digit number taken from Telekom's order confirmation, e. g. *000123456789*.

(6) Under **T-Online Number**, enter the 12 digit number taken from Telekom's order confirmation, e. g. *112233445566*.

(7) Enter the 4 digit **Co-User Number**, e. g. *0001*.

(8) For **Password**, enter the personal ID taken from Telekom's order confirmation, e. g. *supersecret*.

(9) Enable the **Always active** option.

(10) Press **OK** to confirm your entries.

The WAN connection status can then be controlled on the system's status page.

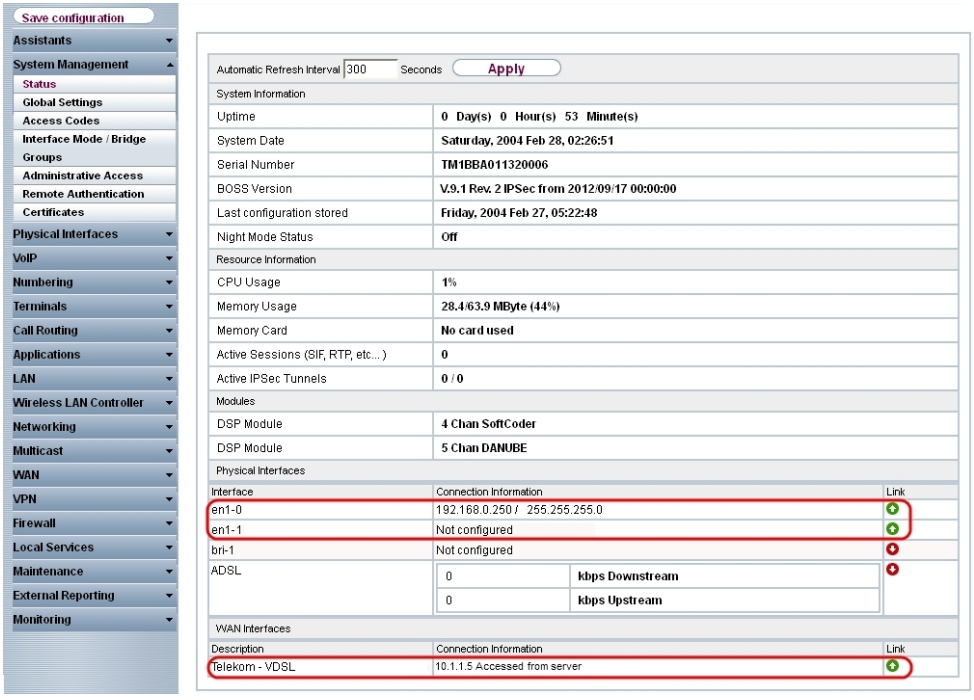


Fig. 119: **System Management** -> **Status**

9.2.3 Configure the external ISDN port to operate on the ISDN point-to-multipoint connection

In its ex works state, the **elmeg hybird 120/130** is ready to operate on a point-to-point ISDN access. The following setting needs to be made for the **elmeg hybird 120/130** to work on your point-to-multipoint ISDN connection. You can perform the reconfiguration to an ISDN multipoint connection via the configuration assistant. For this, go to the following menu:

(1) Go to **Assistants** -> **PBX** -> **Trunks**.

(2) Delete the predefined entry *ISDN External* by clicking the icon.

(3) Use **New** to add a new connection.

(4) Under **Connection Type** select *ISDN*.

(5) Click on **Next**.

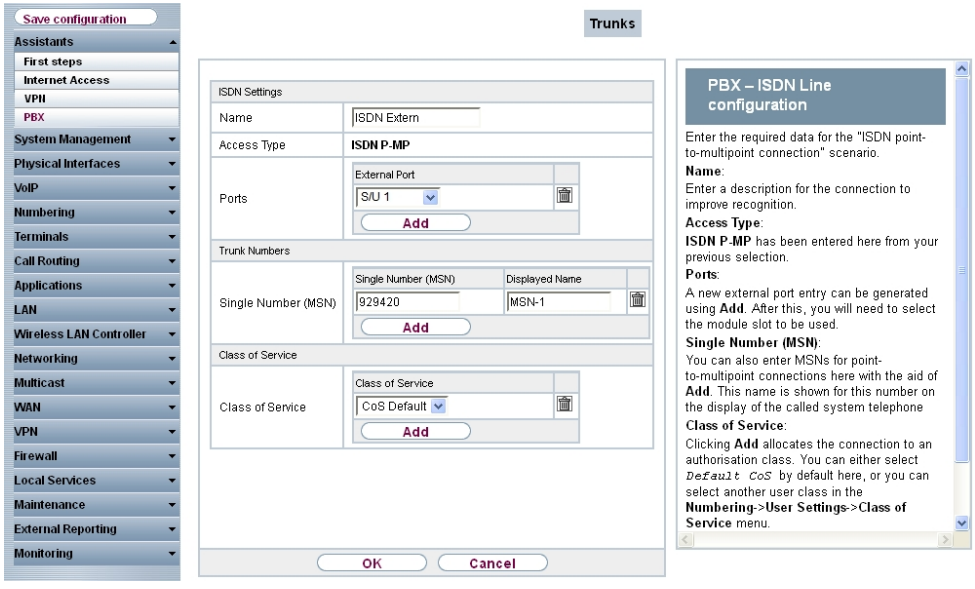


Fig. 120: **Assistants** -> **PBX** -> **Trunks** -> **Next**

Proceed as follows:

(1) Enter a **Name** for the connection, e.g. *ISDN Extern*.

(2) Under **Ports**, select a port from the list using the **Add** option, e.g. *S/U 1* .

(3) Under **Single Number (MSN)**, click on **Add** and enter a number, e.g. *929420*. Under **Displayed Name** enter a name for the connection, e.g. *MSN-1*. Proceed in the same way to add more **Single Numbers (MSN)** by clicking **Add**.

(4) Under **Class of Service**, click on **Add** and select the class *CoS Default* In the de-fualt configuration of **elmeg hybird 120/130** all predefined users are assigned to the class CoS Default.

(5) Confirm your settings with **OK**.

A successfully established ISDN multipoint connection is marked with a .

9.2.4 Connecting a SIP telephone

When the SIP telephone has been connected as shown in the circuit diagram, you can configure the connected SIP telephones.

In the next step, the SIP telephone user or a local number is assigned.

(1) Go to **Terminals** -> **Other phones** -> **VoIP** -> **New**.

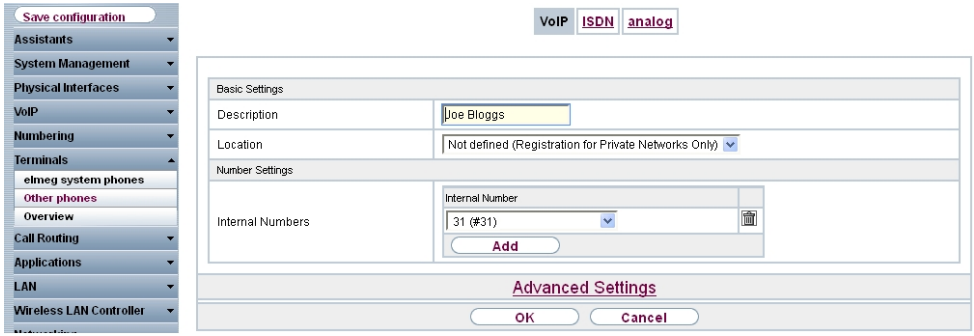


Fig. 121: **Terminals** -> **Other phones** -> **VoIP** -> **New**

Proceed as follows:

(1) Enter the name of the user under **Description**, e.g. *Joe Bloggs*.

(2) For **Internal Number**, select the entry *31 (#31)*.

(3) Confirm with **OK**.

In the next step a name, e. g. *User 31*, can be issued to a subscriber to improve the overview.

(1) Go to **Numbering** -> **User Settings**-> **Users** -> **<User 31>** ->**Basic Settings**.

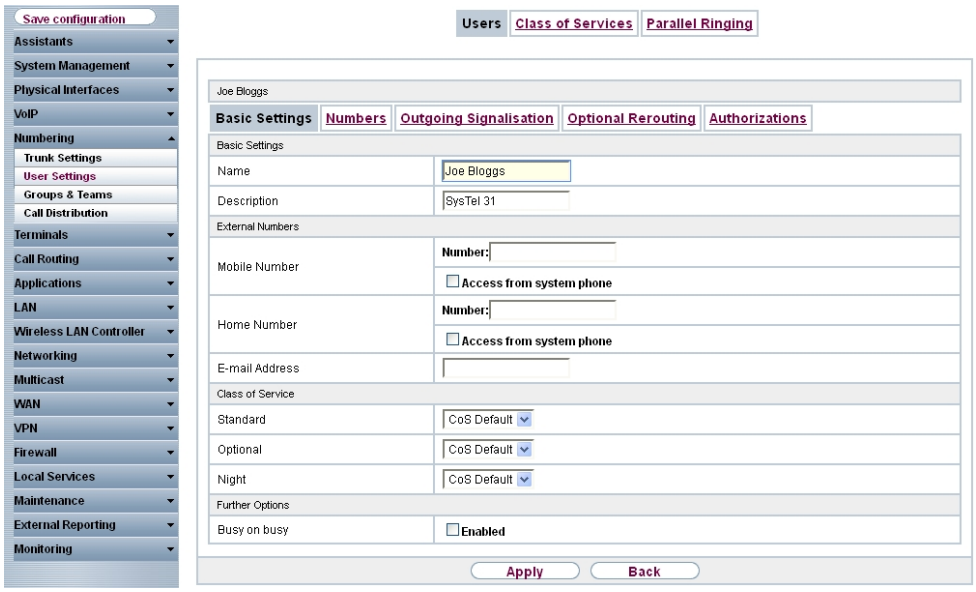


Fig. 122: **Numbering** -> **User Settings** -> **Users** -> **<User 31>** ->**Basic Settings**

Proceed as follows:

(1) Enter the name of the user under **Name**, e. g. *Joe Bloggs*.

(2) Leave the remaining settings unchanged and confirm them with **Apply**.

For the caller's name to be displayed on internal calls, the following setting needs to be made in the **Numbers** submenu.

(1) Gehen Sie zu **Numbering** -> **User Settings** -> **Users** -> **<Joe Bloggs>** -> **Numbers**.

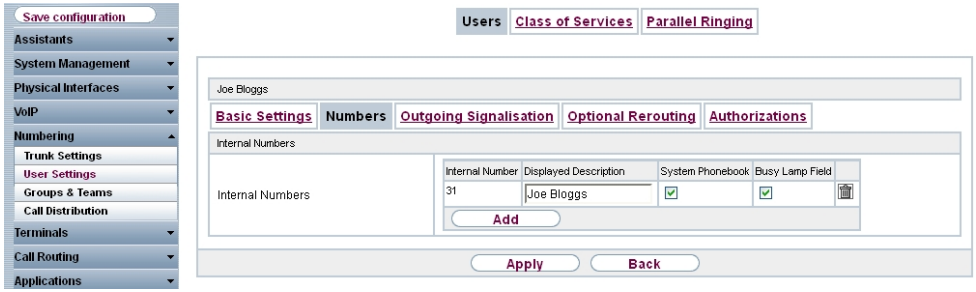


Fig. 123: **Numbering** -> **User Settings** -> **Users** -> **<Joe Bloggs>** -> **Numbers**

Proceed as follows:

(1) Enter the name that is to be displayed under **Displayed Description**, e. g. *Joe Bloggs*.

(2) Click **Apply**.

In the **Outgoing Signalistion** menu, select the number for the user that is to be displayed to the other party on outgoing calls. Here, select one of the multiple subscriber numbers (MSNs) that have been configured.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<Joe Bloggs>** -> **Outgoing Signalisation** -><31>->.

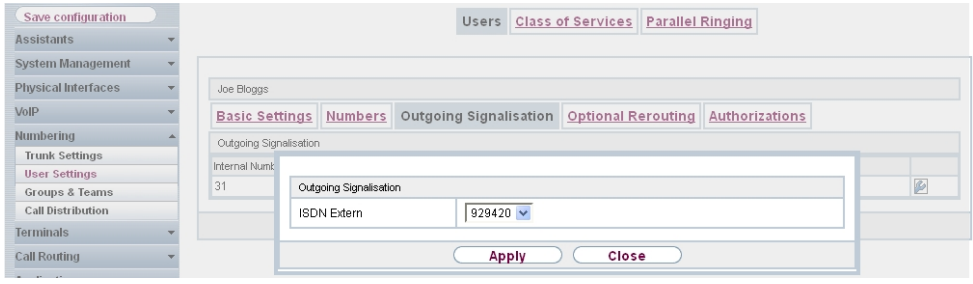


Fig. 124: **Numbering** -> **User Settings** -> **Users** -> **<Joe Bloggs>** -> **Outgoing Signalisation**-><31>->

Proceed as follows:

(1) Under **ISDN External**, select the outgoing number, e. g. *929420*.

(2) Click **Apply**.

In the next configuration step, you define the **Incoming Distribution** i. e. specify with which external number the user *Joe Bloggs* can be reached.

Select with for the table entry with the required external number, e. g. *929420* to assign it to a user.

(1) Go to **Numbering** -> **Call Distribution**-> **Incoming Distribution** -> **<929420>**.

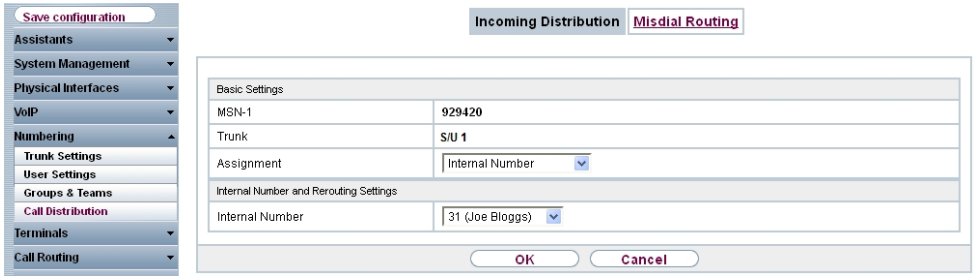


Fig. 125: **Numbering -> Call Distribution -> Incoming Distribution -><929420>**

Proceed as follows:

(1) Under **Assignment** select *Internal Number*.

(2) For **Internal Number**, select the entry *31 (Joe Bloggs)*.

(3) Confirm with **OK**.

9.2.5 Connect an ISDN telephone

In its ex works state, the **elmeg hybird 120/130** is already prepared for using two ISDN terminals (internal numbers 20 and 21). In this example, a standard ISDN telephone with the internal number 20, as shown on the circuit diagram, will be connected to the **elmeg hybird 120/130**.

Note

For the ISDN telephone to operate on the **elmeg hybird 120/130**, the multiple subscriber number (MSN) 20 needs to be manually configured.

(1) Go to **Terminals** -> **Other phones** -> **ISDN** -><**Internal number 20**>.

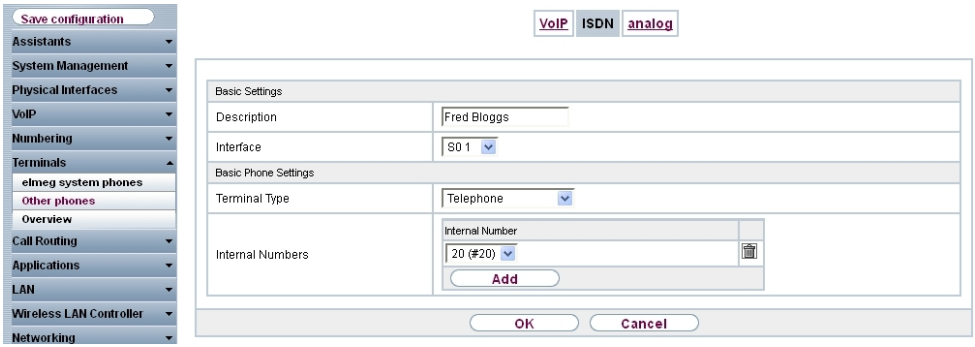


Fig. 126: **Terminals** -> **Other phones** -> **ISDN** -> **<Internal number 20>**

Proceed as follows:

(1) Enter a **Description** for the terminal, e. g. `Fred Bloggs`.

(2) Leave the **Terminal Type** set to `Telephone`.

(3) Confirm with **OK**.

In the next step a name will be given to the ISDN subscriber with the internal number 20 to improve the overview.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<User 20>** ->**Basic Settings**.

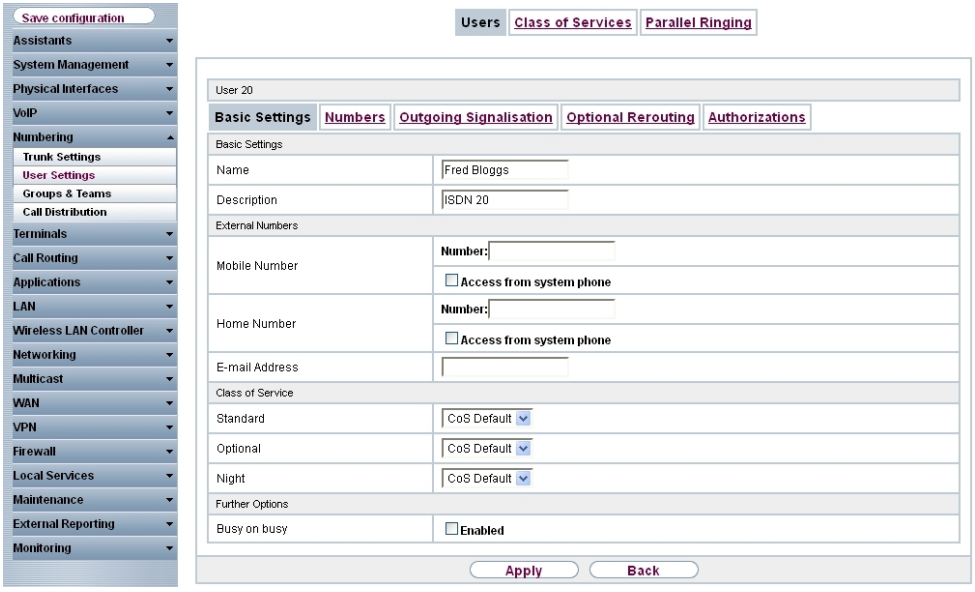


Fig. 127: **Numbering** -> **User Settings** -> **Users** -> **<User 20>** ->**Basic Settings**

Proceed as follows:

(1) Enter the **Name** of the user. The **name** appears on a system telephone's display. In this example, the **name** of the user is *Fred Bloggs*.

(2) Leave the remaining settings unchanged and confirm them with **Apply**.

For the caller's name to be displayed on internal calls, there is the option of configuring the relevant user name in the **Numbers** submenu.

(1) Gehen Sie zu **Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Numbers**.

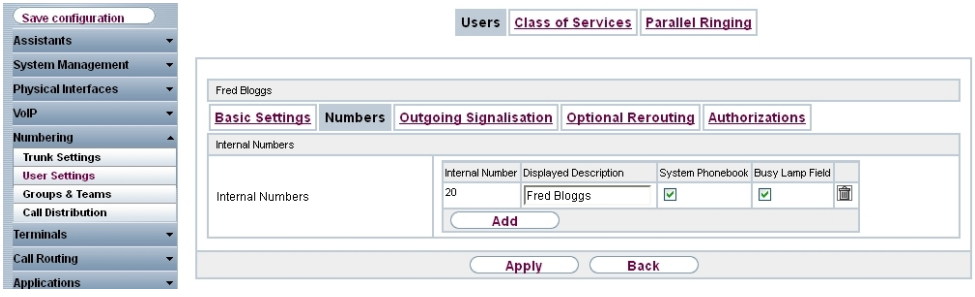


Fig. 128: **Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Numbers**

Proceed as follows:

(1) Enter the name that is to be displayed under **Displayed Description**, e. g. *Fred Bloggs*.

(2) Click **Apply**.

Now the **Outgoing Signalisation** submenu specifies which external number is to be signalled for this user on outgoing calls. Select one of the multiple subscriber numbers (MSNs) that have been configured.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Outgoing Signalisation** ->->.

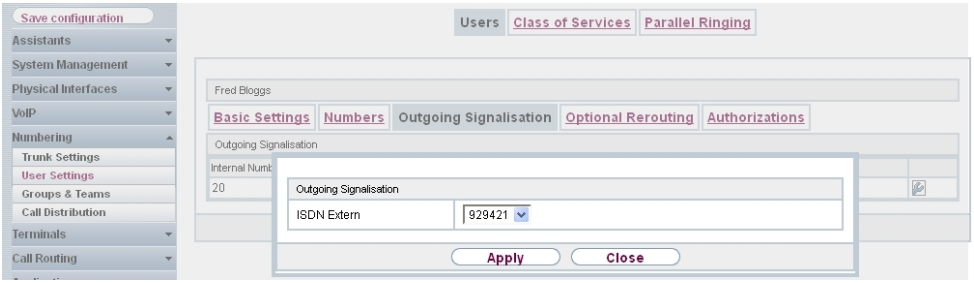


Fig. 129: **Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Outgoing Signalisation**->->

Proceed as follows:

(1) Under **ISDN External**, select the outgoing number, e. g. *929421*.

(2) Click **Apply**.

In the next configuration step, you define the **Incoming Distribution** i. e. specify with which external number the user *Fred Bloggs* can be reached.

Select with for the table entry with the required external number, e. g. *929421* to assign it to a user.

(1) Go to **Numbering** -> **Call Distribution**-> **Incoming Distribution** -> **<929421>**.

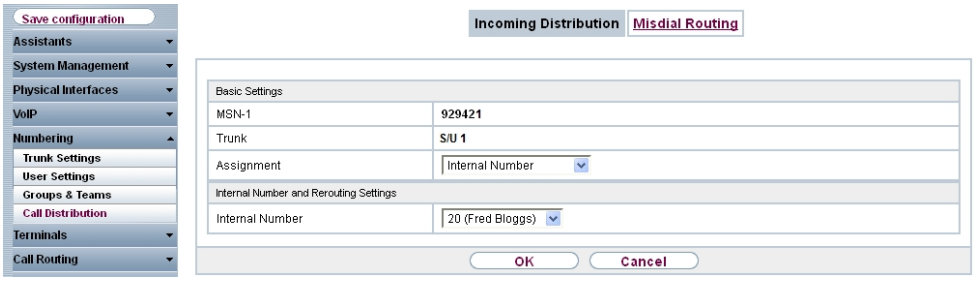


Fig. 130: **Numbering** -> **Call Distribution** -> **Incoming Distribution** -><929421>

Proceed as follows:

(1) Under **Assignment** select *Internal Number*.

(2) For **Internal Number**, select the entry *20 (Fred Bloggs)*.

(3) Confirm with **OK**.

9.2.6 Connect an analogue telephone

In its ex works state, the **elmeg hybird 120/130** is already prepared for using four analogue terminals (internal numbers 10 to 13). In this example, an analogue telephone with the internal number 10, as shown on the circuit diagram, will be connected to the **elmeg hybird 120/130**.

(1) Go to **Terminals** -> **Other phones** -> **analog** -><**Internal number 10**>.

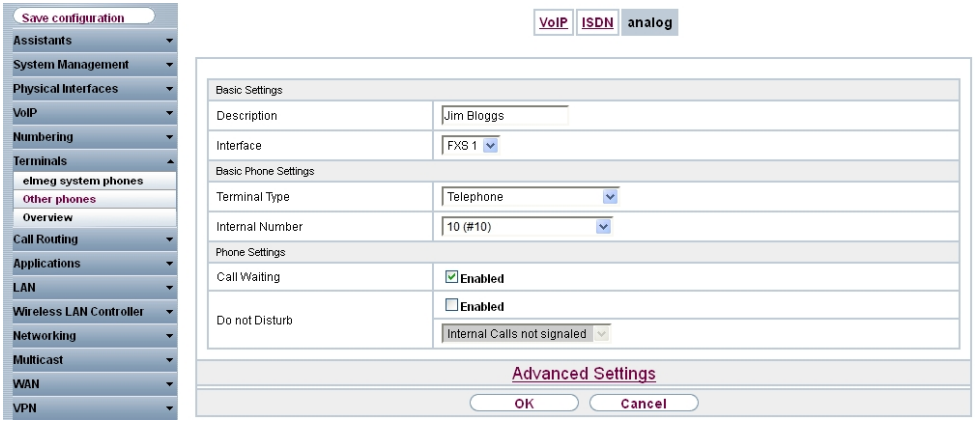


Fig. 131: **Terminals** -> **Other phones** -> **analog** -> **<Internal number 10>**

Proceed as follows:

(1) Enter a **Description** for the terminal, e. g. *Jim Bloggs*.

(2) Leave the **Terminal Type** set to *Telephone*.

(3) Confirm with **OK**.

In the **User Settings** menu, the analogue subscriber with the internal number 10 can be assigned a name to improve the overview.

(1) Go to **Numbering** -> **User Settings**-> **Users** -> **<User 10>** ->**Basic Settings**.

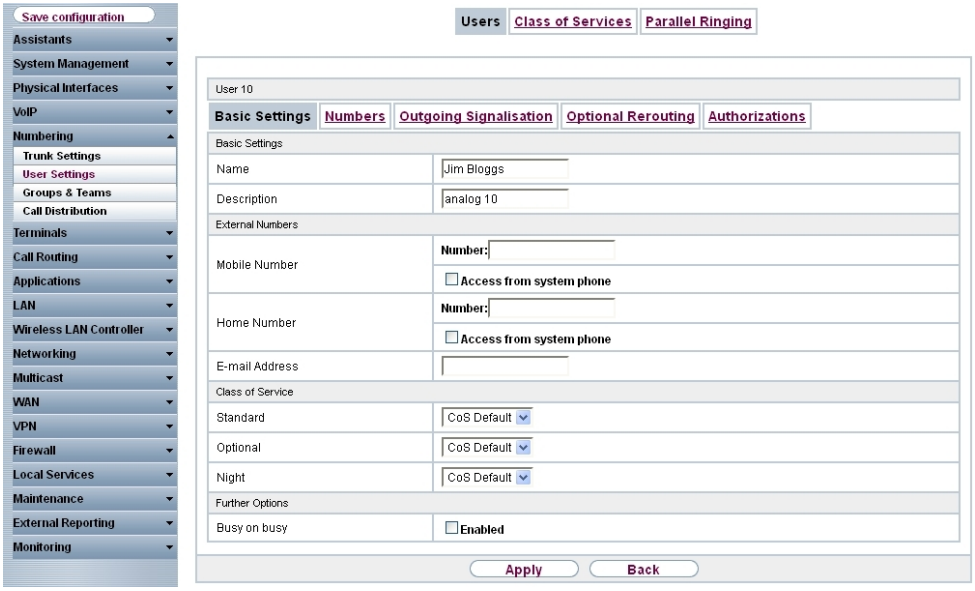


Fig. 132: **Numbering -> User Settings -> Users -> <User 10> ->Basic Settings**

Proceed as follows:

(1) Enter the **Name** of the user. The **name** appears on a system telephone's display. In this example, the **name** of the user is `Jim Bloggs`.

(2) Leave the remaining settings unchanged and confirm them with **Apply**.

For the caller's name to be displayed on internal calls, there is the option of configuring the relevant user name in the **Numbers** submenu.

(1) Gehen Sie zu **Numbering -> User Settings -> Users -> <Jim Bloggs>** -> **Numbers**.

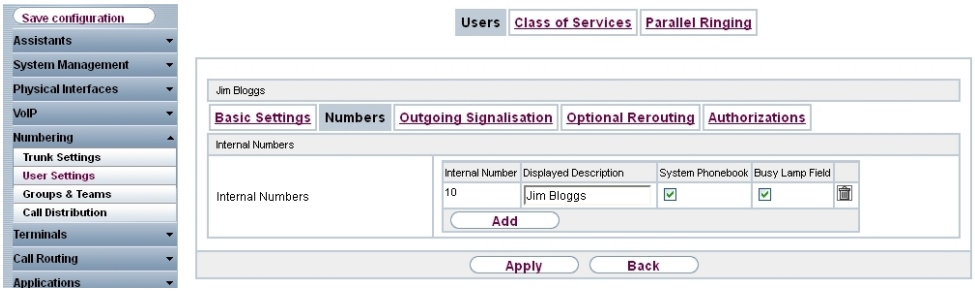


Fig. 133: **Numbering -> User Settings -> Users -> <Jim Bloggs>** -> **Numbers**

Proceed as follows:

(1) Enter the name that is to be displayed under **Displayed Description**, e. g. *Jim Bloggs*.

(2) Click **Apply**.

Now the **Outgoing Signalisation** submenu specifies which external number is to be signalled for this user on outgoing calls. Select one of the multiple subscriber numbers (MSNs) that have been configured.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<Jim Bloggs>** -> **Outgoing Signalisation** ->->.

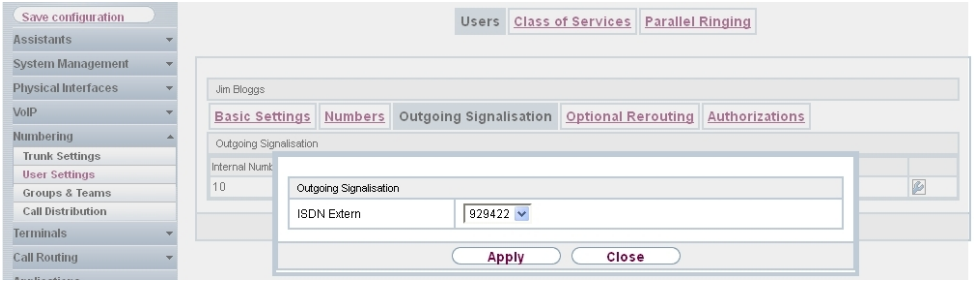


Fig. 134: **Numbering** -> **User Settings** -> **Users** -> **<Jim Bloggs>** -> **Outgoing Signalisation**->->

Proceed as follows:

(1) Under **ISDN Extern**, select the outgoing number, e. g. *929422*.

(2) Click **Apply**.

In the next configuration step, you define the **Incoming Distribution** i. e. specify with which external number the user *Jim Bloggs* can be reached.

Select with for the table entry with the required external number, e. g. *929422* to assign it to a user.

(1) Go to **Numbering** -> **Call Distribution**-> **Incoming Distribution** -><929422>.

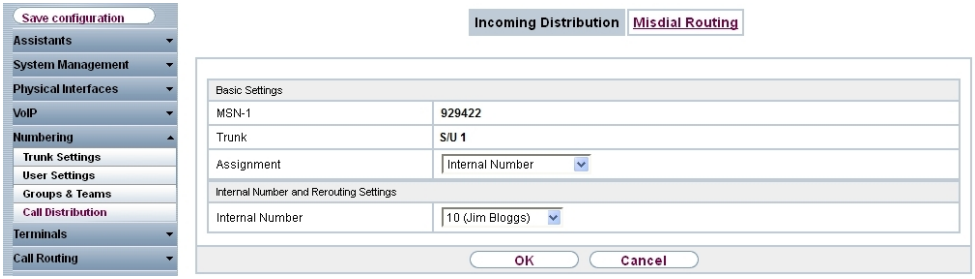


Fig. 135: **Numbering** -> **Call Distribution** -> **Incoming Distribution** -> **<929422>**

Proceed as follows:

(1) Under **Assignment** select *Internal Number*.

(2) For **Internal Number**, select the entry *10 (Jim Bloggs)*.

(3) Confirm with **OK**.

9.3 Overview of Configuration Steps

Configuring Internet access

Field	Menu	Value
Connector Type	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New**	*External xDSL Modem*
Description	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	e.g. *Telekom - VDSL*
Physical Ethernet Port	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	*ETH4*
Country	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	*Germany*
Internet Service Provider	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	*Telekom - VDSL*
Connection ID	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	e.g. *000123456789*
T-Online Number	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	e.g. *112233445566*
Co-User Number	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	e.g. *0001*
Password	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	e.g. *supersecret*
Always active	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	Enabled

Configure an ISDN point-to-multipoint connection

Field	Menu	Value
Connection Type	**Assistants** -> **PBX** -> **Trunks** -> **New**	*ISDN*
Name	**Assistants** -> **PBX** -> **Trunks** -> **Next**	z. B. *ISDN Extern*
Ports	**Assistants** -> **PBX** -> **Trunks** -> **Next**	*S/U 1*
Single Number (MSN)	**Assistants** -> **PBX** -> **Trunks** -> **Next**	e. g. *929420* and *MSN-1*, *929421* and *MSN-2*, *929422* and *MSN-3*

Field	Menu	Value
Class of Service	**Assistants** -> **PBX** -> **Trunks** -> **Next**	*Default CoS*

Connecting a SIP telephone

Field	Menu	Value
Description	**Terminals** -> **Other phones** -> **VoIP** -> **New**	e. g. *Joe Bloggs*
Internal Numbers	**Terminals** -> **Other phones** -> **VoIP** -> **New**	e. g. *31 (#31)*
Name	**Numbering** -> **User Settings** -> **Users** -> **<User 31>** -> ->**Basic Settings**	e. g. *Joe Bloggs*
Displayed Description	**Numbering** -> **User Settings** -> **Users** -> **<Joe Bloggs>** -> **Numbers**	e. g. *Joe Bloggs*
ISDN Extern	**Numbering** -> **User Settings** -> **Users** -> **<Joe Bloggs>** -> **Outgoing Signalisation**->->	e.g. *929420*
Assignment	**Numbering** -> **Call Distribution** -> **Incoming Distribution <929420>** ->	*Internal number*
Internal Number	**Numbering** -> **Call Distribution** -> **Incoming Distribution <929420>** ->	e. g. *31 (Joe Bloggs)*

Connect an ISDN telephone

Field	Menu	Value
Description	**Terminals** -> **Other phones** -> **ISDN** -> **<Internal number 20>** ->	e. g. *Fred Bloggs*
Terminal type	**Terminals** -> **Other phones** -> **ISDN** -> **<Internal number 20>** ->	*Telephone*
Name	**Numbering** -> **User Settings** -> **Users** -> **<User 20>** -> ->**Basic Settings**	e. g. *Fred Bloggs*
Displayed Description	**Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Numbers**	e. g. *Fred Bloggs*
ISDN Extern	**Numbering** -> **User Settings** ->	e.g. *929421*

Field	Menu	Value
	Users -> <Fred Bloggs> -> **Outgoing Signalisation->->**	
Assignment	**Numbering -> Call Distribution -> Incoming Distribution <929421> ->**	*Internal number*
Internal Number	**Numbering -> Call Distribution -> Incoming Distribution <929421> ->**	e. g. *20 (Fred Bloggs)*

Connect an analogue telephone

Field	Menu	Value
Description	**Terminals -> Other phones -> analog -> <Internal number 10> ->**	e. g. *Jim Bloggs*
Terminal type	**Terminals -> Other phones -> analog -> <Internal number 10> ->**	*Telephone*
Name	**Numbering -> User Settings -> Users -> <User 10> ->** **->Basic Settings**	e. g. *Jim Bloggs*
Displayed Description	**Numbering -> User Settings -> Users -> <Jim Bloggs>** -> **Numbers**	e. g. *Jim Bloggs*
ISDN External	**Numbering -> User Settings -> Users -> <Jim Bloggs>** -> **Outgoing Signalisation->->**	e.g. *929422*
Assignment	**Numbering -> Call Distribution -> Incoming Distribution <929422> ->**	*Internal number*
Internal Number	**Numbering -> Call Distribution -> Incoming Distribution <929422> ->**	e. g. *10 (Jim Bloggs)*

Chapter 10 Telephony - Connecting to the ISDN point-to-point connection & VDSL connection

10.1 Introduction

This workshop describes the connecting of the **elmeg hybird 120/130** to an ISDN point-to-point connection with the main number *9678589* and a two digit direct dialing range) (numbers *0* to *99*). In it, a SIP telephone, a standard ISDN telephone and an analogue telephone are each connected to the **elmeg hybird 120/130**. We then show the call assignment of individual telephony subscribers with, in each case, one external direct dial number. A VDSL Internet connection will then be set up using an external VDSL modem.

