

TANDBERG

3G Gateway

User Manual



Software version R2
D1384102

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Environmental Issues

Thank you for buying a product which contributes to a reduction in pollution, and thereby helps save the environment. Our products reduce the need for travel and transport and thereby reduce pollution. Our products have either none or few consumable parts (chemicals, toner, gas, paper). Our products are low energy consuming products.

TANDBERG's Environmental Policy

- TANDBERG's Research and Development is continuously improving TANDBERG's products towards less use of environmentally hazardous components and substances as well as to make the products easier to recycle.
- TANDBERG's products are Communication Solutions. The idea of these solutions is to reduce the need for expensive, time demanding and polluting transport of people. Through people's use of TANDBERG's products, the environment will benefit from less use of polluting transport.
- TANDBERG's wide use of the concepts of outsourcing makes the company itself a company with a low rate of emissions and effects on the environment.
- TANDBERG's policy is to make sure our partners produce our products with minimal influence on the environment and to demand and audit their compatibility according to applicable agreements and laws (national and international).

Environmental Considerations

Like other electronic equipment, the TANDBERG 3G Gateway contains components that may have a detrimental effect on the environment. TANDBERG works continuously towards eliminating these substances in our products.

- Printed-wiring boards made of plastic, with flame-retardants like Chloride or Bromide.
- Component soldering that contains lead.
- Smaller components containing substances with possible negative environmental effect.

After the product's end of life cycle, it should be returned to authorize waste handling and should be treated according to National and International Regulations for waste of electronic equipment.

Operator Safety Summary

For your protection, please read these safety instructions completely before operating the equipment and keep this manual for future reference. The information in this summary is intended for operators. Carefully observe all warnings, precautions and instructions both on the apparatus and in the operating instructions.

Warnings

- Caution risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.
- Water and moisture - Do not operate the equipment under or near water - for example near a bathtub, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool or in areas with high humidity.
- Cleaning - Unplug the apparatus from the wall outlet before cleaning or polishing. Do not use liquid cleaners or aerosol cleaners. Use a lint-free cloth lightly moistened with water for cleaning the exterior of the apparatus.
- Ventilation - Do not block any of the ventilation openings of the apparatus. Install in accordance with the installation instructions. Never cover the slots and openings with a cloth or other material. Never install the apparatus near heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Grounding or Polarization - Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician.
- Power-Cord Protection - Route the power cord so as to avoid it being walked on or pinched by items placed upon or against it, paying particular attention to the plugs, receptacles, and the point where the cord exits from the apparatus.
- Attachments - Only use attachments as recommended by the manufacturer.
- Accessories - Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- Lightning - Unplug this apparatus during lightning storms or when unused for long periods of time.
- Servicing - Do not attempt to service the apparatus yourself as opening or removing covers may expose you to dangerous voltages or other hazards, and will void the warranty. Refer all servicing to qualified service personnel.
- Damaged Equipment - Unplug the apparatus from the outlet and refer servicing to qualified personnel under the following conditions:
 - When the power cord or plug is damaged or frayed
 - If liquid has been spilled or objects have fallen into the apparatus
 - If the apparatus has been exposed to rain or moisture
 - If the apparatus has been subjected to excessive shock by being dropped, or the cabinet has been damaged
 - If the apparatus fails to operate in accordance with the operating instructions

Contact us

If you have any questions, comments or suggestions, please see the [Online Support](#) service at www.tandberg.net.

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1 Introduction

The TANDBERG 3G Gateways enable sites on IP and UMTS Handsets to participate in meetings with each other with the quality and reliability found in all TANDBERG equipment. A 3G Gateway can operate either standalone or in tandem operation with a TANDBERG Video Portal. In the latter case the 3G Gateway needs to register itself with the respective Video Portal, which opens up a wide range of interactive video and call routing services.

IP Services and Procedures

- Service Prefix.
- Load balance

UMTS Services

The TANDBERG 3G Gateway offers a variety of UMTS dial-in services:

- Direct Inward Dialing (DID) - The destination endpoint is determined from the dialed number
- Interactive Voice Response (IVR) - The destination endpoint can be selected via touch tones

Security

- Secure Access - support XML/SOAP over HTTPS, Web (HTTP) encrypted password and the services that can be disabled

Video Quality

- H.263 video compression

Audio Quality

- AMR, G.711 audio compression
- Support AMR bit rate 4.75 Kbit – 12.2 Kbit

Interoperability

- Worldwide compatibility with standards-based videoconferencing systems.
- Compatible with all available WCDMA H324M video telephony capable handsets who support DTMF tones.

Management Interfaces

SOAP Simple Object Access Protocol is a lightweight protocol for exchange of information in a decentralized, distributed environment

XML Extensible Markup Language is a flexible way to create common information formats and share both the format and the data on the World Wide Web, intranets, and elsewhere. This functionality can be used by management systems like the TANDBERG Management Suite to control the 3G Gateway.

HTTP Web-interface for system management, call management such as call transfer, diagnostics and software uploads.

HTTPS Hypertext Transfer Protocol over Secure Socket Layer is a Web protocol that encrypts and decrypts user page requests as well as the pages that are returned by the Web server. It uses Secure Socket Layer (SSL) as a sublayer under its regular HTTP application layering. HTTPS uses port 443 instead of HTTP port 80 in its interactions with

the lower layer, TCP/IP. SSL uses a 40-bit key size for the RC4 stream encryption algorithm, which is considered an adequate degree of encryption for commercial exchange.

Network and Features

- Up to 120 video sites can be connected at the same time.
- Call rate of 64 Kbit on ISDN side and 109kbps on IP side for each call is supported through the 3G Gateway.
- Video IVR
- Selecting IP endpoint from address book.

1.1 The TANDBERG 3G Gateway

Front view

The front panel provides 4 LAN interfaces, an LCD display, and an RS232 interface and control buttons.



Rear view



The back panel provides four PRI interfaces, which can be activated individually by software option keys, or 4 BRI interfaces depending on the configuration, one power switch/connector and a VGA connector. Next to the PRI RJ-45 4 LED's are mounted. In normal working condition the green LED will be lit. Functions of the LED's are:

Green: Normal operation

Red Alarm or Loss of signal (LOS) indicates that there is no signal and thus no framing info received. A defect or unplugging the PRI cable will result in the same effect.

Yellow Alarm or Remote Alarm Indicator (RAI) means that the 3G Gateway is receiving framing info, but in this framing info the other side tells the 3G Gateway that it is not reading the gateway's transmitted framing info. Typically, this may be a broken connector in the transmit (TX) part of the PRI cable. This could also indicate weak or noisy signal in the transmit (TX) part of the PRI cable.

Blue Alarm indicates that the received frames are not synchronized properly.

No LED's light up, indicates that layer one framing is working (right protocol like for example EURO ISDN selected), however there is a problem at layer 2 caused by for example a CRC4 configuration mismatch.

1.1.1 3G GATEWAY Capacity – typical scenarios

Due to the fixed bandwidth of UMTS video telephony every call will be limited to 64 Kbit. This offers a capacity of 30 simultaneous calls through a single PRI 3G Gateway or 8 calls through a 4 x BRI 3G Gateway. Due to audio transcoding (AMR to G.711) the bandwidth at IP side is 109 Kbit/s per session, 64 Kbit G.711 audio and 45 Kbit H.263 video. Depending on the option package and version of the 3G Gateway (PRI or BRI) the amount of simultaneous 3G calls can be less than 30 or 23 for T1.

2 Installation

Precautions:

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninstalled telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
- Do not use the telephone to report a gas leak in the vicinity of the leak.
- The socket outlet shall be installed near to the equipment and shall be easily accessible.
- Never install cables without first switching the power OFF.
- This product complies with directives: LVD 73/23/EC, EMC 89/366/EEC, R&TTE 99/5/EEC.
- This product complies with the standards GR-63-CORE and GR-1089-CORE and is NEBS approved by UL .For NEBS compliance, the product should be installed in the following manner:
There should be a clearance of 9.1cm between the product and any other product mounted in the rack.

2.1 Unpacking

To avoid damage to the unit during transportation, the 3G Gateway is delivered in a special shipping box, which should contain the following components:

- User Manual and other documentation on CD.
- Rack-ears, screws and screwdriver.
- Cables:
 - Power cable
 - One to four ISDN PRI cables, depending on the number PRI Option keys, or 4 ISDN BRI cables depending on the version.
 - Ethernet cable
 - RS232 cable
- TANDBERG 3G Gateway

Installation site preparations

- Make sure that the 3G Gateway is accessible and that all cables can be easily connected.
- For ventilation: Leave a space of at least 10cm (4 inches) behind the 3G Gateway's rear panel and 10cm (4 inches) in front of the front panel.
- The room in which you install the 3G Gateway should have an ambient temperature between 0°C and 35°C (32°F and 95°F) and between 10% and 90% non-condensing relative humidity.
- Do not place heavy objects directly on top of the 3G Gateway.
- Do not place hot objects directly on top, or directly beneath the 3G Gateway.
- Use a grounded AC power outlet for the 3G Gateway.
- You will need a CSU (Channel Service Unit) between your system and the PRI line from your network provider.
- Make sure that it is possible to receive and to make Mobile(h324M) video calls from behind this line. Check this with your network operator!
- If you are behind a PABX make sure that the PBABX is capable of routing Mobile (H324M) video calls.

2.2 Connecting cables

Power cable

Connect the system power cable to an electrical distribution socket.

ISDN PRI or BRI cables

The E1/T1 cable should be connected to a CSU (Channel Service Unit). You will need a CSU between your 3G Gateway and the PRI line from your network provider.

LAN cable

To use the 3G Gateway on IP, connect a LAN cable from the 'LAN 1' connector on the 3G Gateway to your network. The LAN 2, 3 and 4' connector is not used and should be left open.

RS 232 cable

To control the 3G Gateway using the data port, connect an RS 232 cable between the 3G Gateway's RS 232 connector and the COM-port on a PC. For further information, please refer to the paragraph '2.3' and the Data Port Command Interface User Guide.

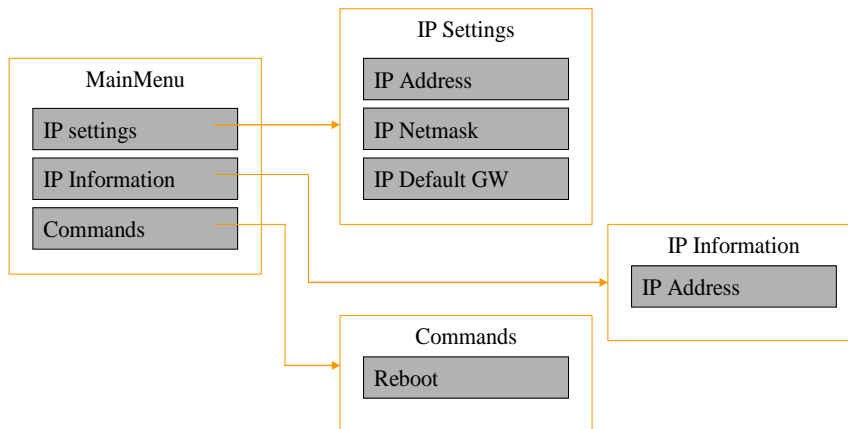
2.3 3G Gateway Configuration

The 3G Gateway requires some basic configurations before it can be used. It will be necessary to find the IP-address and to create the dial-in and dial-out services program the ISDN-PRI Line numbers.

It is possible to use the front panel LCD display or the serial RS232 cable. Using the RS232 cable follow the instructions below:

1. Connect the RS232 cable between the 3G Gateway and a PC and then switch on the 3G Gateway.
2. Start a terminal program on the PC and configure it to: 115200, 8, 1, None.
3.
 - a. To assign a static IP-address, type 'Xconf ip Assigment: "Static" ' and 'Xconf Ip address <IPAddr>'.
 - b. To assign an IP Subnetmask, type 'Xconf ip address subnetmask <subnetmask>'.
 - c. To assign an IP Gateway address, type 'Xconf ip address gateway <gateway IP-address>'.
4. Restart the 3G Gateway.
5. Start a WEB browser and enter the IP-address of the 3G Gateway. Default password: 'TANDBERG'.
6. To configure the 3G Gateway for UMTS dial in, enter PRI or BRI numbers and dial in number(s). For details, see the 'PRI Configuration' and the 'Services Configuration' section.
7. To configure the gateway for IP dial in, register the gateway to a gatekeeper and enter H.323 services. For details, see chapter 5.10, Services Configuration..

The LCD panel makes it possible to configure and the Check the IP settings and to reboot the system. The front panel LCD menu items are displayed below. Due to the limited amount of buttons the function will differ on every menu level also depending on the function of the menu (reading or editing). Appendix 6.2 contains a detailed description of every level and functions of every button. The usage of the buttons is designed in an intuitive way and should not result in any problems.



