Documentation

HiPath 4000 V5
IP Solutions - HiPath Feature Access

Service Documentation

A31003-H3150-S104-1-7620

Communication for the open minded

Siemens Enterprise Communications
www.siemens.com/open

SIEMENS

Communication for the open minded

Siemens Enterprise Communications
www.siemens.com/open

Copyright © Siemens Enterprise Communications GmbH & Co. KG 2009
Hofmannstr. 51, 80200 München

Siemens Enterprise Communications GmbH & Co. KG is a Trademark Licensee of Siemens AG

Reference No.: A31003-H3150-S104-1-7620

The information provided in this document contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract. Availability and technical specifications are subject to change without notice.
OpenScape, OpenStage and HiPath are registered trademarks of Siemens Enterprise Communications GmbH & Co. KG.
All other company, brand, product and service names are trademarks or registered trademarks of their respective holders.

Service Manual HiPath 4000 V5 - IP Solutions - HiPath Feature Accesss (HFA) - Contents

1 Overview 5

2 HiPath Feature Access (HFA) - Application Example 7
2.1 Feature description 7
2.1.1 Technical background 8
2.1.2 HFA user registration 8
2.2 User interface 10
2.3 Restrictions 11
2.4 Generation 11
2.4.1 Configuration of the HG 3500 board 11
2.4.2 Configuration oth the HFA users 12
2.5 Generation via HiPath 4000 Assistant 13
2.5.1 Setting up HG 3500 via the HiPath 4000 Assistant 13
2.5.2 Configure a HFA User via the HiPath 4000 Assistant 18
2.6 Deletion 19
2.7 Tuning the voice quality 19
2.8 Activation of the voice compression 21
2.9 Relevant AMOs 22

3 Frequently Asked Questions 29

Index 33

1 Overview

The HiPath HG 3500 gateway provides IP phones and analog devices access to the full range of HiPath 4000 features via CorNet IP.

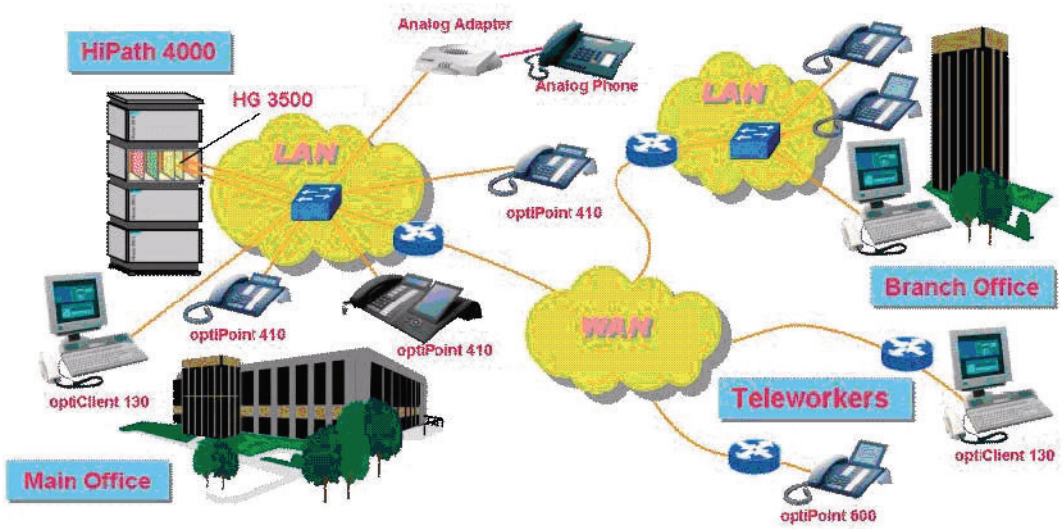

Figure 1-1 Typical HiPath HG 3500 Configuration

The HiPath HG 3500 provides the following features and benefits:

- Provides the full HiPath 4000 feature set to the following IP phones:
  - optiPoint 410 family of phones
  - optiPoint 420 family of phones
  - optiPoint 600
  - optiClient 130 softphone
  - AP1120 analog adapter (For more details please refer to the E-Doku pages in the intranet (http://apps.g-dms.com:8081/edoku/jsp/searchresult_v2.jsp?edokutype=&search_mode=product&product=AP%201120&product_version_main=&product_version_sub=&search_term_type=all&term=&sort_result=title&docclass=&language=&checkdate=&lang=en))
  - OpenStage 20, OpenStage 20 G,
  - OpenStage 20E
  - OpenStage 40, OpenStage 40 G
  - OpenStage 60, OpenStage 60 G and

  - OpenStage 80, OpenStage 80 G.