Configuration is performed with the **GUI** (Graphical User Interface).

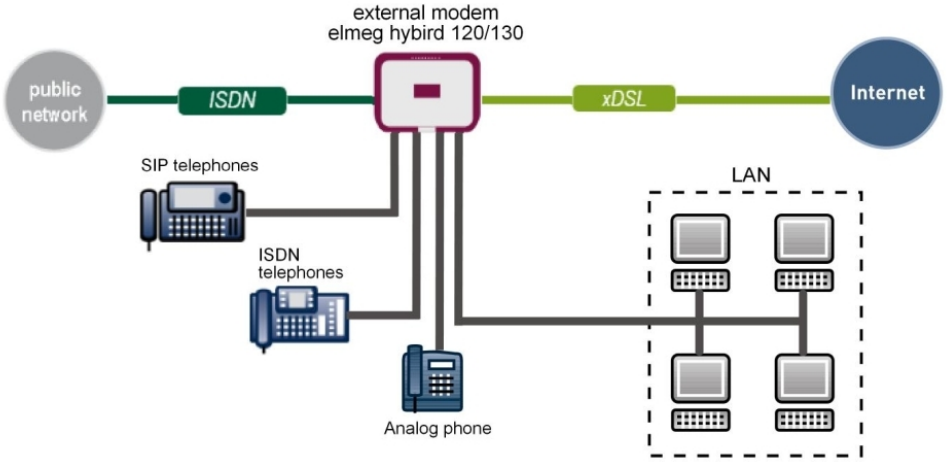


Fig. 136: Example scenario

Requirements

- a VDSL connection
- an external VDSL modem (e. g. Speedport 221)
- an ISDN point-to-point connection with a main number and direct dialing range

- An **elmeg hybird 120/130** system
- A SIP telephone, a standard ISDN telephone and an analogue telephone
- The **elmeg hybird 120/130** is used as a DHCP, DNS and time server in the network
- Connect the **elmeg hybird 120/130** to all terminals (PC, telephones) and connections ISDN as indicated in the circuit diagram
- Connect the external VDSL modem to the 4th Ethernet port on the **elmeg hybird 120/130**

10.2 Configuration

10.2.1 First steps

The first time you access the **elmeg hybird 120/130**'s web interface, you are prompted to change the password. You then see the system's status page.

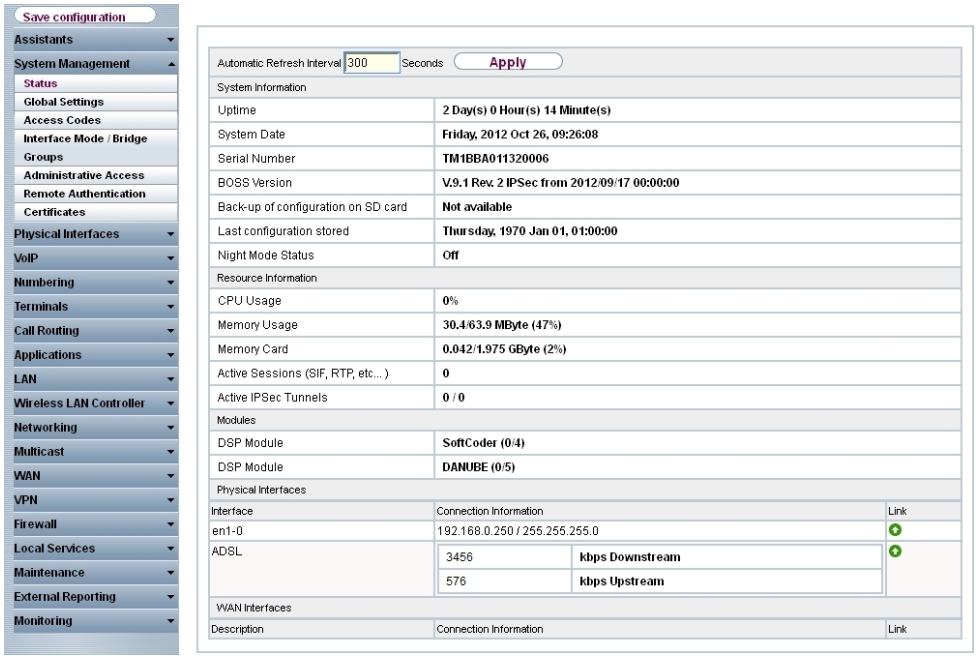


Fig. 137: **System Management** -> **Status**

You can use the wizard to adjust, for example, the **IP address** of the **elmeg hybird 120/130** and the **IP address range** of the integrated DHCP server.

Note

If these addresses are changed, all the IP terminals may need to be restarted in order to update their IP addresses by DHCP.

(1) Go to **Assistants** -> **First steps** -> **Basic Setup**.

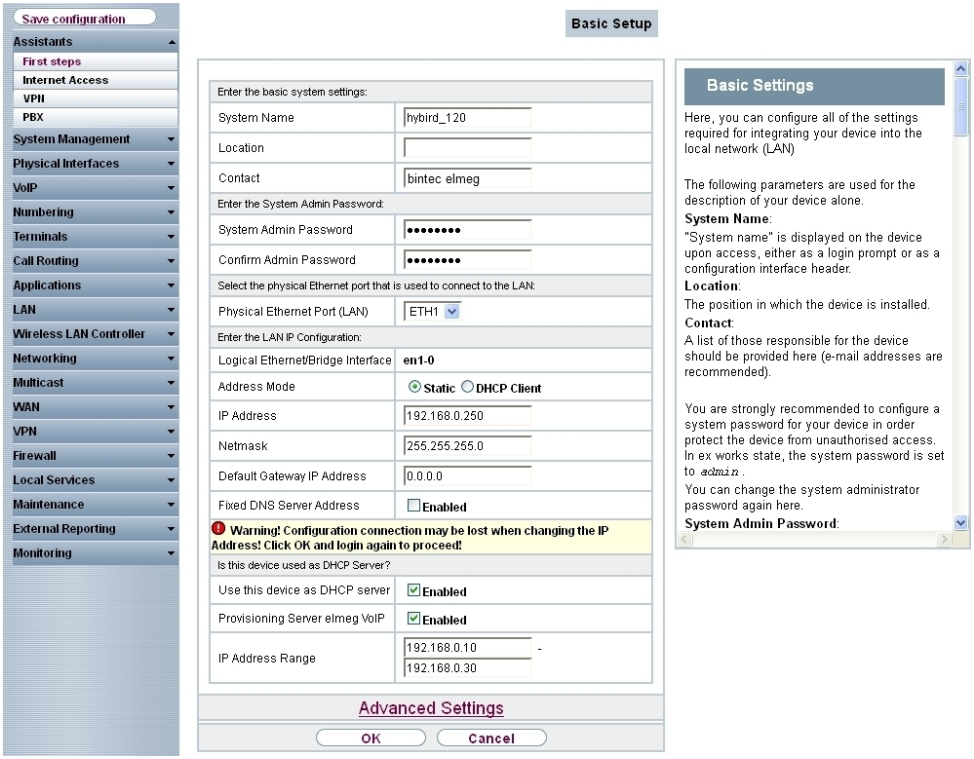


Fig. 138: **Assistants** -> **First steps** -> **Basic Setup**

10.2.2 Configuring Internet access

The Internet connection can be set up in a few steps via the Assistant. For this, go to the following menu:

(1) Go to **Assistants** -> **Internet Access**-> **Internet Connections** -> **New**.

(2) For **Connection Type**, select `External xDSL Modem`.

(3) Click on **Next** to configure a new Internet connection.

(4) Enter the access data required for the connection.

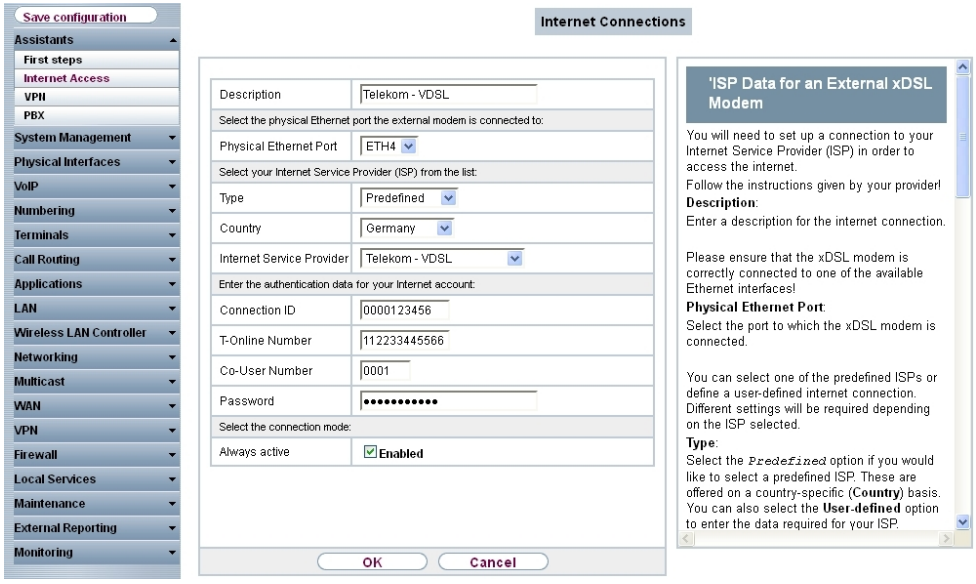


Fig. 139: **Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**

Proceed as follows to set up the Internet connection:

(1) Under **Description** enter e.g. *Telekom - VDSL*.

(2) For **Physical Ethernet Port**, select the network port with which the VDSL modem has been connected to the **elmeg hybird 120/130**. In our example, the port used is the *ETH4* Ethernet port, which is located next to the ADSL port. This setting reduces the 4 port switch on the **elmeg hybird 120/130** by one port, which separates the LAN and WAN connection.

(3) As the **Country**, select *Germany*.

(4) For **Internet Service Provider**, select *Telekom - VDSL*.

(5) Under **Connection ID**, enter the 12 digit number taken from Telekom's order confirmation, e. g. *000123456789*.

(6) Under **T-Online Number**, enter the 12 digit number taken from Telekom's order confirmation, e. g. *112233445566*.

(7) Enter the 4 digit **Co-User Number**, e. g. *0001*.

(8) For **Password**, enter the personal ID taken from Telekom's order confirmation, e. g. *supersecret*.

(9) Enable the **Always active** option.

(10) Press **OK** to confirm your entries.

The WAN connection status can then be controlled on the system's status page.

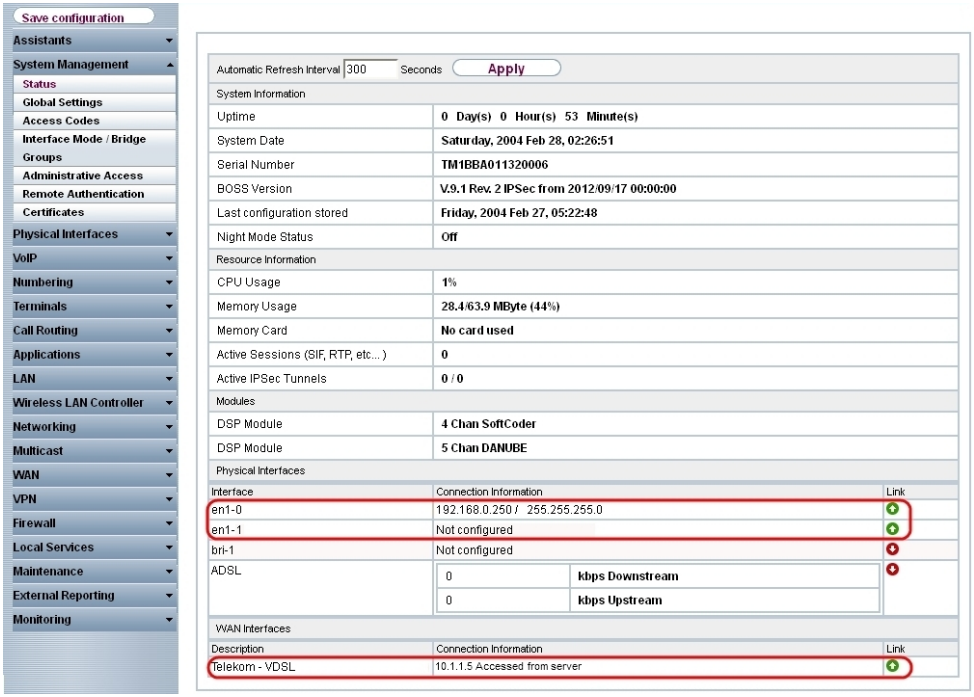


Fig. 140: **System Management** -> **Status**

10.2.3 Configure the external ISDN port to operate on the ISDN point-to-point connection

In its ex works state, the **elmeg hybird 120/130** is ready to operate on a point-to-point ISDN access. Proceed as follows in order to modify the existing ISDN point-point connection:

(1) Go to **Assistants** -> **PBX** -> **Trunks** -> **ISDN Extern** .

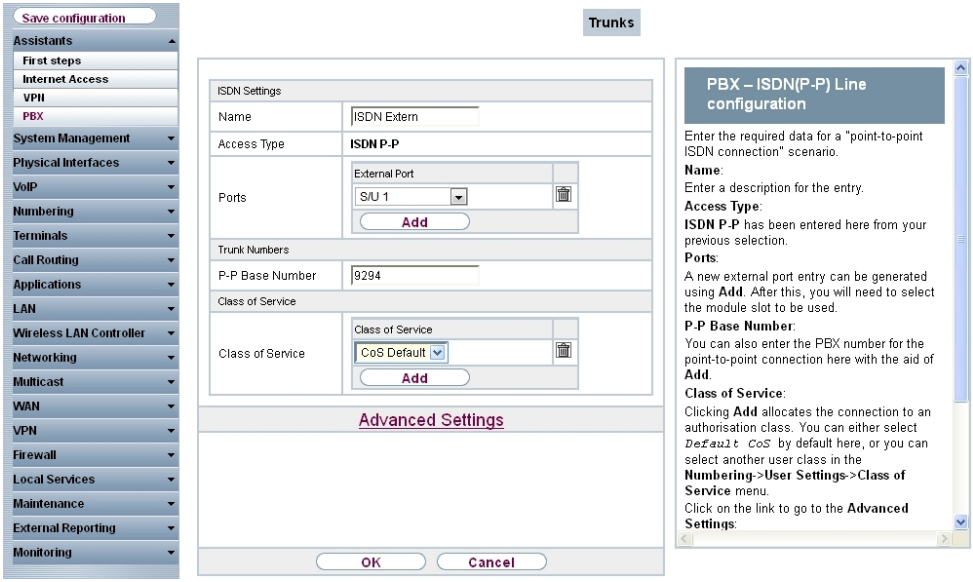


Fig. 141: **Assistants** -> **PBX** -> **Trunks** -> **ISDN Extern**

Proceed as follows:

(1) A **Name** has already been defined, here e.g. *ISDN Extern*.

(2) Under **Ports**, select a port from the list via the **Add** option, e.g. *S/U 1* ein.

(3) Under **P-P Base Number**, enter the base number, e.g. *9294*.

(4) Leave the **Class of Service** set to *CoS Default* .

(5) Confirm you settings with **OK**.

A successfully established ISDN point-to-point connection is marked with a .

10.2.4 Connecting a SIP telephone

When the SIP telephone has been connected as shown in the circuit diagram, you can configure the connected SIP telephones.

In the next step, the SIP telephone user or a local number is assigned.

(1) Go to **Terminals** -> **Other phones** -> **VoIP** -> **New**.

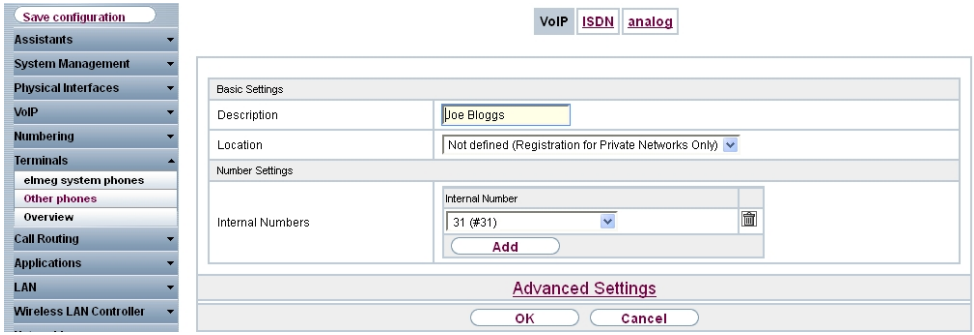


Fig. 142: **Terminals** -> **Other phones** -> **VoIP** -> **New**

Proceed as follows:

(1) Enter the name of the user under **Description**, e.g. *Joe Bloggs*.

(2) For **Internal Number**, select the entry *31 (#31)*.

(3) Confirm with **OK**.

In the next step a name, e. g. *User 31*, can be issued to a subscriber to improve the overview.

(1) Go to **Numbering** -> **User Settings**-> **Users** -> **<User 31>** ->**Basic Settings**.

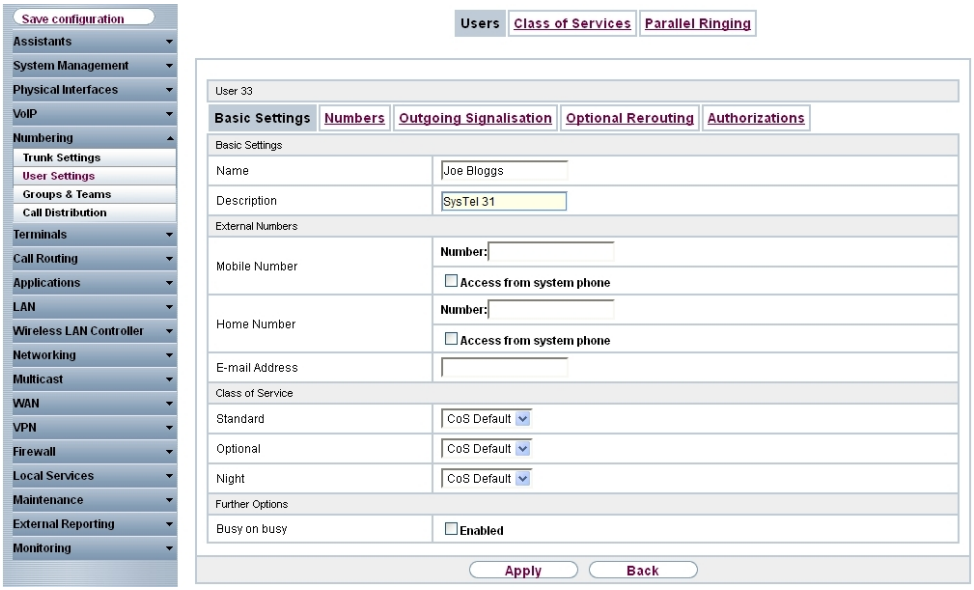


Fig. 143: **Numbering** -> **User Settings** -> **Users** -> **<User 31>** ->**Basic Settings**

Proceed as follows:

(1) Enter the name of the user under **Name**, e. g. *Joe Bloggs*.

(2) Leave the remaining settings unchanged and confirm them with **Apply**.

For the caller's name to be displayed on internal calls, the following setting needs to be made in the **Numbers** submenu.

(1) Gehen Sie zu **Numbering** -> **User Settings** -> **Users** -> **<Joe Bloggs>** -> **Numbers**.

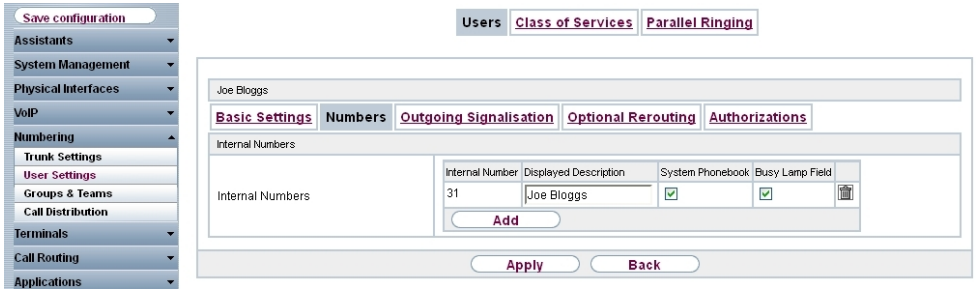


Fig. 144: **Numbering** -> **User Settings** -> **Users** -> **<Joe Bloggs>** -> **Numbers**

Proceed as follows:

(1) Enter the name that is to be displayed under **Displayed Description**, e. g. *Joe Bloggs*.

(2) Click **Apply**.

In the **Outgoing Signalisation** menu, the default setting *default MSN* can be adopted with no changes. The outcome of this setting is that, on outgoing calls the main number with an attached extension number (e. g. Prefix + 9678589 + 31) is signalled as the outgoing number.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **Outgoing Signalisation**.

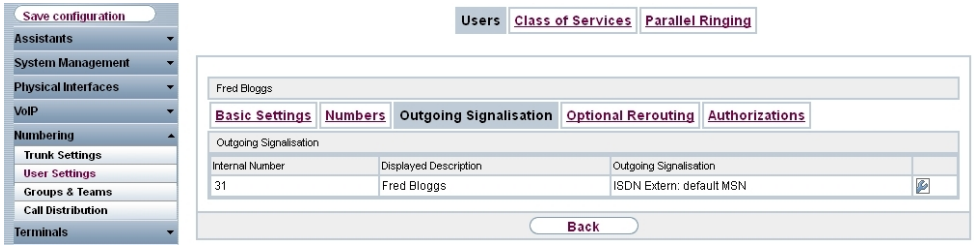


Fig. 145: **Numbering** -> **User settings** -> **Users** -> **Outgoing Signalisation**

The **elmeg hybird 120/130**, when operated on a point-to-point ISDN connection, uses an automated **call assignment**. As such, a call made to the external number incl. direct dial-

ing number (e. g. Prefix + 9678589 + 31) is routed to the relevant local extension (e. g. internal number 31) with no further configuration.

10.2.5 Connect an ISDN telephone

In its ex works state, the **elmeg hybird 120/130** is already prepared for using two ISDN terminals (internal numbers 20 and 21). In this example, a standard ISDN telephone with the internal number 20, as shown on the circuit diagram, will be connected to the **elmeg hybird 120/130**.

(1) Go to **Terminals** -> **Other phones** -> **ISDN** -> **<Internal number 20>**.

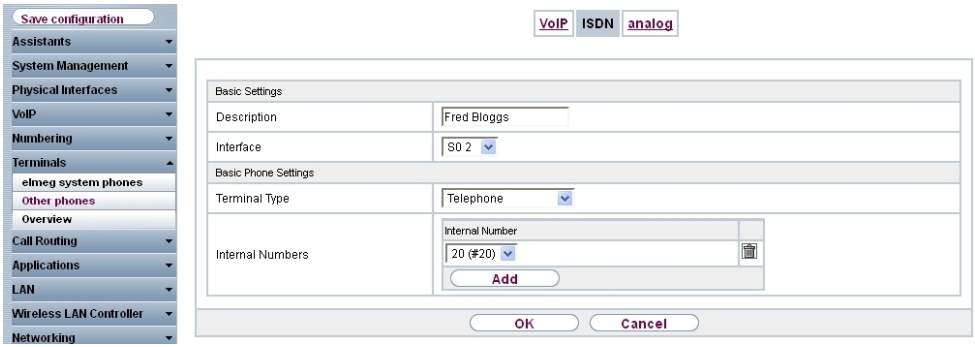


Fig. 146: **Terminals** -> **Other phones** -> **ISDN** -> **<Internal number 20>**

Proceed as follows:

(1) Enter a **Description** for the terminal, e. g. `Fred Bloggs`.

(2) Leave the **Terminal Type** set to `Telephone`.

(3) Confirm with **OK**.

In the next step a name will be given to the ISDN subscriber with the internal number 20 to improve the overview.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<User 20>** ->**Basic Settings**.

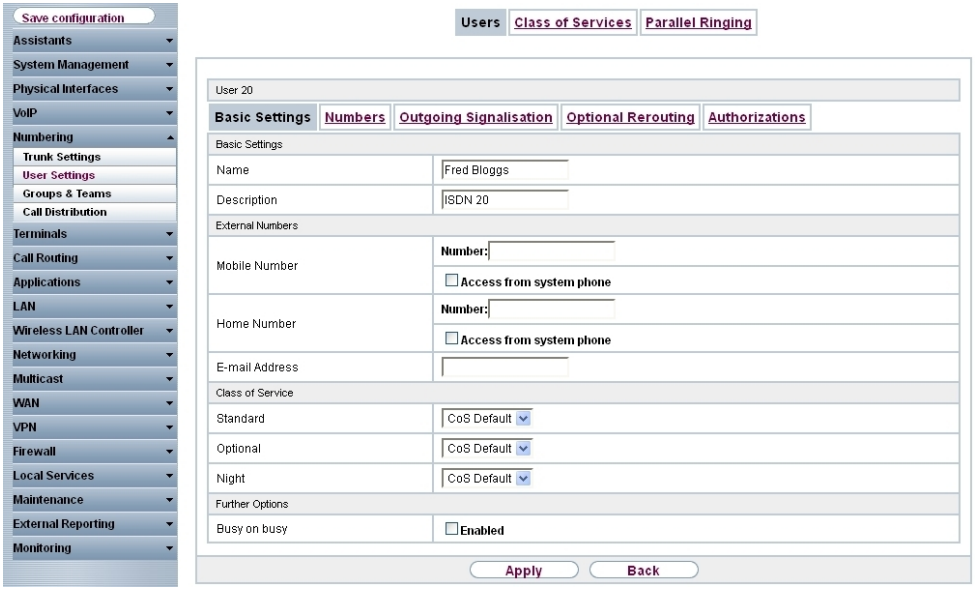


Fig. 147: **Numbering** -> **User Settings** -> **Users** -> **<User 20>** ->**Basic Settings**

Proceed as follows:

(1) Enter the **Name** of the user. The **name** appears on a system telephone's display. In this example, the **name** of the user is `Fred Bloggs`.

(2) Leave the remaining settings unchanged and confirm them with **Apply**.

For the caller's name to be displayed on internal calls, there is the option of configuring the relevant user name in the **Numbers** submenu.

(1) Gehen Sie zu **Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Numbers**.

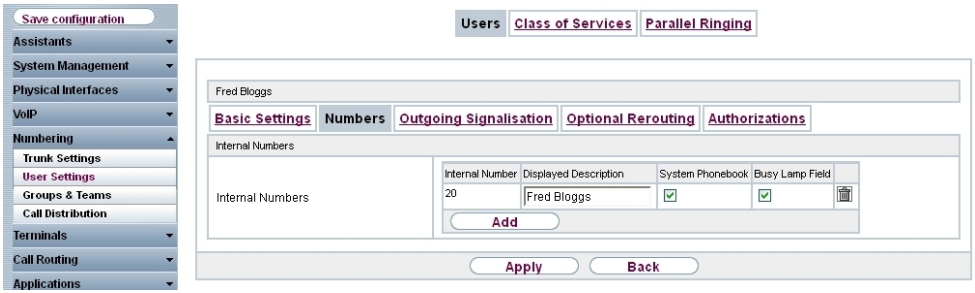


Fig. 148: **Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Numbers**

Proceed as follows:

(1) Enter the name that is to be displayed under **Displayed Description**, e. g. *Fred Bloggs*.

(2) Click **Apply**.

In the **Outgoing Signalisation** submenu, the default setting *default MSN* can be adopted with no changes. The outcome of this setting is that, on outgoing calls the main number with an attached extension number (e. g. Prefix + 9678589 + 20) is signalled as the outgoing number.

Go to **Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Outgoing Signalisation**.

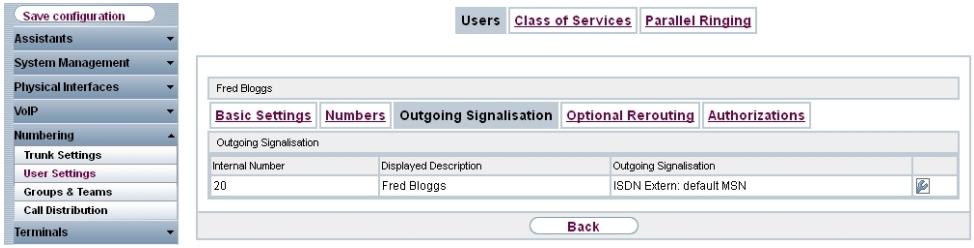


Fig. 149: **Numbering -> User Settings -> Users -> <Fred Bloggs> -> Outgoing Signalisation**

The **elmeg hybird 120/130**, when operated on a point-to-point ISDN connection, uses an automated **call assignment**. As such, a call made to the external number incl. direct dialing number (e. g. Prefix + 9678589 + 20) is routed to the relevant local extension (e. g. internal number 20) with no further configuration.

10.2.6 Connect an analogue telephone

In its ex works state, the **elmeg hybird 120/130** is already prepared for using four analogue terminals (internal numbers 10 to 13). In this example, an analogue telephone with the internal number 10, as shown on the circuit diagram, will be connected to the **elmeg hybird 120/130**.

(1) Go to **Terminals** -> **Other phones** -> **analog** -><**Internal number 10**>.

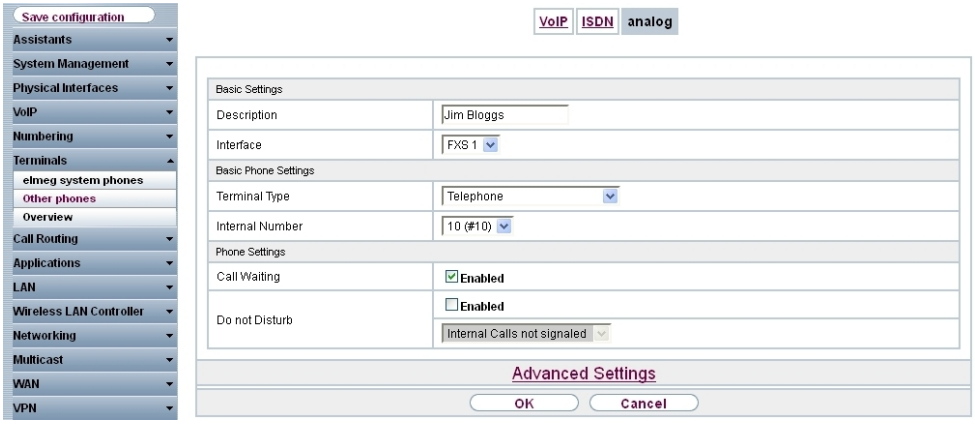


Fig. 150: **Terminals** -> **Other phones** -> **analog** -><**Internal number 10**>

Proceed as follows:

(1) Enter a **Description** for the terminal, e. g. `Jim Bloggs`.

(2) Leave the **Terminal Type** set to `Telephone`.

(3) Confirm with **OK**.

In the **User Settings** menu, the analogue subscriber with the internal number 10 can be assigned a name to improve the overview.

(1) Go to **Numbering** -> **User Settings**-> **Users** -> <**User 10**> ->**Basic Settings**.

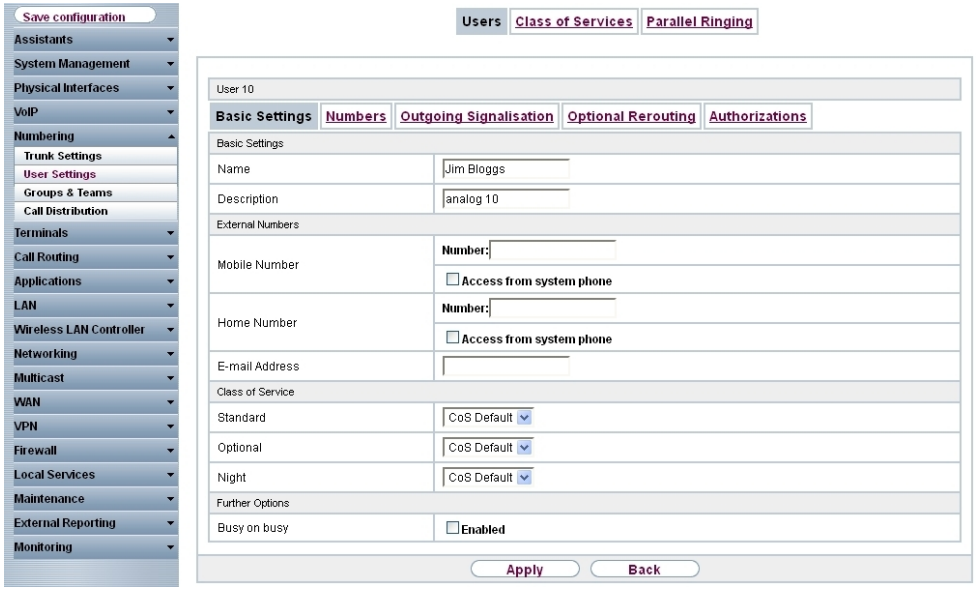


Fig. 151: **Numbering** -> **User Settings** -> **Users** -> **<User 10>** ->**Basic Settings**

Proceed as follows:

(1) Enter the **Name** of the user. The **name** appears on a system telephone's display. In this example, the **name** of the user is `Jim Bloggs`.

(2) Leave the remaining settings unchanged and confirm them with **Apply**.

For the caller's name to be displayed on internal calls, there is the option of configuring the relevant user name in the **Numbers** submenu.

(1) Gehen Sie zu **Numbering** -> **User Settings** -> **Users** -> **<Jim Bloggs>** -> **Numbers**.

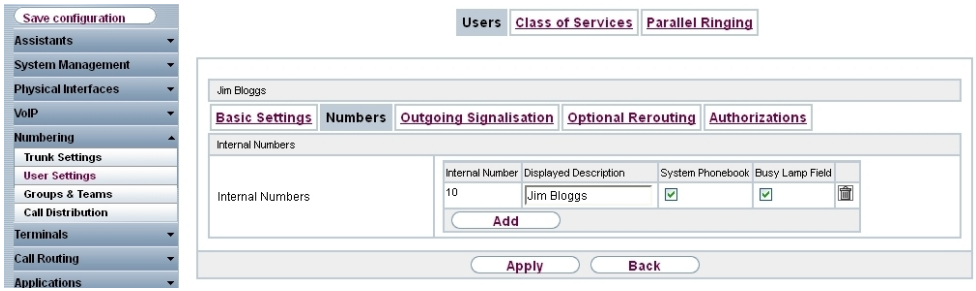


Fig. 152: **Numbering** -> **User Settings** -> **Users** -> **<Jim Bloggs>** -> **Numbers**

Proceed as follows:

(1) Enter the name that is to be displayed under **Displayed Description**, e. g. *Jim Bloggs*.

(2) Click **Apply**.

In the **Outgoing Signalisation** submenu, the default setting *default MSN* can be adopted with no changes. The outcome of this setting is that, on outgoing calls the main number with an attached extension number (e. g. Prefix + 9678589 + 10) is signalled as the outgoing number.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<Jim Bloggs>** -> **Outgoing Signalisation**.