To configure the IP number, follow the instructions below:

1. Press any key to get the main menu.
2. IP settings should be displayed.
3. Press [ENTER] to access the IP settings menu.
4. Us the [UP/DOWN] key to select IP Address.
5. Press [ENTER] to access the IP address editing menu.

6. Press [ENTER] again to get a cursor.
7. Use up down keys to navigate between the different digits.
8. After selecting a digit use the [ENTER] key in combination with the [UP/DOWN] key to change the digit value.
9. When finished editing use [ESC] key to go to the confirm change menu.
10. Use the [UP/DOWN] key to select yes or no and [ENTER] to confirm.
11. Use [ESC] key to navigate back to the main menu.

Note that DHCP assigned IP-addresses are supported by the TANDBERG 3G Gateway (factory default),

3G Gateway start-up

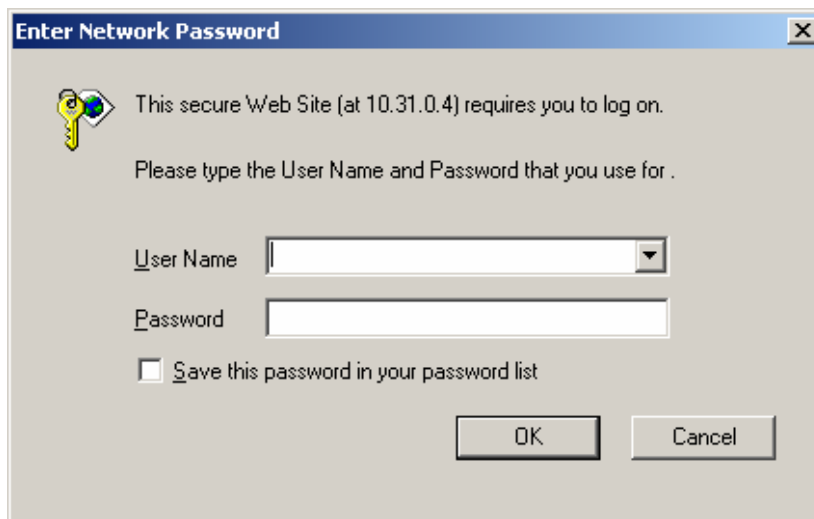
To start the 3G Gateway, please make sure that the power cable is connected, and press the power switch button at the back side to '1'.



On the front panel of the system the power indicator LED, marked 'Pwr', will turn GREEN.

Accessing the 3G Gateway

You may access the 3G Gateway by entering the IP-address of the 3G Gateway in a standard WEB-browser. You will then be asked to enter a password. It is not necessary to enter 'User Name'. The default password for the 3G Gateway is '**TANDBERG**'. Remember that the password is case sensitive. Note that it also possible to use SSH and Telnet to configure the 3G Gateway.



Note that the password can be changed in 'System Configuration', Misc'. See also the section '5.8 Miscellaneous Configuration'.

Forgot the password? Use the following procedure to set a new password:

- Reboot the 3G Gateway.
- Connect to the 3G Gateway via the serial interface once it has restarted.
- Login with User Name pwrec. No password is required.
- One will be prompted for a new password.

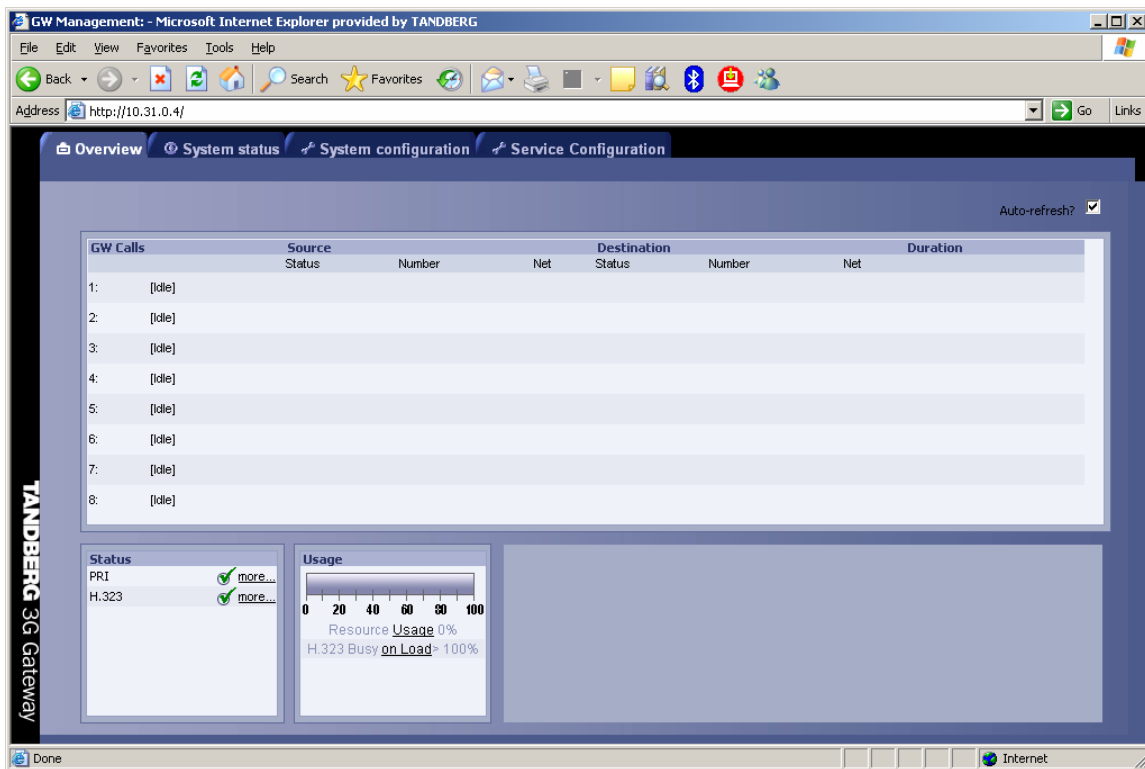
The pwrec account is only active for one minute following a restart. Beyond that time the system will have to be restarted again to change the password.

3 Using the 3G Gateway

3.1 Call Overview

The System Status windows of the Gateway can be accessed via the default URL: http://3G_Gateway_IP_Address/.

The **Overview** window presents information about all calls routed through the 3G Gateway, i.e. inbound and outbound numbers, duration of the call and call status, like ringing (alerting), connecting and connected.



GW Calls

Shows all active calls through the 3G Gateway.

[Idle] No call is active.

Active Call A call is active.

Source / Destination

Source shows the Status of the incoming call to the 3G Gateway, the number and which network the incoming call is using.

Destination shows the Status of the outgoing call from the 3G Gateway, the number and which network the outgoing call is using.

Idle No active call, call has been disconnected.

Alerting Call is being connected, i.e. ringing state.

Connected Call is connected.

Number ISDN or IP number.

IP/H.323 Call connected is using the H.323 protocol over IP.

Duration

Shows the length of the current call.

Status

Shows current status of the PRI and IP status.

PRI:



PRI line is synced and active. Click on More... to see status in detail.



PRI line is not active. Click on More... to see status in detail.

IP/H.323:



The gateway is registered with a Gatekeeper. Click on More... to see status in detail.

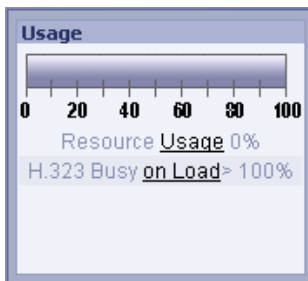


The gateway is not registered with a Gatekeeper. Click on More... to see status in detail.

Usage

The usage bar shows the current status of all the available resources (CPU, ISDN channels and number of calls)

When the Resource Usage reaches the "Busy on Load"-limit, the gatekeeper will try to route outgoing IP calls to other gateways. This is done to maintain availability for incoming UMTS calls when using multiple gateways.



Resource Usage 90%. Click on the Usage link to see resource usage in detail.

H.323 Busy on Load > 70%. Click on the Load link to adjust the value.

3.2 Dial from UMTS

The 3G Gateway supports three different UMTS Dial In services:

- “DiD” → Direct Inward dialing from a 3G handset.
- “IVR” → Dialing terminals from a 3G handset via a selection menu.
- “Phonebook” → Selecting an entry from a gateway phone book.

Any of these services can be enabled or disabled, but at least one must be enabled for incoming call routing to take place.

In order to enable parallel incoming calls, a PRI number range must be defined.

For more details on UMTS Dial-In services, please see the section ‘5.10 Services’.

DID

Direct Inward Dialing (DID) will provide you with direct ISDN numbers for your IP endpoints i.e. it will do a direct mapping between your ISDN number and an H.323/SIP Alias or vice versa. In order to use DID you will need to have assigned multiple ISDN numbers to your ISDN PRI or BRI line, as each ISDN number will map to a single IP endpoint.

Example:

- Your ISDN number range is from 67124000 to 67124050 and DID is enabled.
- You want your IP endpoints to have the numbers (H.323 Alias) in the range 94000 - 94050.
In the services Configuration, set (remove) Prefix/Nr to 67124, set Service Type to DiD and (add) Prefix/Nr to 9.
- To call an IP endpoint with H.323 Alias 94020 from ISDN, dial the ISDN number 67124020.
- The gateway starts to call the IP endpoint and the “connecting” picture and sound are activated.
- When the call is connected audio and video are transmitted through the gateway.

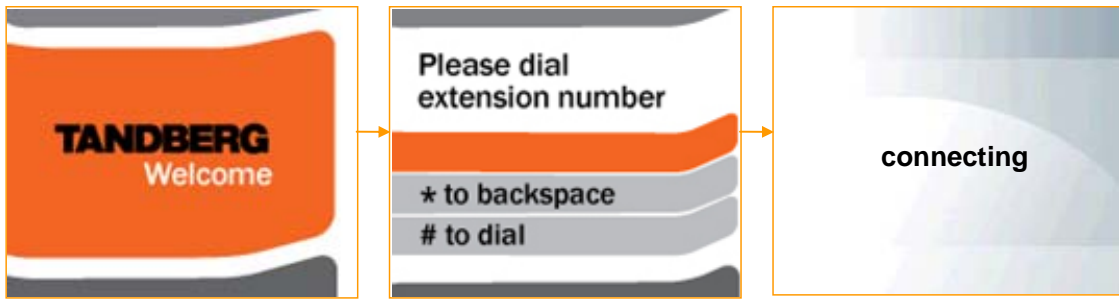
IVR

Interactive Video Response (IVR), also called extension dial-in, is an automated answering system that directs the call to the IP endpoint indicated by the caller. The caller uses telephone tones (DTMF) to enter the H.323/SIP Alias or extension.

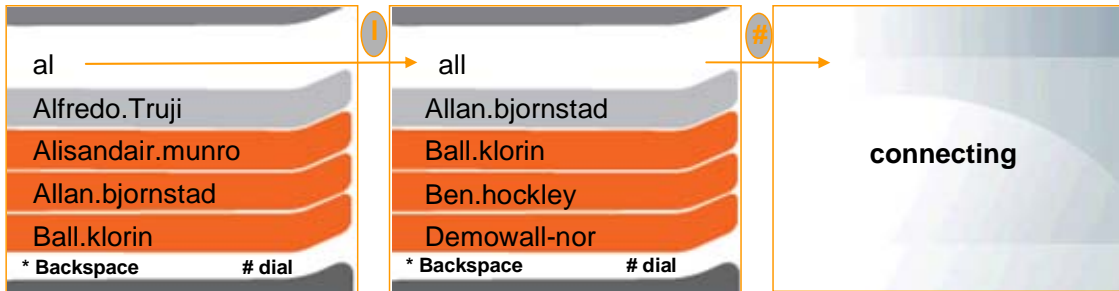
IVR is useful if you have limited numbers on your ISDN PRI or BRI line.

Example:

- A videoconferencing system calls into the Extension Dial In number with IVR active.
- The gateway activates the ‘Welcome’ picture and sound.
- The videoconferencing system enters the extension (H.323 Alias) followed by the # (pound-sign) to indicate end of number.
- The gateway starts to call the IP endpoint and the “Connecting” picture and sound are activated.
- When the call is connected audio and video are transmitted through the gateway.



IVR Phonebook IVR Phonebook allows an UMTS phone to dial an IP endpoint directly, without knowing or having to (manually) enter the extension number via DTMF. IVR Phonebook is a dial-in method, which combines a directory listing from TMS with IVR. In this mode the user can search in the global address book provided via TMS using the alphanumeric part of the keypad. The 3G Gateway supports T9 phonebook and starts displaying the 5 entries which match with the submitted characters as displayed below. Pressing 2 and 3 will result in a list with names containing the combinations 'ad', 'be', 'ce', etc. For example trying to reach Allan.Bjornstad is possible pressing the 2 and the 5 on the keyboard. This will result in a listing of names which contain 'al'. A valid list will contain both *alisdair.munro* and *anne.aalbuk*. The top name in the list is highlighted and via the pound key (#) this person will be dialed. In case the name is not listed pursue in completing the name using the T9 concept known from SMS. The star (*) key on the keyboard is used as backspace.