- The HG 3500 line gateway supports direct media connections between IP clients resulting in highest quality voice and minimal delays.
- High voice quality. On account of longer voice signal delays caused by the system in the IP network, voice quality will be impaired by echo unless this is removed prior to transmission. The HiPath HG 3500 therefore feature an integrated echo canceller.
- The HiPath HG 3500 provides a 10BT/100BT IP network interface and supports up to 240 IP phones off a single gateway.
- Lower bandwidth requirements.
- The HG 3500 supports all phone adapters that do not require their own b channel (not supported are: phone adapter, a/b adapter, S0 adapter, V.24 adapter).
- The HG 3500 supports standby gateways that protect multiple gateways against failure.
- The HG 3500 supports mobility including support for E911.
- The HG 3500 Gateway is supported in all HiPath 4000 V4 communication platforms.
- Supports central administration via HiPath 4000 Management identical to traditional subscribers.
- Support for IP phones provides user mobility and greatly simplified MAC.
- Takes advantage of existing IP infrastructure.
- Supports up to 12,000 IP subscribers off a single HiPath 4000 platform including IP users on IP Access Points.
- Support for Quality of Service in the IP network through prioritization. The HG 3500 supports prioritization in the IP network on the basis of the following standards:
  - IEEE 802.1 p/q (VLAN Tagging) on Layer 2
  - IETF RFC 2474 (DiffServ) on the IP Layer
- Support of network management on the basis of SNMP. HiPath HG 3500 supports network management on the basis of the SNMP protocol. Statistical data from the applicable standard MIBs and additional data from proprietary MIBs can be queried.

2 HiPath Feature Access (HFA) - Application Example

2.1 Feature description

HiPath Feature Access (HFA) allows the smooth migration of the communication platform from a wire-connected to IP-based infrastructure. Consequently, it is sufficient for the customer just to install and operate an efficient Local Area Network (LAN) that supports Quality of Service (QoS). Data and voice communication share the available network bandwidth where the throughput rate is important for data traffic and the real-time capability is important for telephony. This means that, before the installation of an HFA system, the appraisal and actualization of the IP infrastructure regarding bandwidth and QoS-supporting LAN components (Router, Switch, Gateway) is crucial for the subsequent quality of the voice connections.