Fig. 153: **Numbering -> User Settings -> Users -> <Jim Bloggs> -> Outgoing Signalisation**

The **elmeg hybird 120/130**, when operated on a point-to-point ISDN connection, uses an automated call assignment. As such, a call made to the external number incl. direct dialing number (e. g. Prefix + 9678589 + 10) is routed to the relevant local extension (e. g. internal number 10) with no further configuration.

10.3 Overview of Configuration Steps

Configuring Internet access

Field	Menu	Value
Connector Type	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New**	*External xDSL Modem*
Description	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	e.g. *Telekom - VDSL*
Physical Ethernet Port	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	*ETH4*
Country	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	*Germany*
Internet Service Provider	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	*Telekom - VDSL*
Connection ID	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	e.g. *000123456789*
T-Online Number	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	e.g. *112233445566*
Co-User Number	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	e.g. *0001*
Password	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	e.g. *supersecret*

Configure an external ISDN port

Field	Menu	Value
Name	**Assistants** -> **PBX** -> **Trunks** -> **ISDN Extern**	z. B. *ISDN Extern*
Ports	**Assistants** -> **PBX** -> **Trunks** -> **ISDN Extern**	*S/U 1*
P-P Base Number	**Assistants** -> **PBX** -> **Trunks** -> **ISDN Extern**	e. g. *9294*
Class of Service	**Assistants** -> **PBX** -> **Trunks** -> **ISDN Extern**	*Default CoS*

Connecting a SIP telephone

Field	Menu	Value
Description	**Terminals** -> **Other phones** -> **VoIP**	e. g. *Joe Bloggs*

Field	Menu	Value
	-> **New**	
Internal Numbers	**Terminals** -> **Other phones** -> **VoIP** -> **New**	e. g. *31 (#31)*
Name	**Numbering** -> **User Settings** -> **Users** -> **<User 31>** -> ->**Basic Settings**	e. g. *Joe Bloggs*
Displayed Description	**Numbering** -> **User Settings** -> **Users** -> **<Joe Bloggs>** -> **Numbers**	e. g. *Joe Bloggs*

Connect an ISDN telephone

Field	Menu	Value
Description	**Terminals** -> **Other phones** -> **ISDN** -> **<Internal number 20>** ->	e. g. *Fred Bloggs*
Terminal type	**Terminals** -> **Other phones** -> **ISDN** -> **<Internal number 20>** ->	*Telephone*
Name	**Numbering** -> **User Settings** -> **Users** -> **<User 20>** -> ->**Basic Settings**	e. g. *Fred Bloggs*
Displayed Description	**Numbering** -> **User Settings** -> **Users** -> **<Fred Bloggs>** -> **Numbers**	e. g. *Fred Bloggs*

Connect an analogue telephone

Field	Menu	Value
Description	**Terminals** -> **Other phones** -> **analog** -> **<Internal number 10>** ->	e. g. *Jim Bloggs*
Terminal type	**Terminals** -> **Other phones** -> **analog** -> **<Internal number 10>** ->	*Telephone*
Name	**Numbering** -> **User Settings** -> **Users** -> **<User 10>** -> ->**Basic Settings**	e. g. *Jim Bloggs*
Displayed Description	**Numbering** -> **User Settings** -> **Users** -> **<Jim Bloggs>** -> **Numbers**	e. g. *Jim Bloggs*

Chapter 11 Telephony - Mobile connection of an iPhone/iPad to the elmeg hybird 120 via VPN

11.1 Introduction

For a while now, smartphones have been established as an alternative to mobile phones and have developed into genuine multi-functional units. In addition to mobile accessibility, there is also focus now on the use of additional applications and services – both on the move as well as in the office or at home.

In doing so, however, data security must not be compromised. The safest way of connecting mobile workers and devices to the office or home network is a virtual private network (VPN). A VPN is like a shielded tunnel which connects the sender and recipient. Outsiders do not have access to this tunnel. Data and e-mails can be exchanged in such a secure manner between mobile devices, i.e. an iPhone in our example, and the local office or home network of the **elmeg hybird 120**. The VPN tunnel ensures the secure connection of the iPhone/iPad to the **elmeg hybird 120** from a public WLAN hotspot in a hotel, from a private network between business partners/friends, or directly from the mobile network.

Thanks to suitable improvements, i.e. through so-called apps, mobile and landline telephony can be merged into a single device on smartphones. This is described in an additional workshop entitled **Connecting a smartphone as an internal VoIP telephone**. Via an existing VPN connection between the iPhone and the **elmeg hybird 120**, the iPhone can also be remotely connected as an internal VoIP telephone to the **elmeg hybird 120**. The iPhone is also registered as an internal VoIP telephone on the **elmeg hybird 120** by the appropriate app via the VPN connection and can be involved in the communication, just like any other connected telephone. Internal calls are just as possible remotely as the use of external landline connections, such as the configuration of an activated ISDN connection in the office

The advantages include the following:

- Secure connection of mobile workers or devices to the local office or home network

  - e.g. directly from the mobile network (GSM broadband), from public WLAN hotspots or from remote local networks between business partners/friends etc.
- Access to local data, e-mail servers or other devices, such as printers
- Remote configuration of **elmeg hybird 120**

- Set up call forwarding remotely (user portal)

- Connection as internal telephone to the **elmeg hybird 120** in combination with Media5-fone (or similar apps)

  - Internal calls between the iPhone and analogue, ISDN or SIP telephones

  - Use the landline connection of the **elmeg hybird 120** for your own calls from the smartphone (if the call is made via the landline connection, then it is billed subject to the terms and conditions specified for the landline).

This workshop describes how to set up a VPN IPSec connection between an iPhone/iPad (referred to in the workshop as an iPhone) and the **elmeg hybird 120**. In doing so, only the settings required for this scenario within the **elmeg hybird 120** as well as on the iPhone app shall be explained. Other possible settings are not included in this workshop. The **elmeg hybird 120** and an **iPhone 4** were used in this example. Other devices with similar software versions can be configured in an identical or similar manner.

The **GUI** (Graphical User Interface) is used for configuring here.

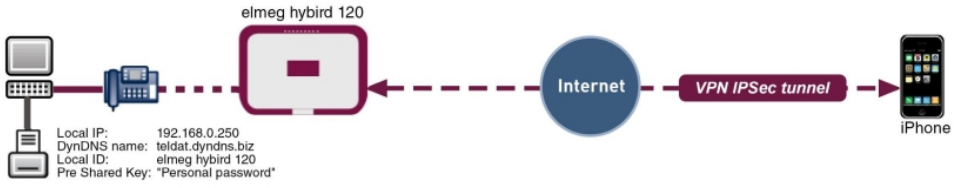


Fig. 154: Example scenario

Requirements

- An **elmeg hybird 120** with software version 9.1.1
- An **iPhone 4** with software version iOS 5.1.1
- Existing connection to the data network (UMTS broadband or WLAN hotspot)

11.2 Configuration

11.2.1 Configuration of elmeg hybird 120

DynDNS configuration for DSL connections with dynamic IP addresses

In order for remote devices to be able to connect to the **elmeg hybird 120** via the Internet,

these must also be remotely accessible on the DSL connection. Provided the **elmeg hybird 120** is connected to a DSL connection with a static IP address (e.g. Telekom Business connections), then this availability shall apply given the static IP address.

If the **elmeg hybird 120** is used on a connection with a dynamically assigned IP address, then the external IP address can be determined via an external service provider, e.g. *www.dyndns.org* . The service provider used must be set in the **elmeg hybird 120**. To do this, go to the following menu:

(1) Go to **Local Services** -> **DynDNS Client** -> **DynDNS Update** -> **New**.

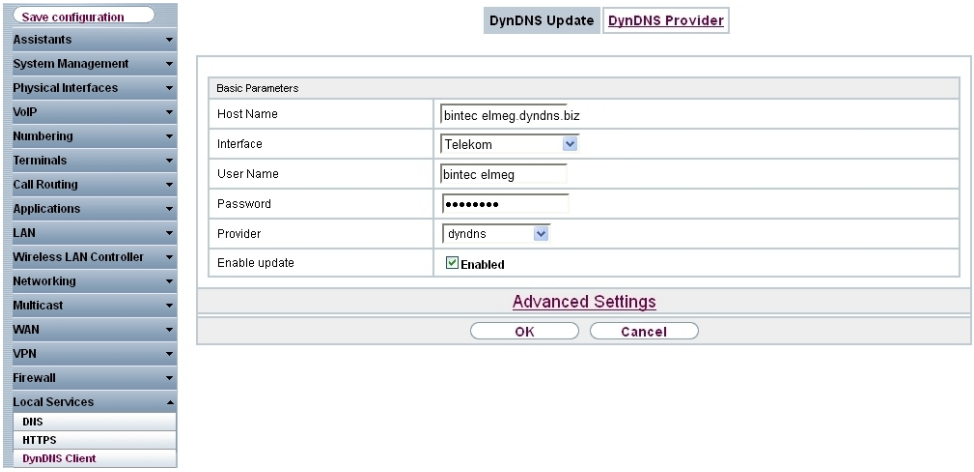


Fig. 155: **Local Services** -> **DynDNS Client** -> **DynDNS Update** -> **New**

Proceed as follows to perform DynDNS registrations:

(1) For **Host Name** enter the full name as registered with the DynDNS provider. In our example, this is *bintec elmeg.dyndns.biz*. The **elmeg hybird 120** notifies the separate external IP address to the service provider, and the latter responds to queries using the host name *bintec elmeg.dyndns.biz* with the associated IP address.

(2) Select the interface of the Internet Service Provider under **Interface**; here it is *Telekom*, for example.

(3) Enter the user name as registered with the DynDNS provider under **User Name**; here it is *bintec elmeg*, for example.

(4) Enter the **Password** as registered with the DynDNS provider, *(Personal Password)*.

(5) Select the **Provider** with which the above data is registered; here it is *dyndns*.

(6) Activate the **Enable Update** function.

(7) Confirm with **OK**.

Creation of VPN IPSec connection

An IP address pool is specified in the **IP Pools** menu, from which an address is assigned to the VPN client at tunnel setup. In our example, the IP address range from the local network is defined for the iPhone, e.g. 192.168.1.10 to 192.168.1.10 (i.e. an actual IP address).

(1) Go to **VPN** -> **IPSec** -> **IP Pools** -> **Add**.

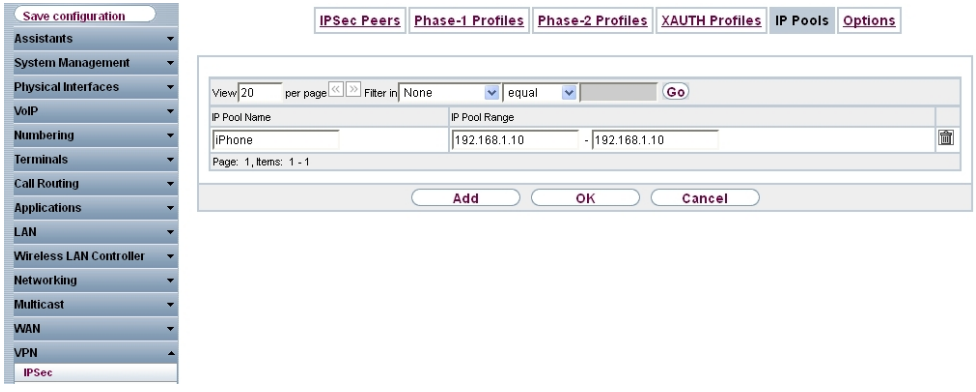


Fig. 156: **VPN** -> **IPSec** -> **IP Pools** -> **Add**

Proceed as follows to set up an IP pool:

(1) Enter the name of the IP pool under **IP Pool Name**, e.g. *iPhone*.

(2) For **IP Pool Range** enter the first IP address from the local network in the first field; here it is *192.168.1.10*, for example.

(3) Enter the last IP address from the local network in the second field; here it is *192.168.1.10*, for example.

(4) Confirm with **OK**.

A local server must be used for advanced IPSec authentication (XAuth). Perform all necessary settings in the **XAuth Profile** menu.

(1) Go to **VPN** -> **IPSec** -> **XAUTH Profiles** -> **New**

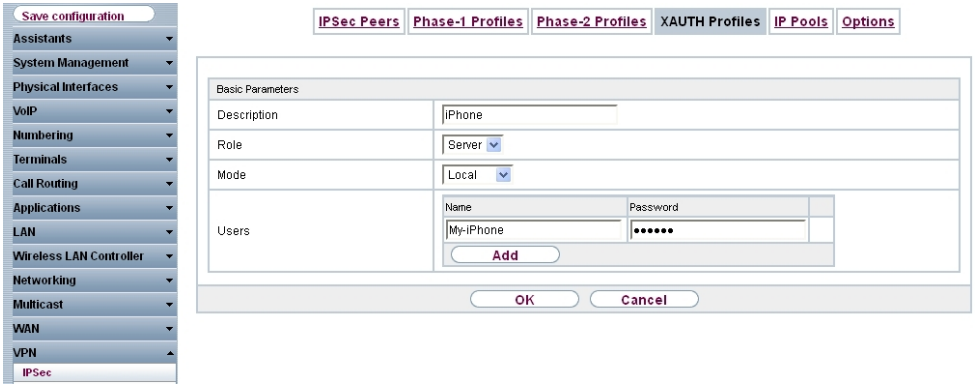


Fig. 157: **VPN** -> **IPSec** -> **XAUTH Profiles** -> **New**

To create an XAUTH profile, proceed as follows:

(1) Enter a **Description** for the IPSec authentication, e.g. *iPhone*.

(2) Select *Server* as the **Role**.

(3) Under **Mode**, select *Local*. Authentication is carried out via a local list.

(4) Enter the authentication name of the client (**Name**) and the authentication password (**Password**) under **User**, here it is *My-iPhone* and *(Personal Password)*, for example. A separate name along with a password must be added for each user/iPhone.

(5) Confirm with **OK**.

In the **Phase 1 Profiles** menu, you can define the Phase 1 (IKEv1) settings.

Note

Please note that not all cipher and hash methods are supported by the iPhone. Successfully tested examples include, for example: AES/MD5, AES/SHA1, DES/MD5, DES3/MD5.

(1) Go to **VPN** -> **IPSec** -> **Phase 1 Profiles (IKEv1)** -> **New**

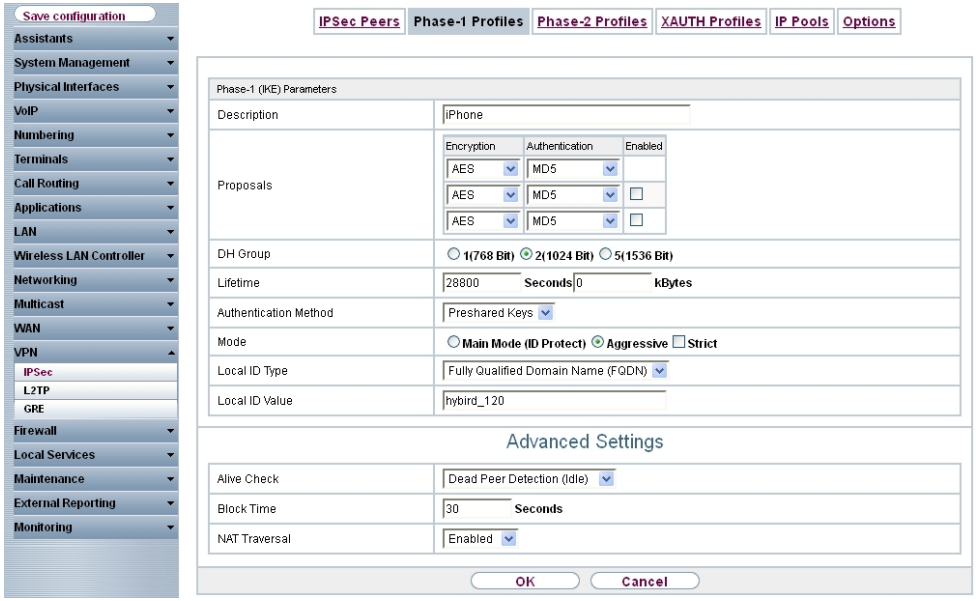


Fig. 158: **VPN->IPSec->Phase 1 Profiles (IKEv1)->New**

Proceed as follows:

(1) Enter a **Description** of the profile, e.g. *iPhone*.

(2) Enter *28800* seconds for the **Lifetime**.

(3) Leave all the other settings as they are.

(4) Click **Advanced Settings**.

(5) Select *Dead Peer Detection (Idle)* for **Alive Check**. This option is used to carry out a check at certain intervals depending on forthcoming data transfers.

(6) Enable **NAT Travesal** . NAT Traversal also enables IPSec tunnels to be opened via one or more devices on which network address translation (NAT) is activated.

(7) Confirm with **OK**.

In the next step, the profile for Phase 2 is amended.

(1) Go to **VPN** -> **IPSec** -> **Phase 2 Profiles** -> **New**

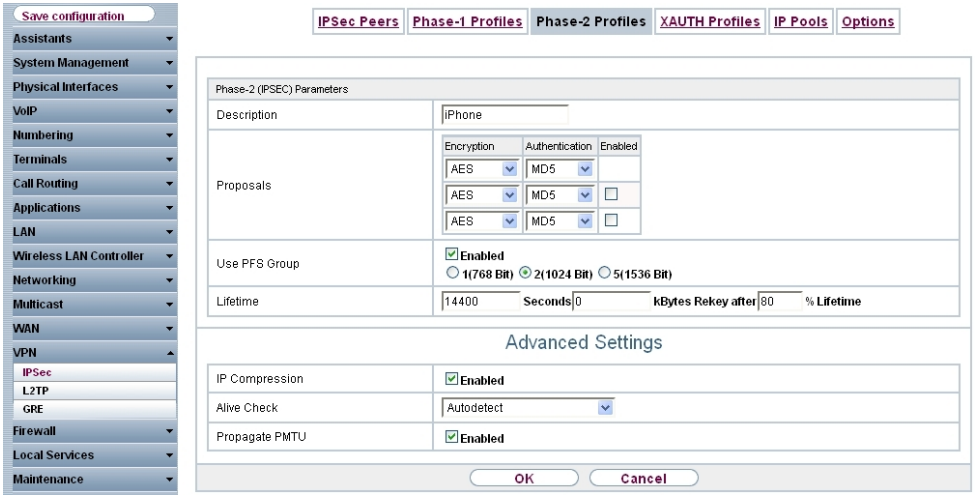


Fig. 159: **VPN**->**IPSec**->**Phase-2 Profiles**->**New**

Proceed as follows:

(1) Enter a **Description** of the profile, e.g. *iPhone*.

(2) Enter *14400* seconds for the **Lifetime**.

(3) Leave all the other settings as they are.

(4) Click **Advanced Settings**.

(5) Enable **IP Compression**. If data is compressed effectively, this can result in higher performance and a lower volume of data to be transferred.

(6) Leave **Alive Check** set to *Automatic Detection*.

(7) Confirm with **OK**.

In the last step, a new connection partner for IPSec is added in the **IPSec Peers** menu.

(1) Go to **VPN** -> **IPSec** -> **IPSec Peers**-> **New**.

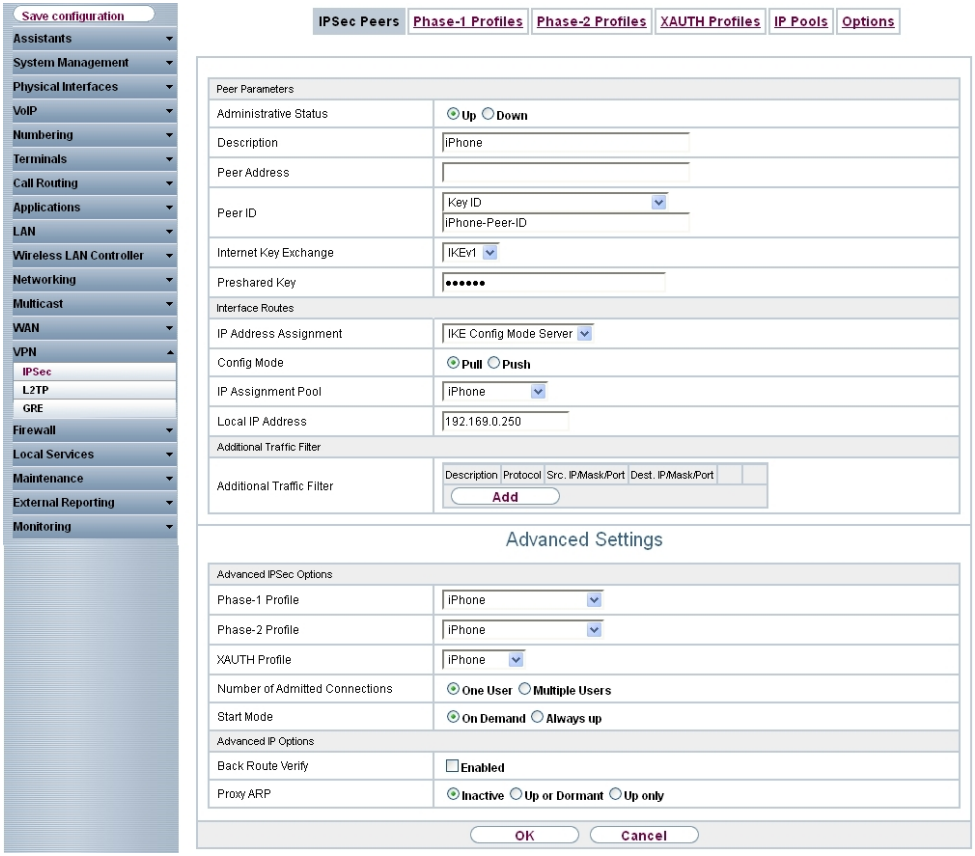


Fig. 160: **VPN** -> **IPSec** ->**IPSec Peers**-> **New**

Proceed as follows to make the settings in the IPSec peer:

(1) Enter a description of the connection under **Description**, e.g. *iPhone*.

(2) For **Peer ID**, select *Key ID* and enter an ID for the partner, e.g. *iPhone Peer ID* .

(3) In **Preshared Key**, enter an individual password for the connection, *(My Personal Preshared Key)* .

(4) For **IP Address Assignment**, select *Server in IKE Configuration Mode*.

(5) Under **IP Assignment Pool**, select *iPhone*.

(6) Under **Local IP Address**, enter the IP address of the **elmeg hybird 120**. The IP address is *192.168.0.250* in its ex works state.

(7) Click **Advanced Settings**.

(8) Select *iPhone* for **Phase 1 Profile**.

(9) Select *iPhone* for **Phase 2 Profile**.
Select *iPhone* for **XAUTH Profile**.

(10) Leave the remaining settings unchanged and confirm them with **OK**.

The settings for the IPSec peer `iPhone` are hereby completed. The status is displayed on the overview page of the IPSec peer `iPhone` . The symbol shows that the tunnel has not yet been built.

(1) Go to **VPN** -> **IPSec** -> **IPSec Peers**.

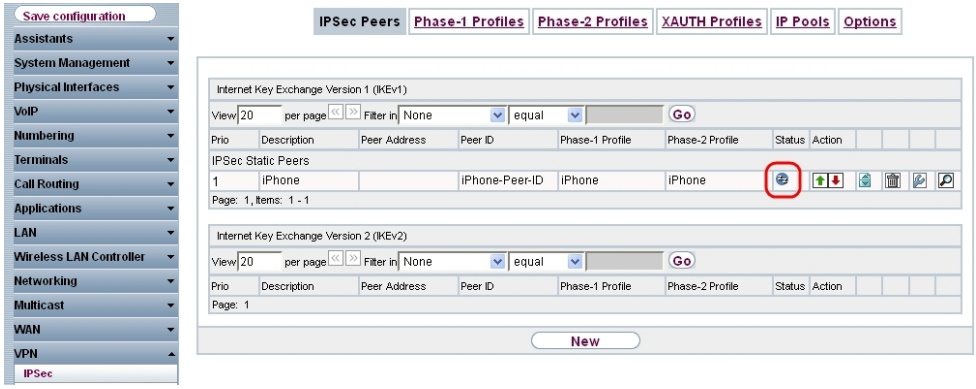


Fig. 161: **VPN** -> **IPSec** ->**IPSec Peers**

In the next step, the VPN tunnel must be configured on the iPhone. Once configuration is completed on the iPhone, a VPN tunnel to the **elmeg hybird 120** can then be built. A successfully built VPN tunnel is indicated with a arrow, indicating that data can now be transmitted via the tunnel. In addition, the Media5-fone iPhone app can now be logged in to the **elmeg hybird 120** as an internal VoIP telephone via this tunnel.

Once the VPN tunnel is successfully configured on the iPhone, the overview page will then look as follows:

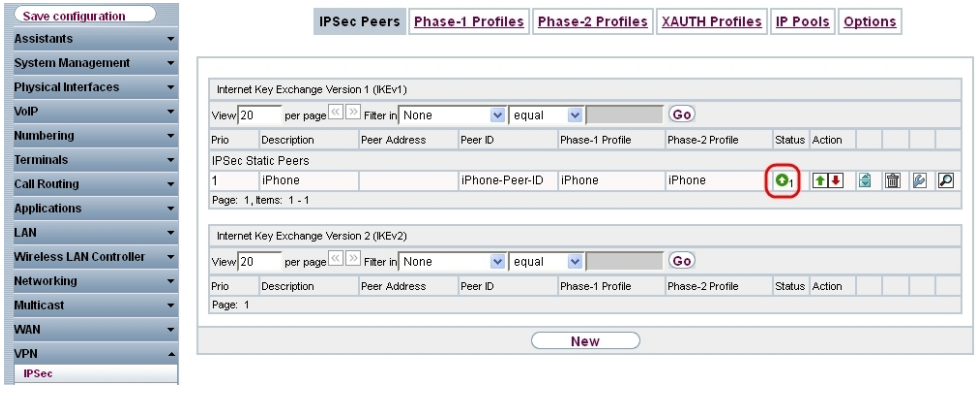


Fig. 162: **VPN** -> **IPSec** ->**IPSec Peers**

11.2.2 Configuration of the VPN IPSec tunnel on the iPhone 4

The configuration of a VPN connection on the **iPhone 4** is described in the following part.

(1) Go to **Settings** -> **General** -> **Network** -> **VPN** -> **Add VPN Configuration** and select the option **IPSec**.

Fig. 163: **Settings** -> **General** -> **Network** -> **VPN** -> **Add VPN Configuration**

Proceed as follows to configure the VPN connection:

(1) Enter the name of the VPN connection on the iPhone under **Description**, e.g. *elmeg hybird 120*.

(2) Under **Server**, enter the **elmeg hybird 120** address on the Internet, e.g. *bintec elmeg.dyndns.org*. This address is reserved for the DynNDS provider (dyndns.org as shown in the example) and configured in the **elmeg hybird 120** in the **Local Services** -> **DynDNS Client** -> **DynDNS Update** menu.

(3) Enter the name that you configured in the **XAUTH Profile** menu under **Account**, e.g. *My-iPhone*.

(4) Enter the associated **Password** of the XAUTH profile user *(Personal Password)*.

(5) For **Group Name**, enter the peer ID of the IPSec peer on the **elmeg hybird 120**, e.g. *iPhone Peer ID*.

(6) For **Shared Secret**, enter your preshared key for the corresponding IPSec peer *(My Personal Preshared Key)*.

(7) Press **Save** to confirm your entries.

11.2.3 Construction of VPN tunnel from iPhone 4 to elmeg hybird 120

You will see the VPN connections configured on the iPhone in the **VPN** menu.

(1) Go to **Settings** -> **General** -> **Network** -> **VPN**.

Fig. 164: **Settings** -> **General** -> **Network** -> **VPN**.

Proceed as follows:

(1) Select the newly configured *elmeg hybird 120* connection.

(2) Commence setting up the connection by clicking on the icon.

After successfully establishing a connection login, the connection time is displayed under **Status**.

Fig. 165: **Settings** -> **General** -> **Network** -> **VPN**.

(1) Click the VPN button.

(2) The **Status** information is no longer displayed and the VPN overview is displayed once again.

Fig. 166: **Settings** -> **General** -> **Network** -> **VPN** -> **Status**

11.3 Overview of Configuration Steps

Configuring DynDNS

Field	Menu	Value
Hostname	**Local Services** -> **DynDNS Client** -> **DynDNS Update** -> **New**	e.g. *bintec elmeg.dyndns.biz*
Interface	**Local Services** -> **DynDNS Client** -> **DynDNS Update** -> **New**	e.g. *Telekom*
User Name	**Local Services** -> **DynDNS Client** -> **DynDNS Update** -> **New**	e.g. *bintec elmeg*
Password	**Local Services** -> **DynDNS Client** -> **DynDNS Update** -> **New**	"Personal Password"
Provider	**Local Services** -> **DynDNS Client** -> **DynDNS Update** -> **New**	*dyndns*
Enable update	**Local Services** -> **DynDNS Client** -> **DynDNS Update** -> **New**	*Enabled*

Create IP Pool

Field	Menu	Value
IP Pool Name	**VPN** -> **IPSec** -> **IP Pools** -> **Add**	e.g. *iPhone*
IP Pool Range	**VPN** -> **IPSec** -> **IP Pools** -> **Add**	e.g. *192.168.1.10-192.169.1.10*

Create XAUTH Profile

Field	Menu	Value
Description	**VPN** -> **IPSec** -> **XAUTH Profiles** -> **New**	e.g. *iPhone*
Role	**VPN** -> **IPSec** -> **XAUTH Profiles** -> **New**	*Server*
Mode	**VPN** -> **IPSec** -> **XAUTH Profiles** -> **New**	*Local*
User (Name/Password)	**VPN** -> **IPSec** -> **XAUTH Profiles** -> **New**	e.g. *My-iPhone* and "Personal Password"

Settings for Phase 1 Profile

Field	Menu	Value
Description	**VPN**->**IPSec**->**Phase 1 Profiles (IKEv1)**->**New**	e.g. *iPhone*

Field	Menu	Value
Lifetime	**VPN->IPSec->Phase 1 Profiles (IKEv1)->New**	e.g. *28800* seconds
Alive Check	**VPN -> IPSec -> Phase 1 Profiles (IKEv1) -> New -> Advanced Settings**	*Dead Peer Detection (idle)*
NAT Travesal	**VPN -> IPSec -> Phase 1 Profiles (IKEv1) -> New -> Advanced Settings**	*Enabled*

Settings for Phase 2 Profile

Field	Menu	Value
Description	**VPN->IPSec->Phase 2 Profiles->New**	e.g. *iPhone*
Lifetime	**VPN->IPSec->Phase 2 Profiles->New**	e.g. *14400* seconds
IP Compression	**VPN -> IPSec -> Phase 2 Profiles -> New -> Advanced Settings**	*Enabled*
Alive Check	**VPN -> IPSec -> Phase 2 Profiles -> New -> Advanced Settings**	*Automatic recognition*

Creating an IPSec peer

Field	Menu	Value
Description	**VPN -> IPSec ->IPSec Peers-> New**	e.g. *iPhone*
Peer ID	**VPN -> IPSec ->IPSec Peers-> New**	*Key ID* and *iPhone Peer ID*, for example
Preshared Key	**VPN -> IPSec ->IPSec Peers-> New**	"My Personal Preshared Key"
IP Address Assignment	**VPN -> IPSec ->IPSec Peers-> New**	*Server In IKE Configuration Mode*
IP Assignment Pool	**VPN -> IPSec ->IPSec Peers-> New**	*iPhone*
Local IP Address	**VPN -> IPSec ->IPSec Peers-> New**	e. g. *192.168.0.250*
Phase 1 Profile	**VPN -> IPSec ->IPSec Peers-> New -> Advanced Settings**	*iPhone*
Phase 2 Profile	**VPN -> IPSec ->IPSec Peers-> New -> Advanced Settings**	*iPhone*
XAUTH Profile	**VPN -> IPSec ->IPSec Peers-> New -> Advanced Settings**	*iPhone*

Configuration on iPhone

Field	Menu	Value
Description	**Settings** -> **General** -> **Network** -> **VPN** -> **Add VPN Configuration** ->**IPSec**	e.g. *elmeg hybird 120*
Server	**Settings** -> **General** -> **Network** -> **VPN** -> **Add VPN Configuration** ->**IPSec**	e.g. *bintec elmeg.dyndns.biz*
Account	**Settings** -> **General** -> **Network** -> **VPN** -> **Add VPN Configuration** ->**IPSec**	e.g. *My-iPhone*
Password	**Settings** -> **General** -> **Network** -> **VPN** -> **Add VPN Configuration** ->**IPSec**	"Personal Password"
Group Name	**Settings** -> **General** -> **Network** -> **VPN** -> **Add VPN Configuration** ->**IPSec**	e.g. *iPhone Peer ID*
Shared Secret	**Settings** -> **General** -> **Network** -> **VPN** -> **Add VPN Configuration** ->**IPSec**	"My Personal Preshared Key"

Chapter 12 Telephony - Connecting a smartphone as an internal VoIP telephone

12.1 Introduction

For a while now, smartphones have been established as an alternative to mobile phones and have developed into genuine multi-functional units. In addition to mobile accessibility, there is also focus now on the use of additional applications and services – both on the move as well as in the office or at home.

Thanks to suitable improvements, i.e. through so-called apps, mobile and landline telephony can be merged into a single device on smartphones. As an example, the Media5-fone app transforms the smartphone into an **elmeg hybird 120** internal VoIP telephone. The **elmeg hybird 120** is therefore expanded with a wireless LAN through the use of external access point, thus allowing laptops, smartphones or tablet PCs to access the local network. The smartphone logs in to the WLAN and the Media5-fone app logs in to the **elmeg hybird 120** as an internal VoIP telephone. Internal calls to other local telephones are possible in the same manner as external calls via a landline or access to the internal voicemail system of the **elmeg hybird 120**.

The advantages include the following:

- Media5-fone (or similar apps) enables mobile and landline telephony on the smartphone (iPhone, Android)
- The smartphone and Media5-fone log in to the WLAN and the **elmeg hybird 120**
- Internal calls between the smartphone and analogue, ISDN or SIP telephones
- Accept incoming calls via the landline connection of the **elmeg hybird 120** directly on the smartphone
- Use the landline connection of the **elmeg hybird 120** for your own calls from the smartphone (if the call is made via the landline connection, then it is billed subject to the terms and conditions specified for the landline).
- Use of **elmeg hybird 120** features on the smartphone, e.g. access to your own voice mailbox.

This workshop describes how to set up an **iPhone 4** smartphone with the Media5-fone app as an internal subscriber of the **elmeg hybird 120**. In doing so, only the settings required for this scenario within the **elmeg hybird 120** as well as within the smartphone app shall be explained. Other possible settings are not included in this workshop.

The **GUI** (Graphical User Interface) is used for configuring here.

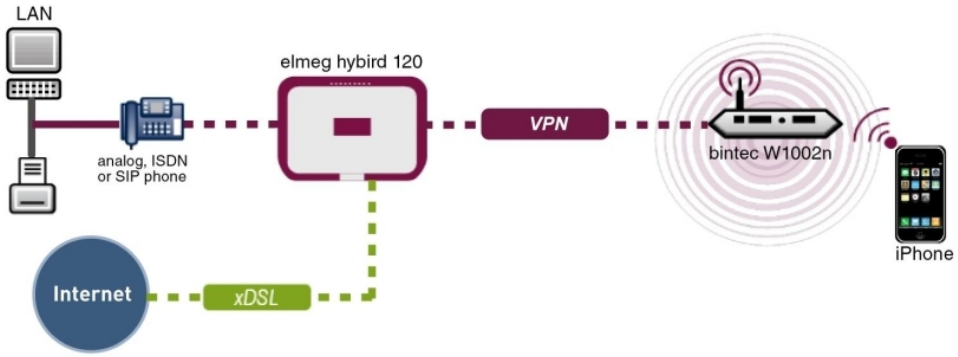


Fig. 167: Example scenario

Requirements:

- An **elmeg hybird 120** with software version 9.1.1
- WLAN access point connected to the LAN of the **elmeg hybird 120**
- A smartphone, e.g. **iPhone 4** with software version iOS 5.1.1
- Available connection to the WLAN access point
- SIP app, Media5-fone, installed on the smartphone

Note

Please note that the scope of settings and supported functions may vary with different versions of smartphone operating systems (iOS, Android) and the smartphone app, Media5-fone.