Example:

- An UMTS phone calls into the Extension Dial In number with IVR phonebook active. The gateway shows a menu which makes it possible to submit the name (both Christian and first name) via the alphanumeric DTMF keys. For example finding Michel is possible via pressing 6 (m,n,o),4 ,2. The top entry in the phonebook will be highlighted and pressing '#' will start to call the IP endpoint, the "Connecting" picture and sound are activated.
- When the call is connected audio and video are transmitted through the gateway.

Sequence of Services

To ensure best service to the incoming UMTS call, the gateway will first try to match the DID number, and then the IVR Phonebook number.

3.3 Dial from IP

IP endpoints and MCUs can call out through the gateway by using one of the services defined on the gateway. The gateway supports three different dial out services:

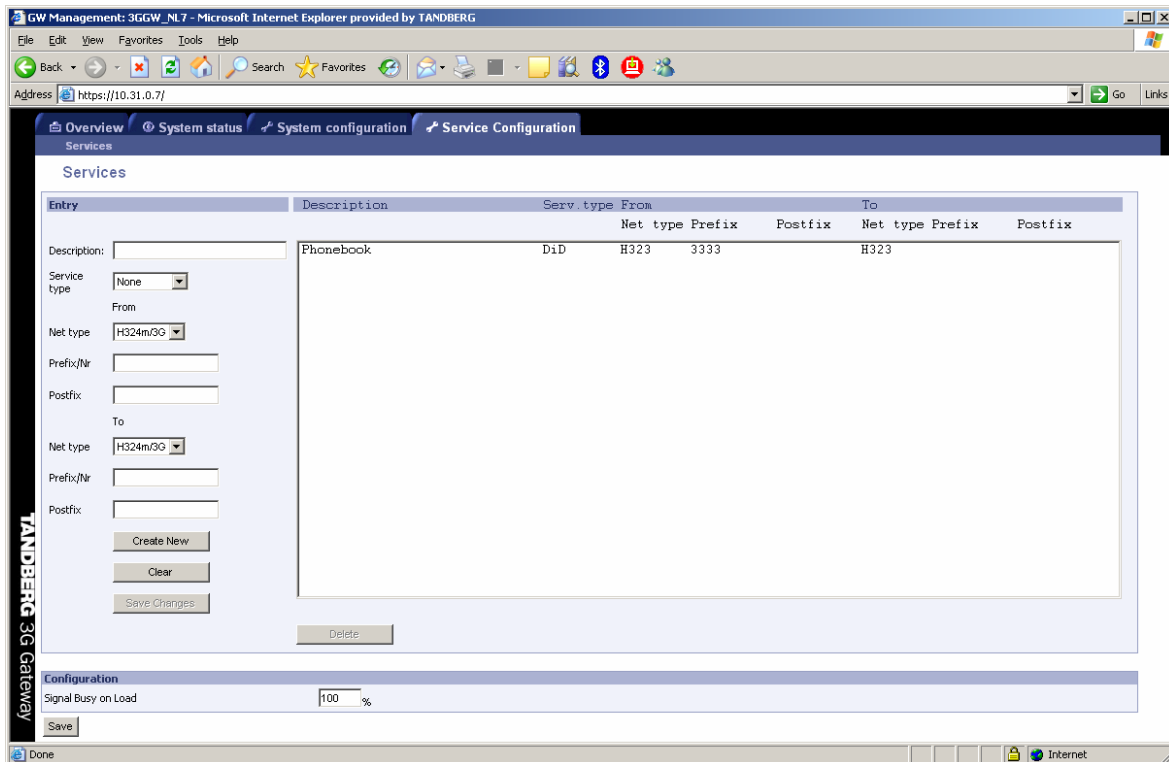
- “DiD” → Direct Inward Dialing to a 3G handset.
- “IVR” → Dialing 3G terminals via a selection menu.
- “Phonebook” → Selecting an entry from a gateway phonebook.

Services

Service prefixes are used for IP endpoints to access UMTS Handsets. Up to twenty services/prefixes can be defined, but we recommend using one single prefix for simplicity.

Example:

- An H.323 Service prefix for outgoing video calls is defined as “0”.
- The IP endpoint dials 067121212 to dial the UMTS number 67121212.
- The gateway starts to call the UMTS handset and the “Connecting” picture and sound are activated.
- Audio and video are transported through the gateway when the call is connected.

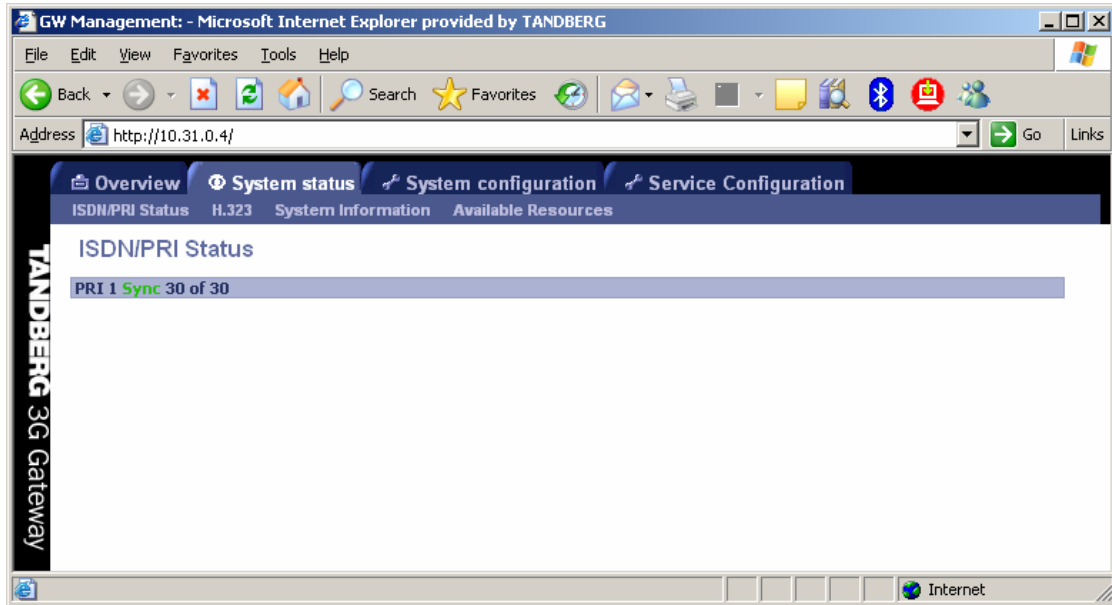


For more details on H.323 Services, please see '5.10 Services'.

Note that the bandwidth used for the call will be 109Kbit independent of the bandwidth selected on the IP endpoint, except for selecting 64 Kbit. However this will result in an audio only call.

4 View System Status

To view current gateway status, open 'System Status' as shown in the figure below.

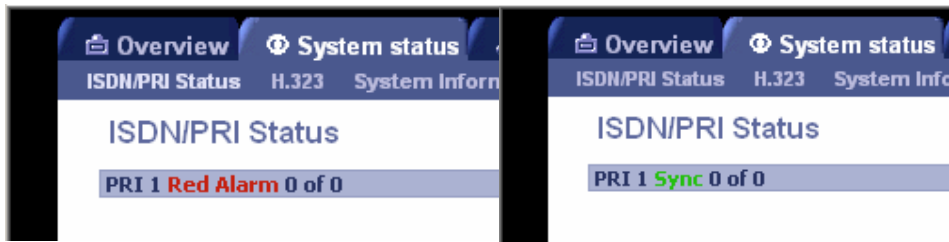


4.1.1 ISDN PRI/BRI Status

PRI Status

The colored part of the system status indicates the condition of the ISDN PRI line. There are three possible conditions:

- Sync 30 of 30. ISDN layer 1 and 2 are up and in sync.
- Sync 0 of 0, ISDN layer 1 and 2 are in sync but not up.
- Red Alarm, 0 of 0, ISDN layer 1 and 2 are down, mostly indicating a disconnected ISDN line.



Besides the indications on the webpage the ISDN interface also contains 4 LEDs, located at the back-side of the 3G Gateway.



These LEDs indicate the following **PRI status**:

Green: Normal operation

Red Alarm or Loss of signal (LOS) indicates that there is no signal and thus no framing info received. The same effect will be obtained by pulling out the PRI cable. This may also be caused by a broken connector in the receiver (RX) part of the cable.

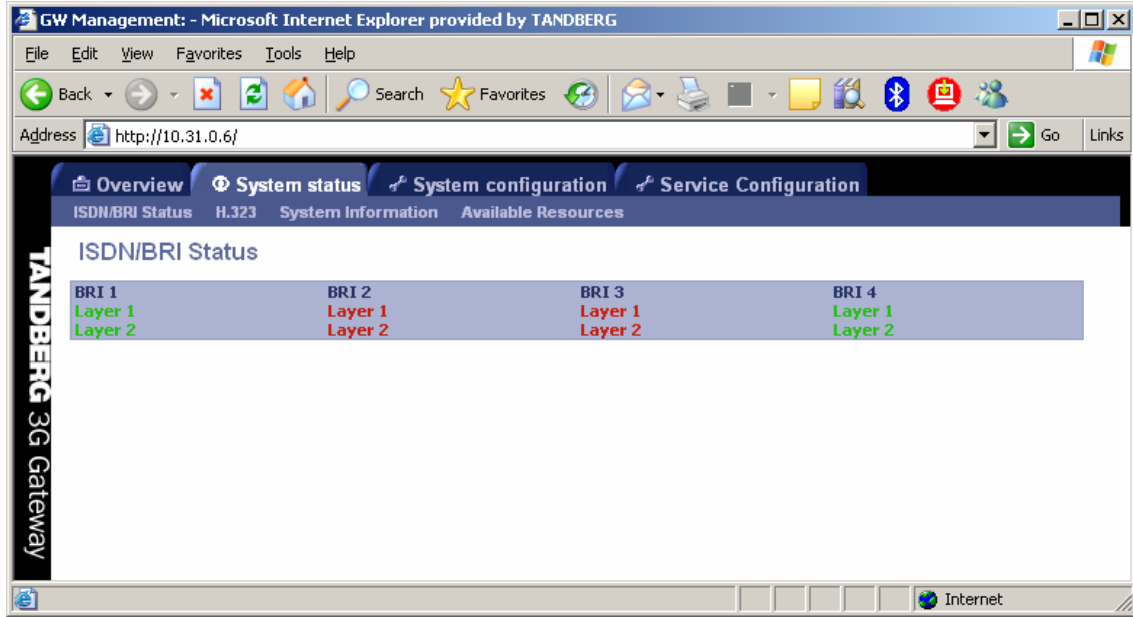
Yellow Alarm or Remote Alarm Indicator (RAI) means that the gateway is receiving framing info, but in this framing info the other side tells the gateway that it is not reading the gateway's transmitted framing info. Typically, this may be caused by a broken connector in the transmitter (TX) part of the PRI cable. This could also indicate weak or noisy signal in the transmitter (TX) part of the PRI cable.

Blue Alarm indicates that the received frames are not synchronized properly.

No LEDs light-up indicates that layer one framing is working (right protocol like for example EURO ISDN selected). However there is a problem at layer 2 caused by for example a CRC4 configuration mismatch.

BRI Status

The picture below shows the status page of a BRI version of the gateway.



The BRI status displays the conditions of ISDN layer 1 and 2 separately. Green indicates up and in sync. Red indicates not in sync and indicate probably a disconnected ISDN line.



Besides the indications on the webpage each ISDN BRI interface located at the back-side of the 3G Gateway has a green and orange LED. The meanings of these LEDs are:

Green: Layer 1 of the ISDN signaling is up.

Green and Orange indicates that both layers 1 and 2 are up. In some countries the orange LED can blink on a regular interval, or is turned on when there is an active call.

No LEDs light-up indicates that there is no connection or a wrong wired connection.

Note that in some countries layer 2 can be down when there is no activity (ongoing connections). However, layer 2 should become active when a call is made or received.