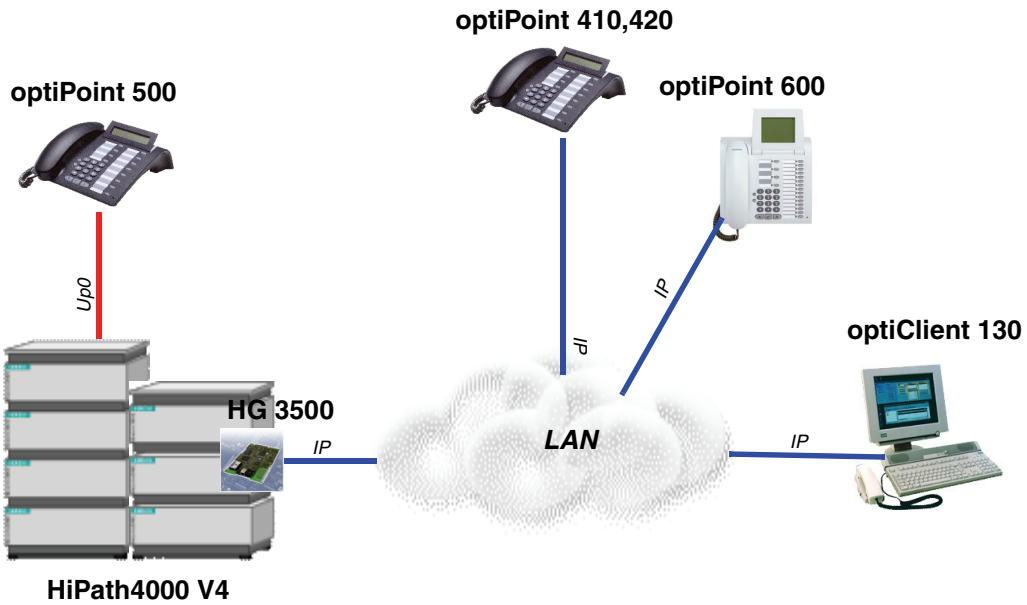

Figure 2-1 HFA infrastructure

To guarantee good voice quality even when the network is very busy the LAN segment that is used must consist of QoS-supporting LAN components. The use of a 100Mbit Ethernet is also recommended.

Supporting Quality of Service in the IP network through prioritization

- IEEE 802.1 p/q (VLAN tagging) on Layer 2
- IETF RFC 2474 (DiffServ) on Layer 3.

There are no significant restrictions for the user, only Autoset-Relocate and Teleworking are not supported. Otherwise the IP terminals provide the same functionality as UP0e-based terminals. However, no S0 or a/b adapters are supported.

G.711, G.723 and G.729 are supported with HG 3500. With a Direct Media Connection (DMC), the optiPoint 410 / 420 terminals also control G.722 with CD quality.

2.1.1 Technical background

In UP0e-based user connections the signaling connection (D channel) is separated from the voice connection (B channel) by subdividing the physical medium into time slots and assigning the two connections different time slots. In HFA, the two-wire line is replaced by an IP-based LAN as the physical medium of the digital user connection. The signaling connection between the terminal and HFA (Common) Gateway uses a secure TCP connection and the voice data are transferred via an H.323 connection using the RTP/RTCP protocol. Both connections can now be routed differently in a single LAN. This means it is possible for there to be signaling although the voice connection is temporarily interrupted.

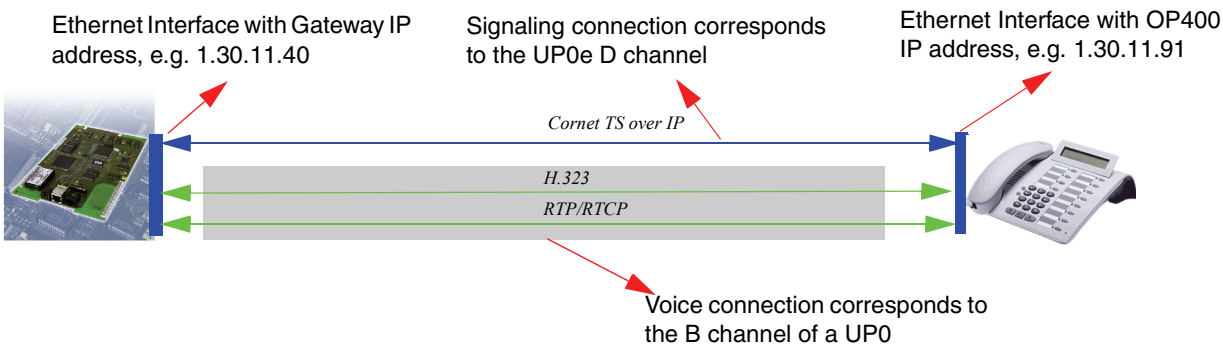

Figure 2-2 Technical relationship between UP0e and HFA user connection

In order to configure an HFA user, primarily it is necessary to determine the following points beforehand:

- IP address, subnetwork mask, subnetwork Gateway IP address of the Common Gateway
- IP address, subnetwork mask, subnetwork Gateway IP address of the HFA terminal

2.1.2 HFA user registration

As usual in optipoint 500, users are configured at a specific PEN (AMO SBCSU). While, however, a digital (or analog) terminal can go directly into operation after connecting to its module, in the case of an IP telephone settings must be first made at the terminal.

Firstly an HFA user needs a separate IP address, a subnetwork mask and - optionally - the specification of a default (customer network) router. In the case of a Soft Client such as optiClient 130, it has, of course, the advantage that it uses the network card of the PC and, consequently, no settings are required.

However, in the case of an HFA fixed device, the IP settings must be made. This is either done “automatically“ via DHCP (default setting of the HFA fixed terminals) or manually.