12.2 Configuration

12.2.1 Configuration of elmeg hybird 120

The **Basic Settings**, **Numbers** and **Authorisations** are configured in the **User Settings** menu. The existing **User 33** is used to connect the iPhone in our example.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<User 33>** -> **Basic Settings**.

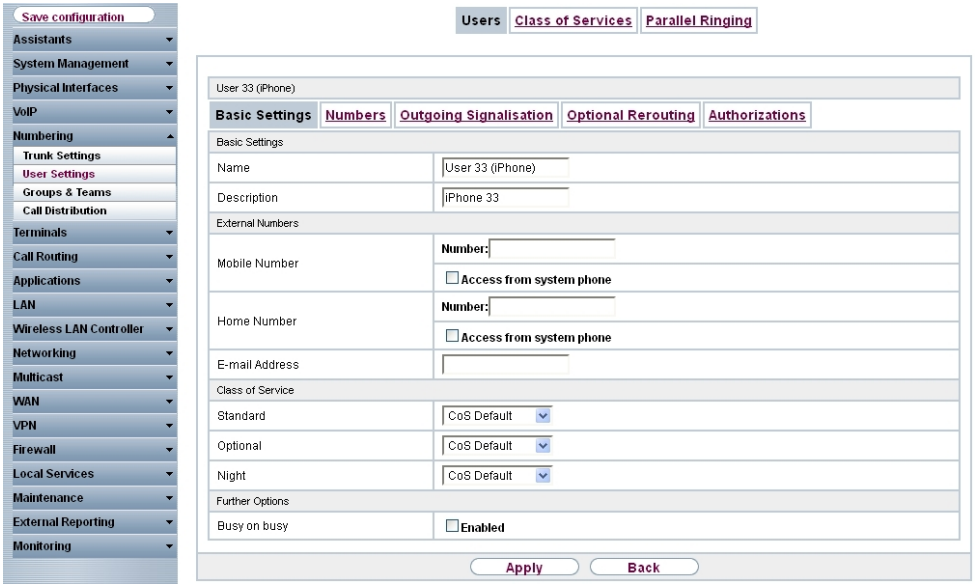


Fig. 168: **Numbering** -> **User Settings** -> **Users** -> **<User 33>** -> **Basic Settings**

Proceed as follows:

(1) Enter the **name** of the user, e. g. `User 33 (iPhone)`. The **name** appears on a system telephone's display.

(2) Enter additional information about the user under **Description**, e.g. `iPhone 33`. This information is only intended for the administrator.

(3) For **Authorisation Class**, select **Standard**, **Optional** and **Night** e.g. `CoS Default`.

(4) Click **Apply**.

The internal numbers that are assigned later on to the terminals are now entered in the **Numbers** submenu. Depending on the type, one or more numbers can be assigned per terminal.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<User 33>** -> **Numbers**.

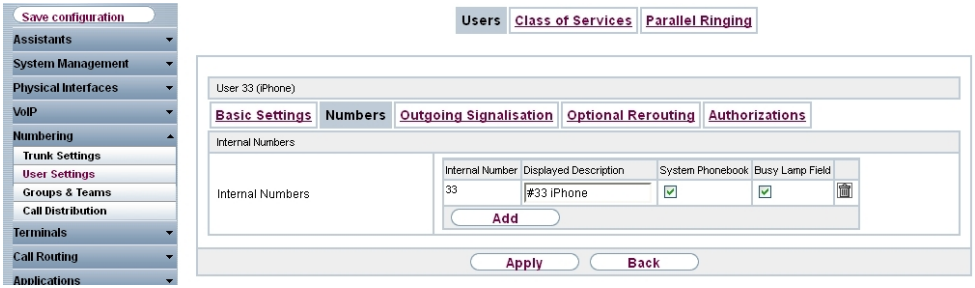


Fig. 169: **Numbering** -> **User Settings** -> **Users** -> **<User 33>** -> **Numbers**

Proceed as follows:

(1) Enter the description that is to be displayed in the system telephone display under **Displayed Description**, e.g. *#33 iPhone*.

(2) Check the **System Phonebook** box to add the internal numbers to the system phonebook.

(3) Click **Apply**.

The password for registering the iPhone as an IP telephone (VoIP telephone) is configured in the **Authorisations** submenu.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<User 33>** -> **Authorisations**.

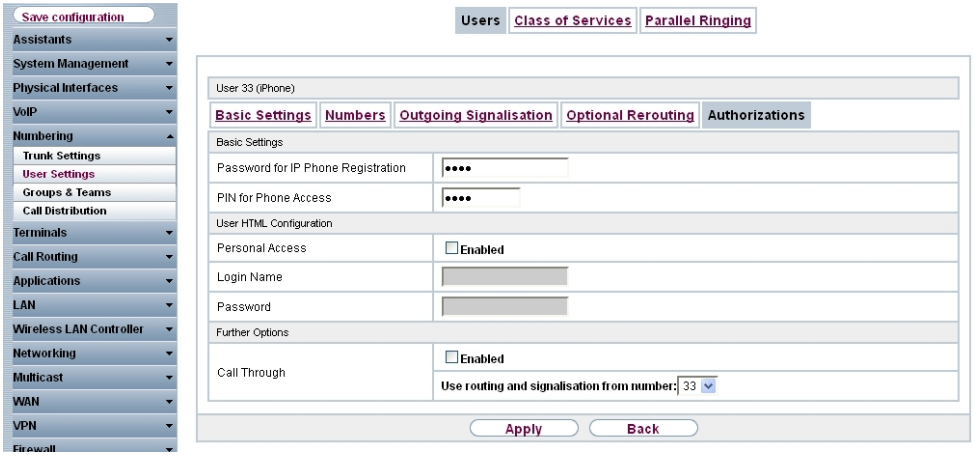


Fig. 170: **Numbering** -> **User Settings** -> **Users** -> **<User 33>** -> **Authorisations**

Proceed as follows:

(1) Enter a **Password for IP Telephone Login** , e.g. *1234*.

(2) Click **Apply**.

In the next step, you perform assignment of configured internal numbers to the terminals and set additional functions according to terminal type.

(1) Go to **Terminals** -> **Other Telephones** -> **VoIP** -> **New**.

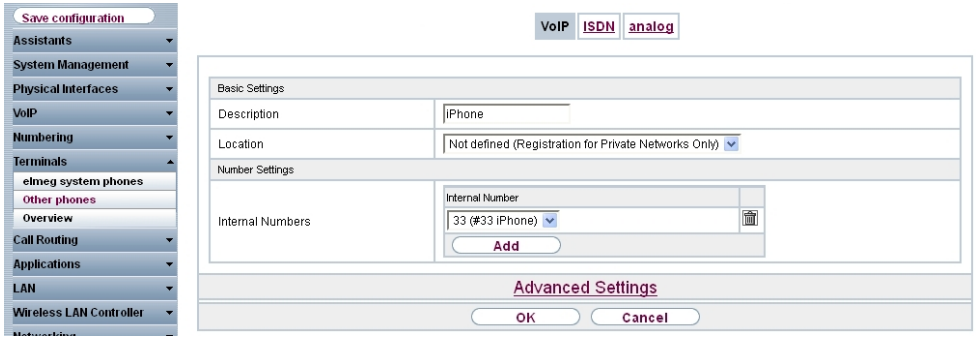


Fig. 171: **Terminals** -> **Other Telephones** -> **VoIP** -> **New**.

Proceed as follows:

(1) Enter the name of the user under **Description**, e.g. `iPhone`.

(2) Select the **Internal Number** intended for the iPhone; here it is `33 (#33 iPhone)`, for example.

(3) Leave the remaining settings unchanged and confirm them with **OK**.

The configuration on the **elmeg hybird 120** is hereby completed. The status of the VoIP telephone is displayed on the overview page. The symbol shows that registration has not yet been completed.

(1) Go to **Terminals** -> **Other Telephones** -> **VoIP**.

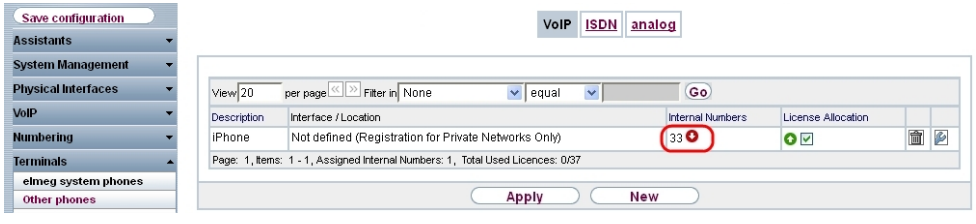


Fig. 172: **Terminals** -> **Other Telephones** -> **VoIP**

The iPhone App needs to be configured in the next step Once configuration is completed on the iPhone, it is then registered on the **elmeg hybird 120**. Successful registration is indicated with a arrow, indicating that telephone calls can now be made from the iPhone via the **elmeg hybird 120**.

Results:

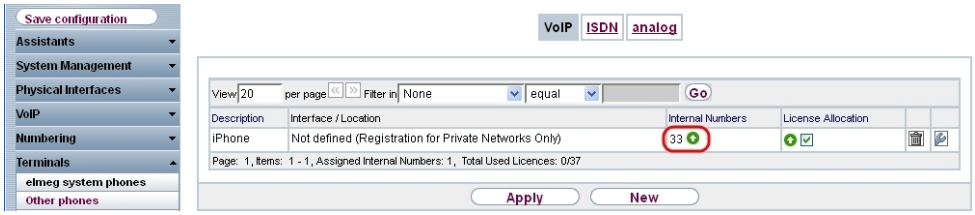


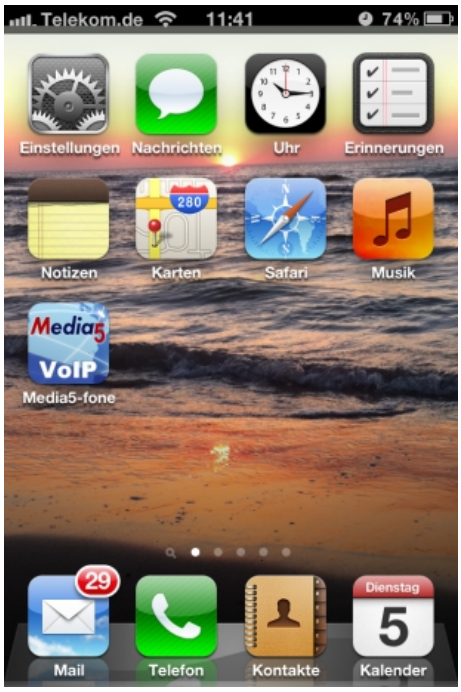
Fig. 173: **Terminals** -> **Other Telephones** -> **VoIP**

12.2.2 Configuration of the smartphone app, Media5-fone

The following chapter describes the installation of a VoIP (SIP) softphone application on a smartphone. In order to do this, we used an **iPhone 4** as well as the Media5-fone app in our example.

Note: There are different versions of the Media5-fone app. The basic functions (basic telephony) are the same in the various versions. There are differences in terms of the enhanced settings and functions (e.g. number of settable numbers, call waiting, call hold and call transfer functions, conference calls etc).

Install the smartphone app, Media5-fone, from the App Store. Start the app.



After the Welcome screen, you will then be prompted to configure a new SIP account.

(1) To do this, select **Manual Settings**.

Now configure the required settings for the SIP account on the **elmeg hybird 120**:

Proceed as follows:

(1) Enter the name of the SIP account under **Title**, e.g. *elmeg hybird 120*.

(2) Enter the internal number of the iPhone user as the **User Name**, along with the VoIP telephone set up; here it is *33*, for example.

(3) Enter the **Password** that you have assigned to the iPhone user when configuring the **elmeg hybird 120**, e.g. *1234*.

(4) Confirm the settings with **Complete**.

The other settings are made in the **Server** area.

Proceed as follows:

(1) Enter the IP **address** of the **elmeg hybird 120**; here it is *192.168.0.250*, for example.

(2) The **Port** is already preconfigured and is in line with the settings in the **elmeg hybird 120**; here it is *5060*, for example.

(3) Leave the **Enable Proxy** option set to *Off*.

(4) Select *UDP* under **SIP Transport**.

(5) Set **Switch SRTP** to *Switched Off*.

(6) Confirm the settings with **Complete**.

In order to be able to use an internal **elmeg hybird 120** voice mailbox with the smartphone, the internal number of the voicemail system must be entered as a **mailbox** number.

These settings are made in the **Advanced** area.

Proceed as follows:

(1) Enter the **Number** of the voicemail system under **Mailbox**; here it is *50*, for example.

(2) **Enable** the **Write MWI** option.

(3) For **DTMF**, select the **Method** *RTP Input Signal Description* for the transmission of DTMF digits whilst connected. This function is required to control features whilst connected, e.g. in order to operate the voice mailbox.

(4) For **Media Options** under **Codecs Wi-Fi**, enter *G.711 µLaw, G.711 aLaw* for the

voice transmission between the **elmeg hybird 120** and smartphone.

(5) Confirm the settings with **Complete**.

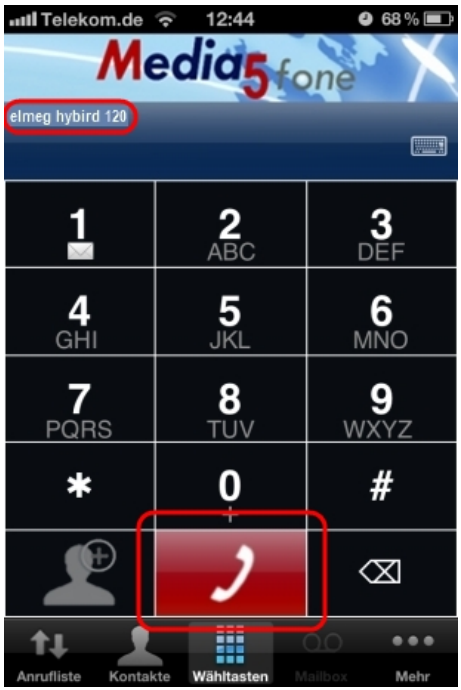
(6) Exit the Settings menu via the function keys below, e.g. by selecting **Dialling Keys**.

Note

Provided the other parameters were not amended when configuring the **elmeg hybird 120**, then no other settings need to be made within the Media5-fone app.

The name of the active SIP account is displayed above the keypad. The colour of the Call button indicates the registration status of the SIP account.

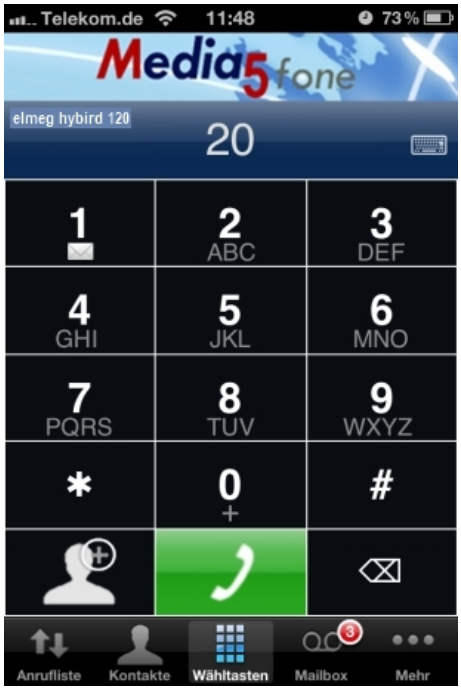
Red: not registered on the **elmeg hybird 120**, no telephony possible



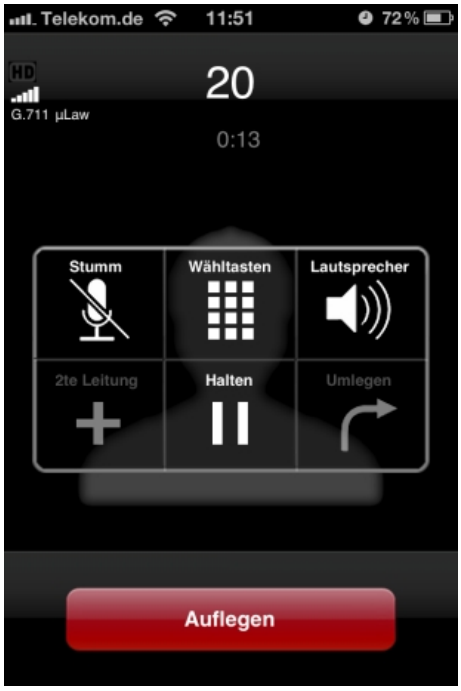
Green: successfully registered on the **elmeg hybird 120**, telephony possible

12.2.3 Telephoning using the smartphone app via the elmeg hybird 120

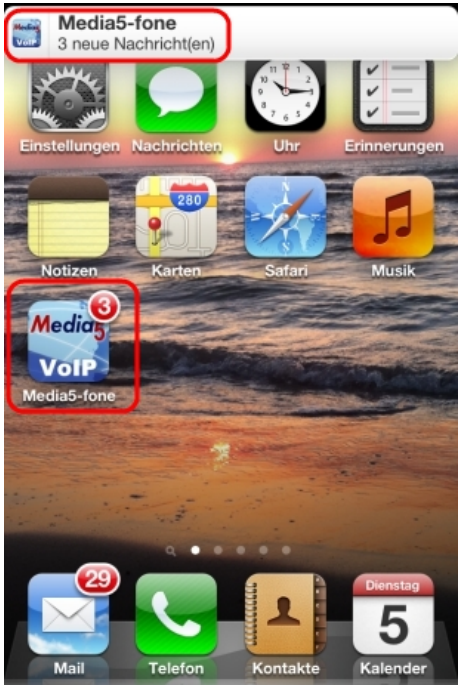
To initiate an outgoing call, dial the number using the keypad and then press the green Call key.



To terminate an active connection, press the **Disconnect** key.

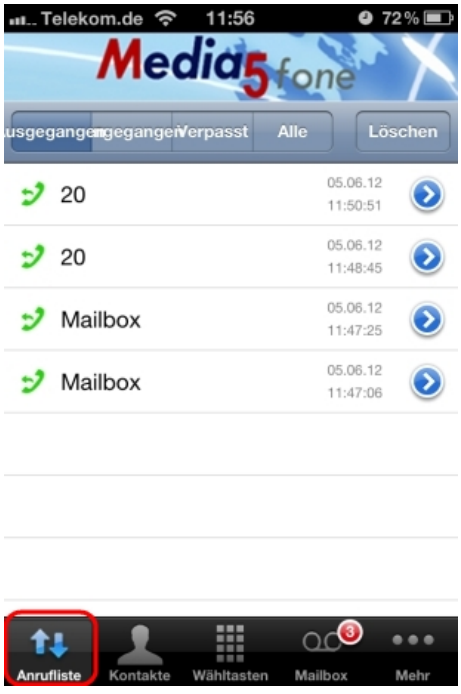


If the application is active in the background, then new messages or missed calls can be displayed on the Home screen.



The number of new messages on the internal **elmeg hybird 120** voicemail system is displayed in the **Mailbox** area.

The incoming and outgoing connections are displayed in the **Caller List** area.



12.2.4 Other Settings

elmeg hybird 120: Configuration of external number on point-to-multipoint connection

The port that you use for the external ISDN connection must be set up for the point-to-multipoint (P-MP) connection type.

Note

Before the configuration, make sure that one of your module's ports can be used as an external ISDN connection (coding plug for S0-TE plugged in). For a description of the physical switching process, please read the corresponding chapter in the **Installation Instructions**.

In the **Numbers** menu, you assign the external numbers and can define a name for each number that is displayed in the system telephone display.

(1) Go to **Numbering**-> **External Connections** -> **Numbers**-> **New**.

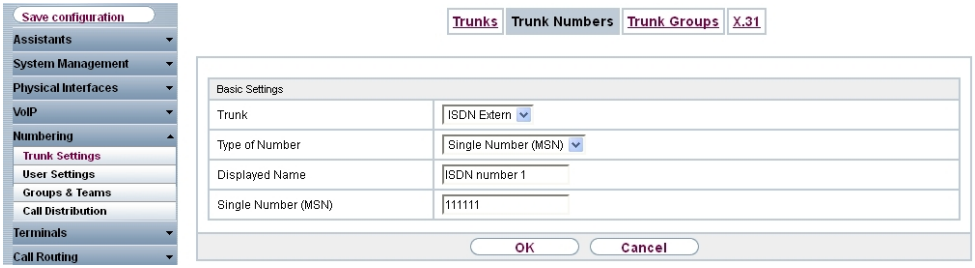


Fig. 174: **Numbering** -> **External Connections** -> **Numbers** -> **New**

Proceed as follows:

(1) Under **External Connection**, select the connection for which you wish to configure the number; here it is *ISDN Extern*.

(2) Leave **Number Type** set to *Individual Number (MSN)*.

(3) Under **Displayed Name**, enter the name to be displayed for this number in the called system telephone's display, e. g. *ISDN Number 1*.

(4) Enter the MSN for a point-to-multipoint connection under **Individual Number (MSN)**, e.g. *111111*.

(5) Confirm with **OK**.

Do the same for the configuration of all other external numbers.

Results:

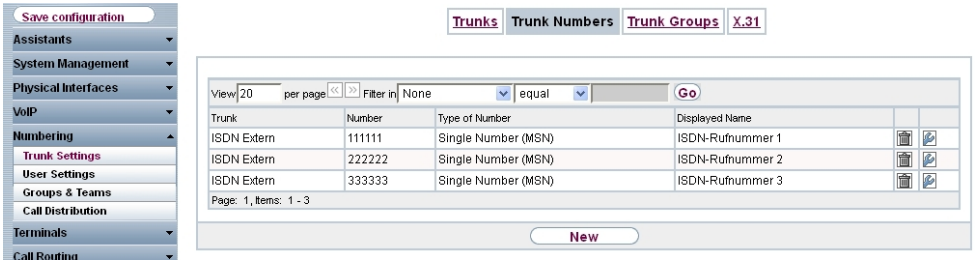


Fig. 175: **Numbering** -> **External Connections** -> **Numbers**

elmeg hybird 120: Signalling of incoming calls to internal numbers

Incoming calls should be distributed to a specific user depending on the external number in question. To do this, set up a **Call Distribution** for the external numbers set up beforehand to the configured internal numbers of the user.

The external numbers of your external connection configured beforehand are listed in the **Numbering** -> **Call Distribution** -> **Incoming Distribution** menu.

Select for a table entry in order to perform the call distribution.

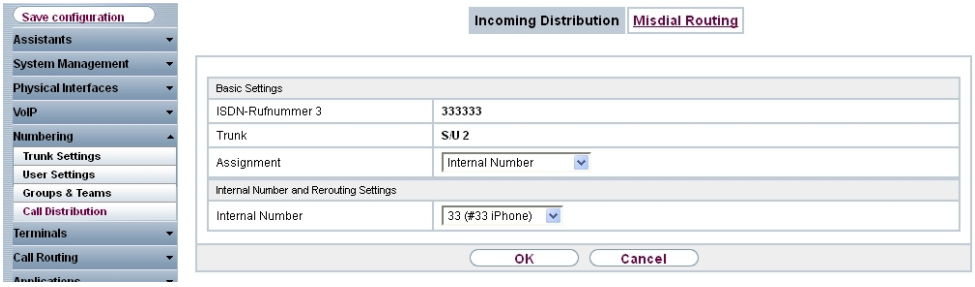


Fig. 176: **Numbering** -> **Call Distribution** -> **Incoming Distribution** -> **<333333>**

Proceed as follows:

(1) Leave *Internal Number* set under **Assignment**.

(2) Select the **Internal Number** to be signalled directly to the smartphone, e.g. *33 (#33 iPhone)*.

(3) Click **OK**.

Do the same for the configuration of all other external numbers.

Results:

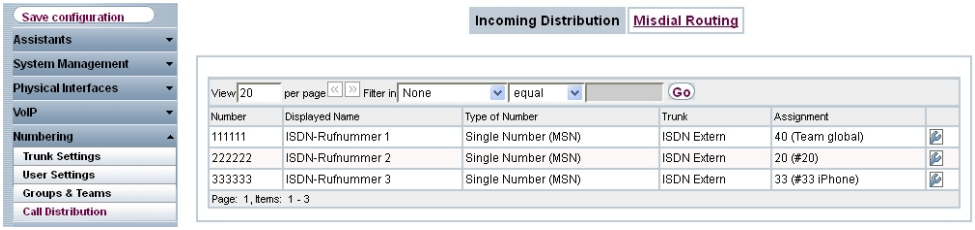


Fig. 177: **Numbering** -> **Call Distribution** -> **Incoming Distribution**

elmeg hybird 120: Signalling of specific number for outgoing connections

In the **Outgoing Signalisation** menu, select the number for the user that is to be displayed to the other subscriber on outgoing connections.

For an outgoing call, if the remote subscriber should not see the number assigned to your own connection, one of the existing numbers configured on the system can be selected here for display. If no number is defined, the system transmits no number to the provider.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<User 33 (iPhone)>** -> **Outgoing Signalisation** -> **Internal Number <33>**->.

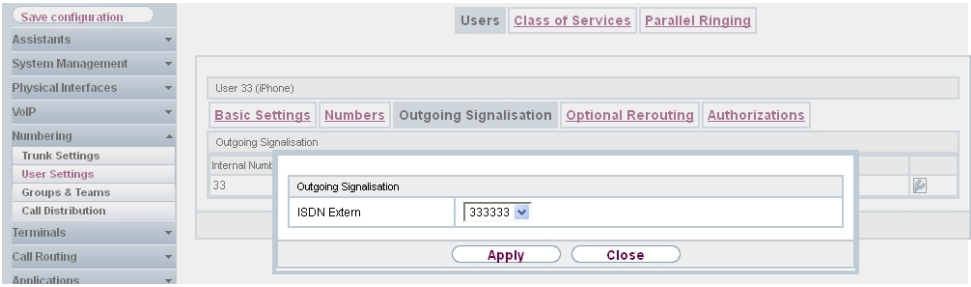


Fig. 178: **Numbering** -> **User Settings** -> **Users** -> **<User 33 (iPhone)>** -> **Outgoing Signalisation** -> **Internal Number <33>**->.

Proceed as follows:

(1) Under **ISDN External**, select the outgoing number, e. g. *333333*.

(2) Click **Apply**.

elmeg hybird 120 & Media5-fone: Change registration timer for VoIP telephones

In order to check the successful connection between the **elmeg hybird 120** and VoIP telephone, each VoIP telephone must regularly update its registration on the **elmeg hybird 120**. The time intervals required for this purpose are configured both on the **elmeg hybird 120** as well as on the VoIP telephone.

For smartphones, short registration intervals result in a shorter battery life. As a result, longer intervals are recommended for this purpose.

Go to the following menu to set the registration timer in the **elmeg hybird 120**:

(1) Go to **VoIP** -> **Settings** -> **Options**.

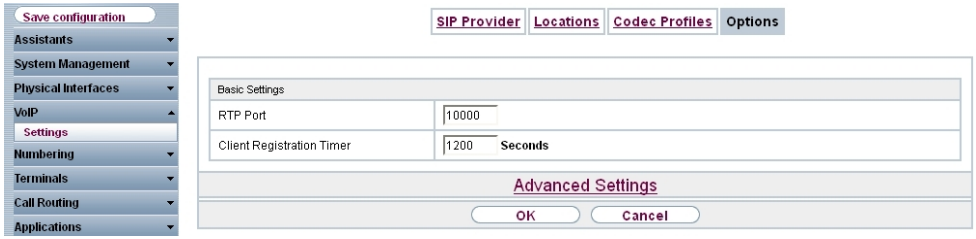


Fig. 179: **VoIP** -> **Settings** -> **Options**

Proceed as follows:

(1) Set the **Terminal Registration Timer** to *1200* seconds.

(2) Confirm with **OK**.

Proceed as follows to set the registration timer in Media5-fone:

More -> **Settings** -> **Configure SIP Accounts** -> **elmeg hybird 120** -> **Server** -> **Reg. Timer (Sec)**, then enter *1200* .

elmeg hybird 120 & Media5-fone: Setting the codecs for voice transmission

Profiles can be defined in the **elmeg hybird 120** which define the voice codecs to be supported for the VoIP telephone. The settings preconfigured in the **elmeg hybird 120** factory settings already support the Media5-fone app.

Individual settings can be made by adding a new profile.

(1) Go to **VoIP** -> **Settings** -> **Codec Profile** -> **New**.

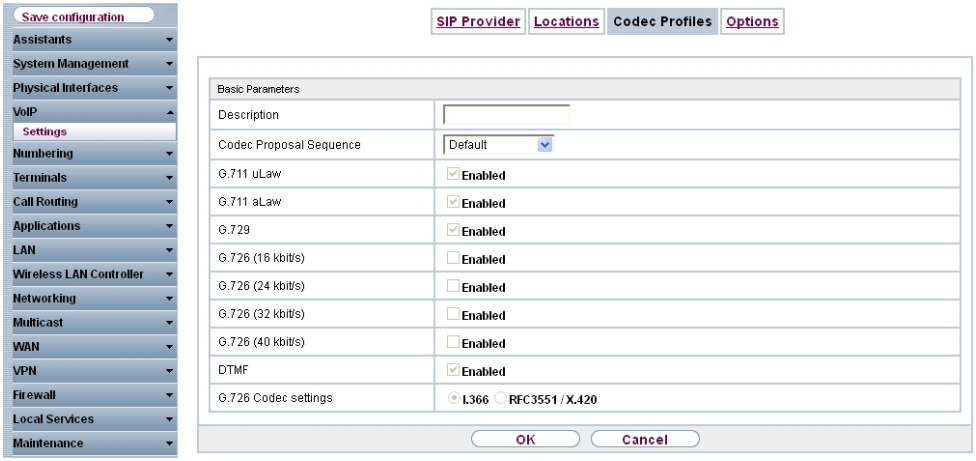


Fig. 180: **VoIP** -> **Settings** -> **Codec Profile** -> **New**

The settings for the voice codecs and DMTF to be used are made in the following area in the Media5-fone app:

(1) Go to **More** -> **Settings** -> **Configure SIP Accounts** -> **elmeg hybird 120** -> **Advanced**.

12.3 Overview of Configuration Steps

Integrate Smartphone

Field	Menu	Value
Name	**Numbering** -> **User Settings** -> **Users** -> **<User 33>** -> **Basic Settings**	e.g. *User 33 (iPhone)*
Description	**Numbering** -> **User Settings** -> **Users** -> **<User 33>** -> **Basic Settings**	e.g. *iPhone 33*
Displayed Description	**Numbering** -> **User Settings** -> **Users** -> **<User 33>** -> **Numbers**	e.g. *#33 iPhone*
Password for IP telephone login	**Numbering** -> **User Settings** -> **Users** -> **<User 33>** -> **Authorisations**	e.g. *1234*
Description	**Terminals** -> **Other Telephones** -> **VoIP** -> **New**.	e.g. *iPhone*
Internal Numbers	**Terminals** -> **Other Telephones** -> **VoIP** -> **New**.	*33 (#33 iPhone)*

Configuration of the smartphone app

Field	Menu	Value
Title	**New SIP Account** -> **Manual Settings**	e.g. *elmeg hybird 120*
User Name	**New SIP Account** -> **Manual Settings**	e.g. *33*
Password	**New SIP Account** -> **Manual Settings**	e.g. *1234*
Address	**New SIP Account** -> **Manual Settings->Server**	e. g. *192.168.0.250*
Port	**New SIP Account** -> **Manual Settings->Server**	*5060*
Activating a proxy	**New SIP Account** -> **Manual Settings->Server**	*Disabled*
SIP Transport	**New SIP Account** -> **Manual Settings->Server**	*UDP*
Switch SRTP	**New SIP Account** -> **Manual Set-**	*Switched off*

Field	Menu	Value
	tings->Server	
Mailbox Number	**New SIP Account** -> **Manual Settings** ->**Advanced**	e.g. *50*
Write MWI	**New SIP Account** -> **Manual Settings** ->**Advanced**	*Enabled*
DTMF Method	**New SIP Account** -> **Manual Settings** ->**Advanced**	*RTP Input Signal Band*
Codecs Wi-Fi	**New SIP Account** -> **Manual Settings** ->**Advanced**	*G.711 µLaw, G.711 aLaw*

Configuration of external number

Field	Menu	Value
External connection	**Numbering** -> **External Connections** -> **Numbers** -> **New**	*ISDN, external*
Type of Number	**Numbering** -> **External Connections** -> **Numbers** -> **New**	*Individual Number (MSN)*
Displayed Name	**Numbering** -> **External Connections** -> **Numbers** -> **New**	e.g. *ISDN Number 1*
Individual Number (MSN)	**Numbering** -> **External Connections** -> **Numbers** -> **New**	e.g. *111111*
External connection	**Numbering** -> **External Connections** -> **Numbers** -> **New**	*ISDN, external*
Type of Number	**Numbering** -> **External Connections** -> **Numbers** -> **New**	*Individual Number (MSN)*
Displayed Name	**Numbering** -> **External Connections** -> **Numbers** -> **New**	e.g. *ISDN Number 2*
Individual Number (MSN)	**Numbering** -> **External Connections** -> **Numbers** -> **New**	e.g. *222222*
External connection	**Numbering** -> **External Connections** -> **Numbers** -> **New**	*ISDN, external*
Type of Number	**Numbering** -> **External Connections** -> **Numbers** -> **New**	*Individual Number (MSN)*
Displayed Name	**Numbering** -> **External Connections** -> **Numbers** -> **New**	e.g. *ISDN Number 3*
Individual Number (MSN)	**Numbering** -> **External Connections** -> **Numbers** -> **New**	e.g. *333333*

Signalling of incoming calls

Field	Menu	Value
Assignment	**Numbering** -> **Call Distribution** -> **Incoming Distribution** -> **<111111>**	*Internal Number*
Internal Number	**Numbering** -> **Call Distribution** -> **Incoming Distribution** -> **<111111>**	e.g. *40 (Team global)*
Assignment	**Numbering** -> **Call Distribution** -> **Incoming Distribution** -> **<222222>**	*Internal Number*
Internal Number	**Numbering** -> **Call Distribution** -> **Incoming Distribution** -> **<222222>**	e.g. *20 (#20)*
Assignment	**Numbering** -> **Call Distribution** -> **Incoming Distribution** -> **<333333>**	*Internal Number*
Internal Number	**Numbering** -> **Call Distribution** -> **Incoming Distribution** -> **<333333>**	e.g. *33 (#33 iPhone)*

Signalling of specific number

Field	Menu	Value
ISDN, external	**Numbering** -> **User Settings** -> **Users** -> **<User 33> (iPhone)** -> **Outgoing Signalisation** -> **Internal Number <33>**->.	e.g. *333333*

Change registration timer on elmeg hybird 120

Field	Menu	Value
Terminal registration timer	**VoIP** -> **Settings** -> **Options**	e.g. *1200* seconds

Change registration timer in Media5-fone

Field	Menu	Value
Reg. Timer (Sec)	**More** -> **Settings** -> **Configure SIP Accounts** -> **elmeg hybird 120** -> **Server** -> **Reg. Timer (Sec)**	e.g. *1200*

Setting the codecs on the elmeg hybird 120

Field	Menu	Value
Codec sequence	**VoIP** -> **Settings** -> **Codec Profile** -> **New**	e.g. *Standard*

Configuration of codecs in Media5-fone

Field	Menu	Value
DTMF Method	**More** -> **Settings** -> **Configure SIP Accounts** -> **elmeg hybird 120** -> **Advanced**	*RTP Input Signal Band*
Codec Wi-Fi	**More** -> **Settings** -> **Configure SIP Accounts** -> **elmeg hybird 120** -> **Advanced**	e.g. *G.711 µLaw, G.711 aLaw*

Chapter 13 Telephony - Connecting elmeg telephones

13.1 Introduction

This workshop describes how to integrate the **elmeg hybird 120** into an existing network. An **elmeg IP1x0** telephone and an **elmeg S5x0** telephone are used on the system.