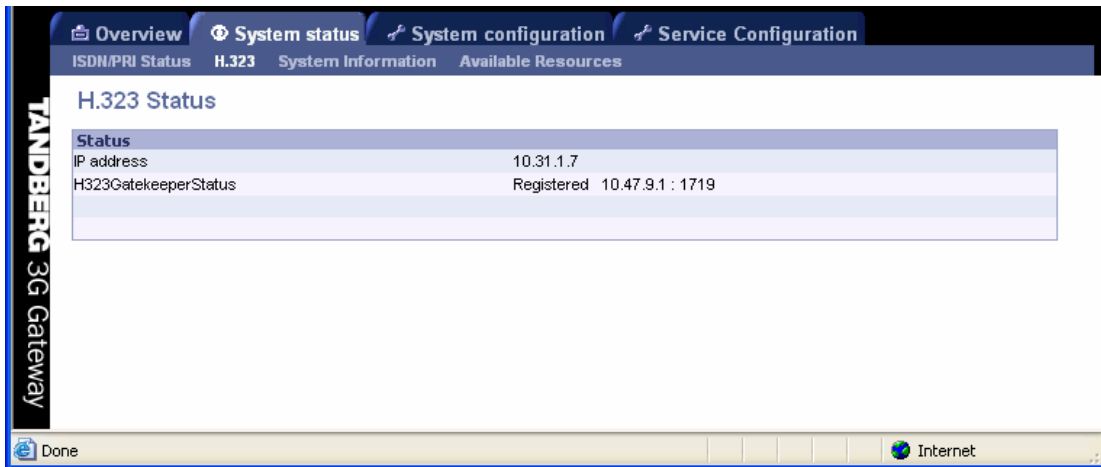
Note that in case the BRI 3G Gateway is connected with less than 4 BR lines, the BRI interfaces with the highest number(s) should be left open. For example when only 2 ISDN lines are used they should be connected with interface 1 and 2.

4.1.2 H.323 Status

To view H.323 gatekeeper status, open 'H.323 Status' as shown in the figure below.

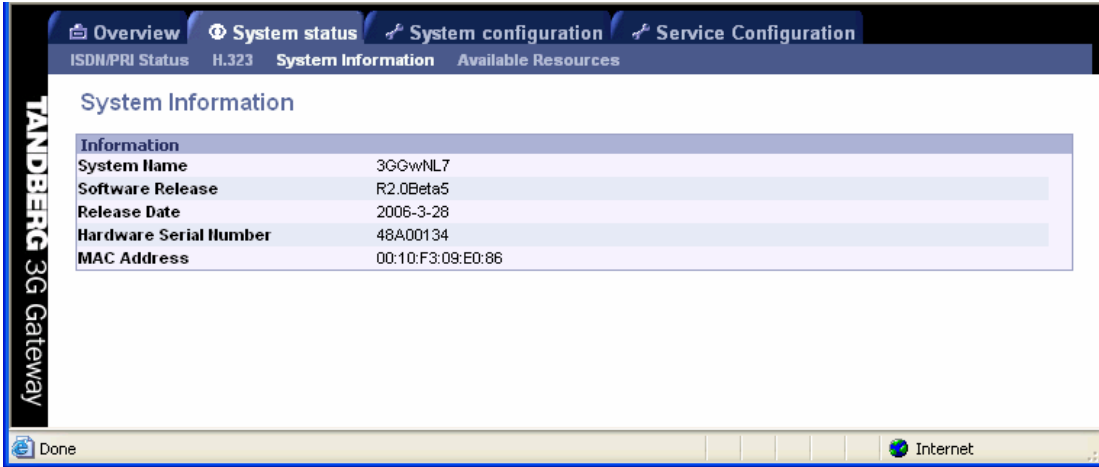
Note that, since this target system is not an endpoint it is not possible to use this IP address to place calls to or through the 3G Gateway.

IP Address	Shows the IP address of the 3G Gateway.
H.323 Gatekeeper Status	Shows status and IP address of the Gatekeeper, the 3G Gateway is registered to. 'Inactive' means the 3G Gateway is not registered to a Gatekeeper. 'Registering' means the 3G Gateway has problems registering with the selected Gatekeeper.



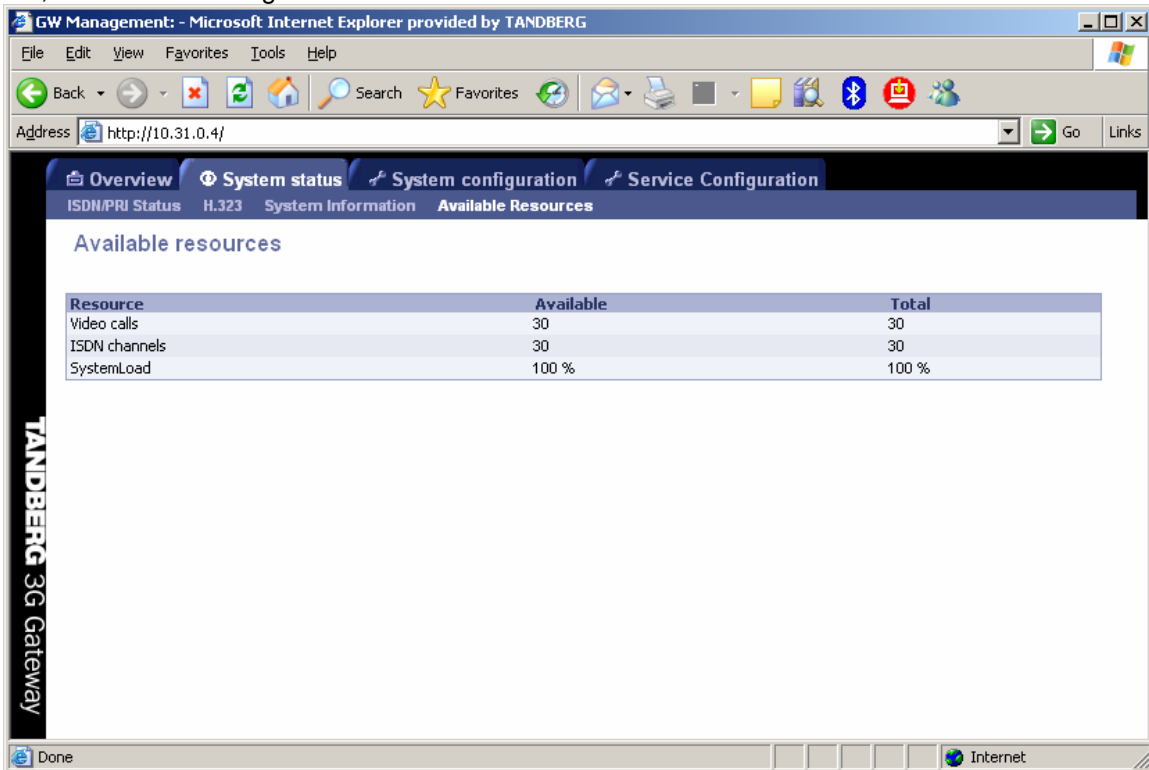
4.1.3 System Information

To view 3G Gateway information, open 'System Information of the System status tab, as shown in the figure below. This page provides an overview of installed software and hardware.



4.1.4 Available Resources

To view available resources of the 3G Gateway, open 'Available Resources' of the System status tab, as shown in the figure below.



This tab shows the actual System Load, the amount of video calls and the amount of available ISDN channels. These figures depend on the system's resource use. Note that available System Load 100% indicates no load on the 3G Gateway.

5 Configure the 3G Gateway

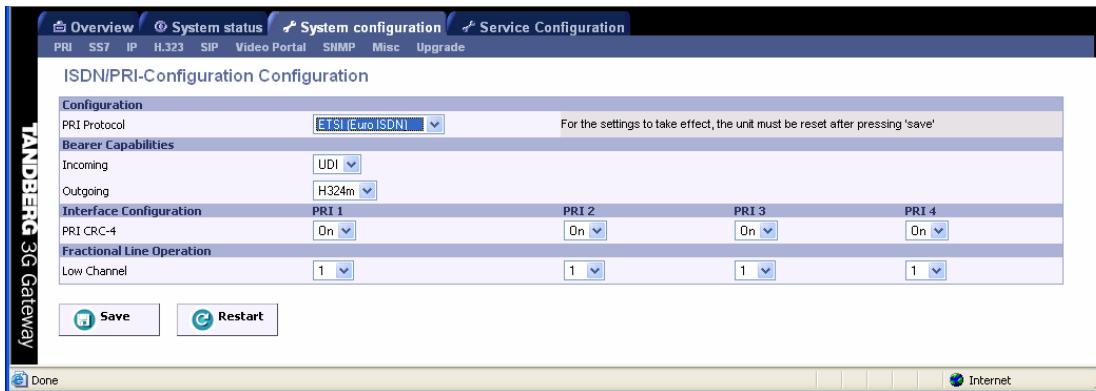
To configure the 3G Gateway, open 'System Configuration' tab, as shown in the figure below. In the system configuration window 9 tabs can be distinguished, i.e. PRI, SS7, IP, H.323, SIP, Video Portal, SNMP, Misc and Upgrade. The underlying settings of the aforementioned links will be discussed in paragraphs 5.1 - 5.9, respectively.

5.1 ISDN PRI/BRI Configuration

The first link of system configuration tab is either PRI or BRI, depending on the ISDN hardware configuration of the 3G Gateway. Paragraphs 5.1.1 and 5.1.2 will elaborate on the PRI and BRI settings, respectively.

5.1.1 PRI Configuration

To configure the PRI, select 'System Configure - PRI' as shown in the figure below.



PRI Protocol

Select between the following PRI protocols:

- ETSI (Euro ISDN)
- National ISDN
- AT&T Custom
- Japan/Taiwan ISDN
- SS7 (Only available when enabled with option key)

Save

When all settings are entered, please press the 'Save' - button to store the new settings.

Note changing from E1 to T1 configuration requires a restart of the unit.

Interface Configuration

This section configures the PRI or ISDN interface.

PRI CRC-4

Used for most E1-PRI configurations. If your network equipment does not support this feature, switch off PRI CRC-4.

Bearer capabilities

Within ISDN different bearer capabilities are used to signal the type of data (Voice, Data, H320, H324M), which is used by switches and other equipment to determine what to do with the data or the call (compressing voice data neglect etc).

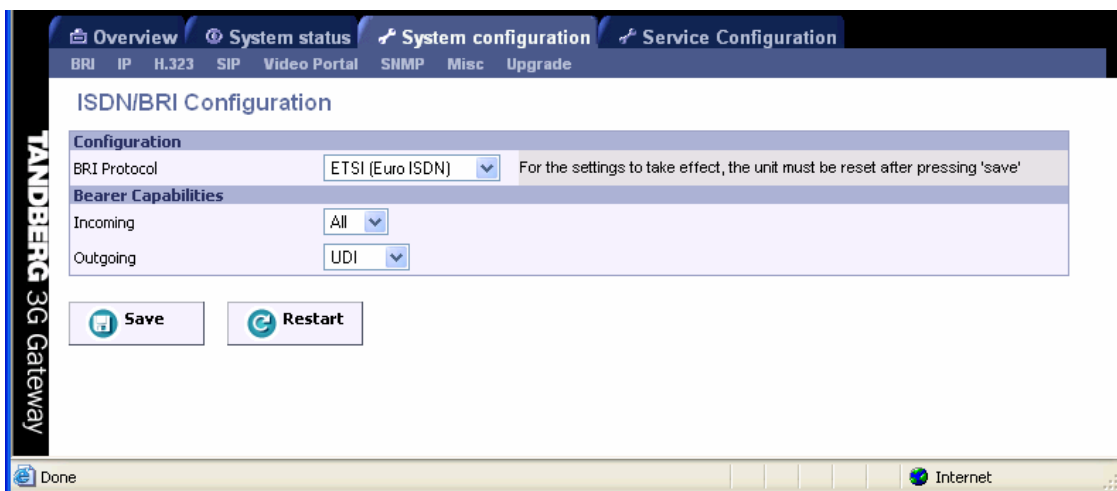
- **Incoming:** sets the ISDN bearer capability of the incoming 3G calls.
 - **UDI:** In some situations the non correct UDI (Unrestricted Digital Information) bearer is used in stead of the right H324M capability. This setting makes it possible to accept incoming 3G calls with UDI bearer signaling.
 - **ALL:** Means that calls independent of their bearer capabilities are accepted. This makes it even possible to accept audio calls.
- **Outgoing:** sets the ISDN bearer capability for the outgoing 3G calls.
 - **H324M:** This ITU standardized capability is selected for outgoing calls by default.
 - **UDI:** In some situations the switch does not accept calls which use the correct H324M capability. This setting makes it possible to use the gateway in these situations via selecting UDI.

Low Channel

Indicates the lowest numbered E1/T1 B-channel the system is allowed to use for each PRI-line when selecting channels for outgoing calls. Presently, this setting has no effect.

5.1.2 BRI configuration

To configure the 4 BRI ports, select 'System Configure - BRI' as shown in the figure below.



BRI Protocol

Select between the following BRI protocols:

- ETSI (Euro ISDN)
- National ISDN
- AT&T Custom
- Japan/Taiwan ISDN

Bearer capabilities

Within ISDN different bearer capabilities are used to signal the type of data (Voice, Data, H320, H324M), which is used by switches and other equipment to determine what to do with the data or the call (compressing voice data neglect etc).