An HFA user with IP settings now attempts to register with the appropriate Gatekeeper. Its Gatekeeper is the HG 3500 at whose position it is set up in the HiPath 4000. In order to find its “home“ HG 3500, its IP address must be set up at the terminal.

This alone, however, is not sufficient. The HG 3500 still has to check whether the user who is sending it a “Registration Request“ is actually authorized to register with it. The terminal must also send it the user number for checking the user identity. The HG 3500 then asks the HiPath 4000 whether this user number is set up at its position. If it is, the HFA user is registered. If not, the HFA user is denied. Thus, the user number must be set up beforehand on the terminal.

To prevent a user simply registering himself with the subscriber number of another colleague, it is even possible to set up a so-called IP password (IPPASSW) in the AMO SBCSU. This can only be changed via the HiPath 4000 Administrator, but not by the user at the terminal. If an IP password is set up in the AMO SBCSU, it must also be configured at the terminal. Otherwise, the subscriber is not registered.

Conclusion:

The IP address of the HG 3500, user number from the AMO SBCSU and, optionally, the IP password from the AMO SBCSU must be configured at the terminal. Otherwise, the HFA terminal will not be registered and, thus, will remain out of operation. The configuration of these data can take place at the terminal itself, via the WBM or via the DLS.

In the case of optiClient 130, the respective configuration is made after the program is invoked via the **Settings** tab.

Note:

In some customer networks it may also be necessary to preset the L2 prioritization and the VLAN ID at the HFA terminal. Here, however, it is also possible to automate this via DHCP.

In HiPath 4000, following successful registration, the HG 3500 transfers data concerning the HFA user to the AMO SBCSU such as, e.g. device type, IP address, etc. (AB-SBCSU / branch TYPE=OPTIDAT). These data can also be viewed in the UW7 via the Configuration Menu in the user overview!

In the following figure the registration for user 4711 has already been carried out. The other telephone has all IP settings, but is not yet registered.

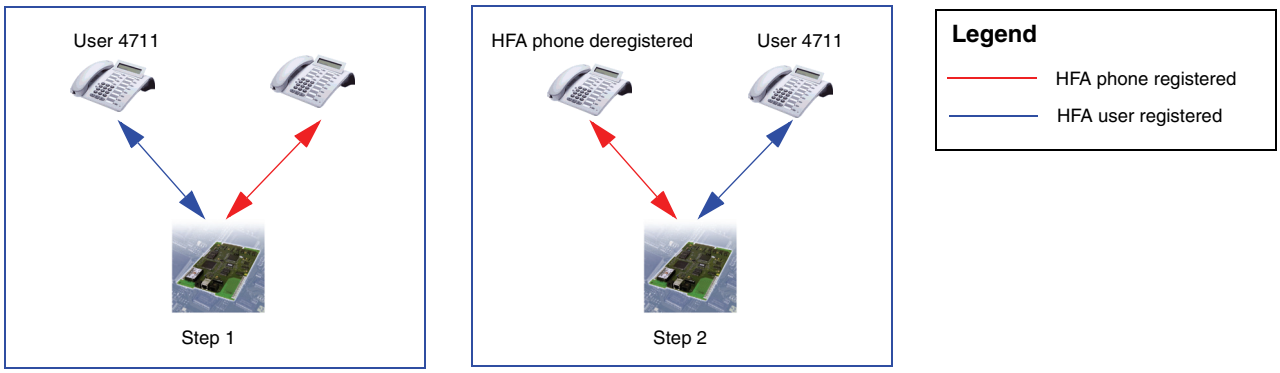

Figure 2-3 A user registers at another HFA phone

If an HFA user is already registered, he can change to another HFA terminal by registering there and declaring the IP address of his “home“ HG 3500, his user number and his optional IP password. The original terminal is automatically deregistered by the new registration. This is only not possible if there is an existing telephone connection to the original terminal. HiPath 4000 provides the possibility for HFA users to make the transfer to another terminal via a digit analysis result in the WABE. This means that the user at the terminal no longer needs to call up the hidden configuration menu for a transfer. How to set up “Mobile HFA” please refer to IP Solutions, “Mobile HFA Logon“.

2.2 User interface

The user interface for the administration of IP HFA terminals is specific to each terminal. More details are given in the administration handbooks for the relevant terminals and are not, therefore, included in this document.