Variant 1

The first example describes how to integrate the **elmeg hybird 120** into an existing network with a gateway, e.g. **bintec RS 232bw**.

Note

The DHCP Server function of the **elmeg hybird 120** telephone system must be disabled in this example.

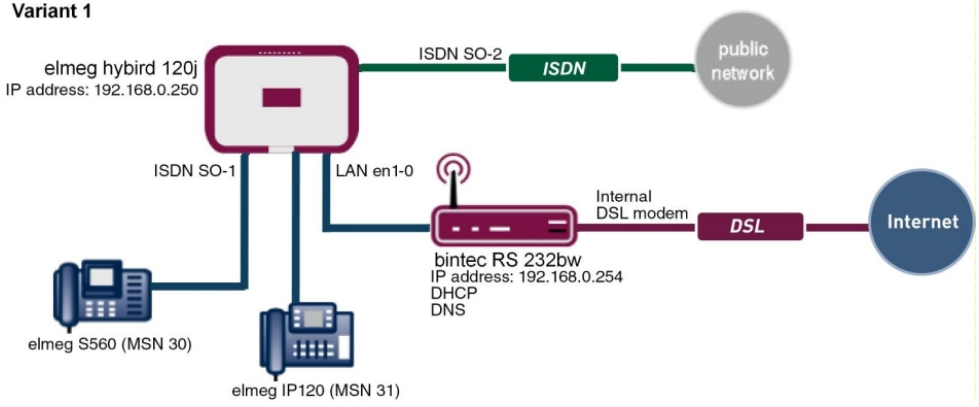


Fig. 181: Example scenario

Requirements

- Existing network with **bintec RS232 bw** gateway, as of system software version 9.1.2
- An ISDN point-to-multipoint connection (e.g. Telekom)
- An **elmeg hybird 120j** as of system software version 9.1, Rev. 2

- An **elmeg IP120** telephone as of firmware version 01.00.04
- An **elmeg C560** telephone as of firmware version 1.400
- Connect the **elmeg hybird 120j** to all terminals (PC, telephones) and connections (ADSL splitter and ISDN-NTBA) as indicated in the circuit diagram
- The **bintec RS232bw** gateway is used as a DHCP and DNS server in the network.

Variant 2

The second example describes how to integrate the **elmeg hybird 120** into an existing network with a Windows Server.

Note

The DHCP Server function of the **elmeg hybird 120** telephone system must be disabled in this example.

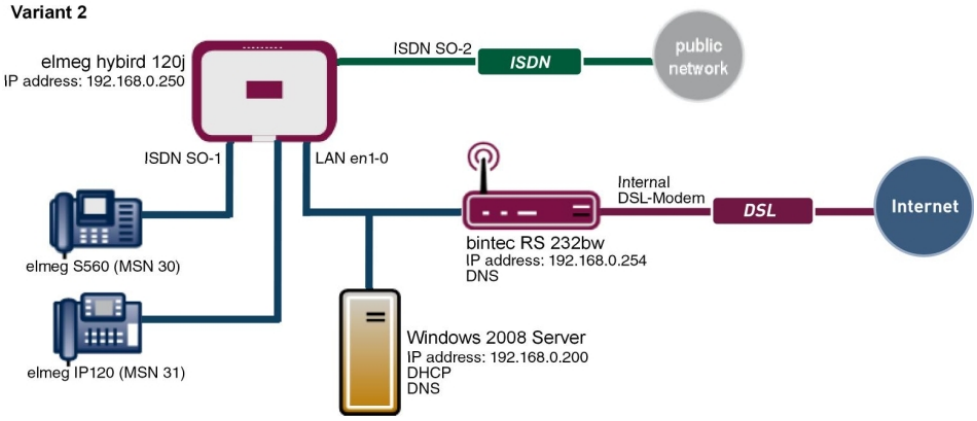


Fig. 182: Example scenario

Requirements

- Existing network with Windows Server 2008 and a **bintec RS232bw** gateway
- An ISDN point-to-multipoint connection (e.g. Telekom)
- An **elmeg hybird 120j** as of system software version 9.1, Rev. 2
- An **elmeg IP120** telephone as of firmware version 01.00.04
- An **elmeg C560** telephone as of firmware version 1.400
- Connect the **elmeg hybird 120j** to all terminals (PC, telephones) and connections (ADSL

splitter and ISDN-NTBA) as indicated in the circuit diagram

- The Windows Server 2008 is used as a DHCP and primary DNS server in the network
- The **bintec RS232bw** gateway is used as a secondary DNS server in the network
- The **elmeg hybird 120j** is used as a time server in the network.

Variant 3

The third example describes how to connect an **elmeg hybird 120j** to an ISDN point-to-multipoint connection and an ADSL Internet connection using the integrated ADSL/ADSL2+ modem.

In doing so, the provisioning of the **elmeg IP1x0** telephone is realised using the internal DHCP server of the **elmeg hybird 120**.

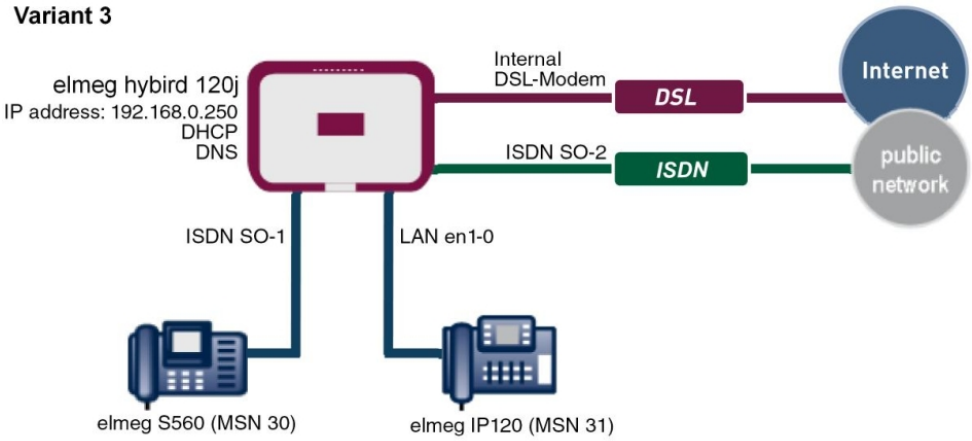


Fig. 183: Example scenario

Requirements

- An ADSL/ADSL2+ connection (e.g. Telekom)
- An ISDN point-to-multipoint connection (e.g. Telekom)
- An **elmeg hybird 120j** as of system software version 9.1, Rev. 2
- An **elmeg IP120** telephone as of firmware version 01.00.04
- An **elmeg C560** telephone as of firmware version 1.400
- Connect the **elmeg hybird 120j** to all terminals (PC, telephones) and connections (ADSL splitter and ISDN-NTBA) as indicated in the circuit diagram
- The **elmeg hybird 120j** is used as a DHCP, DNS and time server in the network.

The **GUI** (Graphical User Interface) is used for configuring here.

13.2 Configuration

13.2.1 Variant 1: Connection with a gateway as a DHCP server

13.2.1.1 Configuration of DHCP server (bintec RS232bw gateway)

For the automatic configuration of elmeg IP telephones, the DHCP server transmits the address of the auto-configuration server in addition to the standard DHCP options. In order to enable the automatic configuration of **elmeg IP1x0** telephones, the DHCP Option 114 (URL) must be configured as regards the DHCP server of the gateway for the IP address pool.

In the ex works state the DHCP pool is preconfigured and is used if there is no other DHCP server available in the network.

(1) Go to **Local Services** -> **DHCP Server** -> **DHCP Pool** .

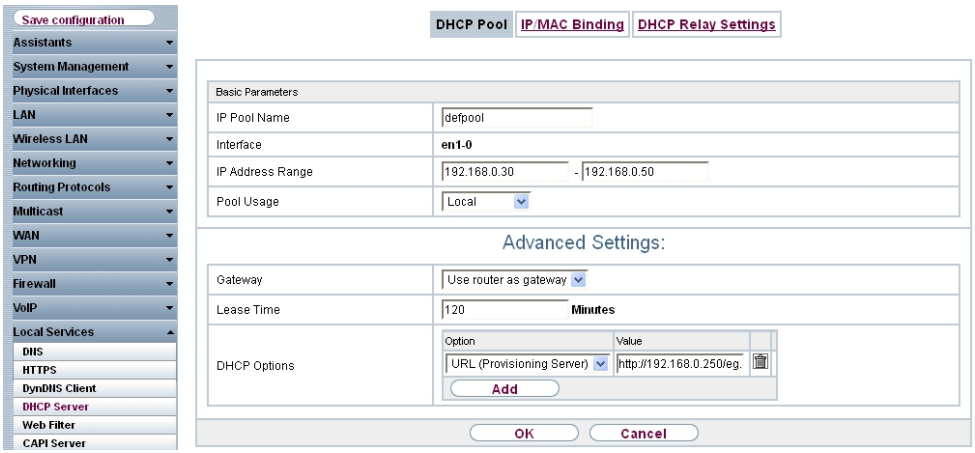


Fig. 184: **Local Services** -> **DHCP Server** -> **DHCP Pool**

Proceed as follows:

(1) You can enter any description for **IP Pool Name**, e.g. *defpool*.

(2) The interface via which the addresses are assigned to requesting DHCP clients is displayed under **Interface**; here it is *en1-0*, for example.

(3) In **IP Address Range**, enter the first and last IP address of the IP address pool; here it is *192.168.0.30* - *192.168.0.50*, for example.

(4) *Local* is selected for **Pool Use**. The DHCP pool is only used for DHCP requests in the same subnet.

(5) Click **Advanced Settings**.

(6) Leave **Gateway** set to the option *Use Router as Gateway*.

(7) **Lease Time** displays how long an address from the pool can be assigned to a host; here it is *120* minutes, for example.

(8) For **DHCP Option**, click **Add** and select *URL (Provisioning Server)*. By using this option, you can transfer any URL to a client.

(9) Enter the URL of the **elmeg hybird 120** for **Value**. This is in the form http://<hybird IP address>/eg_prov, e.g. *http://192.168.0.250/eg_prov*.

(10) Press **OK** to confirm your entries.

13.2.1.2 Initial Steps for Variant 1 (elmeg hybird 120j)

The first time you access the **elmeg hybird 120j** web interface (User: admin / Passwort: admin), you are prompted to change the password. You then see the system's status page. In the top line of the web interface, please change the language from English to German. If the ISDN point-to-multipoint connection is correctly connected, then the link status of the *bri-1* interface is displayed with the green arrows.

(1) Go to **System Management** -> **Status**.

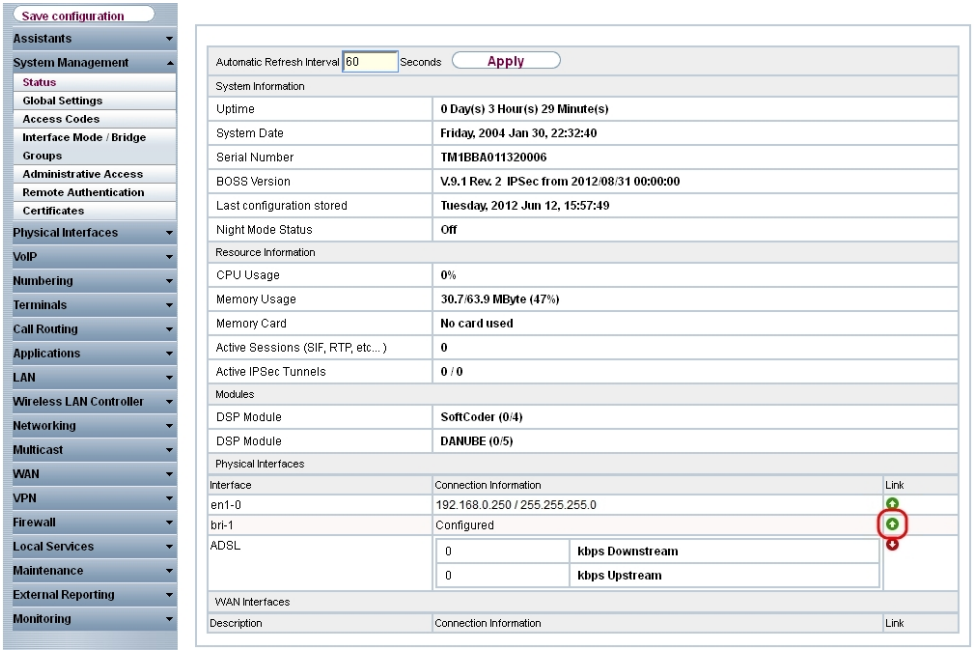


Fig. 185: **System Management** -> **Status**

By using the **Initial Steps** wizard, the IP address of the **elmeg hybird 120j** can now be adjusted.

(1) Go to **Assistants** -> **First steps** -> **Basic Setup**.

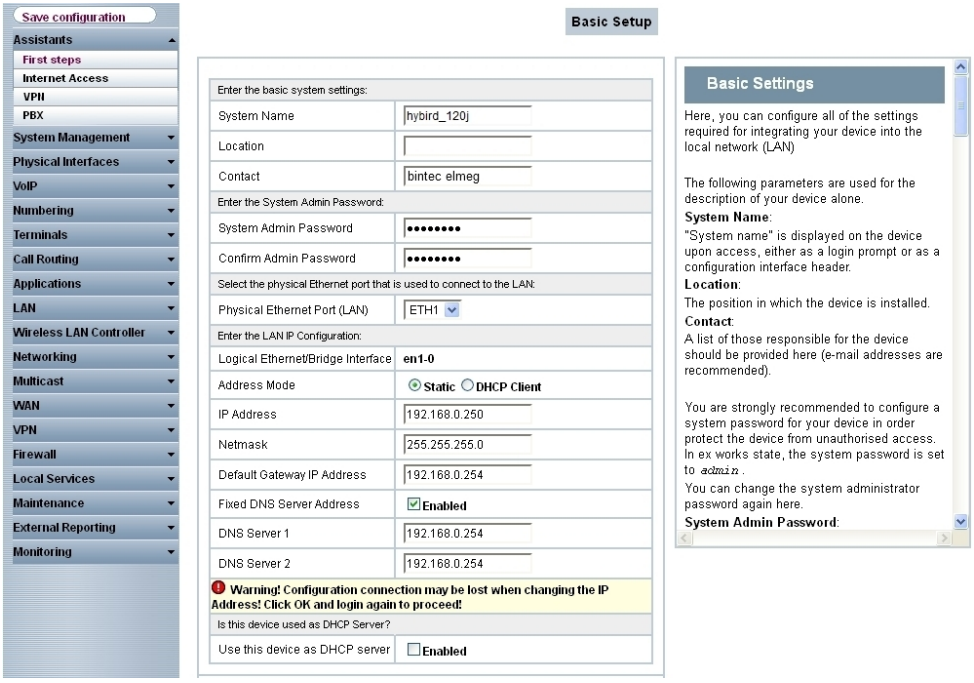


Fig. 186: **Assistants** -> **First steps** -> **Basic Setup**

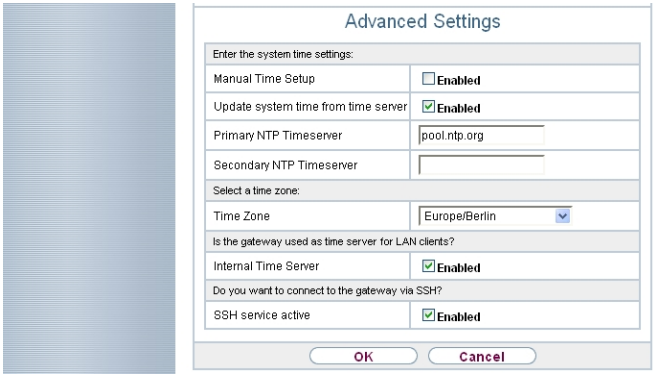


Fig. 187: **Assistants** -> **First steps** -> **Basic Setup**-> **Advanced Settings**

Proceed as follows:

(1) Enter the IP address of the **bintec RS232bw** gateway for **Standard Gateway IP Address** ; here it is `192.168.0.254`, for example.

(2) Enable the option **Fixed DNS Server Address**.

(3) Enter the IP address of the **bintec RS232bw** gateway **for DNS Server 1**; here it is `192.168.0.254`, for example.

(4) Enter the IP address of the **bintec RS232bw** gateway **for DNS Server 2**; here it is *192.168.0.254*, for example.

(5) The **Use this device as a DHCP server** option must be disabled as there is already a DHCP server available within the network.

(6) Enable the **Update system time from time server** option. If this option is not enabled, then the system time of the telephone is updated via the ISDN point-to-multipoint connection after the first outgoing call.

(7) Enter the domain name of the server for **Primary NTP Time Server**, e.g. *pool.ntp.org*.

(8) Enable **System as time server**. This then ensures the time is updated on elmeg IP telephones.

(9) Press **OK** to confirm your entries.

Go to *Configuration of external ISDN port (Variants 1-3)* on page 208 to configure th**external ISDN port to operate on the ISDN point-to-multipoint connection**.

Go to *Connecting an elmeg S560 telephone (Variants 1-3)* on page 209 to connect a**elmeg S560** telephone, and see *Connecting an elmeg IP120 telephone (Variants 1-3)* on page 213 to connect a**elmeg IP120** telephone.

13.2.2 Variant 2: Connection with a Windows Server as a DHCP server

13.2.2.1 Configuration of DHCP option in Windows Server 2008

For the automatic configuration of elmeg IP telephones, the DHCP server transmits the address of the auto-configuration server in addition to the standard DHCP options. The DHCP server uses the DHCP option 114 in order to transfer a URL to the elmeg IP telephone. This option can also be configured in the DHCP server in Windows Server 2008.

(1) Go to **Server Manager** -> **DHCP Server** -> **Windows 2008** -> **IPv4**.

(2) Click on the option *Set Predefined Options...*

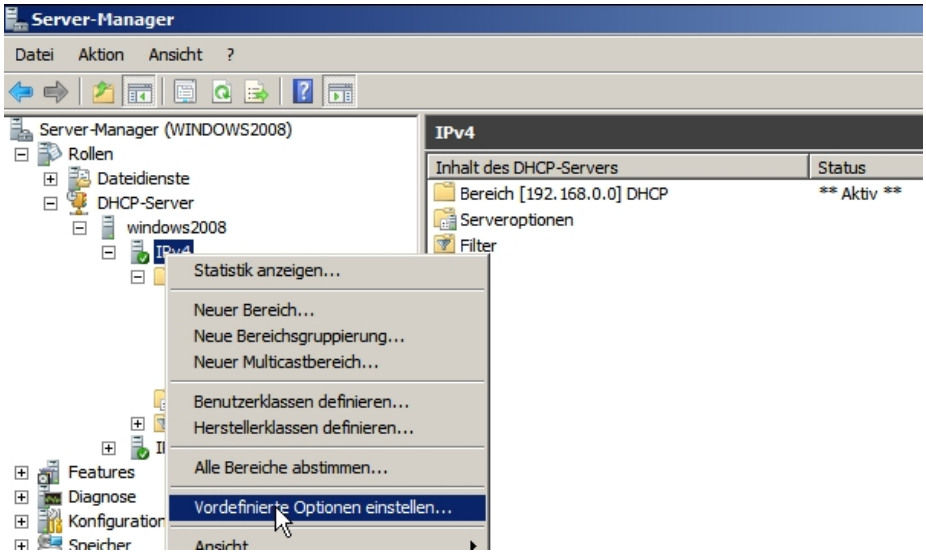


Fig. 188: **Server Manager** -> **DHCP Server** -> **Windows 2008** -> **IPv4**

(3) When in the **Predefined Options and Values** context menu, click **Add** in order to create a new DHCP option.

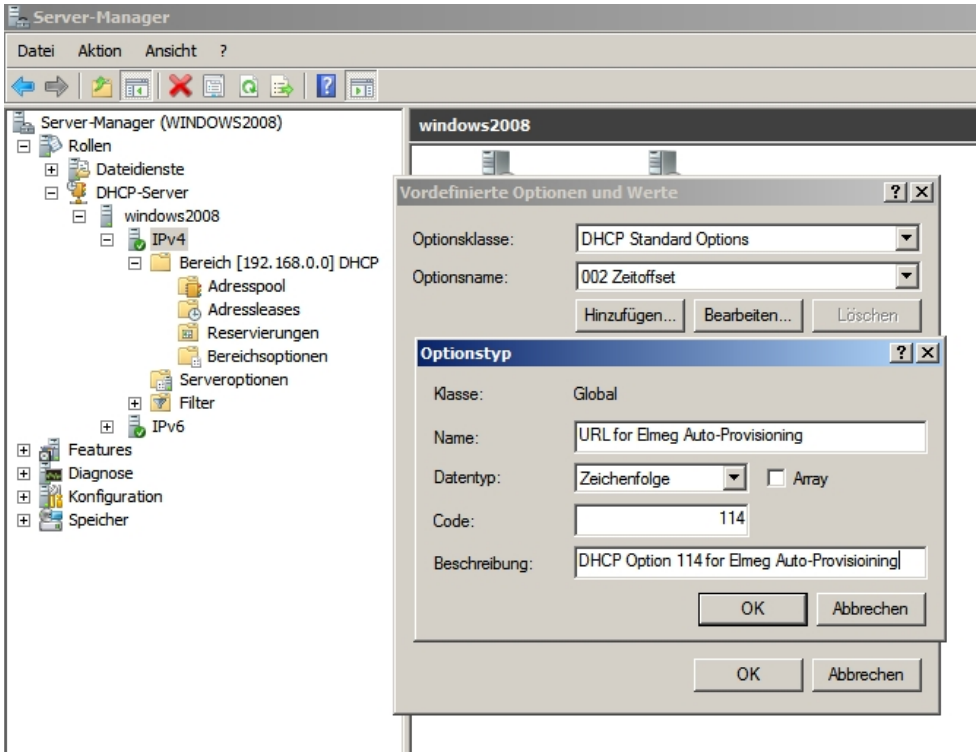


Fig. 189: **Predefined Options and Values**

(1) You can enter any name under **Name**, e.g. *URL for Elmeg Auto-Provisioning*.

(2) The *String* **data type** must be selected for the automatic configuration of elmeg telephones.

(3) Enter the DHCP option *114* under **Code**.

(4) Enter a **description** for the DHCP option, e.g. *DHCP Option 114 for Elmeg Auto-Provisioning*.

(5) Confirm with **OK**.

A URL (auto-configuration address of elmeg hybird telephone unit) can then be saved for the newly created DHCP option. This URL is notified via DHCP to the IP telephone for automatic configuration.

(a) Go to **Server Manager** -> **DHCP Server** -> **Windows 2008** -> **IPv4** -> **DHCP Range** -> **Range Options**.

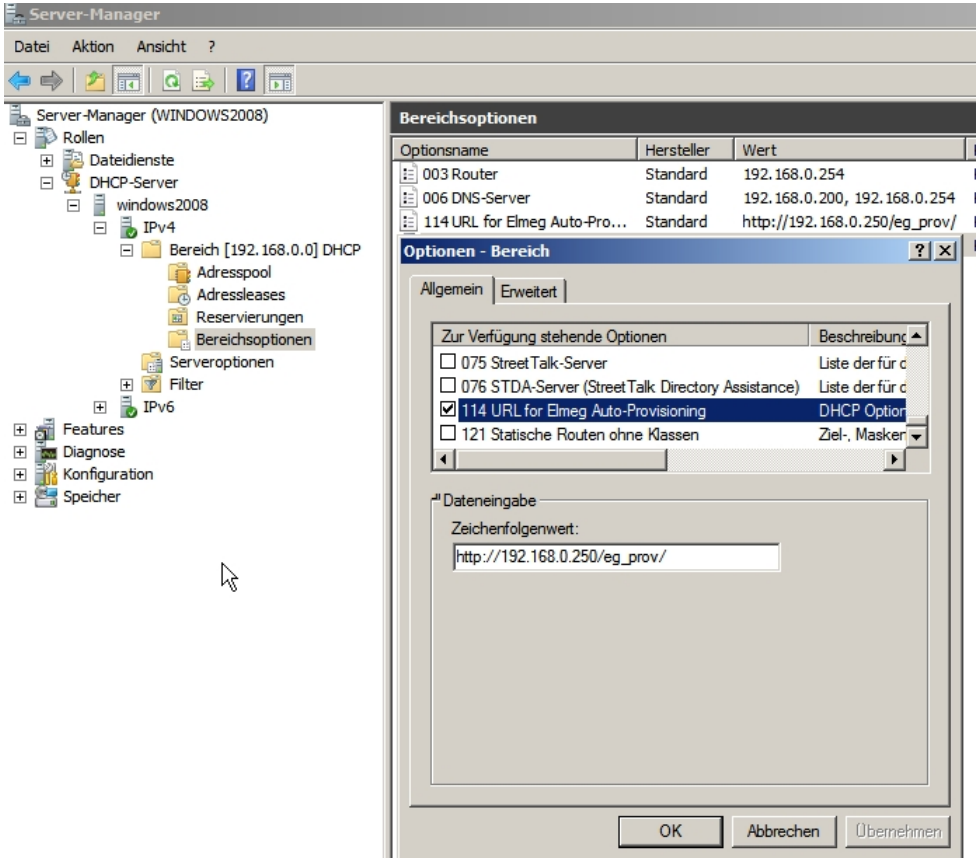


Fig. 190: **Server Manager** -> **DHCP Server** -> **Windows 2008** -> **IPv4** -> **DHCP Range** -> **Range Options**.

Proceed as follows:

(1) Click on **Configure Options**. The desired DHCP options can be enabled and their content can be configured in this menu.

(2) The option *114* which has already been created must be enabled for the auto-provisioning of elmeg IP telephones.

(3) Enter the URL of the **elmeg hybird 120** *http://192.168.0.250/eg_prov/* under **String Value**.

(4) Confirm with **OK**.

13.2.2.2 Initial Steps for Variant 2 (elmeg hybird 120j)

You will see whether the ISDN point-to-multipoint connection is connected correctly or not on the system's status page. The link status from the *bri-1* interface is then displayed with a green arrow.

(1) Go to **System Management** -> **Status**.

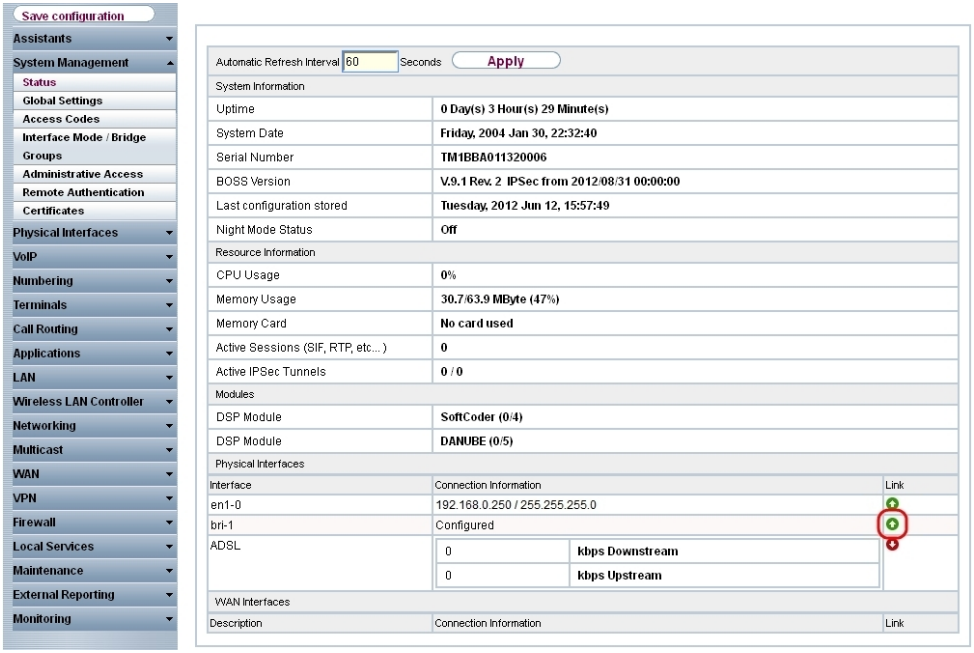


Fig. 191: **System Management** -> **Status**

The following options must then be set in the **Initial Steps** Wizard:

(1) Go to **Assistants** -> **First steps** -> **Basic Setup**.

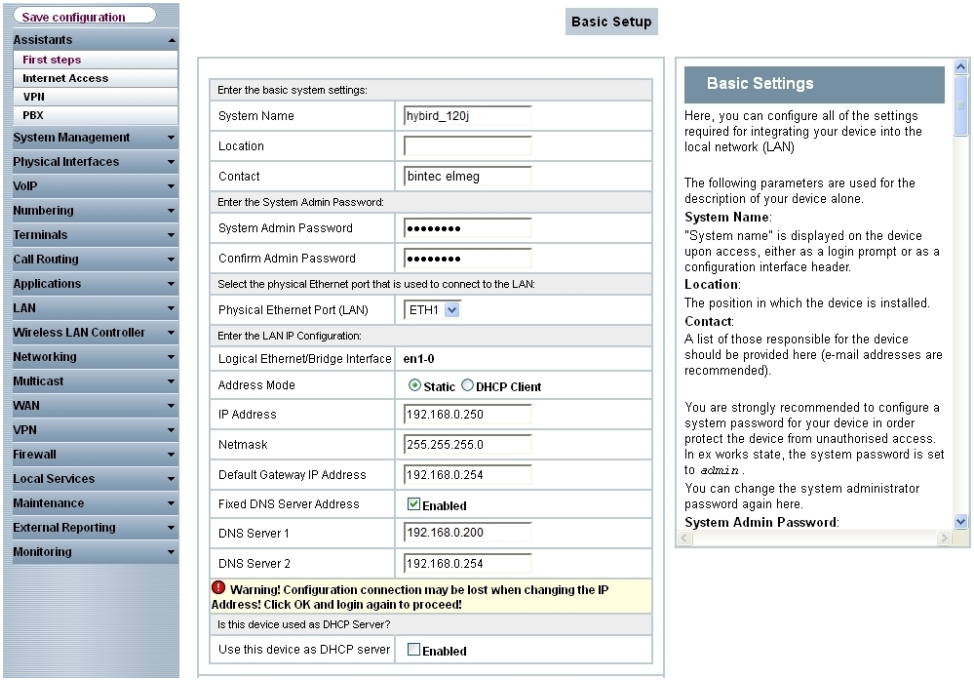


Fig. 192: **Assistants** -> **First steps** -> **Basic Setup**

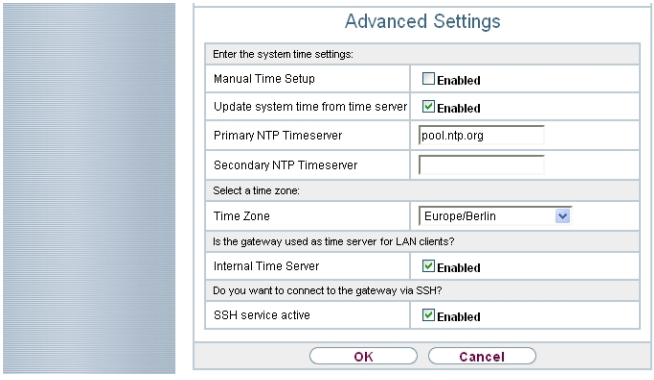


Fig. 193: **Assistants** -> **First steps** -> **Basic Setup**-> **Advanced Settings**

Proceed as follows:

(1) Enter the IP address of the **bintec RS232bw** gateway for **Standard Gateway IP Address** ; here it is `192.168.0.254`, for example.

(2) Enable the option **Fixed DNS Server Address**.

(3) Enter the IP address of the Windows Server **for DNS Server 1**; here it is `192.168.0.200`, for example.

(4) Enter the IP address of the **bintec RS232bw** gateway **for DNS Server 2**; here it is *192.168.0.254*, for example.

(5) The **Use this device as a DHCP server** option must be disabled as there is already a DHCP server available within the network.

(6) Enable the **Update system time from time server** option. If this option is not enabled, then the system time of the telephone is updated via the ISDN point-to-multipoint connection after the first outgoing call.

(7) Enter the domain name of the server for **Primary NTP Time Server**, e.g. *pool.ntp.org*.

(8) Enable **System as time server**. This then ensures the time is updated on elmeg IP telephones.

(9) Press **OK** to confirm your entries.

Go to *Configuration of external ISDN port (Variants 1-3)* on page 208 to configure the **external ISDN port to operate on the ISDN point-to-multipoint connection**.

Go to *Connecting an elmeg S560 telephone (Variants 1-3)* on page 209 to connect a **elmeg S560** telephone, and see *Connecting an elmeg IP120 telephone (Variants 1-3)* on page 213 to connect a **elmeg IP120** telephone.

13.2.3 Variant 3: Connection with integrated DHCP server

13.2.3.1 Initial Steps for Variant 3 (elmeg hybird 120j)

If the ASDL interface and the ISDN point-to-multipoint connection are correctly connected, then the link status of both interfaces is displayed with green arrows on the system status page.

(1) Go to **System Management** -> **Status**.

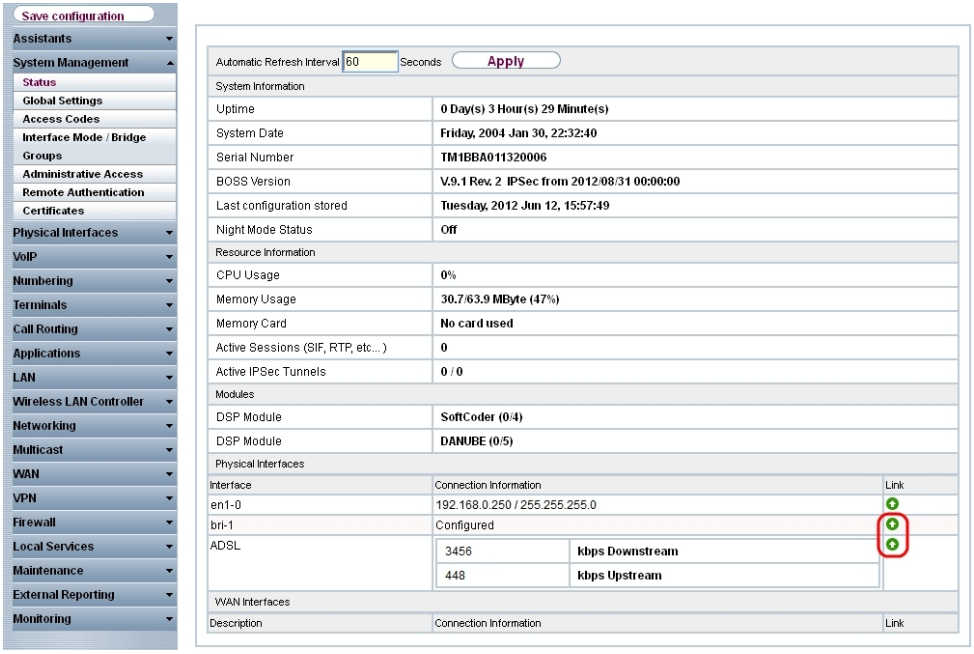


Fig. 194: **System Management** -> **Status**

The following options must then be set in the Wizard:

(1) Go to **Assistants** -> **First steps** -> **Basic Setup**.