- **Incoming:** sets the ISDN bearer capability of the incoming 3G calls.
 - **UDI:** In some situations the non correct UDI (Unrestricted Digital Information) bearer is used in stead of the right H324M capability. This setting makes it possible to accept incoming 3G calls with UDI bearer signaling.
 - **ALL:** Means that calls independent of their bearer capabilities are accepted. This makes it even possible to accept audio calls.
- **Outgoing:** sets the ISDN bearer capability for the outgoing 3G calls.
 - **H324M:** This ITU standardized capability is selected for outgoing calls by default.
 - **UDI:** In some situations the switch does not accept calls which use the correct H324M capability. This setting makes it possible to use the gateway in these situations via selecting UDI.

Note that it is not possible to configure ISDN BRI lines for special functions like dial out only. The gateway will automatically select a free BRI line for H323 to 3G calls and possibly block a DiD or an IVR menu when the BRI lines have different numbers. It is therefore strongly recommended that all ISDN BRI lines have the same number range. Contact your ISDN or telecom supplier about numbering plans of ISDN lines.

5.2 SS7 Configuration

To configure the Signaling System 7 (SS7 signaling) of the ISDN SS7 trunks click the 'SS7' link of the 'System configuration' tab, as depicted in the figure below.

General

- **Originating Point Code (OPC).** A number between $0-2^{14}$, which uniquely identifies a signaling point, in this case the 3G Gateway, within a telephone network. This number consists of three parts, i.e. a network, cluster and member number, and will be provided by the network operator.
- **Network indicator.** A two bit data field within the Service Information Octet of the Message Signal Unit that permits discrimination between national and international messages.
- **Law.** Either ALAW or ULAW. An a-law algorithm is a standard companding, i.e. compressing and expanding, algorithm, used in European digital communication systems to optimize, i.e. modify, the dynamic range of an analog signal for digitizing. The μ -law algorithm is similar to a-law and used in North American and Japanese systems.

Trunks

A maximum of four PRI's or SS7 trunks, i.e. cables carrying E1/T1, can be enabled in the 3G Gateway.

- **Mode.** Enable or disable a trunk.
- **Destination Point Code (DPC).** Uniquely identifies the destination signaling point of the trunk. It will be provided by the network operator.
- **CIC.** The Circuit Identification Code is a unique identifier for a data time slot in a cable (trunk). In this case the CIC acts as base address and can be defined for each SS7 trunk and sets the first time-slot number of the respective SS7 trunk.

Link sets

A link is a time slot within a trunk used for signaling. Link sets are typically used for signaling fail-over purposes to one switch.

- **Enabled.** Checking this box enables at least one signaling link in a link set.
- **Destination Point Code.** Uniquely identifies the destination signaling point of the link. This can differ from the DPC of the trunk, e.g. the DPC of a Signaling Transfer Point (STP), see example 2 below.
 - **Enabled.** Link1 is checked by default. Whereas, a second link box can be checked to define an extra signaling link for fail-over purposes.
 - **Trunk.** Number of the trunk (1 - 4) in which a time slot is reserved for signaling.
 - **Time slot.** Number of the time slot, within aforementioned trunk, reserved for signaling.
 - **SLC.** A Signaling Link Code is a unique link number provided by the network operator to identify a link.

Routes

Routes are typically used for signaling fail-over purposes via multiple switches.

- **Destination Point Code.** Unique identifier indicating the destination signaling point of a trunk.
- **Priority.** Priority level of the route to the destination signaling point. Fail-over signaling paths will be followed according to this priority.
- **Link set.** Indicates the link to the destination signaling point according to the above mentioned priority setting. When set to off the respective route is disabled.

Save

When ready to store the new settings, press 'Save'. These settings will take effect when the system has been restarted.

Restart

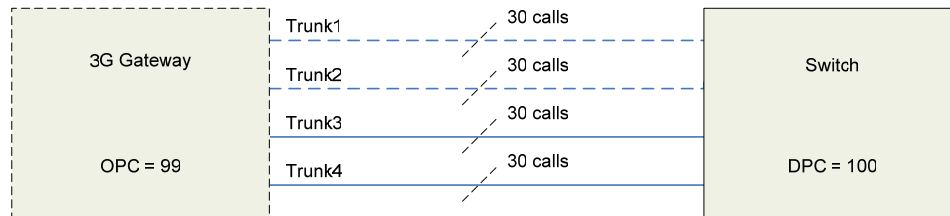
This button will restart the 3G Gateway. Any changes made in the SS7 Configuration of the 3G Gateway will take effect after the system has been restarted.

The following two examples will explain the above mentioned SS7 settings.

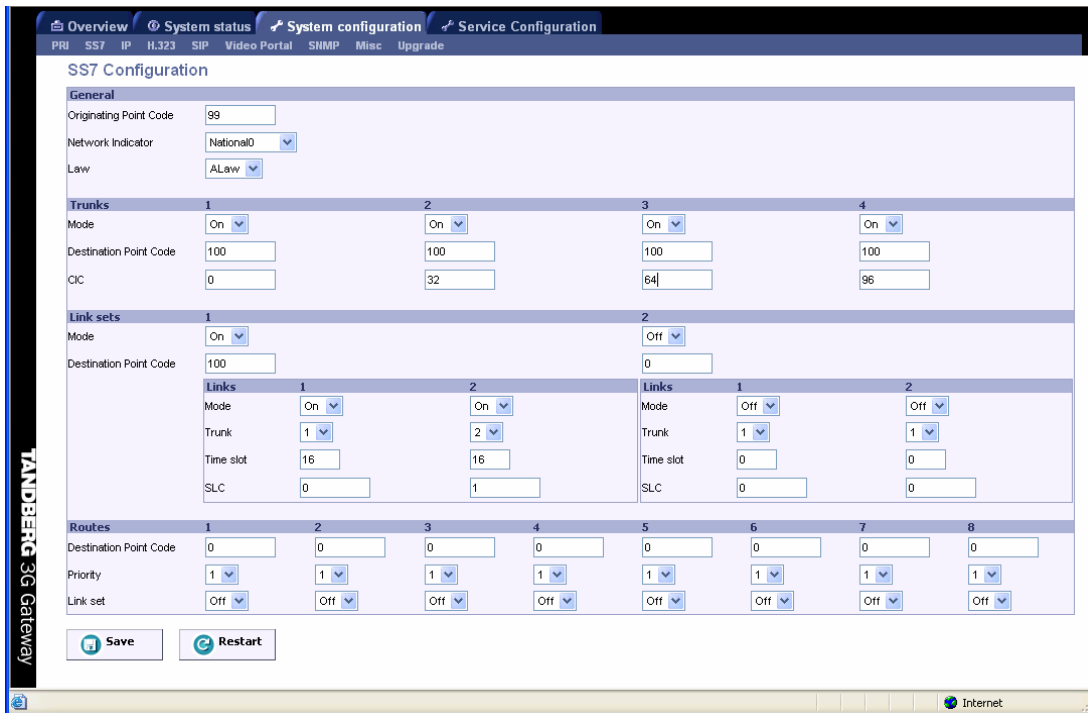
Example1

Suppose all 4 SS7 trunks of one 3G Gateway are connected to one switch, as indicated in the connection schematic below. In this example the Originating point code (OPC) of the 3G Gateway, equals 99 and the Destination Point Codes (DPCs) for all trunks equal 100. Both OPC and DPC are provided by the telephone network operator. These settings can be seen in the schematic and in the screen shot of the SS7 window below. All trunks can carry a maximum of 30 calls, i.e. 30 data time slots. Each data time slot is identified uniquely by its OPC, DPC and Circuit Identification Code (CIC). The "absolute" CIC consist of a CIC "base address", which has to be defined for each trunk in the SS7 window, i.e. in this case 0, 32, 64 and 96, and a relative address. The latter is a number between 0 and 31 and depends on the choice of the framing time slot and signaling time-slot numbers. Since one time slot is reserved for framing, in this case set to time slot 0 by default, and one time slot has to be defined for signaling (16 in this example), 30 time slots are left to transport call related data, i.e. time slots with relative addresses 1-15 and 17-31, see the table in the schematic below.

In the 3G gateway for signaling fail-over purposes a maximum of 2 SS7 trunks, also called links, can be defined to take care of the SS7 signaling of all 4 trunks. In this case trunks 1 and 2 are used for SS7 signaling. Since, there exists a direct connection between the 3G Gateway and the switch, both links are defined in the same link set with the DPC of the switch, i.e. 100. Since, fail-over has been arranged within one link set, no routes can be defined.

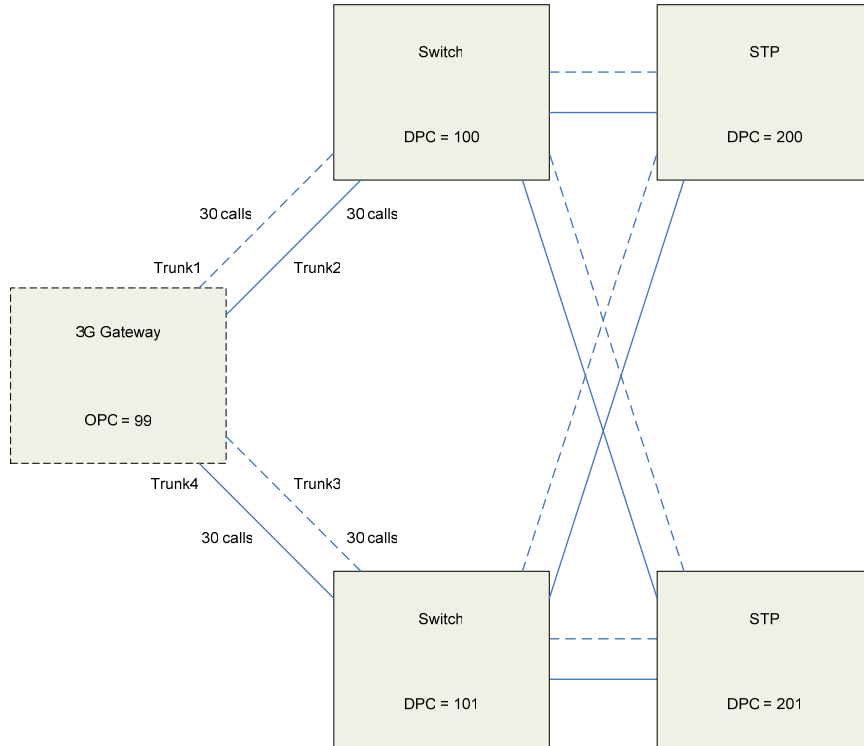


	CIC	Signaling time slot		
Trunk1 (OPC = 99, DPC = 100, CIC _{base} = 0)	1-15, 17-31	16	---	Signaling slot used for SS7 signaling SLC = 0
Trunk2 (OPC = 99, DPC = 100, CIC _{base} = 32)	33-47, 49-63	16	---	Signaling slot used for SS7 signaling SLC = 1
Trunk3 (OPC = 99, DPC = 100, CIC _{base} = 64)	65-79, 81-95	-	—	No slot is used for signaling: Slot 16 unused
Trunk4 (OPC = 99, DPC = 100, CIC _{base} = 96)	97-111, 113-127	-	—	No slot is used for signaling: Slot 16 unused



Example2

Suppose 2 out of 4 trunks are connected to one switch and the other 2 to another switch. Now SS7 signaling fail-over is arranged via two switches and two Signaling Transfer Points (STPs) over 2 link sets, as can be seen from the schematic and the SS7 window below. Since the trunks are terminated by the switches, the DPCs of trunk 1 and 2 are 100 and 101, respectively. However, both links are terminated by the STPs. Link set 1 contains SS7 trunk 1 and is terminated by an STP with DCP 200. Link set 2 contains SS7 trunk 3 and is terminated by an STP with DCP 201. For each link 2 routes are available to 2 switches, one directly and one via an STP. Priority 1 is assigned to all direct links, whereas all links via STPs have the lower priority 2.



	CIC	Signaling time slot		
Trunk1 (OPC = 99, DPC = 100, CIC _{base} = 0)	1-15, 17-31	16	-----	Signaling slot used for SS7 signaling SLC = 0
Trunk2 (OPC = 99, DPC = 100, CIC _{base} = 32)	33-47, 49-63	-	————	No slot is used for signaling: Slot 16 unused
Trunk3 (OPC = 99, DPC = 101, CIC _{base} = 0)	1-15, 17-31	16	-----	Signaling slot used for SS7 signaling SLC = 0
Trunk4 (OPC = 99, DPC = 101, CIC _{base} = 32)	33-47, 49-63	-	————	No slot is used for signaling: Slot 16 unused

SS7 Configuration

General

Originating Point Code: 99

Network Indicator: National0

Law: ALaw

Trunks

	1	2	3	4
Mode	On	On	On	On
Destination Point Code	100	100	101	101
CIC	0	32	0	32

Link sets

	1	2
Mode	On	On
Destination Point Code	200	201

Links

Link Set	Link	Mode	Trunk	Time slot	SLC
1	1	On	1	16	0
	2	Off	2	16	0
2	1	On	3	16	0
	2	Off	4	16	0

Routes

	1	2	3	4	5	6	7	8
Destination Point Code	100	100	101	101	0	0	0	0
Priority	1	2	2	1	1	1	1	1
Link set	1	2	1	2	Off	Off	Off	Off

Save Restart

TANDBERG 3G Gateway

Done Internet

5.3 IP Configuration

To configure the IP settings on the 3G Gateway, open 'IP' as shown in the figure below.