To setup a HFA phone you can either use:

- direct administration at the phone or via **WBM** of the phone.

  Please refer to the apropriate documentation of your HFA phone (http://apps.g-dms.com:8081/techdoc/search_en.htm).

- Deployment Service (DLS):

  Please refer to the documentation of the DLS (http://apps.g-dms.com:8081/techdoc/en/P31003S2320M1000176A9/index.htm).

The following parameters are mandatory for the phone to go into operation:

- fully qualified phone number (E.164)
- gateway (HG3500) address and port
- subscriber password

If a user has successfully registered, the same user interface is available as for the standard digital HiPath terminals.

WBM

Web Based Management

2.3 Restrictions

The following functional restrictions apply:

- Autoset-Relocate is not usable for the HFA user
- Teleworking TW2.6 is not allowed for the HFA user
- No S0 or a/b adapter are supported

2.4 Generation

Before the initial configuration of an HFA user, the memory configuration must be checked with the AMO-DIMSU:

```
TEST-DIMSU:LIST=Y;
```

Now to configure 4 modules, for example, the following configuration must be carried out:

```
ADD-DIMSU:TYPE=SYSTEM,CGW=4;
```

The G.711 code type setting (a law or µ law) of the IP voice data is carried out via the central system data (usually already correctly set):

```
CHANGE-ZAND:TYP=CONFC,CODE=<ALAW/ULAW>;
```

Then the configuration of the HG 3500 module can be started.

2.4.1 Configuration of the HG 3500 board

The configuration of the funtion blocks is carried out with AMO-BFDAT. In the following example an STMI4 (Q2324-X510) with 120 possible b-channels will be configured with HFA.

```
ADD-BFDAT:FCTBLK=6,FUNCTION=HG3530,BRDBCHL=BCHL120;

CHANGE-BFDAT:CONFIG=CONT,FCTBLK=6,FUNCTION=HG3530,LI-
NECNT=60,BCHLCNT=60; /*60 HG 3530 b-channels are configured
```

Die Konfiguration der Baugruppe wird mit dem folgenden Kommando abgeschlossen:

```
CHANGE-BFDAT:CONFIG=OK,FCTBLK=6,ANSW=YES;
```

The configuration of the module is carried out with the AMO BCSU.

```
ADD-BCSU:MTYPE=IPGW,LTG=1,LTU=3,SLOT=14,PARTNO="Q2324-
X510",FCTID=1,LWVAR="0",FCTBLK=6,BCHL3530=60,ALARMNO=0;
```

For the configuration of the IP addresses, subnetwork masks, etc., the loadware is carried out via the AMO-CGWB.

```
ADD-CGWB:LTU=3,SLOT=14,SMODE=NORMAL,IPADR=172.28.145.240,
NETMASK=255.255.255.0;
```

Now the module data and the circuit data have still to be loaded onto the module. This is done either by plugging in the STMI module after the generation with the AMO HFAB or using the command:

```
RESTART-BSSU:ADDRTYPE=PEN,LTG=1,LTU=3,SLOT=14,WTIME=<Wait time between
switching off and switching on in seconds>;
```

2.4.2 Configuration oth the HFA users

The HFA users (IP phones) can then be configured.

```
ADD-SBCSU:STNO=<stno>,OPT=OPTI,CONN=IP2,PEN=1-3-14-0,DVCFIG=OPTIIP,
COS1=33,COS2=30,LCOSV1=5,LCOSV2=1,LCOSD1=5,LCOSD2=1,DPLN=0,ITR=0,
[IPPASSW=<Password>];
```

During the configuration of an optiClient 130 V2.5 it is important to note that the loudspeaker key must always be programmed on key 4. Thus, it should always be specified when setting up the STD parameters. In accordance with the default HiPath 4000 key layout for an optipoint 500 T12, the configuration command is:

```
ADD-SBCSU:STNO=<stno>,OPT=OPTI,CONN=IP,PEN=1-3-14-0,DVCFIG=OPTIIP,
COS1=33,COS2=30,LCOSV1=5,LCOSV2=1,LCOSD1=5,LCOSD2=1,DPLN=0,ITR=0,
STD=4,[IPPASSW=<Password>];
```