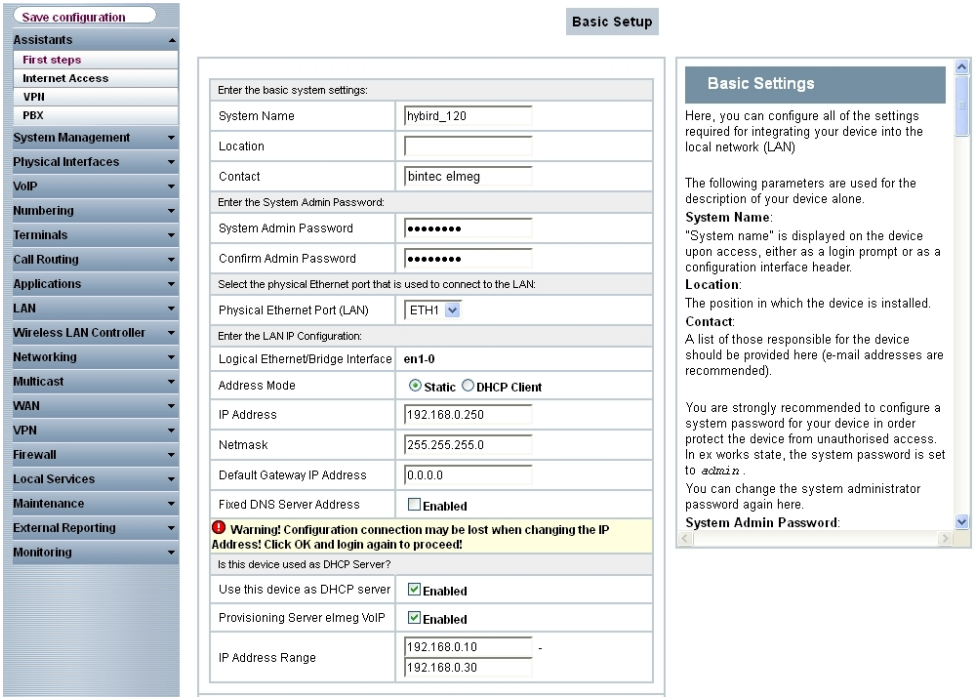


Fig. 195: **Assistants** -> **First steps** -> **Basic Setup**

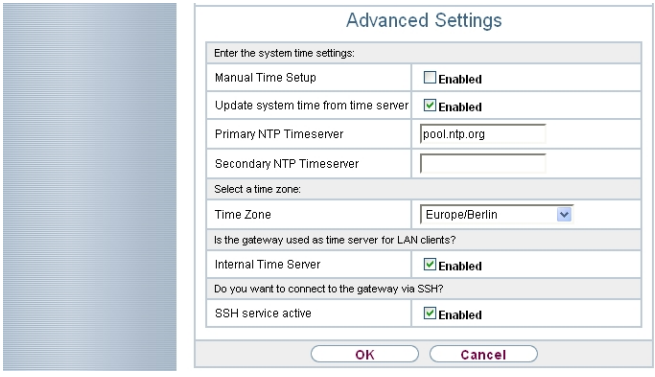


Fig. 196: **Assistants** -> **First steps** -> **Basic Setup**-> **Advanced Settings**

Proceed as follows:

(1) Enable the **Use this device as a DHCP server** option.

(2) Enable the **elmeg VoIP Provisioning Server** option. The DHCP option 114 (URL) is then assigned to the IP address pool required for the provisioning of elmeg IP telephones.

(3) Under **IP Address Range**, enter `192.168.0.10 - 192.168.0.30`, for example.

The IP address range can be adjusted where necessary.

(4) Enable the **Update system time from time server** option. If this option is not enabled, then the system time of the telephone is updated via the ISDN point-to-multipoint connection after the first outgoing call.

(5) Enter the domain name of the server for **Primary NTP Time Server**, e.g. *pool.ntp.org*.

(6) Enable **System as time server**. This then ensures the time is updated on elmeg IP telephones.

(7) Press **OK** to confirm your entries.

13.2.3.2 Configuration of Internet access (elmeg hybird 120j)

The Internet connection can be set up in a few steps via the **Internet Access** Wizard. To do this, go to the following menu:

(1) Go to **Assistants** -> **Internet Access** -> **Internet Connections** -> **New**.

(2) For **Connection Type**, select *Internal ADSL Modem*.

(3) Click on **Next** to configure a new Internet connection.

(4) Enter the access data required for the connection.

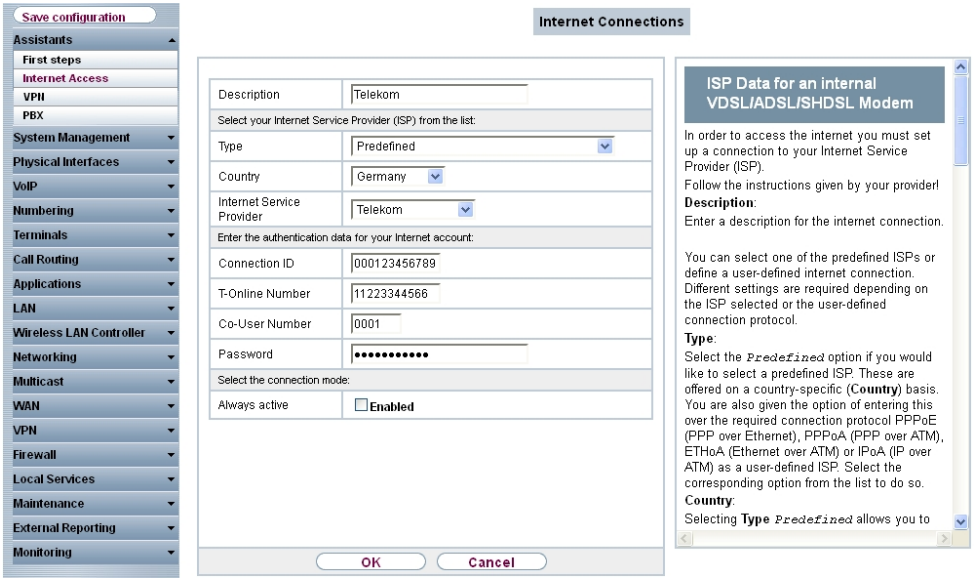


Fig. 197: **Assistants** -> **Internet Access** -> **Internet Connections** -> **New**

Proceed as follows to set up the Internet connection, e.g. Deutsche Telekom:

(1) For **Description**, enter *Telekom*, for example.

(2) As the **Country**, select *Germany*.

(3) For **Internet Service Provider**, select *Telekom*.

(4) Under **Connection ID**, enter the 12 digit number taken from Telekom's order confirmation, e. g. *000123456789*.

(5) Under **T-Online Number**, enter the 12 digit number taken from Telekom's order confirmation, e. g. *112233445566*.

(6) Enter the 4 digit **Co-User Number**, e. g. *0001*.

(7) For **Password**, enter the personal ID taken from Telekom's order confirmation, e. g. *supersecret*.

(8) Enable the **Always active** connection mode.

(9) Press **OK** to confirm your entries.

Note

Other service providers may require different access data that is often simpler. The entry screen changes depending on the provider selected.

Once the Internet connection is established, the connection status then displays a green arrow. The WAN interface status can then be controlled on the system's status page.

(1) Go to **Assistants** -> **Internet Access**-> **Internet Connections**.

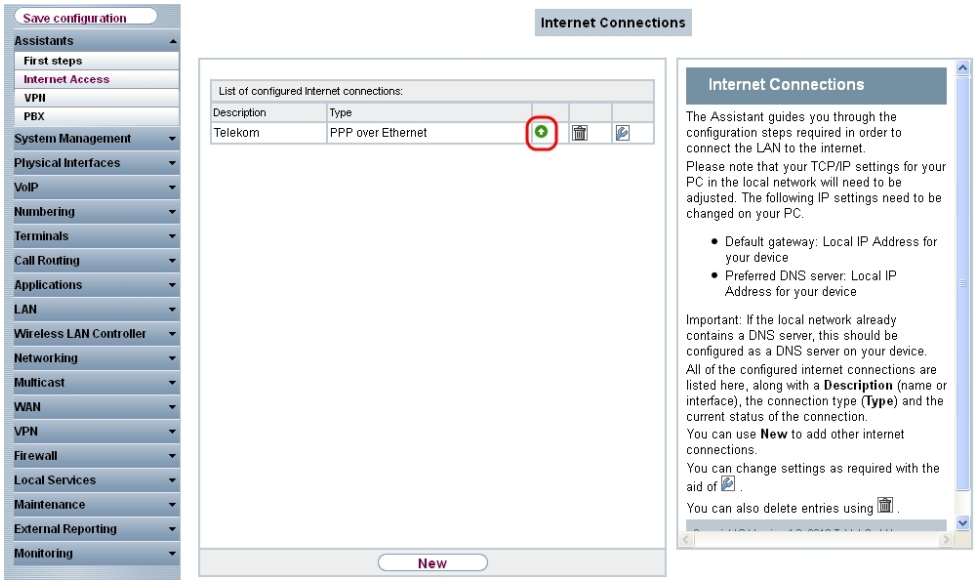


Fig. 198: **Assistants** -> **Internet Access**-> **Internet Connections**

13.2.4 Configuration of external ISDN port (Variants 1-3)

In its ex works state, the **elmeg hybird 120j** is ready to operate on a point-to-point ISDN access. To ensure the **elmeg hybird 120j** works on your ISDN point-to-multipoint connection, the preconfigured point-to-point ISDN access must be deleted first of all via the **PBX** Wizard. The relevant list field is deleted by pressing the button.

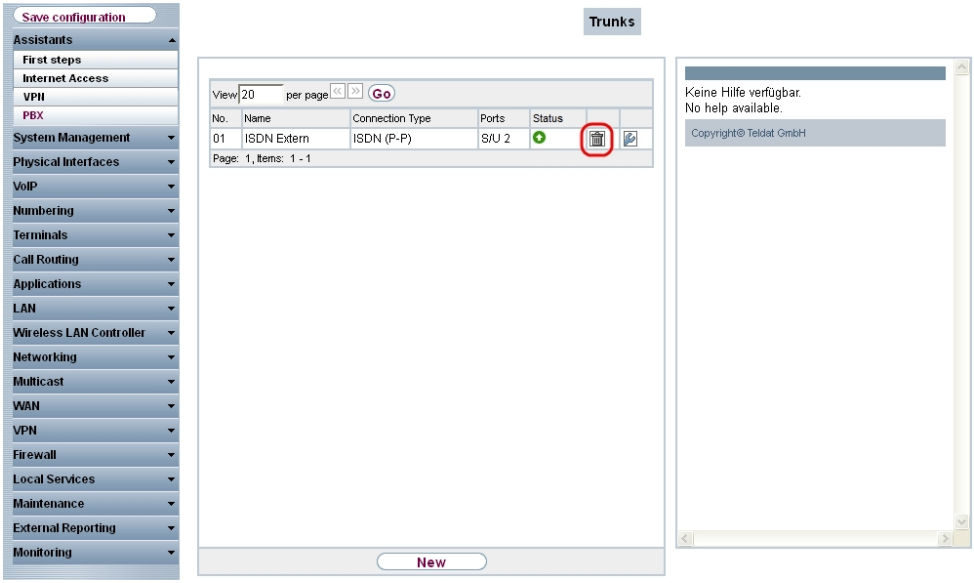


Fig. 199: **Assistants** -> **PBX** -> **Trunks**

Click **New** to add an ISDN point-to-multipoint connection.

(1) Go to **Assistants** -> **PBX** -> **New**.

(2) For **Connection Type**, select *ISDN*.

(3) Click **OK** to add an ISDN point-to-multipoint connection.

(4) Enter the access data required for the connection.

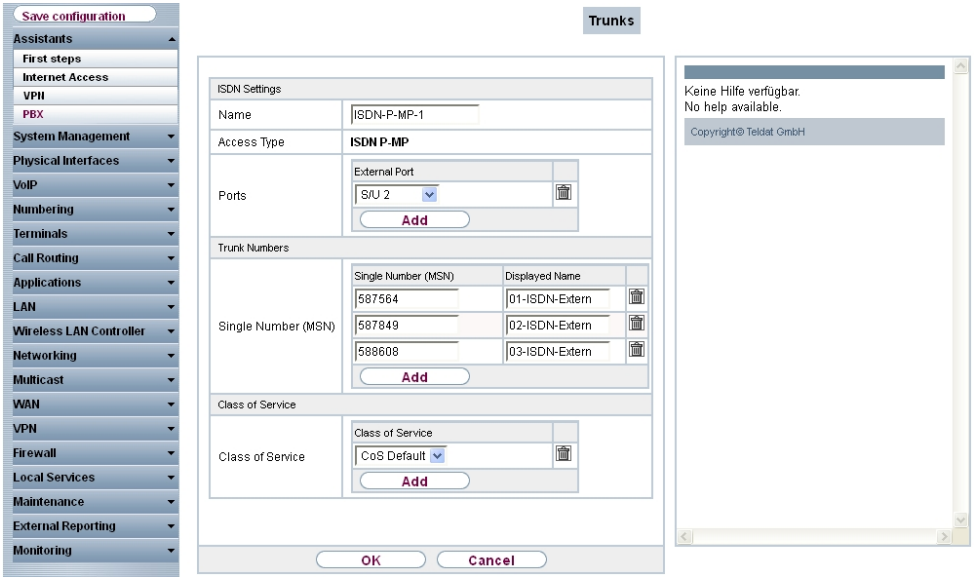


Fig. 200: **Assistants** -> **PBX** -> **New** -> **OK**

Proceed as follows:

(1) Enter a description for the connection that will make it easier to identify again under **Name**, e.g. *ISDN-P-MP-1*.

(2) The **connection type** *Point-to-multipoint connection* is entered as a fixed value based on your previous entry.

(3) Under **Ports**, click **Add** and select the entry *S/U2*. The port matches the second ISDN port of the **elmeg hybird 120j**.

(4) Click **Add** and enter the **single number (MSN)** and the name displayed for all external multiple subscriber numbers, e.g. *587564* and *01-ISDN-Extern*, *587849* and *02-ISDN-Extern* and *588608* and *03-ISDN-Extern*.

(5) Under **Authorisation Class**, click **Add** and select the *CoS Default* authorisation class. For the standard configuration of **elmeg hybird 120** / **hybird 130**, all predefined users belong to the CoS Default authorisation class.

(6) Press **OK** to confirm your entries.

13.2.5 Connecting an elmeg S560 telephone (Variants 1-3)

For the **elmeg hybird 120j**, four users for system telephones (internal numbers 30, 31, 32 and 33) are already created in the ex works state. In our example, the number 30 is used for an **elmeg S560** and the number 31 is used for an **elmeg IP120**.

Connect the **elmeg S560** telephone to the first ISDN port of the **elmeg hybird 120j**. Con-

nected system telephones are automatically detected and listed by the **elmeg hybird 120j**.

Note

Please note that the **elmeg S560** system telephone is set to operating mode *S0->Line In* . The socket required for this purpose can be found on the underside of the telephone.

(1) Go to **Terminals** -> **elmeg System Phones** -> **System Phone**.

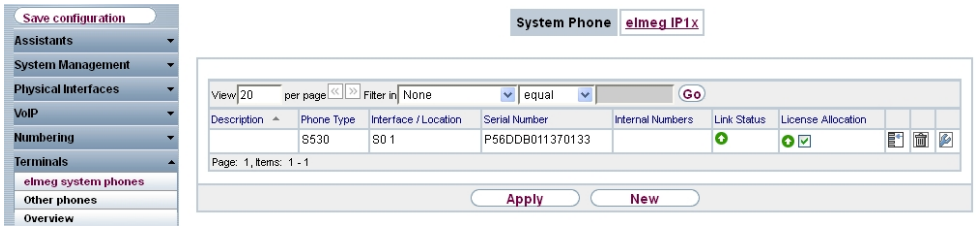


Fig. 201: **Terminals** -> **elmeg System Phones** -> **System Phone**

Now perform the basic settings for the system telephone.

(1) Go to **Terminals** -> **elmeg System Phones** -> **System Phone** ->**General**.

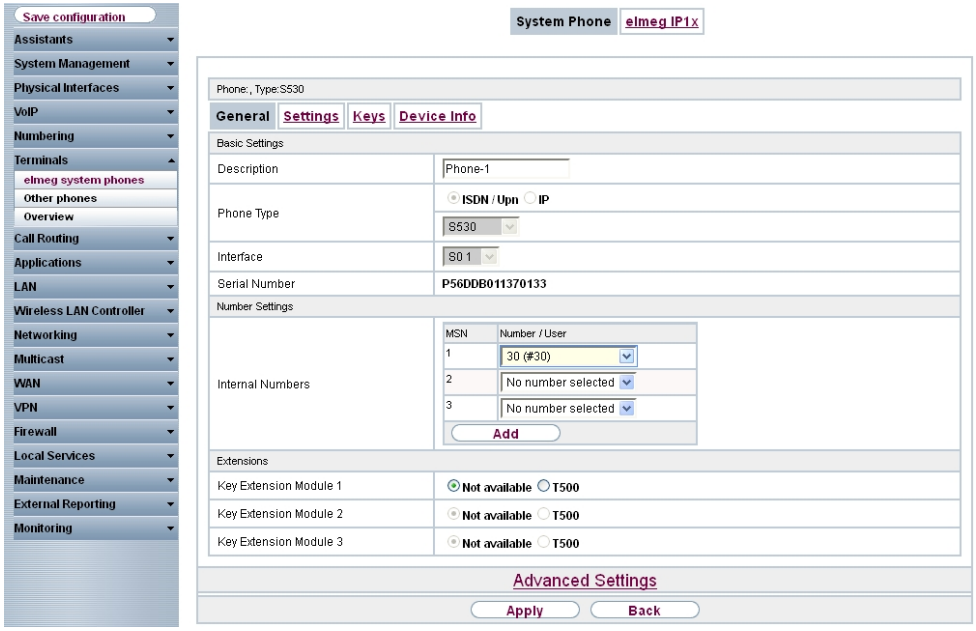


Fig. 202: **Terminals** -> **elmeg System Phones** -> **System Phone** ->**General**

Proceed as follows:

(1) For a better overview, enter a **Description** for the telephone, e.g. *Telephone 1*.

(2) Select the **Internal Number** for the terminal, e.g. *30 (#30)*.

Note

For **elmeg S560** / **elmeg S530** system telephones, up to 5 internal numbers can be configured.

(3) Press **Apply** to confirm your entries.

The settings are transferred to the **elmeg S560** telephone. By doing this, the telephone is then ready for outgoing phone calls.

The user of your system is configured in the next step. To do this, go to the following menu:

(1) Go to **Numbering** -> **User Settings** -> **<User 30>** -> **Basic Settings**.

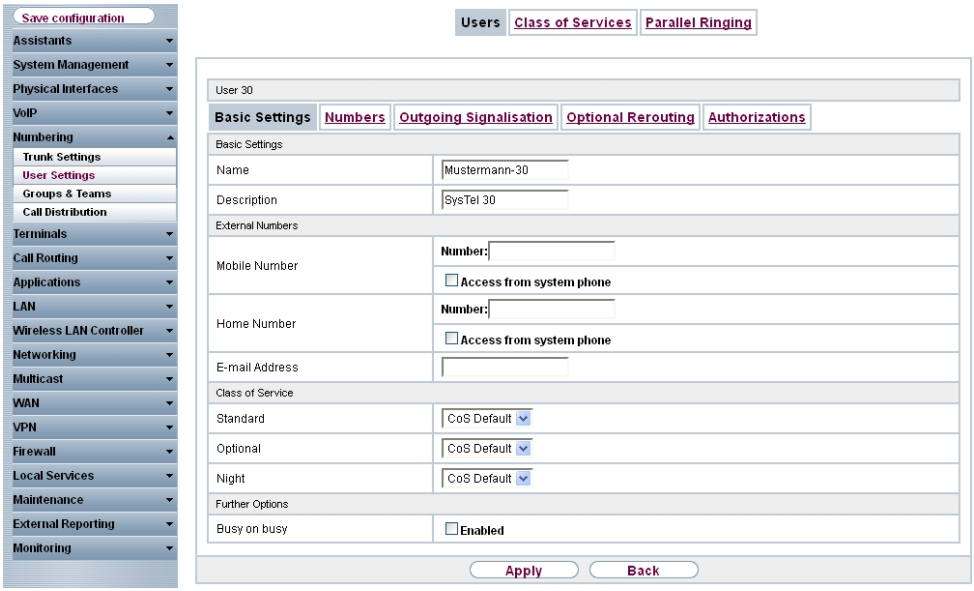


Fig. 203: **Numbering** -> **User Settings** -> **<User 30>** -> **Basic Settings**

Proceed as follows:

(1) For a better overview, the **Name** of the user can be assigned, e.g. *Bloggs-30*.

(2) Leave the remaining settings unchanged and confirm them with **Apply**.

In the **Numbers** submenu, the subscriber with the internal number 30 can be assigned a

name for a better overview.

(1) Go to **Numbering** -> **User Settings** -> **<User 30>** -> **Numbers**.

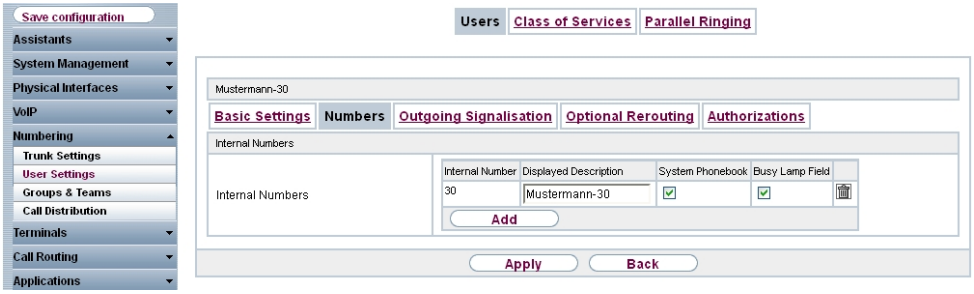


Fig. 204: **Numbering** -> **User Settings** -> **<User 30>** -> **Numbers**

Proceed as follows:

(1) Enter the name of the user under **Displayed Description**, e.g. `Bloggs-30`.

(2) Check the **System Phonebook** option. The configured name and the corresponding internal number are then transferred to the system telephone book.

(3) Press **Apply** to confirm your entries.

Now the **Outgoing Signalisation** submenu specifies which external number is to be signalled for this user on outgoing calls. Here, select one of the multiple subscriber numbers (MSNs) that have been configured.

Note

If no external number is defined for the internal number, then any outgoing external calls are signalled with the first number of the point-to-multipoint connection.

(1) Go to **Numbering** -> **User Settings** -> **<User 30>** -> **Outgoing Signalisation <30>**.

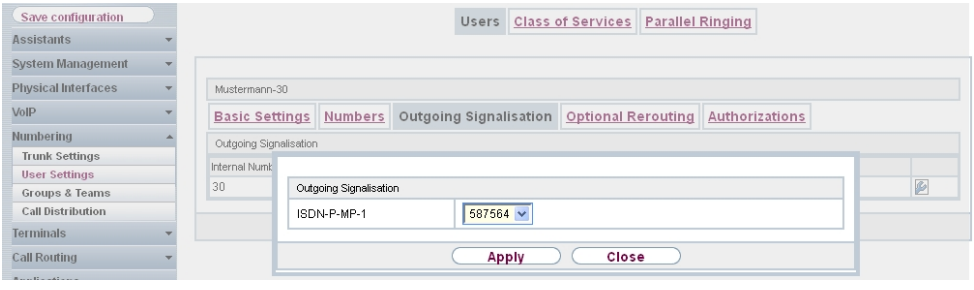


Fig. 205: **Numbering** -> **User Settings** -> **<User 30>** -> **Outgoing Signalisation <30>**

Proceed as follows:

(1) Under **ISDN External**, select one of the multiple subscriber numbers (MSN) already configured, e. g. *587564*.

(2) Confirm with **Apply**.

In the next configuration step, you define the incoming distribution, i.e. specify with which external number the user *Bloggs-30* can be reached.

(1) Go to **Numbering** -> **Call Distribution** -> **Incoming Distribution** .

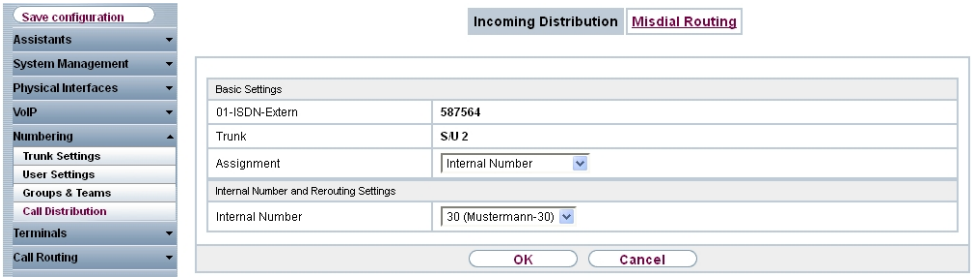


Fig. 206: **Numbering** -> **Call Distribution** -> **Incoming Distribution**

Proceed as follows:

(1) Under **Assignment**, select *Internal Number*.

(2) For **Internal Number**, select *30 (Bloggs-30)*.

(3) Confirm with **OK**.

Results:

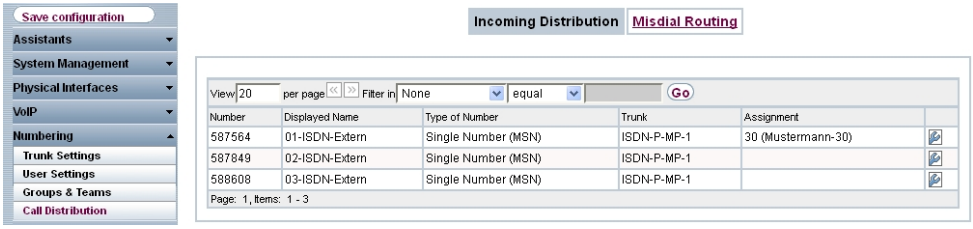


Fig. 207: **Numbering** -> **Call Distribution** -> **Incoming Distribution**

13.2.6 Connecting an elmeg IP120 telephone (Variants 1-3)

When the **elmeg IP120** telephone has been connected as shown in the circuit diagram, the phone's automatic detection begins. After this, any newly detected **elmeg IP1x0** telephones will be listed in the configuration interface of the **elmeg hybird 120j**.

(1) Go to **Terminals** -> **elmeg System Phones** -> **elmeg IP1x**.

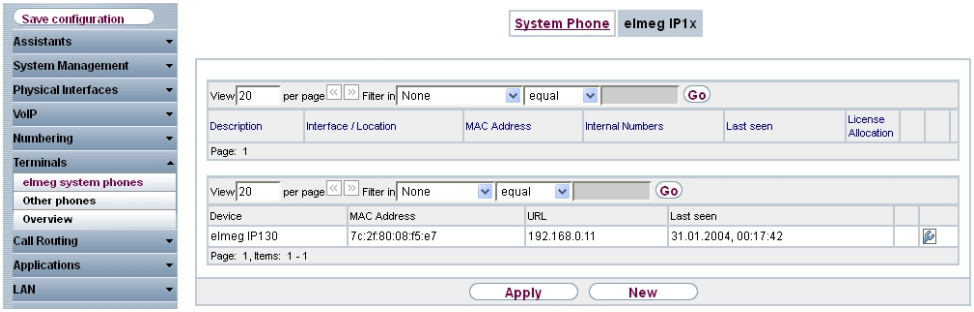


Fig. 208: **Terminals** -> **elmeg System Phones** -> **elmeg IP1x**

In the next step, the **elmeg IP120** telephone that has been detected automatically is assigned to a user or to a local number.

(1) Go to **Terminals** -> **elmeg System Phones** -> **elmeg IP1x**.

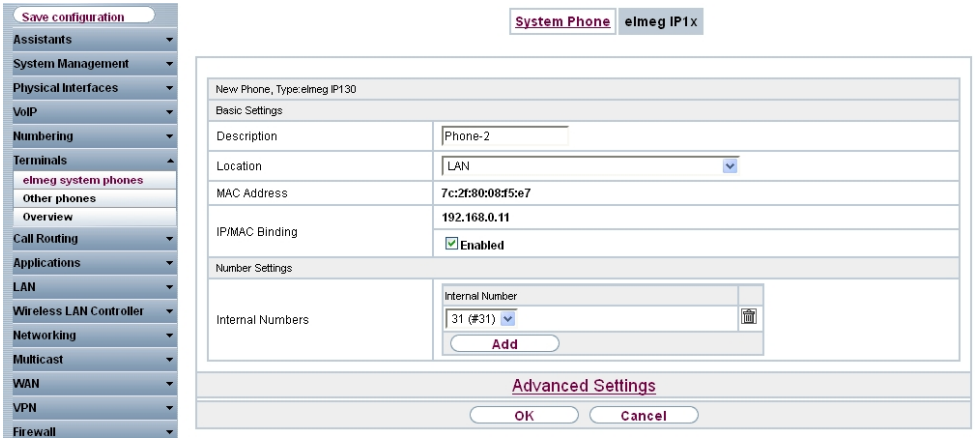


Fig. 209: **Terminals** -> **elmeg System Phones** -> **elmeg IP1x**

Proceed as follows:

(1) Enter a **Description** for the telephone, e.g. *Telephone-2*.

(2) For a local terminal, select the predefined **Location** *LAN*. This then enables the operation of an **elmeg IP120** telephone from the separate network.

(3) For Variant 3, enable the **IP/MAC Connection** option. Thanks to this option, the displayed IP address is then reserved for this terminal. This option must be enabled in order to ensure the smooth operation of the **elmeg IP1x0**. The option is not visible in Variants 1 and 2 as an external DHCP server is used.

(4) For **Internal Numbers**, click **Add** and select the number `31 (#31)`.

Note

For **elmeg IP 120** / **elmeg IP 130** / **elmeg IP 140**, up to 4 internal numbers can be configured.

(5) Press **OK** to confirm your entries.

The settings are saved in the system and transferred to the telephone.

Once the data is transmitted to the **elmeg IP120** telephone, the internal number status display is displayed with a green arrow. By doing this, the telephone is then ready for operation on the system.

Note

When operating the **elmeg IP1x0** telephone for the first time, it is necessary to set the language on the terminal.

Results:

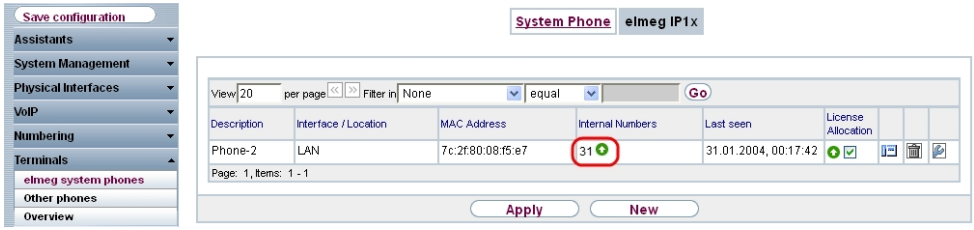


Fig. 210: **Terminals** -> **elmeg System Phones** -> **elmeg IP1x**

The user of your system is configured in the **User Settings** menu.

(1) Go to **Numbering** -> **User Settings** -> **<User 31>** -> **Basic Settings**.

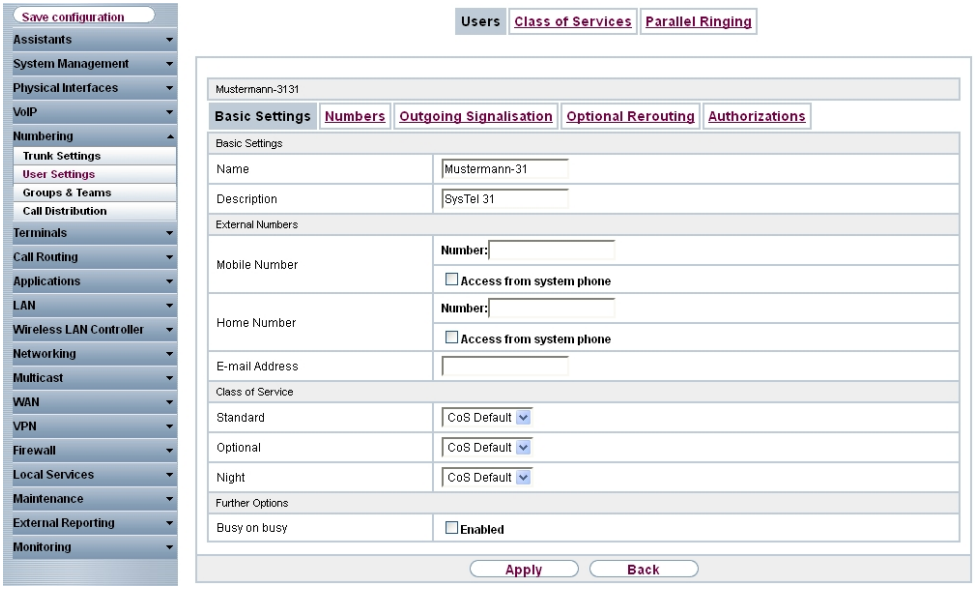


Fig. 211: **Numbering** -> **User Settings** -> **<User 31>** -> **Basic Settings**

Proceed as follows:

(1) For a better overview, the **Name** of the user can be assigned, e.g. `Bloggs-31`.

(2) Leave the remaining settings unchanged and confirm them with **Apply**.

In the **Numbers** submenu, the subscriber with the internal number 31 can be assigned a name for a better overview.

(1) Go to **Numbering** -> **User Settings** -> **<User 31>** -> **Numbers**.

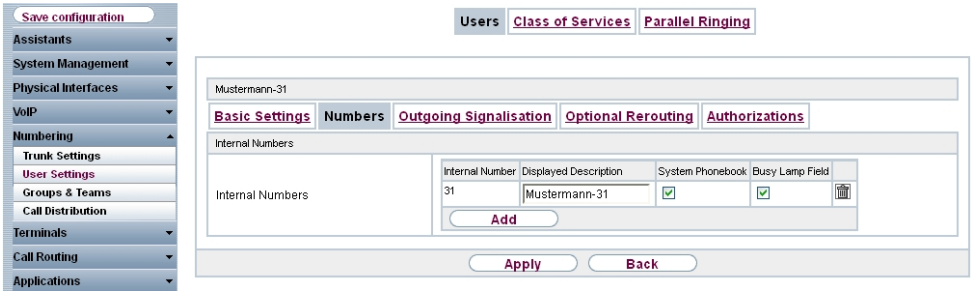


Fig. 212: **Numbering** -> **User Settings** -> **<User 31>** -> **Numbers**

Proceed as follows:

(1) Enter the name of the user under **Displayed Description**, e.g. `Bloggs-31`.

(2) Check the **System Phonebook** option. The configured name and the corresponding

internal number are then transferred to the system telephone book.