The screenshot shows the 'System configuration' tab selected in the web interface. The 'IP Configuration' section is active, showing settings for 'IP Configuration Interface 1'. The 'Assignment' is set to 'Static'. The 'Address' is 10.31.1.11, 'Subnet mask' is 255.255.255.0, and 'Gateway' is 10.31.1.1. 'Ethernet speed' is set to 'Auto'. Below this, the 'DNS Interface 1' section has five 'Address' fields with values 10.0.0.2, 127.0.0.1, 127.0.0.1, 127.0.0.1, and 127.0.0.1, and an empty 'Domain' field. The 'Date and Time Settings' section has an 'NTP Server' field with the value 131.188.3.220. A grey box with a warning message is present: 'For the settings to take effect, the unit must be reset after pressing 'save''. At the bottom, there are 'Save' and 'Restart' buttons. The left sidebar shows 'TANDBERG 3G Gateway' and the bottom status bar shows 'Internet'.

IP Configuration Interface1

IP Address Assignment

DHCP: Dynamic Host Configuration Protocol can be selected when a DHCP server is present. Static IP Address, Static IP Subnet Mask and Static IP Gateway are ignored because these parameters are assigned by the DHCP server.

Static: If Static assignment is used, the 3G Gateway's IP address and IP subnet mask and the Gateway's IP address must be specified in the respective IP address fields.

Address

The Static IP Address defines the network address of the 3G gateway. This address is only used in static mode. Your LAN administrator will provide you with the correct address for this field.

Subnet Mask

The Static IP Subnet Mask defines the type of network. Your LAN administrator will provide the correct value for this field.

Gateway

The Static Gateway IP address is set to 127.0.0.1 by default. In case of a router enter its address here. Your LAN administrator will provide the correct value for this field.

Ethernet Speed

- **Auto** The gateway will automatically detect the speed/duplex on the LAN.
- **10Half** The gateway will connect to the LAN using 10 Mbps/Half Duplex.
- **10Full** The gateway will connect to the LAN using 10 Mbps/Full Duplex.
- **100Half** The gateway will connect to the LAN using 100 Mbps/Half Duplex.
- **100Full** The gateway will connect to the LAN using 100 Mbps/Full Duplex.

DNS Interface1

Up to five Domain Name Server IP addresses can be specified here. Your LAN administrator will provide the correct values for these fields. By default these fields are set to 127.0.0.1

Date and Time Settings

An NTP server address can be specified here to provide the 3G gateway with up to date time and date information.

Save

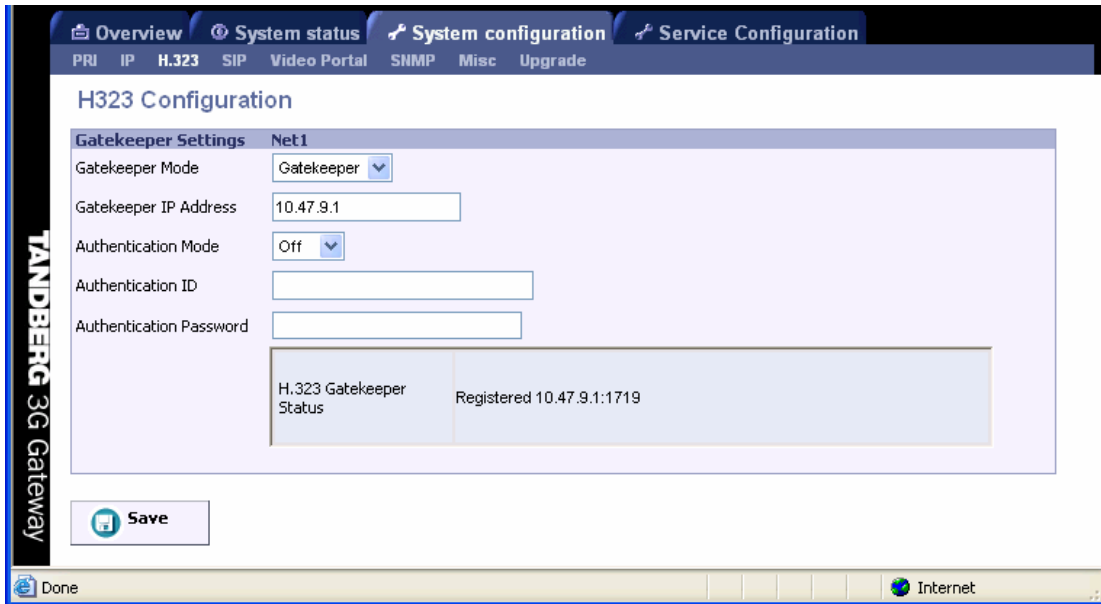
When ready to store the new settings, press '**Save**'. These settings will take effect when the system has been restarted.

Restart

This button will restart the 3G Gateway. Any changes made in the IP Configuration of the 3G Gateway will take effect after the system has been restarted.

5.4 H.323 Configuration

To dial out from IP to ISDN, through the 3G Gateway, requires the use of H.323 numbers (E.164 aliases). This means that the 3G Gateway must be registered to a Gatekeeper.



H.323 Gatekeeper Status shows the current status of the Gatekeeper registration.

Note that if the Gatekeeper is configured with an alternative Gatekeeper, the Status area might report a registration to the IP address of the alternative Gatekeeper.

Gatekeeper Settings

Gatekeeper Mode Enables the 3G Gateway to register to a Gatekeeper or without (direct mode). Selecting direct will gray out the gatekeeper IP address settings. When registered with a gatekeeper, the H.323 Gatekeeper Status shows Registered, Gatekeeper's IP address and what port used.

Selecting direct mode will result in no Gatekeeper registration; hence it is not possible to dial through the 3G Gateway via alias names. The H.323 Gatekeeper Status area will be empty.

Problems with registration will be shown in the Status area and as a Red alarm on the 'Overview' page.

Gatekeeper IP Address

Enter the Gatekeeper IP Address that the 3G Gateway should register to. Leaving empty will result in direct dialing without the use of aliases.

Authentication Mode

Off Register to the Gatekeeper without authentication.

Auto Register to the Gatekeeper with H.235 authentication using ID/Password given below.

Authentication ID, Password

Enter the ID and password required to perform H.235 authentication at the Gatekeeper.

To register to a Gatekeeper that requires authentication, an NTP server has to be configured.

Note in case password is empty the 3G Gateway will still use the Authentication ID to register with the gatekeeper. However, when the Authentication ID is left empty, the System Name field (see paragraph 5.8) will be used to register the 3G Gateway with the gatekeeper in stead. In case both the Authentication ID field and the System Name field are empty the 3G Gateway can not be registered with the gatekeeper.

5.5 SIP Configuration

The screenshot shows the 'SIP Configuration' page in the Tandberg 3G Gateway web interface. The page is divided into several sections:

- Navigation:** Overview, System status, System configuration, Service Configuration.
- Configuration Tabs:** PRI, IP, H.323, SIP, Video Portal, SNMP, Misc, Upgrade.
- SIP Settings:**
 - Mode:** A dropdown menu currently set to 'On'. A note states: "For the settings to take effect, the unit must be reset after pressing 'save'".
- Proxy:**
 - SIP proxy address:** A text input field containing '10.47.8.106'.
 - SIP proxy port:** A text input field containing '5060'.
 - A note states: "For the settings to take effect, the unit must be reset after pressing 'save'".
- Buttons:** 'Save' and 'Restart' buttons.
- Footer:** 'Done' button and 'Internet' status indicator.

SIP settings

Mode

When set to “On” the 3G Gateway is registered to the SIP proxy.

Proxy

SIP proxy address

Enter the IP Address of the proxy server the 3G Gateway should register to.

SIP proxy port

Enter the port number belonging to the above mentioned proxy IP address.

Note that setting the Mode “Off” won’t hide the SIP proxy address and port settings

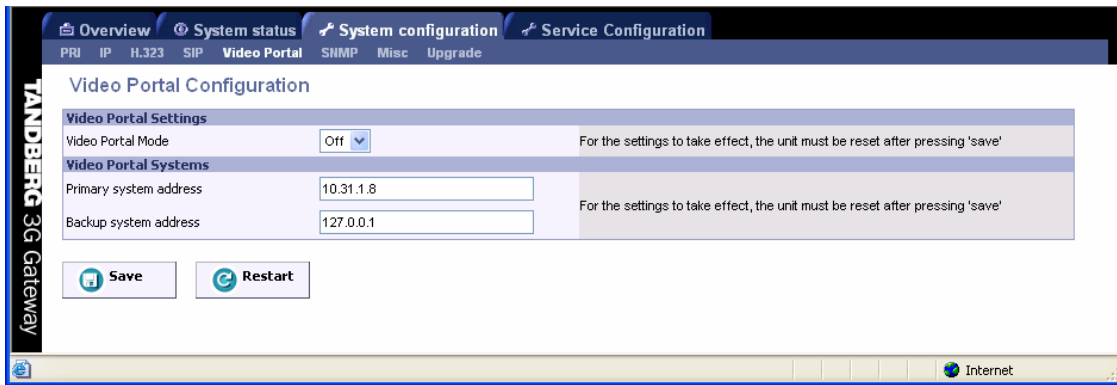
Save

When ready to store the new settings, press ‘**Save**’. These settings will take effect when the system has been restarted.

Restart

This button will restart the Video Portal. Any changes made with respect to the SIP settings of the 3G Gateway will take effect after the system has been restarted.

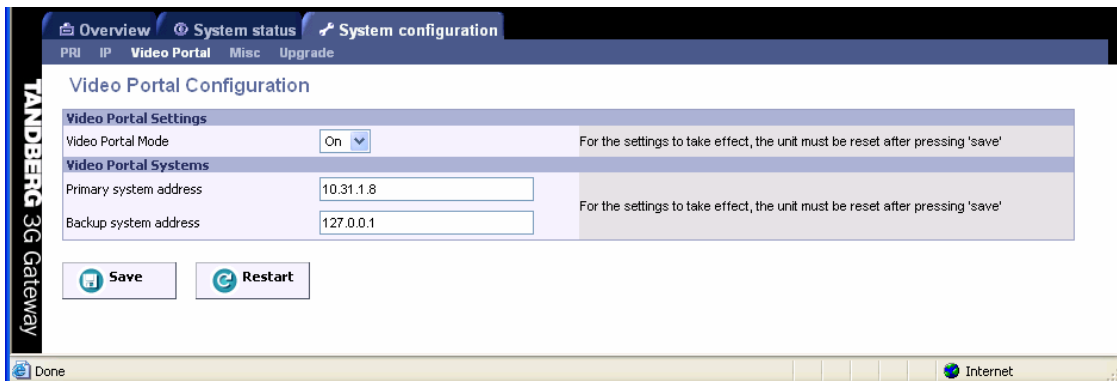
5.6 Video Portal Configuration



Video Portal Settings Video Portal Mode

When set to "Off" the 3G gateway will operate standalone. However, if it needs to be configured in tandem operation with a Video Portal the mode has to be set to "On".

Note that setting the Video Portal Mode "On" all H323, SIP related tabs as well as the Service Configuration tab will disappear from the window (See figure below).



Video Portal Systems Primary system address

Enter the IP Address of the Video Portal the 3G Gateway should register to.

Backup system address

Enter the IP Address of the backup Video Portal the 3G Gateway should register to.

Save

When ready to store the new settings, press 'Save'. These settings will take effect when the system has been restarted.

Restart

This button will restart the 3G Gateway. Any changes made with respect to the Video Portal settings of the 3G Gateway will take effect after the system has been restarted.

5.7 SNMP Configuration

SNMP (Simple Network Management Protocol) is used for monitoring and configuring different units in a network. The 3G Gateway's **SNMP Agent** responds to requests from **SNMP Managers** (a PC program etc.). **SNMP traps** are generated by the agent to inform the manager about important events.

Configuration

SNMP Mode

The SNMP operation modus can be set to:

- **On**, turn SNMP on;
- **Off**, turn SNMP off;
- **ReadOnly**, Do not send SNMP information to the host;
- **TrapsOnly**, Only send SNMP information identified as TRAPS to the host.