An optiClient 130 V5 has the special feature that it has TAPI 1st party as a feature. For this reason it requires another SBCSU:

```
ADD-SBCSU:STNO=<stno>,OPT=OPTI,CONN=IP2,PEN=1-3-14-0,DVCFIG=OPTIIP&API,
COS1=33,COS2=30,LCOSV1=5,LCOSV2=1,LCOSD1=5,LCOSD2=1,DPLN=0,ITR=0,
APICLASS=TSX,[IPPASSW=<Password>];
```

Also it is important to note for the optiClient 130 V5 that it occupies memory in the DIMSU like fixed devices with Callbridge, i.e. under:

```
ADD-DIMSU:TYPE=APPLICAT,WSPROT=XXX;
```

where XXX is the number from optiClient 130 V5 plus fixed devices with Callbridge.

In addition, the value

```
CHA-ZAND:TYPE=CIT,APIMAX=XXX;
```

must be set in the AMO ZAND according to the WSPROT.

Each HFA user can be issued with their own password for the registration which is determined by the Administrator and, similar to the PIN, cannot be administrated by the user himself. If no password is specified, the user call number is sufficient for the registration.

2.5 Generation via HiPath 4000 Assistant

2.5.1 Setting up HG 3500 via the HiPath 4000 Assistant

HG 3500 can be set up and administrated via the Configuration Management of the HiPath 4000 Assistant.

First of all you have to set the function blocks (corresponding AMO: AMO BFDAT).

Start **Configuration Management - System Data - Board - CGW Function Block**.

Click the **Search** button to see which function blocks have already been configured. In the following screen 5 function blocks have been configured. You can display them by clicking through the object list.

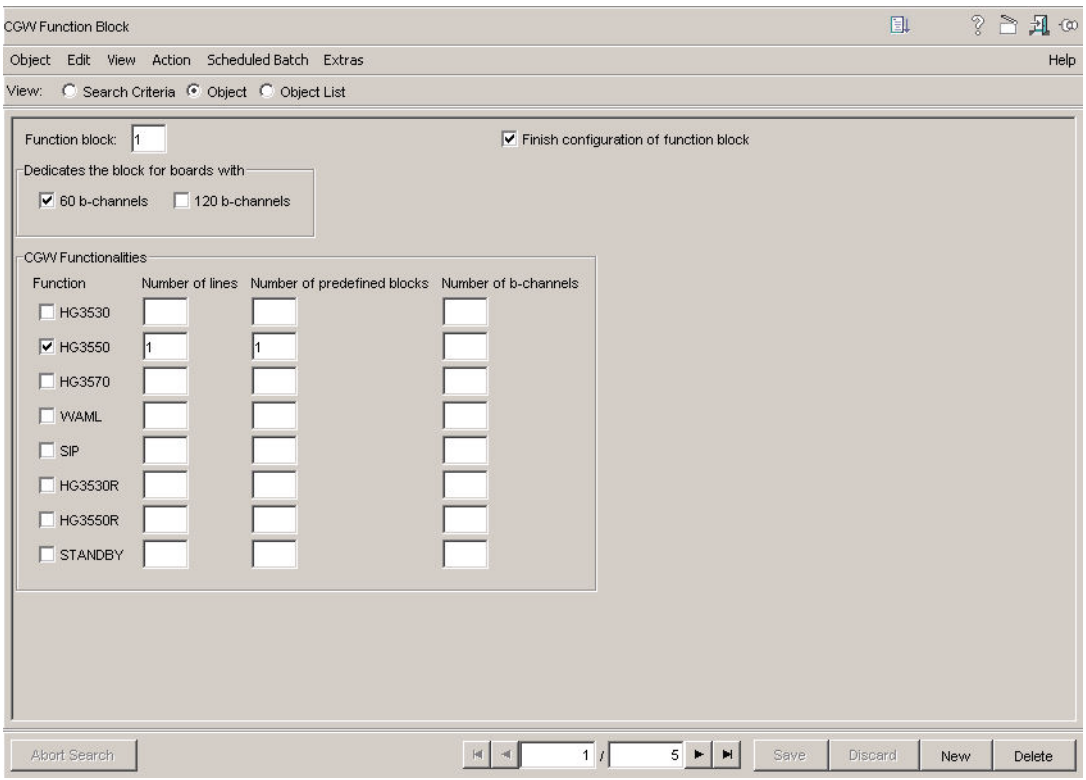

Figure 2-4 Configuration Management - System Data - Board - CGW Function Block - View Object

You also have the possibility to view them all in one table. Just select the radio button **Object List**.