(3) Press **Apply** to confirm your entries.

Now the **Outgoing Signalisation** submenu specifies which external number is to be signalled for this user on outgoing calls. Here, select one of the multiple subscriber numbers (MSNs) that have been configured.

Note

If no external number is defined for the internal number, then any outgoing external calls are signalled with the first number of the point-to-multipoint connection.

(1) Go to **Numbering** -> **User Settings** -> **<User 31>** -> **Outgoing Signalisation <31>**.

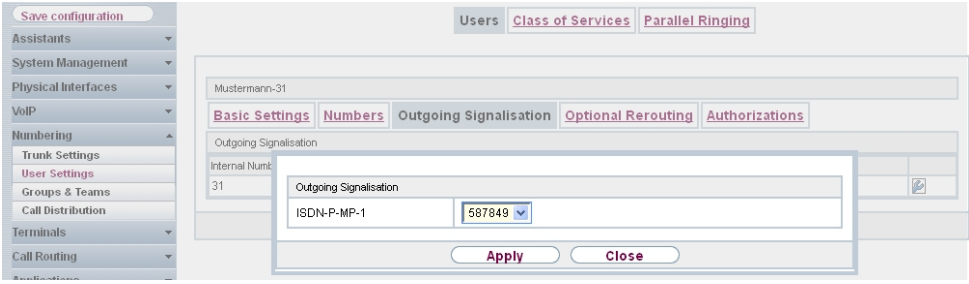


Fig. 213: **Numbering** -> **User Settings** -> **<User 31>** -> **Outgoing Signalisation <31>**

Proceed as follows:

(1) Under **ISDN External**, select one of the multiple subscriber numbers (MSN) already configured, e. g. *587849*.

(2) Confirm with **Apply**.

In the next configuration step, you define the incoming distribution, i.e. specify with which external number the user *Bloggs-31* can be reached.

(1) Go to **Numbering** -> **Call Distribution** -> **Incoming Distribution**.

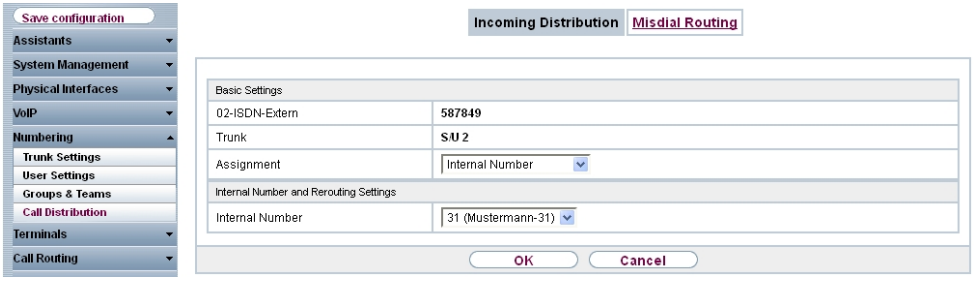


Fig. 214: **Numbering** -> **Call Distribution** -> **Incoming Distribution**

Proceed as follows:

(1) Under **Assignment**, select *Internal Number*.

(2) For **Internal Number**, select *31 (Bloggs-31)*.

(3) Confirm with **OK**.

Results:

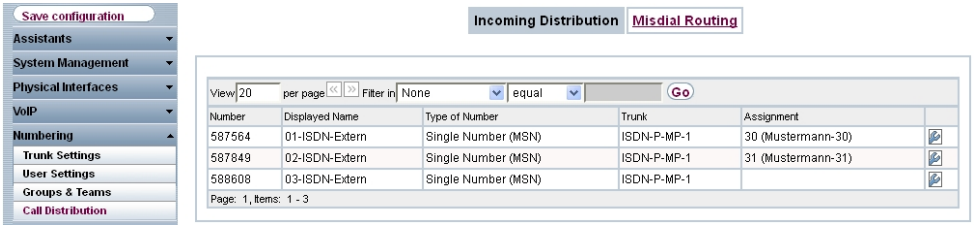


Fig. 215: **Numbering** -> **Call Distribution** -> **Incoming Distribution**

13.3 Overview of Configuration Steps

13.3.1 Variant 1

Configuration of the bintec RS232bw gateway

Field	Menu	Value
IP Pool Name	**Local Services** -> **DHCP Server** -> **DHCP Pool**	e.g. *defpool*
IP Address Range	**Local Services** -> **DHCP Server** -> **DHCP Pool**	e.g. *192.168.0.30* - *192.168.0.50*
Pool Usage	**Local Services** -> **DHCP Server** -> **DHCP Pool**	*Local*
Gateway	**Local Services** -> **DHCP Server** -> **DHCP Pool**	*Use Router as Gateway*
Lease Time	**Local Services** -> **DHCP Server** -> **DHCP Pool**	*120* minutes
DHCP Option	**Local Services** -> **DHCP Server** -> **DHCP Pool**	*URL (Provisioning Server)* and value, e.g. *http://192.168.0.250/eg_prov*

Initial Steps on the elmeg hybird 120j

Field	Menu	Value
Standard Gateway IP Address	**Assistants** -> **First steps** -> **Basic Setup**	*192.168.0.254*
Fixed DNS Server Address	**Assistants** -> **First steps** -> **Basic Setup**	*Enabled*
DNS Server 1	**Assistants** -> **First steps** -> **Basic Setup**	*192.168.0.254*
DNS Server 2	**Assistants** -> **First steps** -> **Basic Setup**	*192.168.0.254*
Use this device as a DHCP server	**Assistants** -> **First steps** -> **Basic Setup**	*Disabled*
Update system time from time server	**Assistants** -> **First steps** -> **Basic Setup**	*Enabled*
Primary NTP time server	**Assistants** -> **First steps** -> **Basic Setup**	e.g. *pool.ntp.org*
System as time server	**Assistants** -> **First steps** -> **Basic**	*Enabled*

Field	Menu	Value
	Setup	

13.3.2 Variant 2

Configuration of the Windows Server 2008

Field	Menu	Value
Set Predefined Options...	**Server Manager** -> **DHCP Server** -> **Windows 2008** -> **IPv4**	*Select*
Name	**Predefined Options and Values** ->**Add**	e.g. *URL for Elmeg Auto-Provisioning*
Data Type	**Predefined Options and Values** ->**Add**	*String*
Code	**Predefined Options and Values** ->**Add**	*114*
Description	**Predefined Options and Values** ->**Add**	e.g. *DHCP Option 114 for Elmeg Auto-Provisioning*
114 URL for Elmeg-Auto-Provisioning	**Server Manager** -> **DHCP Server** -> **Windows 2008** -> **IPv4** -> **DHCP Range** -> **Range Options**.	*Enabled*
String Value	**Server Manager** -> **DHCP Server** -> **Windows 2008** -> **IPv4** -> **DHCP Range** -> **Range Options**.	e.g. *http://192.168.0.250/eg_prov/*

Initial Steps on the elmeg hybird 120j

Field	Menu	Value
Standard Gateway IP Address	**Assistants** -> **First steps** -> **Basic Setup**	*192.168.0.254*
Fixed DNS Server Address	**Assistants** -> **First steps** -> **Basic Setup**	*Enabled*
DNS Server 1	**Assistants** -> **First steps** -> **Basic Setup**	*192.168.0.200*
DNS Server 2	**Assistants** -> **First steps** -> **Basic Setup**	*192.168.0.254*
Use this device as a DHCP server	**Assistants** -> **First steps** -> **Basic Setup**	*Disabled*
Update system time from time server	**Assistants** -> **First steps** -> **Basic Setup**	*Enabled*

Field	Menu	Value
Primary NTP time server	**Assistants** -> **First steps** -> **Basic Setup**	e.g. *pool.ntp.org*
System as time server	**Assistants** -> **First steps** -> **Basic Setup**	*Enabled*

13.3.3 Variant 3

Initial Steps on the elmeg hybird 120j

Field	Menu	Value
Use this device as a DHCP server	**Assistants** -> **First steps** -> **Basic Setup**	*Enabled*
elmeg VoIP Provisioning Server	**Assistants** -> **First steps** -> **Basic Setup**	*Enabled*
IP Address Range	**Assistants** -> **First steps** -> **Basic Setup**	e.g. *192.168.0.10 - 192.168.0.30*
Update system time from time server	**Assistants** -> **First steps** -> **Basic Setup**	*Enabled*
Primary NTP time server	**Assistants** -> **First steps** -> **Basic Setup**	e.g. *pool.ntp.org*
System as time server	**Assistants** -> **First steps** -> **Basic Setup**	*Enabled*

Configure Internet access on the elmeg hybird 120j

Field	Menu	Value
Connection Type	**Assistants** -> **Internet Access** -> **Internet Connections** ->**New**	*Internal ADSL Modem*
Description	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	e.g. *Telekom*
Country	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	*Germany*
Internet Service Provider	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	*Telekom*
Connection ID	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	e. g. *000123456789*
T-Online Number	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	e.g. *112233445566*
Co-User Number	**Assistants** -> **Internet Access** -> **In-**	e. g. *0001*

Field	Menu	Value
	ternet Connections -> **New** -> **Next**	
Password	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	e. g. *supersecret*
Always Active	**Assistants** -> **Internet Access** -> **Internet Connections** -> **New** -> **Next**	*Enabled*

13.3.4 Shared configuration steps for Variants 1-3

Configuration of external ISDN port

Field	Menu	Value
ISDN (P-P)	**Assistants** -> **PBX** -> **Connections** -> **New**	*Delete*
Name	**Assistants** -> **PBX** -> **Connections** -> **Next**	e.g. *ISDN-P-MP-1*
Ports	**Assistants** -> **PBX** -> **Connections** -> **Next**	*S/U 2*
Individual Number (MSN)	**Assistants** -> **PBX** -> **Connections** -> **Next**	e.g. *587564* and *01-ISDN-Extern*, *587849* and *02-ISDN-Extern*, *588608* and *03-ISDN-Extern*
Authorisation Class	**Assistants** -> **PBX** -> **Connections** -> **Next**	*CoS Default*

Connecting an elmeg S560 telephone

Field	Menu	Value
Description	**Terminals** -> **elmeg System Phones** -> **System Phone** -> **General**	e.g. *Telephone-1*
Internal Numbers	**Terminals** -> **elmeg System Phones** -> **System Phone** -> **General**	e.g. *30 (#30)*
Name	**Numbering** -> **User Settings** -> **<User 30>** -> **Basic Settings**	e.g. *Bloggs-30*
Displayed Description	**Numbering** -> **User Settings** -> **<User 30>** -> **Numbers**	e.g. *Bloggs-30*
System Phonebook	**Numbering** -> **User Settings** -> **<User 30>** -> **Numbers**	*Enabled*

Field	Menu	Value
ISDN External	**Numbering** -> **User Settings** -> **<User 30>** -> **Outgoing Signalisation <30>**	e.g. *587564*
Assignment	**Numbering** -> **Call Distribution** -> **Incoming Distribution**	*Internal Number*
Internal Number	**Numbering** -> **Call Distribution** -> **Incoming Distribution**	e.g. *30 (Bloggs-30)*

Connecting an elmeg IP120 telephone

Field	Menu	Value
Description	**Terminals** -> **elmeg System Phones** -> **elmeg IP1x**	e.g. *Telephone-2*
Location	**Terminals** -> **elmeg System Phones** -> **elmeg IP1x**	*LAN*
IP/MAC Binding	**Terminals** -> **elmeg System Phones** -> **elmeg IP1x**	*Enabled*
Internal Numbers	**Terminals** -> **elmeg System Phones** -> **elmeg IP1x**	e.g. *31 (#31)*
Name	**Numbering** -> **User Settings** -> **<User 31>** -> **Basic Settings**	e.g. *Bloggs-31*
Displayed Description	**Numbering** -> **User Settings** -> **<User 31>** -> **Numbers**	e.g. *Bloggs-31*
System Phonebook	**Numbering** -> **User Settings** -> **<User 31>** -> **Numbers**	*Enabled*
ISDN External	**Numbering** -> **User Settings** -> **<User 31>** -> **Outgoing Signalisation <31>**	e.g. *587849*
Assignment	**Numbering** -> **Call Distribution** -> **Incoming Distribution**	*Internal Number*
Internal Number	**Numbering** -> **Call Distribution** -> **Incoming Distribution**	e.g. *31 (Bloggs-31)*

Chapter 14 Telephony - Telephoning via a SIP provider using the elmeg hybird

14.1 Introduction

The following describes how to set up a SIP provider in the **elmeg hybird**.

Note

The pictured information is only provided as an example. Please use the data obtained from your SIP provider. Certain presettings are of importance when using a domestic SIP provider in order, for example, to ensure that only the number is entered, as opposed to the entire area code and number, when making a local call.

Variant 1

In this example, the **elmeg hybird 120** or **elmeg hybird 130** are connected directly to the Internet via your internal DSL modem.

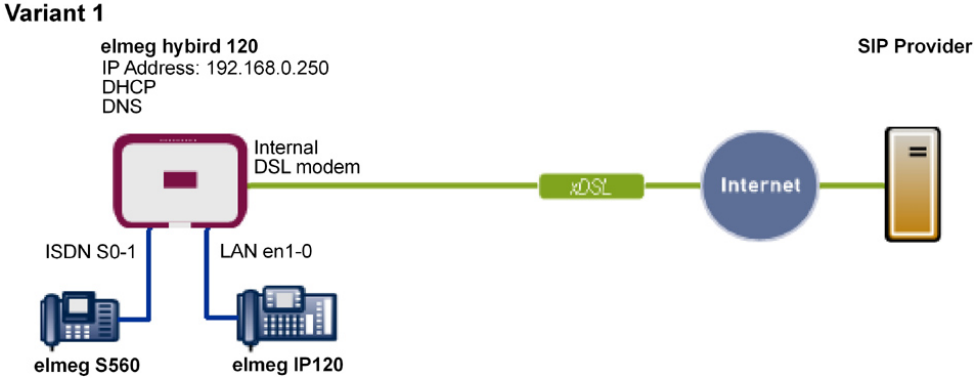


Fig. 216: Example scenario

Requirements

- Internet access via the integrated ADSL/ADSL2+ modem
- An **elmeg hybird 120** as of system software version 9.1, Rev. 2, is used as a DHCP and

DNS server in the network.

- **elmeg IP120** telephone as of firmware version 01.00.04
- **elmeg S560** telephone as of firmware version 1.400
- Connecting the **elmeg hybird** to all terminals and connections as indicated in the circuit diagram

Variant 2

This example describes how to integrate an **elmeg hybird 120**, **elmeg hybird 130**, **elmeg hybird 300** or **elmeg hybird 600** into an existing network with a gateway, e.g. **bintec RS232bw**.

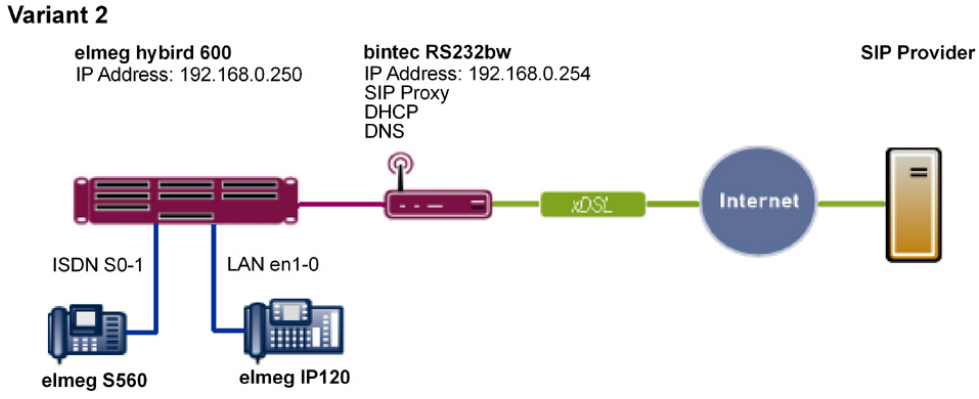


Fig. 217: Example scenario

Requirements

- An existing network with **bintec RS232bw** gateway, as of system software version 9.1, Rev. 2. The **bintec RS232bw** gateway is used as a DHCP and DNS server in the network.
- An **elmeg hybird 600** as of system software version 9.1, Rev. 2
- **elmeg IP120** telephone as of firmware version 01.00.04
- **elmeg S560** telephone as of firmware version 1.400
- Connecting the **elmeg hybird** to all terminals and connections as indicated in the circuit diagram

14.2 Basic Configuration

Note

Follow the **Initial Steps** and **Internet Access** Wizards for the general network configuration.

14.2.1 Variant 1: Network configuration with direct Internet connection

14.2.1.1 Configuration of elmeg hybird

You must configure your **elmeg hybird** as a DHCP server.

Note

In order to configure the **elmeg hybird** as a DHCP server, please read the chapter on Variant 3 of the "Connecting **elmeg** telephones" telephony workshop.

14.2.2 Variant 2: Network configuration with gateway

14.2.2.1 Configuration of the gateway (bintec RS232bw)

You must change the VoIP settings of the gateway. The configuration is done using the gateway GUI. A DHCP server must also be set up.

Note

In order to configure the DHCP server, please read the chapter on Variants 1 and 2 of the "Connecting **elmeg** telephones" telephony workshop.

(1) Go to **VoIP** -> **SIP** -> **Options**.

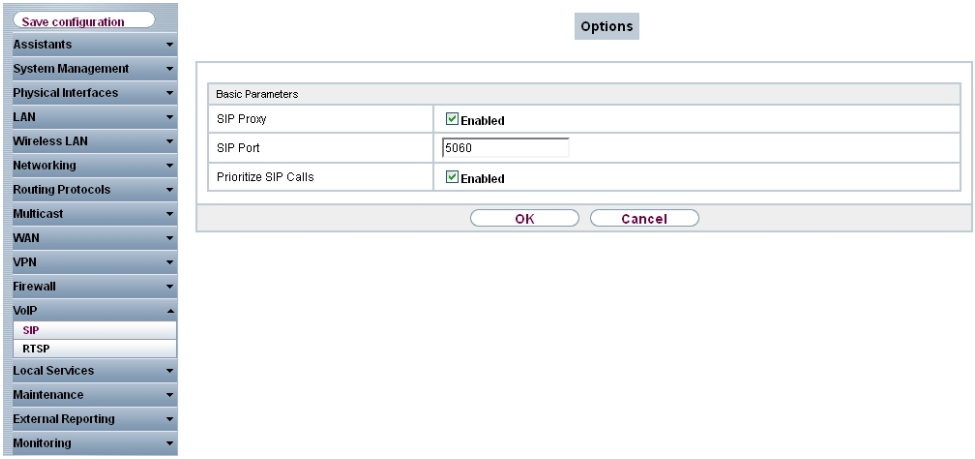


Fig. 218: **VoIP** ->**SIP**-> **Options**

Proceed as follows to make the SIP settings:

(1) Enable **SIP Proxy**. The SIP connections are forwarded.

(2) Enable **Prioritize SIP Calls**.

(3) Leave the remaining settings unchanged and confirm them with **OK**.

Note

Ensure you make the above settings in any case as otherwise it may lead to problems when making calls via a SIP provider.

14.2.2.2 Configuration of elmeg hybird

You must configure the gateway and the DNS server settings of the **elmeg hybird**. The configuration is done using the **elmeg hybird** GUI.

(1) Go to **Assistants** -> **First steps** -> **Basic Setup**.

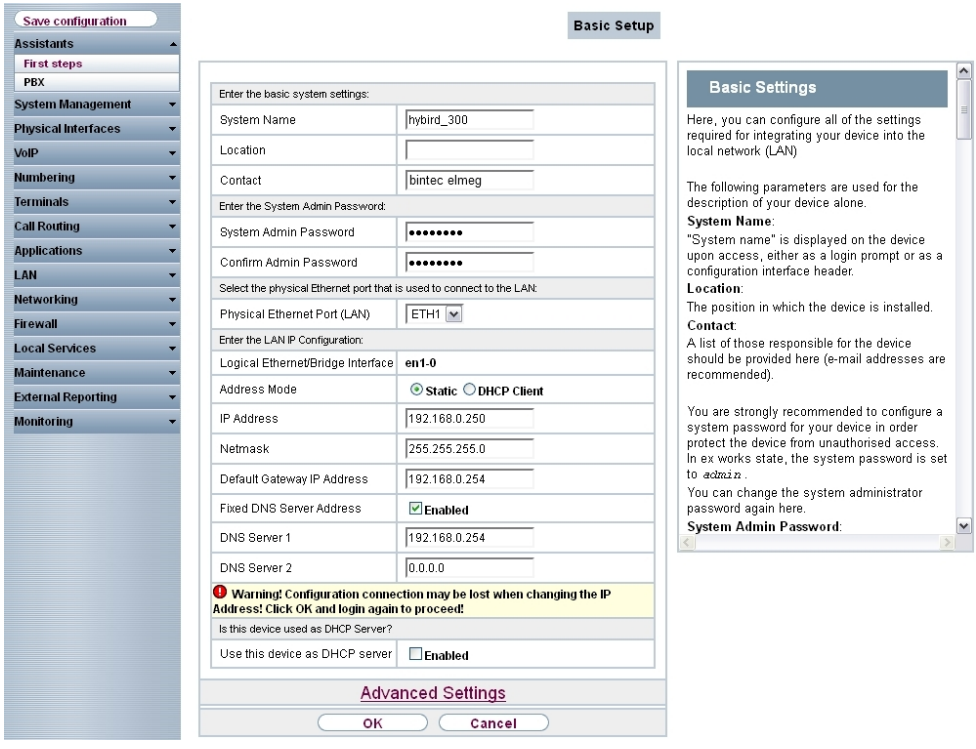


Fig. 219: **Assistants** -> **First steps** -> **Basic Setup**

Proceed as follows to make the gateway and DNS settings:

(1) Enter the IP address of your gateway that you use to provide Internet access under **Standard Gateway IP Address**, e.g. `192.168.0.254`.

(2) Enable **Fixed DNS Server Address**.

(3) Enter the IP address of the name server for Internet address name resolution under **DNS Server 1**; here it is `192.168.0.254`.

(4) Leave the remaining settings unchanged and confirm them with **OK**.

14.2.3 Variants 1 + 2: Configuration of country settings in the elmeg hybird

By setting the parameters **International Prefix**/**Country Code** and **National Prefix**/**Area Code**, international and national numbers are automatically generated without the need for any additional entries when dialling them via the SIP provider. Such configuration also allows the correct distribution of calls for incoming call via the SIP provider.

(1) Go to **System Administration** -> **Global Settings** -> **System**.

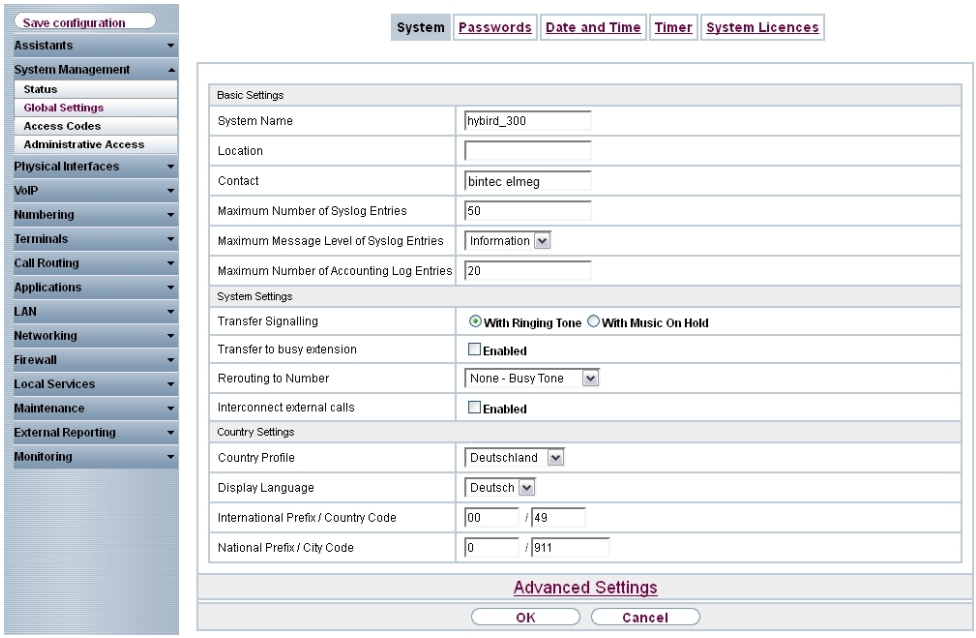


Fig. 220: **System Management** -> **Global Settings** -> **System**

Proceed as follows to configure the codes:

(1) Enter the country code under **International Prefix/Country Code**, e.g. *49* for Germany. If this is not entered, then the full number along with the country code must always be dialled when using SIP providers.

(2) Enter the area code for the location where your system is installed under **National Prefix/Area Code**, e.g. *911* for Nuremberg. If this is not entered, then the number along with the national prefix/area code must be dialled for local calls when using SIP providers.

(3) Leave the remaining settings unchanged and confirm them with **OK**.

14.3 Variants 1 + 2: Configuration of SIP provider in the elmeg hybird

A VoIP connection can be configured as an individual number or extension connection. These names refer to ISDN point-to-multipoint and point-to-point connections.

For an individual number connection, you receive one or more numbers from the SIP provider.

For an extension connection, you receive a main number with several extension numbers

(extension number range) from the SIP provider. Example: Main number = 1234; Extension numbers: 1, 2, ...; Numbers: 1234 - 1, 1234 - 2, ...

14.3.1 SIP provider (individual number)

Prerequisite

The following describes how to set up a SIP provider when using an individual number connection.

(1) Go to **Assistants** -> **PBX** -> **Trunks** -> **New**.

(2) Select *SIP Provider* under **Connection Type**.

(3) Click **Next**.

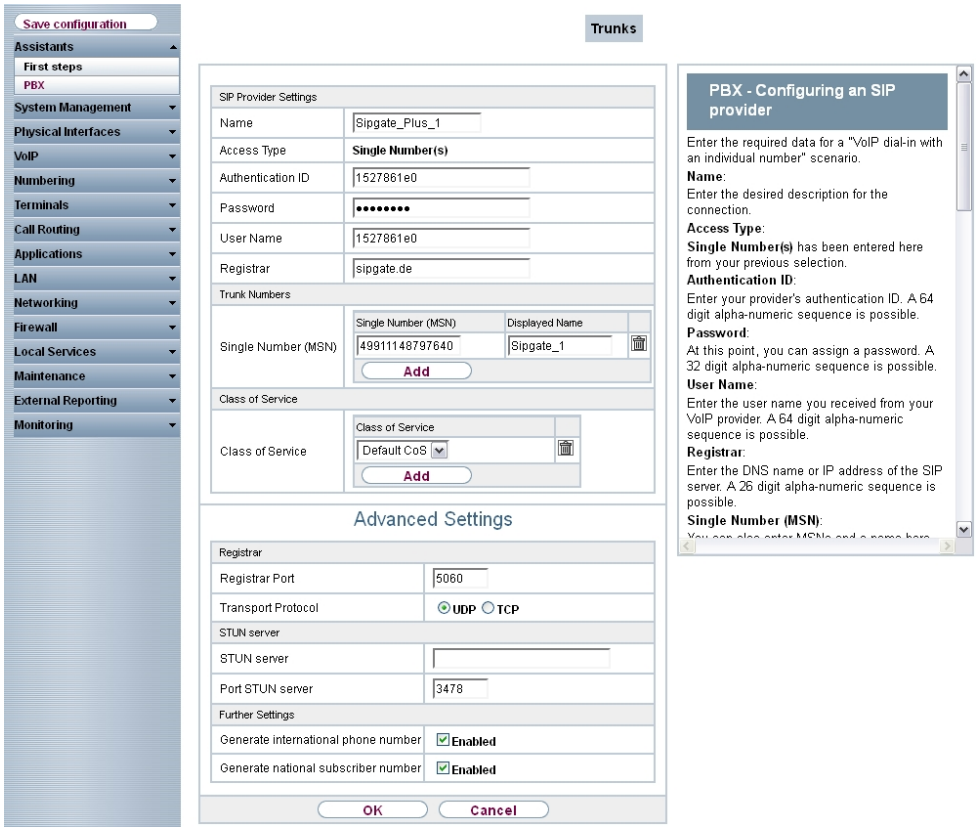


Fig. 221: **Assistants** -> **PBX** -> **Trunks** -> **New**-> **<SIP Provider>**

Proceed as follows to save the login information of the SIP provider:

Note

No **STUN server** may be configured when accessing the Internet via an internal or external DSL modem or a gateway with SIP proxy.

For certain SIP providers, a **STUN server** must be configured for gateways without SIP proxy and established full-cone Network Address Translation (NAT).

(1) Enter a name for the SIP provider under **Name**, e.g. *Sipgate_Plus_1*.

(2) Enter your provider's **Authentication ID** (SIP-ID), e. g. *1527861e0*.

(3) Enter the **Password** you received from your VoIP provider.

(4) For **User Name**, enter the name that your VoIP provider has sent you, e. g. *1527861e0*. This is the SIP-ID for the providers Sipgate, 1&1, QSC and Toplink.

(5) Enter an IP address or a domain name as the SIP **Registrar**.

- For Sipgate Basic/Plus: *sipgate.de*
- For 1&1: *sip.1und1.de*
- For QSC-IPfonie basic: *sip.qsc.de*
- When connecting the Deutsche Telekom Call & Surf Comfort IP connection: *tel.t-online.de*
- For Toplink: *toplink-voice.de*

(6) Use **Add** under **Individual Number (MSN)** to create a new entry.
Enter the number that your VoIP provider has given you under **Individual Number (MSN)**, e.g. *4911148797640*.
Enter a name for the connection under **Displayed Name**, e.g. *Sipgate_1*. This is displayed on the system telephone for incoming calls.

Note

Several numbers can be configured here for the providers QSC-IPfonie basic and Toplink.

For the providers Sipgate Basic/Plus, 1&1 and Deutsche Telekom, an additional SIP connection with separate SIP account data must be created for each additional number provided by the SIP provider. In order to enable outgoing calls to be made via other numbers or SIP connections, additional authorisation classes should be configured under **Numbering** -> **User Settings**-> **Authorisation Classes**.

(7) Use **Add** under **Authorisation Class** to create a new entry and select an authorisation class, e.g. *Default CoS*.

(8) Enable **Generate International Number** and **Generate National Number**.

(9) Leave the remaining settings unchanged and confirm them with **OK**.
After the system is successfully registered with the SIP provider, the status display of the respective SIP connection changes to .

14.3.1.1 1&1

For the SIP provider 1&1, the prefix *49* must be replaced by *0* for the incoming number. By doing this, this ensures the numbers and names from the system telephone book are correctly displayed for any incoming calls.

(1) Go to **VoIP** -> **Settings** -> **SIP Provider** -> **<1und1>** ->.

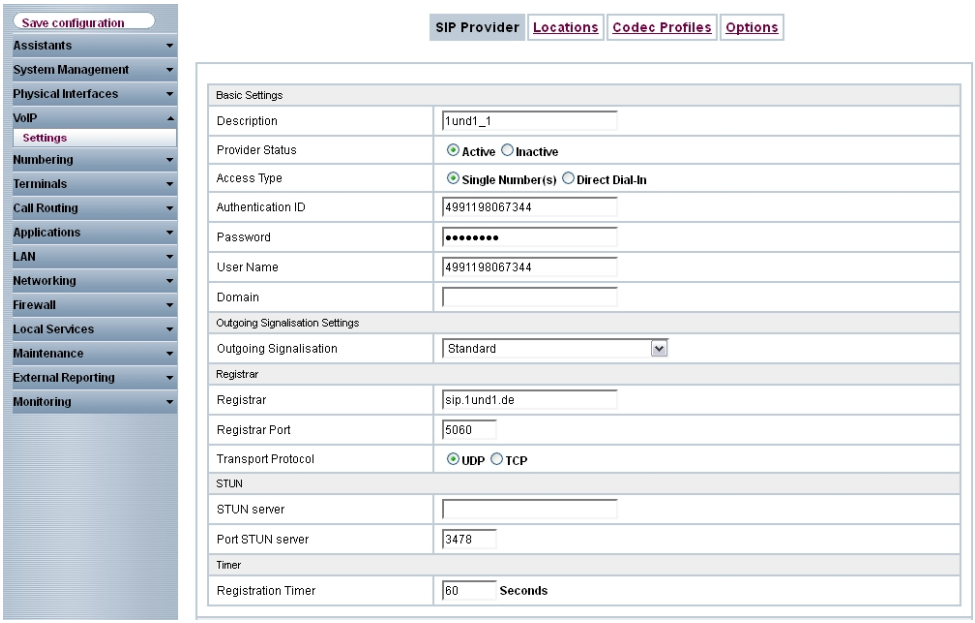


Fig. 222: **VoIP** -> **Settings** -> **SIP Provider** -> **<1und1>** ->

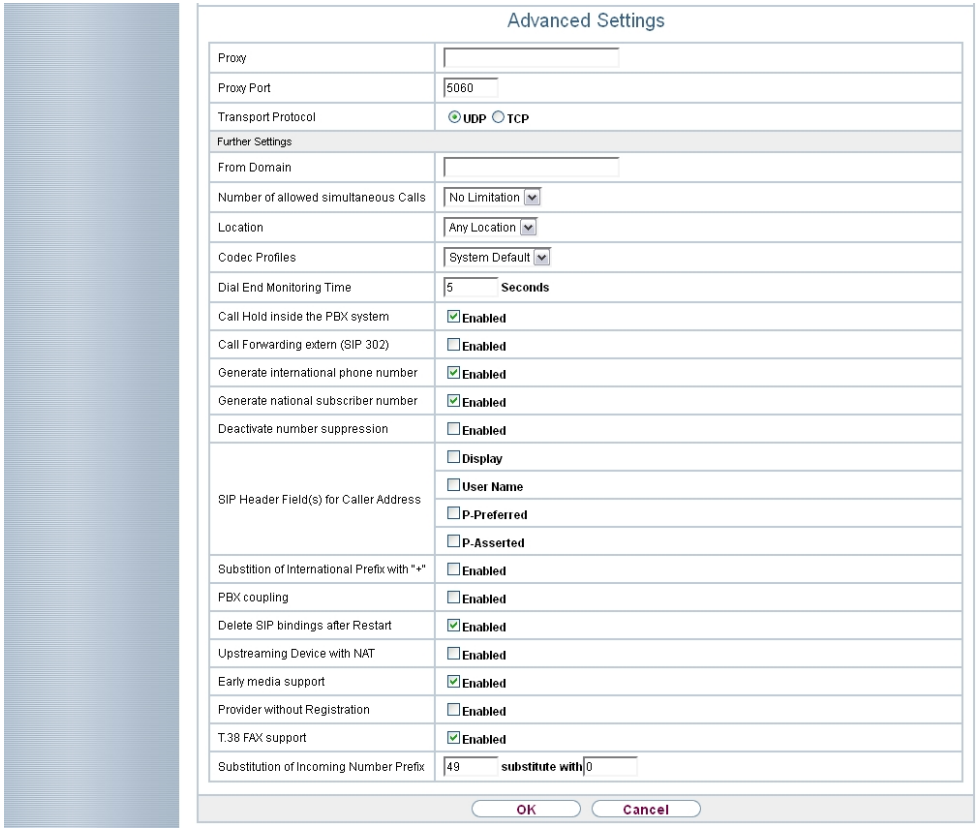


Fig. 223: **VoIP** -> **Settings** -> **SIP Provider** -> **<1und1>** -> -> **Advanced Settings**

Proceed as follows:

(1) Enter *49* under **Replacing Incoming Number Prefix**.