SNMP Community name

SNMP Community names are used to authenticate SNMP requests. SNMP requests must have this 'password' in order to receive a response from the SNMP agent in the 3G Gateway.

Note that the SNMP Community name is case sensitive.

System contact

Used to identify the system contact via SNMP tools such as HPOpenView or TANDBERG Management Suite.

System location

Used to identify system location via SNMP tools such as HPOpenView or TANDBERG Management Suite.

SNMP Trap Host (1, 2 and 3)

Identifies the IP-address of the SNMP manager. Up to three different SNMP Trap Hosts can be defined. Your LAN administrator should provide the correct values for these fields.

Save

Press '**Save**' to activate the new settings.

5.8 Miscellaneous Configuration

To configure the miscellaneous settings on the 3G Gateway, open 'Misc' as shown in the figure below.

The screenshot shows the 'Miscellaneous Configuration' page in the Tandberg 3G Gateway web interface. The page is organized into several sections:

- Configuration:** System Name: 3GGwNL7
- Password:** New Administrator password: [text input]; Delete Password:
- Phonebook settings:** Address: [text input]; path: tms/public/external/phonebook/Phone
- External Manager settings:** Address: [text input]; path: tms/public/external/management/Sys
- Services:**
 - Telnet Service: On
 - SSH Service: On
 - HTTP Service: On
 - HTTPS Service: Off
 - SNMP Service: On

A note on the right side of the Services section states: "For the settings to take effect, the unit must be reset after pressing 'save'". At the bottom of the page are 'Save' and 'Restart' buttons.

Configuration

To change the system name of the 3G Gateway, enter the new system name in the '**System Name**' field.

Note that when the Authentication ID in the H.323 link (see paragraph 5.4) is left empty, the System Name field will be used to register the 3G Gateway with the gatekeeper in stead. In case both the Authentication ID field and the System Name field are left empty the 3G Gateway can not be registered with the gatekeeper.

Password

To change the system password of the 3G Gateway, enter the new password in the '**New Administrator Password**'. To delete the existing password, select '**Delete Password**'.

Note:

Forgot the password? Use the following procedure to set a new password:

- Reboot the 3G Gateway.
- Connect to the 3G Gateway via the serial interface once it has restarted.

- Login with User Name pwrec. No password is required.
- One will be prompted for a new password.

The pwrec account is only active for one minute following a restart. Beyond that time the system will have to be restarted again to change the password.

Phonebook settings

To enable a phonebook in the 3G Gateway it is required to configure a TMS server. Enter both the IP address and the phonebook path.

External Manager settings

To enable cooperation between the 3G Gateway and an external TANDBERG Management System (TMS) enter both its IP address and its path.

Services

The different IP services on the 3G Gateway - Telnet, Telnet Challenge, HTTP, HTTPS and SNMP can be disabled independently to prevent access to the system.

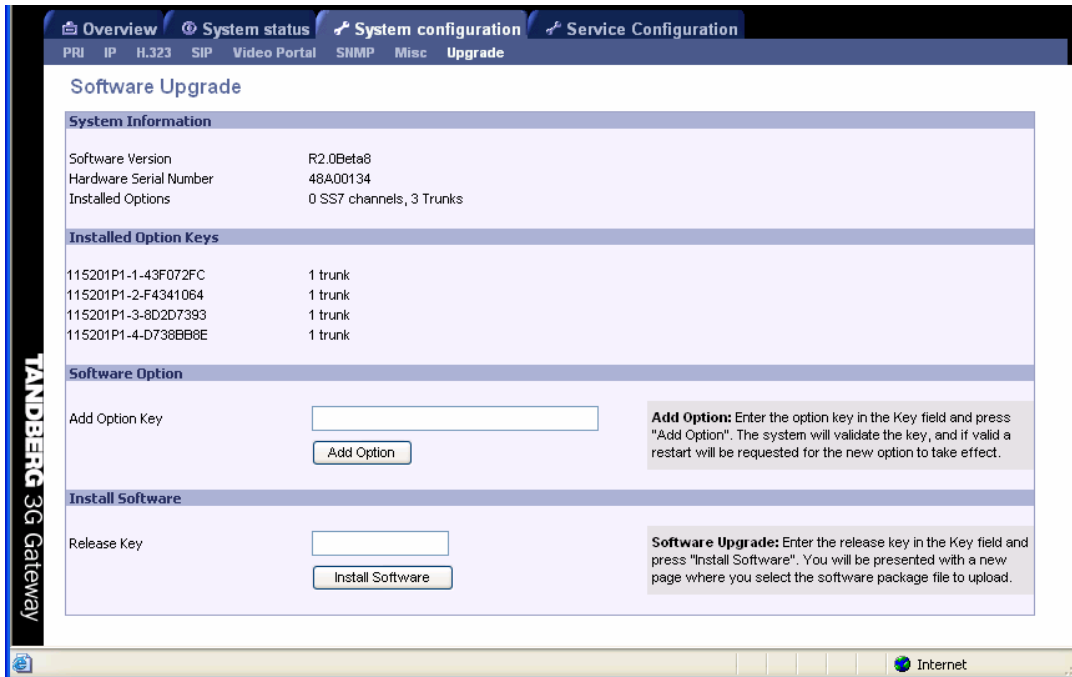
In addition, the SNMP Service Read Only/Traps Only will make it possible to read SNMP messages in addition to enable/disable SNMP.

Save

Press '**Save**' and thereafter the '**Restart**' to activate the new settings.

5.9 Software Upgrade

Software upgrade is where new software to the gateway can be installed from. It also shows current software version and the gateway's hardware serial number.



Note that to upgrade the 3G Gateway, a valid Release key and Software file is required. To expand software options additional Option keys are required. Contact your TANDBERG representative for more details.

System Information

Software Version

Shows the currently installed Software version.

Hardware Serial Number

This unique identifier number for the Video Portal must be provided when ordering Software Upgrade.

Installed Options

Shows the currently installed Options.

Installed Option Keys

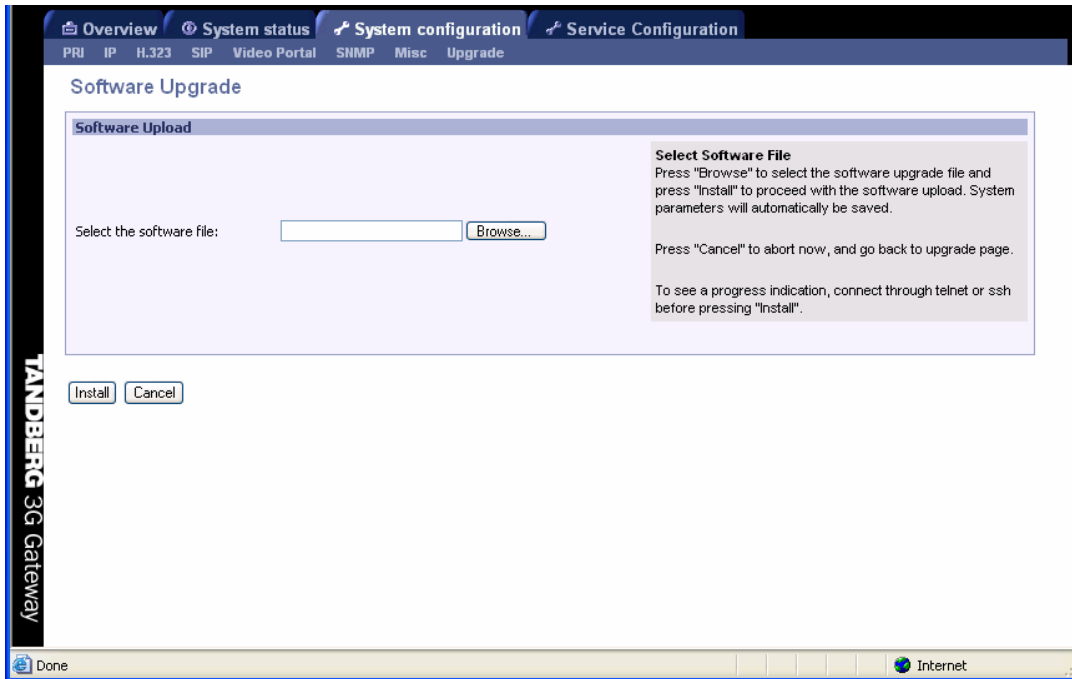
Shows the installed options per option key.

Software Option

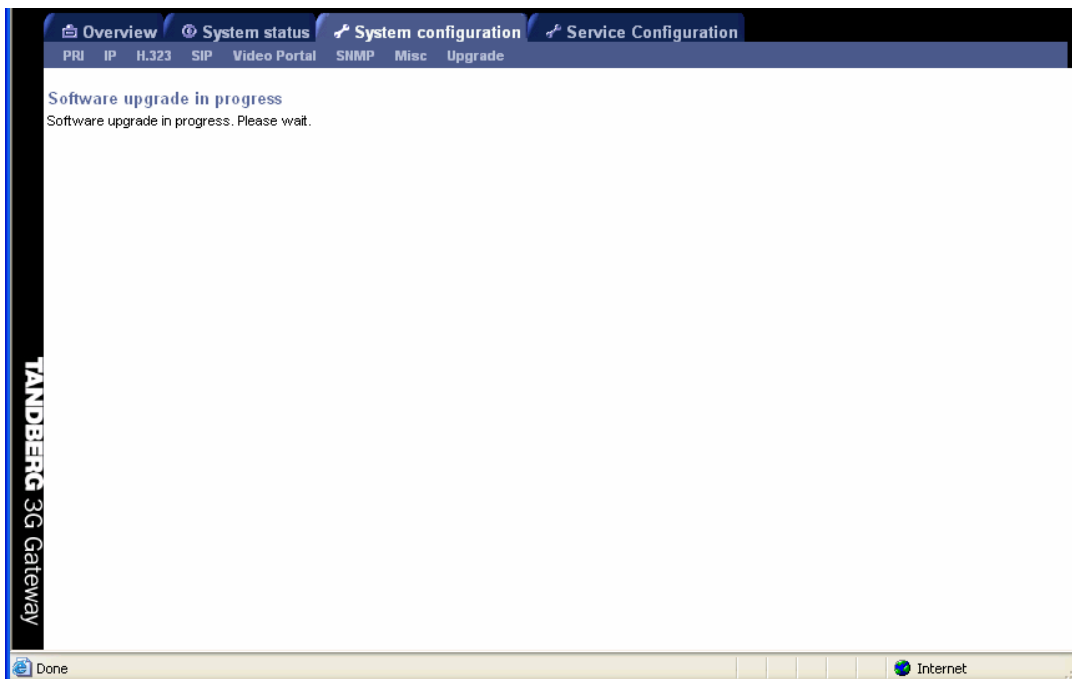
Enter the supplied option keys and press 'Add Option'. Note that the new options take effect after the next reboot.

Install Software

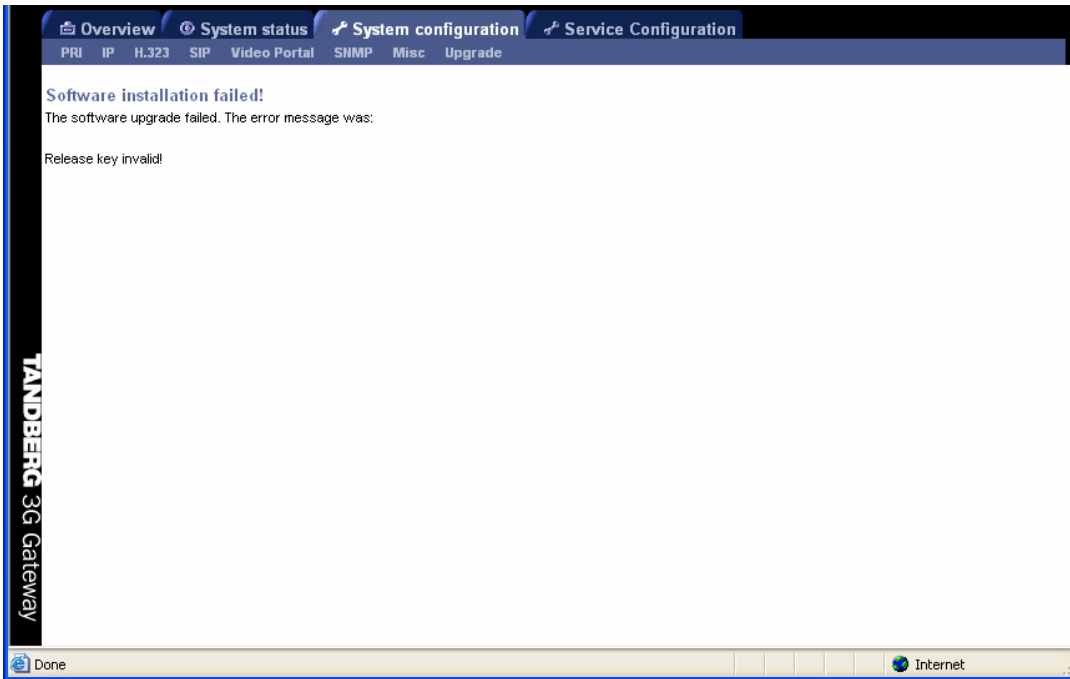
Release Key Enter the release key in the Key field and press 'Install Software'. A new window will be presented, which enables the entry of the software package, i.e. a .pkg, file to be uploaded (See figure below).