(2) Enter *0* under **Replaced By**.

(3) Leave the remaining settings unchanged and confirm them with **OK**.

Note

If the PBX Wizard is used again for this connection, then all settings are reset in the **VoIP** -> **Settings** -> **SIP Provider** menu.

14.3.1.2 QSC-IPfonie basic

The option *User Name* must be enabled for the SIP header for the SIP provider QSC-IP-fonie basic. By doing so, this then makes it possible to use different numbers for outgoing calls.

(1) Go to **VoIP** -> **Settings** -> **SIP Provider** -> **<qsc_ipfonie_ basic>** ->.

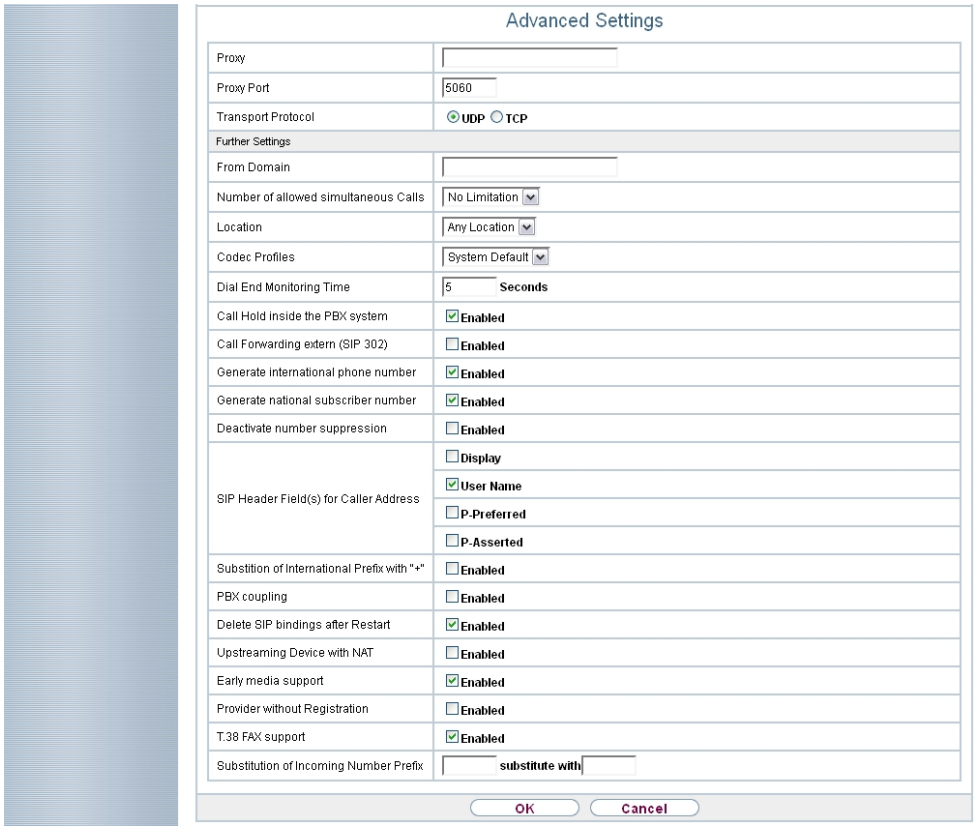


Fig. 224: **VoIP** -> **Settings** -> **SIP Provider** -> **<qsc_ipfonie_ basic>** ->

Proceed as follows to extend the SIP header:

(1) Enable the option *User Name* under **SIP Header Field(s) for Caller Address**.

(2) Leave the remaining settings unchanged and confirm them with **OK**.

Note

If the PBX Wizard is used again for this connection, then all settings are reset in the **VoIP** -> **Settings** -> **SIP Provider** menu.

14.3.1.3 Deutsche Telekom

The *tel.t-online.de* domain must be configured for the SIP provider Deutsche Telekom.

(1) Go to **VoIP** -> **Settings** -> **SIP Provider** -> **<telekom>**->.

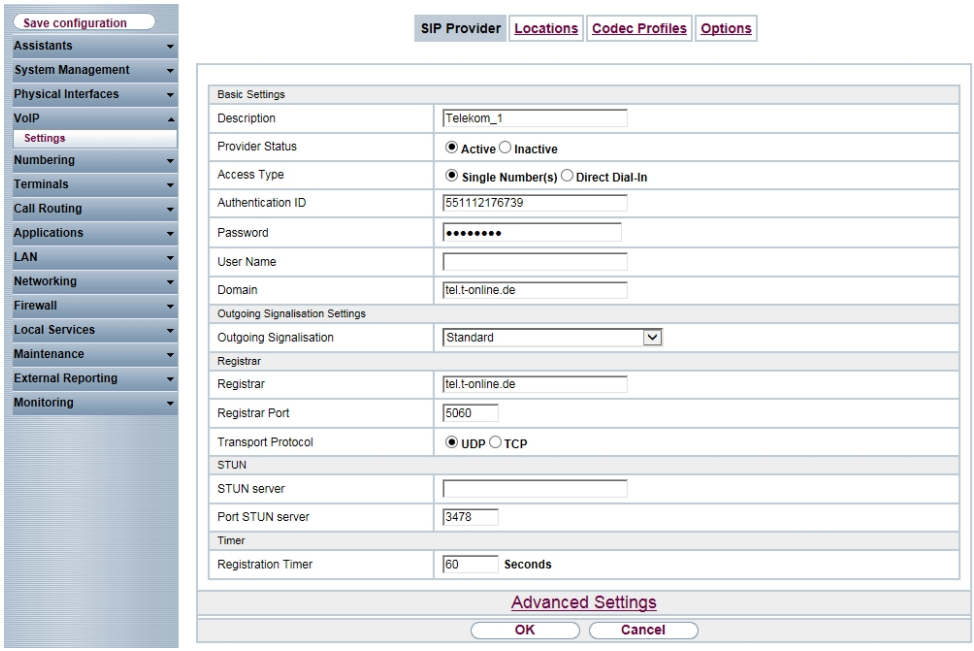


Fig. 225: **VoIP** -> **Settings** -> **SIP Provider** -> **<telekom>**->

Proceed as follows to enter a domain:

(1) Enter *tel.t-online.de* under **Domain**.

(2) Leave the remaining settings unchanged and confirm them with **OK**.

Note

If the PBX Wizard is used again for this connection, then all settings are reset in the **VoIP** -> **Settings** -> **SIP Provider** menu.

14.3.1.4 Toplink

The option *P-Preferred* must be enabled for the SIP header for the SIP provider Toplink.

(1) Go to **VoIP** -> **Settings** -> **SIP Provider** -> **<toplink>**-> -> **Advanced Settings**.

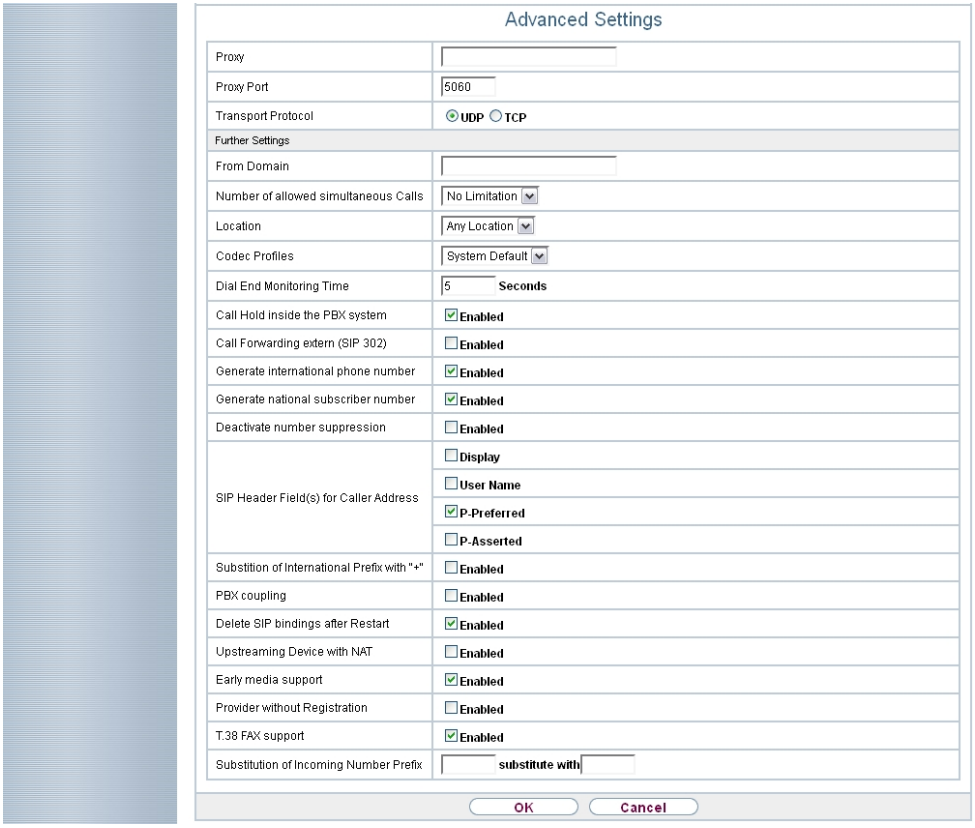


Fig. 226: **VoIP** -> **Settings** -> **SIP Provider** -> **<toplink>**-> -> **Advanced Settings**

Proceed as follows to extend the SIP header:

(1) Enable the option *P-Preferred* under **SIP Header Field(s) for Caller Address**.

(2) Leave the remaining settings unchanged and confirm them with **OK**.

Note

If the PBX Wizard is used again for this connection, then all settings are reset in the **VoIP** -> **Settings** -> **SIP Provider** menu.

14.3.2 SIP provider (extension)

Prerequisite

The following describes how to set up a SIP provider when using an extension connection.

(1) Go to **Assistants** -> **PBX** -> **Trunks** -> **New**.

(2) Select *SIP Provider (Extension)* under **Connection Type**.

(3) Click **Next**.

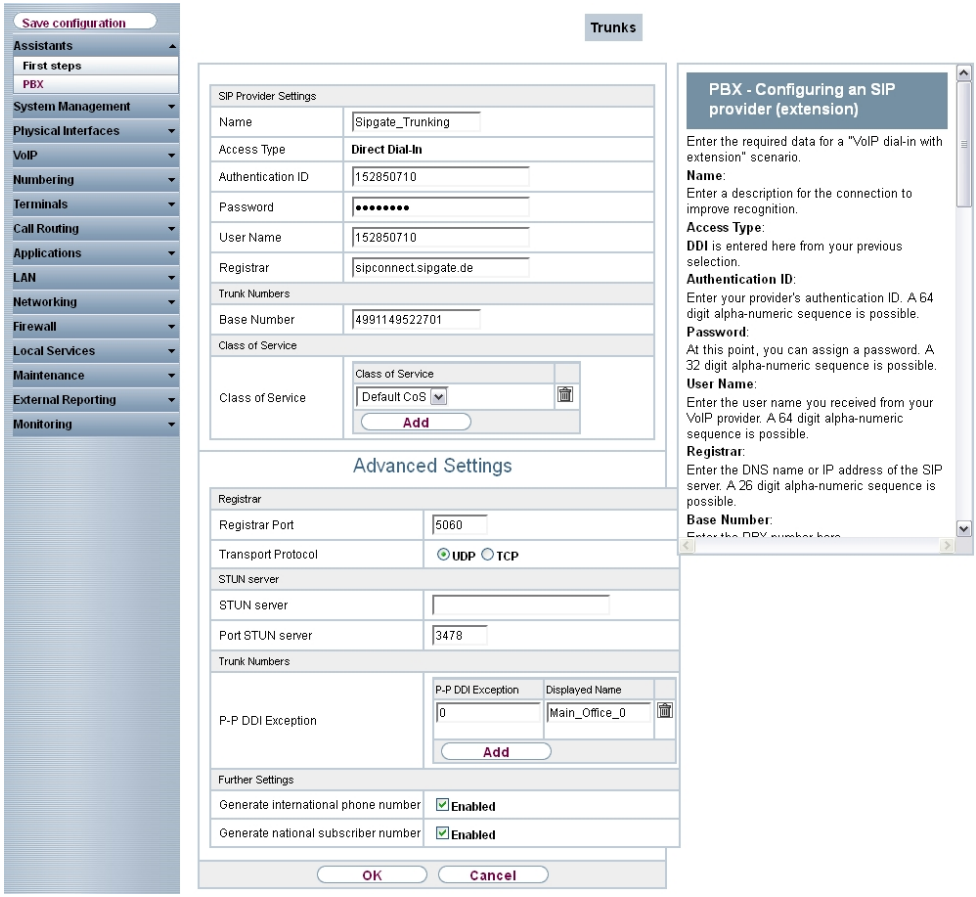


Fig. 227: **Assistants** -> **PBX** -> **Trunks** -> **New**-> **<SIP Provider (Extension)>**

Proceed as follows to save the login information of the SIP provider:

Note

No **STUN server** may be configured when accessing the Internet via an internal or external DSL modem or a gateway with SIP proxy.

For certain SIP providers, a **STUN server** must be configured for gateways without SIP proxy and established full-cone Network Address Translation (NAT).

(1) Enter a name for the SIP provider under **Name**, e.g. *Sipgate_Trunking*.

(2) Enter your provider's **Authentication ID** (SIP-ID), e. g. *1528507t0*.

(3) Enter the **Password** you received from your VoIP provider.

(4) For **User Name**, enter the name that your VoIP provider has sent you, e. g. *1528507t0*. This is the SIP-ID for the providers Sipgate and QSC.

(5) Enter an IP address or a domain name as the SIP **Registrar**.

- For Sipgate Trunking: *sipconnect.sipgate.de*
- Für QSC-IPfonie extended: *sip.qsc.de*

(6) Enter a **Main Number**, e.g. *4911149522701*.

(7) Use **Add** under **Authorisation Class** to create a new entry and select an authorisation class, e.g. *Default CoS*.

(8) Use **Add** under **Direct Dial Extension (P-P)** to create a new entry.
Enter the extension number that your VoIP provider has given you under **Direct Dial Exception (P-P)**, e. g. *0*.
Enter a name for the connection under **Displayed Name**, e.g. *Zentrale-0*. This is displayed on the system telephone for incoming calls.

(9) Enable **Generate International Number** and **Generate National Number**.

(10) Leave the remaining settings unchanged and confirm them with **OK**.
After the system is successfully registered with the SIP provider, the status display of the respective SIP connection changes to .

14.3.2.1 Sipgate Trunking

The option *P-Preferred* must be enabled for the SIP header for the SIP provider Sipgate Trunking.

(1) Go to **VoIP** -> **Settings** -> **SIP Provider** -> **<sipgate_trunking>** -> **Advanced Settings**.

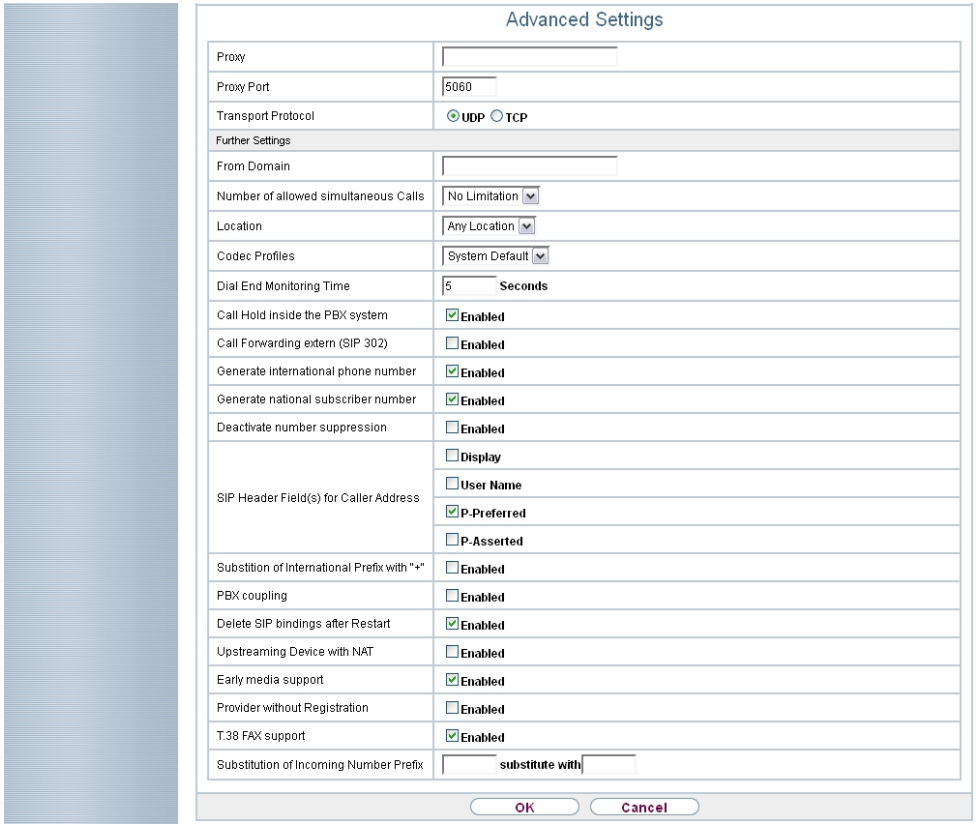


Fig. 228: **VoIP** -> **Settings** -> **SIP Provider** -> **<sipgate_trunking>** -> **Advanced Settings**

Proceed as follows to extend the SIP header:

(1) Enable the option *P-Preferred* under **SIP Header Field(s) for Caller Address**.

(2) Leave the remaining settings unchanged and confirm them with **OK**.

Note

If the PBX Wizard is used again for this connection, then all settings are reset in the **VoIP** -> **Settings** -> **SIP Provider** menu.

14.3.2.2 QSC-IPfonie extended

The option *User Name* must be enabled for the SIP header for the SIP provider QSC-IPfonie extended.

(1) Go to **VoIP** -> **Settings** -> **SIP Provider** -> **<qsc_ipfonie_extended>** -> **Advanced Settings**.

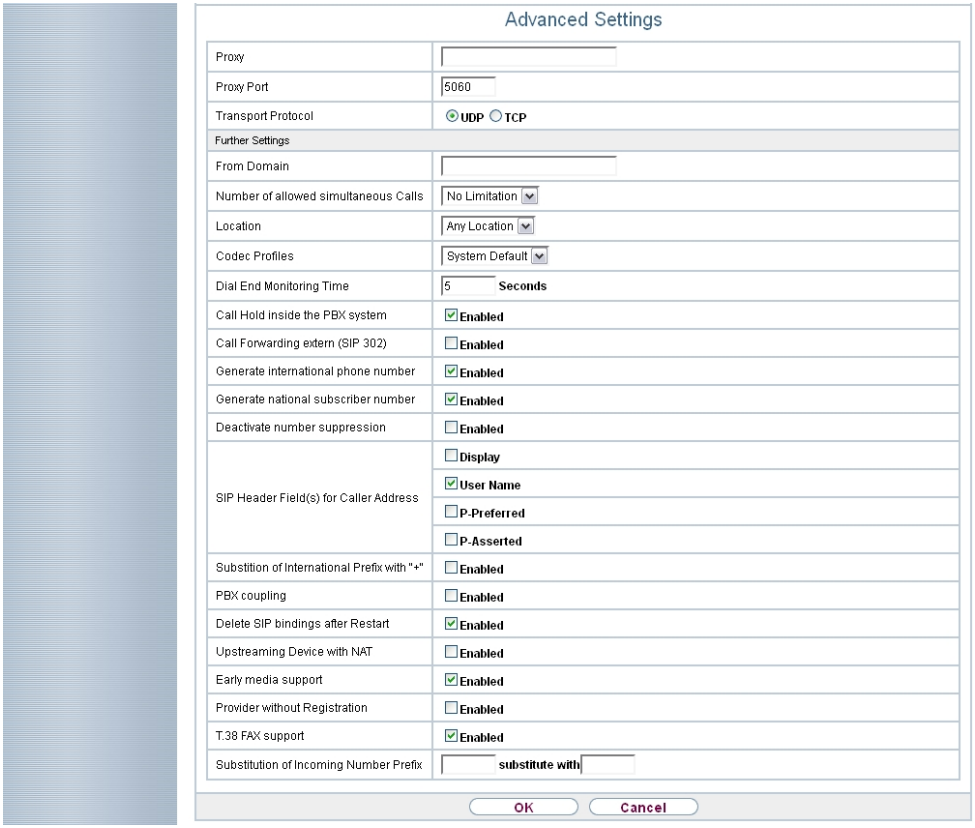


Fig. 229: **VoIP** -> **Settings** -> **SIP Provider** -> **<qsc_ipfonie_extended>** -> **Advanced Settings**

Proceed as follows to extend the SIP header:

(1) Enable the option *User Name* under **SIP Header Field(s) for Caller Address**.

(2) Leave the remaining settings unchanged and confirm them with **OK**.

Note

If the PBX Wizard is used again for this connection, then all settings are reset in the **VoIP** -> **Settings** -> **SIP Provider** menu.

14.4 Variants 1 + 2: Configuration of authorisation class (optional)

A suitable authorisation class must be assigned to the user for outgoing calls via a SIP provider.

Note

Create a user under **Numbering** -> **User Settings** ->**Users**.

You can use the same authorisation class for the user as is used for the configuration of the SIP provider, e.g. `Default CoS`.

In all other cases, the authorisation class assigned to the user must be amended as follows:

(1) Go to **Numbering** -> **User Settings** ->**Authorisation Classes** -> **<User Authorisation Class>** ->**Basic Settings**.

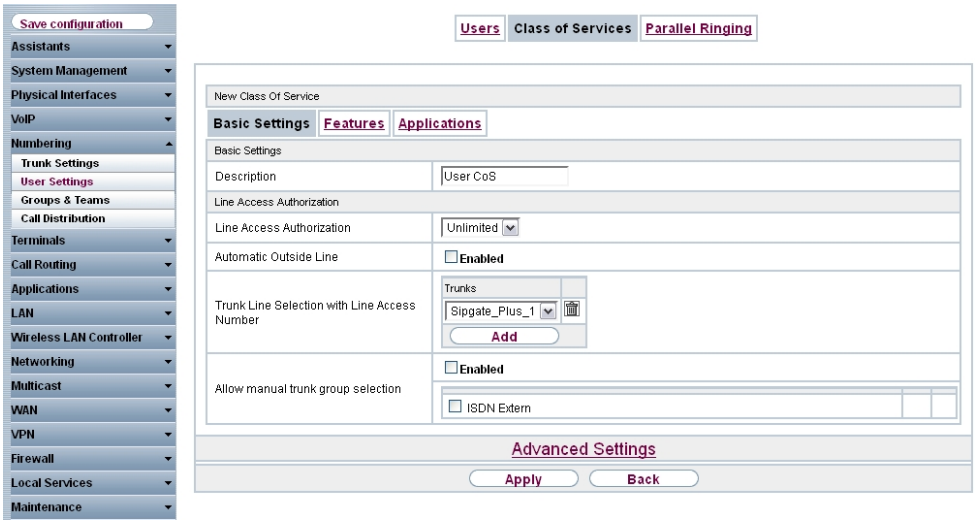


Fig. 230: **Numbering** -> **User Settings** ->**Authorisation Classes** -> **<User Authorisation Class>** ->**Basic Settings**

Proceed as follows to amend the authorisation class:

(1) Use **Add** under **Trunk Line Selection with Line Access Number** to create a new entry and select your VoIP connection, e.g. `Sipgate_Plus_1`.

(2) Confirm with **Apply**.

14.5 Variants 1 + 2: Configuration of numbers in the elmeg hybird

14.5.1 Assignment of incoming calls

The following part stipulates which internal subscribers or teams can be reached via the external number of the SIP provider.

Note

A user must already have been created for the following step.

Create a user under **Numbering** -> **User Settings** ->**Users**. Assign an appropriate authorisation class to the user (see *Variants 1 + 2: Configuration of authorisation class (optional)* on page 241).

Assign a telephone to the user in the **Terminals** menu.

(1) Go to **Numbering** -> **Call Distribution**-> **Incoming Distribution** -><49911148797640> .

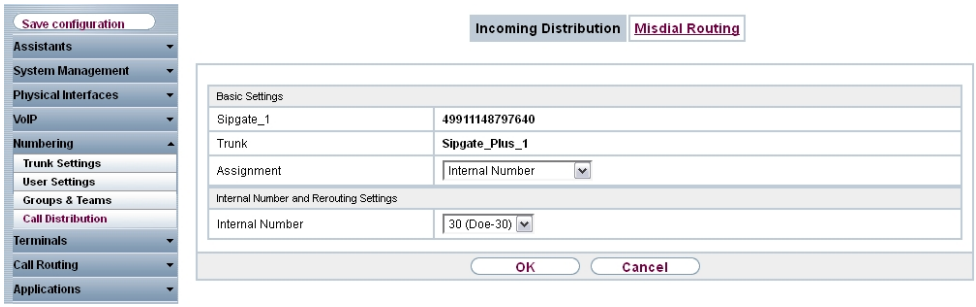


Fig. 231: **Numbering** -> **Call Distribution** -> **Incoming Distribution** -><49911148797640>

Proceed as follows to assign the external number to an internal number:

(1) Select *Internal Number* under **Assignment**.

(2) Select the internal number of the corresponding user under **Internal Number**, e.g. *30 (Bloggs-30)*.

(3) Confirm with **OK**.

(4) Repeat the procedure for all other SIP provider numbers.

14.5.2 Configuring of outgoing calls

14.5.2.1 SIP provider (individual number) QSC-IPfonie basic and Toplink

If several numbers are configured for a SIP provider, then the number which is sent with outgoing calls can be set for the participants.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<Bloggs-30>** ->**Outgoing Signalisation**-> **<30>**.

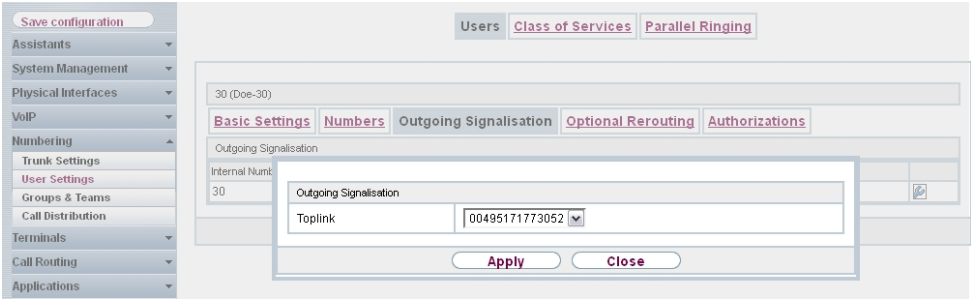


Fig. 232: **Numbering** -> **User Settings** -> **Users** -> **<Bloggs-30>** ->**Outgoing Signalisation**-> **<30>**.

Proceed as follows to assign an outgoing number to an internal number:

(1) Select a number, e.g. *00495171773052*, under SIP Provider Name, e.g. **Toplink**.

(2) Confirm with **Apply**.

14.5.2.2 SIP Provider (Extension) Sipgate Trunking and QSC-IPfonie extended

For outgoing calls, the main number along with the user's extension number are sent by default. This is in line with the setting *Standard, Own DDI Signals*. However, outgoing calls by the creating subscriber can also be sent using other configured numbers in the extension number range.

(1) Go to **Numbering** -> **User Settings** -> **Users** -> **<Bloggs-30>** ->**Outgoing Signalisation**-> **<30>**.

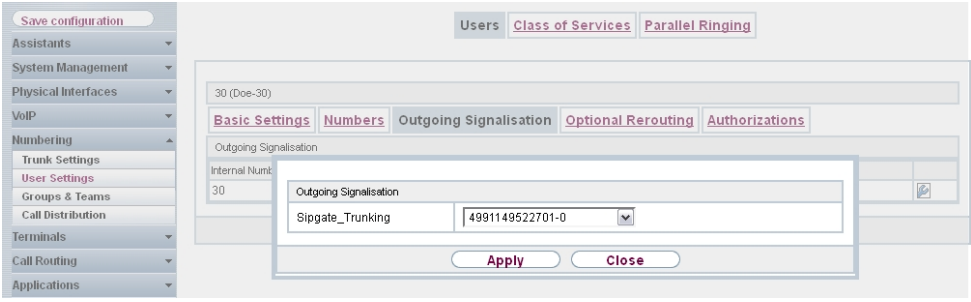


Fig. 233: **Numbering** -> **User Settings** -> **Users** -> **<Bloggs-30>** ->**Outgoing Signalisation**-> **<30>**.

Proceed as follows to select the outgoing number:

(1) Select a configured number, e.g. *004991149522701-0*, under SIP Provider Name, e.g. **Sipgate_Trunking**, which is then transmitted to the other subscriber.
If you select *Standard, Own DDI Signals*, the main number is transmitted along with the separate extension number.

(2) Confirm with **Apply**.

14.6 Overview of Configuration Steps

14.6.1 Basic Configuration

Variant 2: Configuration of the gateway (e.g. bintec RS232bw)

Field	Menu	Value
SIP Proxy	**VoIP** ->**SIP**-> **Options**	*Enabled*
Prioritize SIP Calls	**VoIP** ->**SIP**-> **Options**	*Enabled*

Variant 2: Configuration of elmeg hybird

Field	Menu	Value
Standard Gateway IP Address	**Assistants** -> **First steps** -> **Basic Setup**	e. g. *192.168.0.254*
Fixed DNS Server Address	**Assistants** -> **First steps** -> **Basic Setup**	*Enabled*
DNS Server 1	**Assistants** -> **First steps** -> **Basic Setup**	e. g. *192.168.0.254*

Variants 1 + 2: Configuration of country settings in the elmeg hybird

Field	Menu	Value
International Prefix/Country Code	**System Management** -> **Global Settings** -> **System**	e.g. *49*
National Prefix/Area Code	**System Management** -> **Global Settings** -> **System**	e.g. *911*

14.6.2 Variants 1 + 2: Configuration of SIP provider in the elmeg hybird

14.6.2.1 SIP provider (individual number)

SIP provider (individual number)

Field	Menu	Value
Name	**Assistants** -> **PBX** -> **Trunks** -> **New** -><**SIP Provider**>	e.g. *Sipgate_Plus_1*
Authentication ID	**Assistants** -> **PBX** -> **Trunks** -> **New** -><**SIP Provider**>	e.g. *1527861e0*
Password	**Assistants** -> **PBX** -> **Trunks** -> **New** -><**SIP Provider**>	
User Name	**Assistants** -> **PBX** -> **Trunks** -> **New** -><**SIP Provider**>	e.g. *1527861e0*
Registrar	**Assistants** -> **PBX** -> **Trunks** -> **New** -><**SIP Provider**>	e.g. *sipgate.de*
Individual Number	**Assistants** -> **PBX** -> **Trunks** -> **New** -><**SIP Provider**>	e.g. *4911148797640*
Displayed Name	**Assistants** -> **PBX** -> **Trunks** -> **New** -><**SIP Provider**>	e.g. *Sipgate_1*
Authorisation Class	**Assistants** -> **PBX** -> **Trunks** -> **New** -><**SIP Provider**>	e. g. *Default CoS*
Generate international call number	**Assistants** -> **PBX** -> **Trunks** -> **New** -><**SIP Provider**>	*Enabled*
Create inland call number	**Assistants** -> **PBX** -> **Trunks** -> **New** -><**SIP Provider**>	*Enabled*

1&1

Field	Menu	Value
Replacing incoming number prefix	**VoIP** -> **Settings** -> **SIP Provider** -><**1und1**> ->	*49*

Field	Menu	Value
Replaced By	**VoIP** -> **Settings** -> **SIP Provider** -><**1und1**> ->	*0*

QSC-IPfonie basic

Field	Menu	Value
SIP Header Field(s) for Caller Address	**VoIP** -> **Settings** -> **SIP Provider** -><**qsc_ipfonie_basic**> ->	*User Name*

Deutsche Telekom

Field	Menu	Value
Domain	**VoIP** -> **Settings** -> **SIP Provider** -><**telekom**> ->	*tel.t-online.de*

Toplink

Field	Menu	Value
SIP Header Field(s) for Caller Address	**VoIP** -> **Settings** -> **SIP Provider** -><**toplink**> ->	*P-Preferred*

14.6.2.2 SIP provider (extension)

SIP provider (extension)

Field	Menu	Value
Name	**Assistants** -> **PBX** -> **New** -> **<SIP Provider (Extension)>**	e.g. *Sipgate_Trunking*
Authentication ID	**Assistants** -> **PBX** -> **New** -> **<SIP Provider (Extension)>**	e.g. *1528507t0*
Password	**Assistants** -> **PBX** -> **New** -> **<SIP Provider (Extension)>**	
User Name	**Assistants** -> **PBX** -> **New** -> **<SIP Provider (Extension)>**	e.g. *1528507t0*
Registrar	**Assistants** -> **PBX** -> **New** -> **<SIP Provider (Extension)>**	e.g. *sipconnect.sipgate.de*
Main number	**Assistants** -> **PBX** -> **New** -> **<SIP Provider (Extension)>**	e.g. *4911149522701*
Authorisation Class	**Assistants** -> **PBX** -> **New** -> **<SIP Provider (Extension)>**	e. g. *Default CoS*
Direct Dial Exception (P-P)	**Assistants** -> **PBX** -> **New** -> **<SIP Provider (Extension)>**	e.g. *0*
Displayed Name	**Assistants** -> **PBX** -> **New** -> **<SIP Provider (Extension)>**	e.g. *Zentrale-0*
Generate international call number	**Assistants** -> **PBX** -> **New** -> **<SIP Provider (Extension)>**	*Enabled*
Create inland call number	**Assistants** -> **PBX** -> **New** -> **<SIP Provider (Extension)>**	*Enabled*

Sipgate Trunking

Field	Menu	Value
SIP Header Field(s) for Caller Address	**VoIP** -> **Settings** -> **SIP Provider** -><**toplink**> ->	*P-Preferred*

QSC-IPfonie extended

Field	Menu	Value
SIP Header Field(s) for Caller Address	**VoIP** -> **Settings** -> **SIP Provider** -><**toplink**> ->	*User Name*

14.6.3 Variants 1 + 2: Configuration of authorisation class (optional)

Variants 1 + 2: Configuration of authorisation class (optional)

Field	Menu	Value
Trunk Line Selection with Line Access Number	**Numbering** -> **User Settings** ->**Authorisation Classes**-> <**User Authorisation Class**> -> ->**Basic Settings**	e.g. *Sipgate_Plus_1*

14.6.4 Variants 1 + 2: Configuration of numbers in the elmeg hybird

Assignment of incoming calls

Field	Menu	Value
Assignment	**Numbering** -> **Call Distribution** -> **Incoming Distribution** -><**49911148797640**> ->	*Internal Number*
Internal Number	**Numbering** -> **Call Distribution** -> **Incoming Distribution** -><**49911148797640**> ->	e.g. *30 (Bloggs-30)*

Configuration of outgoing numbers - SIP provider (individual number) QSC-IPfonie basic and Toplink

Field	Menu	Value
e.g.	**Numbering** -> **User Settings** -> **Users**->	e.g. *00495171773052*

Field	Menu	Value
Toplink	**<Bloggs-30>** -> -> **Outgoing Signalisation**-> **<30>** ->	

Configuration of outgoing numbers - SIP Provider (Extension) Sipgate Trunking and QSC-IPfonie extended

Field	Menu	Value
e.g. Sipgate_Trunking	**Numbering** -> **User Settings** -> **Users**-> **<Bloggs-30>** -> -> **Outgoing Signalisation**-> **<30>** ->	e.g. *004991149522401-0*