After the .pkg file has been selected, this will be uploaded into the flash memory of the 3G Gateway, showing the screen below.



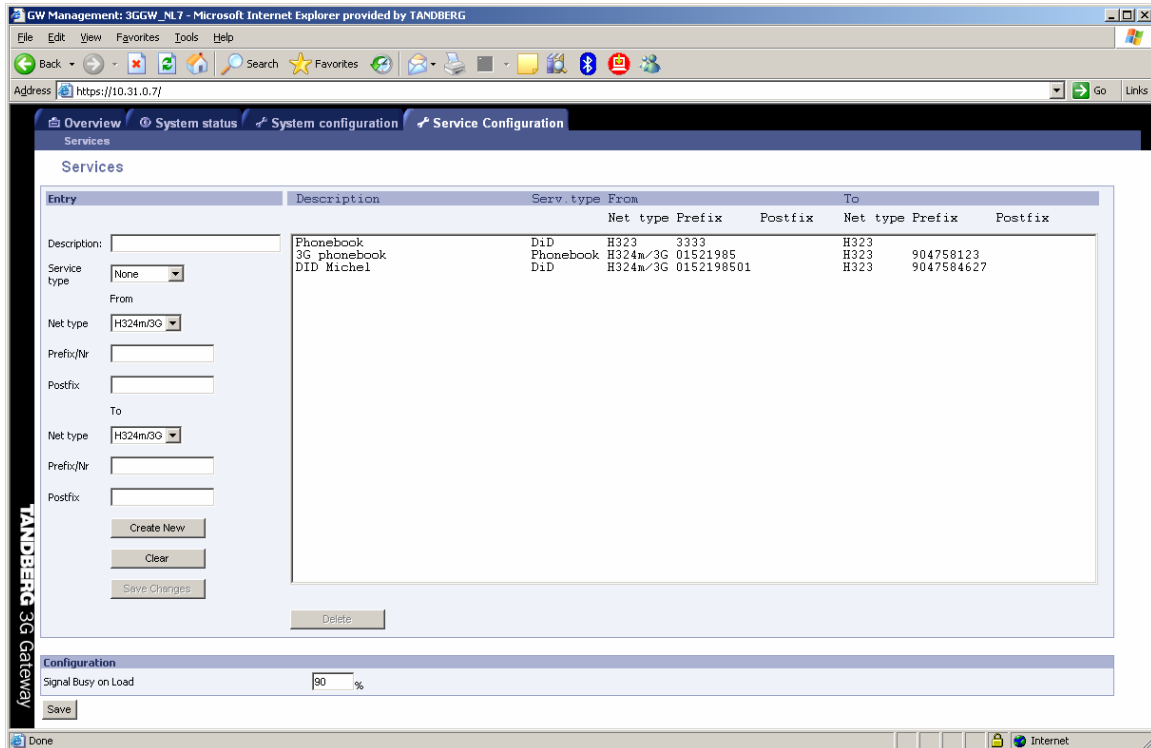
In case of an incorrect Release Key, the original software will not be replaced; an error message is generated as presented in the figure below.



5.10 Services Configuration

Dialing rules for both UMTS handsets, H.323 and SIP endpoints are configured via the services menu. In the services menu the following services types are distinguished:

- “DiD” → Direct inward dialing H.323/SIP endpoint or 3G terminal.
- “IVR” → Dialing H.323/SIP endpoint/3G terminal via a selection menu.
- “Phonebook” → Dialing H.323/SIP endpoint/3G terminal from the 3G Gateway phone book.



Description

This is a friendly name for the service configured like for example 3G to H.323/SIP.

Service type

Defines the type of service for a specific dial-in number (both H.323, SIP and 3G). Possible services are:

- “DiD”
- “IVR”
- “Phonebook”

Net type (from)

The net type indicates the dial in for this particular service configuration. Possible choices are:

- H323
- 3G / H324m
- SIP

The configuration should be read from left to right as subsequent actions are taken in this order:

In Prefix/nr (remove)→ in Postfix(remove)→ Service type→ out Prefix/Nr (add)→ out Postfix (add). The in Prefix/Nr & Postfix set will be used for matching the incoming called number/address. The out Prefix/Nr & Postfix set will be used to construct the number/address that will be called (if applicable).

Prefix/nr (from)

In case a number matches this prefix it will be removed. Like for example:

Prefix/Nr: 6789

Dialed number: 67890000

Number used in rest of matching process is 0000

Postfix (from)

In case a number matches this postfix it will be removed. Like for example:

Postfix: 00

Dialed number: 67890000

Number used in rest of matching process is 678900

Net type (to)

The following settings are available:

- H323
- 3G / H324m
- SIP

Prefix/Nr (to)

This number will be put in front of a number dialed. Like for example:

Prefix/Nr: 1234

Dialed number: 4567

Number used in rest of matching process is 12344567

Postfix (to)

This number will be added after a number dialed. Like for example:

Postfix: 1234

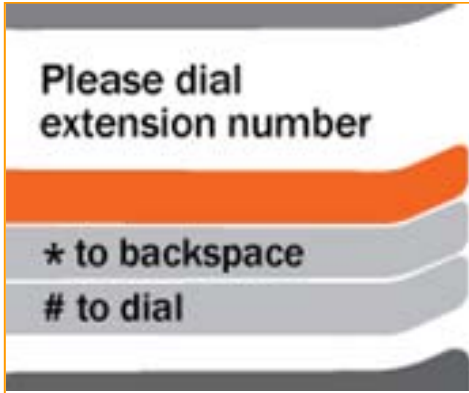
Dialed number: 4567

Number used in rest of matching process is 45671234

Note that it is not possible to configure ISDN BRI lines for special functions like dial out only. The 3G Gateway will automatically select a free BRI line for H.323 to 3G calls and possibly block a DiD or an IVR menu when the BRI lines have different numbers. Therefore, it is strongly recommended that all ISDN BRI lines have the same number range.

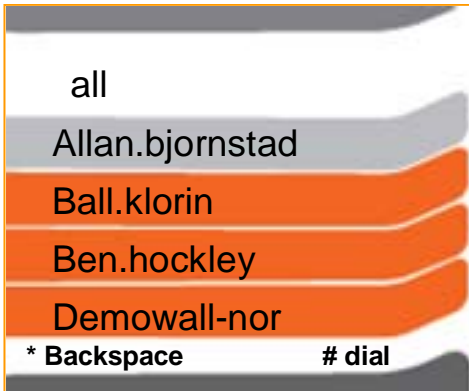
5.10.1 IVR

The 3G Gateway contains a so called interactive video and voice response system, which enables the selection of destinations from a phonebook. It is also possible to submit a number of an IP endpoint when the extension is known. The figure below shows an example of the input screen.



The numbers typed will appear after ca. 0.5 seconds on the screen. Pressing the # key after submitting the number triggers the 3G Gateway to make a connection with the respective endpoint.

A separate phone number can be matched with an IVR phone book service. The figure below depicts an example of some phonebook entries.



The phone book is an interactive listing of the TMS global address book.

Make sure you do not add more than one phone book to the 3G Gateway via TMS. Although it is possible to add several phone books to the 3G Gateway via TMS, the 3G Gateway can only operate with one phone book at a time.

5.10.2 Examples

Two example service configurations will be discussed.

Example 1: Number-plan mapping

Service type DiD
Net type (from): H324m/3G
From Prefix/Nr: 6789
From Postfix:
Net type (to): H323
To Prefix/Nr: 5
To Postfix:

When dialing the number 67890000 there will be a match with “0000” as the significant number. The H.323 number to call is: 50000 (construction: prefix + significant numbers + postfix). When dialing number 67894321 this will match with “4321” as the significant number. The H.323 number to call is: 54321 (construction: prefix + significant numbers + postfix)

Example 2: Hotline

Service type DiD
 Net type (from): H324m/3G
 From Prefix/Nr: 67890000
 From Postfix:
 Net type (to): H323
 To Prefix/Nr: 51234
 To Postfix:

When dialing number 67890000 this will match with no significant number. The H.323 number to call is: 51234 (construction: prefix + significant numbers + postfix). When dialing number 67894321 this will not match.

Example3: SIP to H323

Service type DiD
 Net type (from): SIP
 From Prefix/Nr: 12345
 From Postfix:
 Net type (to): H323
 To Prefix/Nr: 987654321
 To Postfix:

When dialing number 12345@<3G-Gateway-IP-Address> on a SIP endpoint, one is connected to an H323 endpoint with number 987654321.

Example4: H323 to SIP

Service type DiD
 Net type (from): H323
 From Prefix/Nr: 12346
 From Postfix:
 Net type (to): SIP
 To Prefix/Nr: 1234567
 To Postfix: @<SIP-Proxy-Address>

When dialing number 12346 on an H323 endpoint, one is connected to 1234567@<SIP-Proxy-Address>

6 Appendices

- Appendix 1: Declaration of Conformity
- Appendix 2: Using the front panel LCD keys

6.1 Appendix 1: Declaration of Conformity

TANDBERG

EC DECLARATION OF CONFORMITY

MANUFACTURER: TANDBERG Telecom AS

TYPE NUMBER: TTC2-03

DESCRIPTION: Network unit

DIRECTIVES: LVD 73/23/EEC
This equipment EMC 89/336/EEC
R&TTE 99/5/EEC


complies with.

HARMONISED STANDARDS: EN 60950-1: 2001, A11
Applied in order to verify EN 55022 : 1994, A1/A2
compliance with directives. EN 55024 : 1998, A1/A2
EN 61000-3-2 : 2000
EN 61000-3-3 : 1995, A1
TBR3 Layer 1, 2 and 3
TBR4 Layer 1, 2 and 3

TEST REPORTS/ CERTIFICATES ISSUED BY:	Report/Certificates No.:
LVD (Nemko AS)	55584
EMC (Nemko AS)	55273/3
EMC (Spot-on International Inc)	EC4D2807
R&TTE (Deutsche Telekom AG)	01/01780/2/UVZ
R&TTE (Cetecom Int Serv GmbH)	3-4143-1-2/04
R&TTE (Cetecom Int Serv GmbH)	3-3487-1-2/02
R&TTE (Deutsche Telekom AG)	98/164/HJ

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6.2 Appendix 3: using the front panel LCD keys

Every button on the front panel has multiple functions due to the limited amount of keys. In this appendix it is explained what the different functions are at different levels.

State 0: Display Status info

Any Key: State 1

State 1: menu navigation, Display current menu item

- **Up/Down**: navigate between different sub-menu's
- **ESC** Up in the menu structure, State 1; from lowest level to State 0
- **ENTER** for menu items: deeper into the menu structure, State 1
- **ENTER** for data items: State 2
- **ENTER** for selectable data items: State 7
- **ENTER** for command items (reboot..): State 6

State 2: Show Data Element (1e line Data Element description, 2e line Data Element value)

- **Up/Down**: Scrolling in the content if wider then 1 display width, State 2
- **ESC**: State 1
- **ENTER** for textual data items: State 3
- **ENTER** for selectable data items: State 7

State 3: Navigate within textual data element

- **Up/Down**: Cursor (non blinking) place on correct location in the data element, if necessary scroll. Positions with an alphabet of only 1 character (e.g. the full stop "." in an IP address) is skipped), State 3
- **Enter**: State 4
- **ESC**: With changes in the data: State 5 Confirm
- **ESC**: Without changes in the data: State 2

State 4: Edit textual data element, Cursor blinking on the character position to be changed

- **Up/Down**: Change character cyclic within the alphabet for that position, State 4
- **ENTER**: Next position (as State 3 [UP]), State 4
- **ESC**: State 3

State 5: "Confirm" Menu with 2 Items that can be scrolled using UP/DOWN (like State 1), "Yes"/"No", "No" is de default.

- **Up/Down**: browse Yes/No

- **ENTER:** in No state: State 3
- **ENTER:** in Yes state, store, State 2
- **ESC:** Cancel the edit, State 2

State 6: "Confirm" Menu Items like State 1 with Yes/No, No is the default

- **Up/Down:** Scroll through Yes/No
- **ENTER:** Confirm choice, State 1
- **ESC:** State 1

State 7: Choose Configuration option.

- **Up/Down** previous/next, State 1
- **ESC** Cancel Edit, to State 2
- **ENTER** Confirm Edit, to State 2

Technical Specifications

MeanTime Between Failures:

NSA1046: 37404 hr (flash base)

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