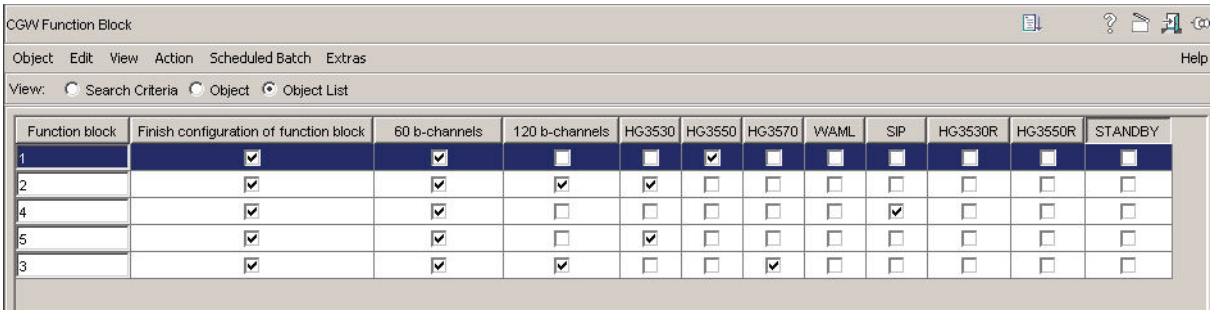

Figure 2-5 Configuration Management - System Data - Board - CGW Function Block - View Object List

To configure a new function block click **New**. Enter a free **Function block** number. Select the maximum number of b-channels of the common gateway board. Select the desired function(s) for this function block. Click **Save**. Now you have to enter the needed **Number of lines**, **Number of predefined blocks** and / or **Number of b-channels** for the selected functions. Click **Save** again. If you are done with the configuration of this function block select **Finish configuration of function block** and click **Save**.

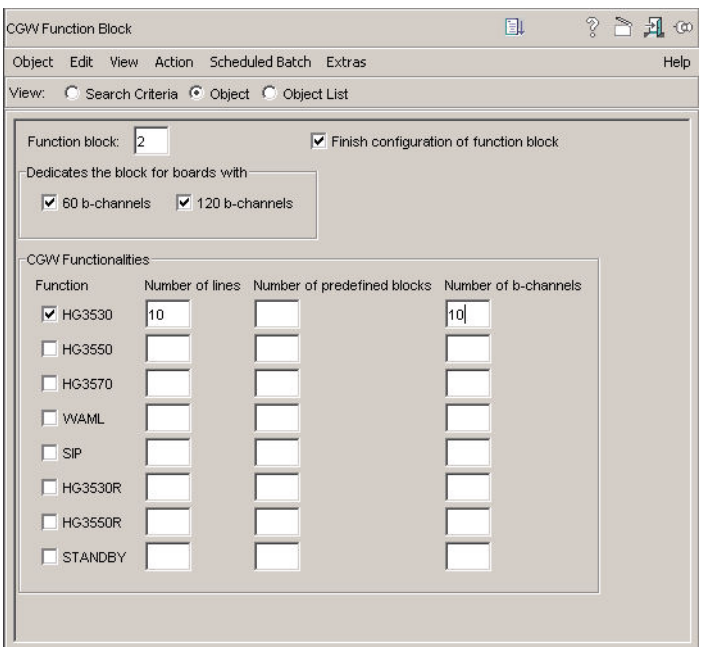

Figure 2-6 Configuration Management - System Data - Board - CGW Function Block - Configure new Function block

Now you have to assign a common gateway board to the function block (corresponds to AMO BCSU). Start **Configuration Management - System Data - Board - Board**. Click **Search** to search for all boards configured in the system.

To configure a new common gateway board select the desired board (**Part number**) and click **New**. Enter the following data:

- LTU
- SLOT
- Part number
- Function ID (set always to 1)
- Board Name
- CGW Function block

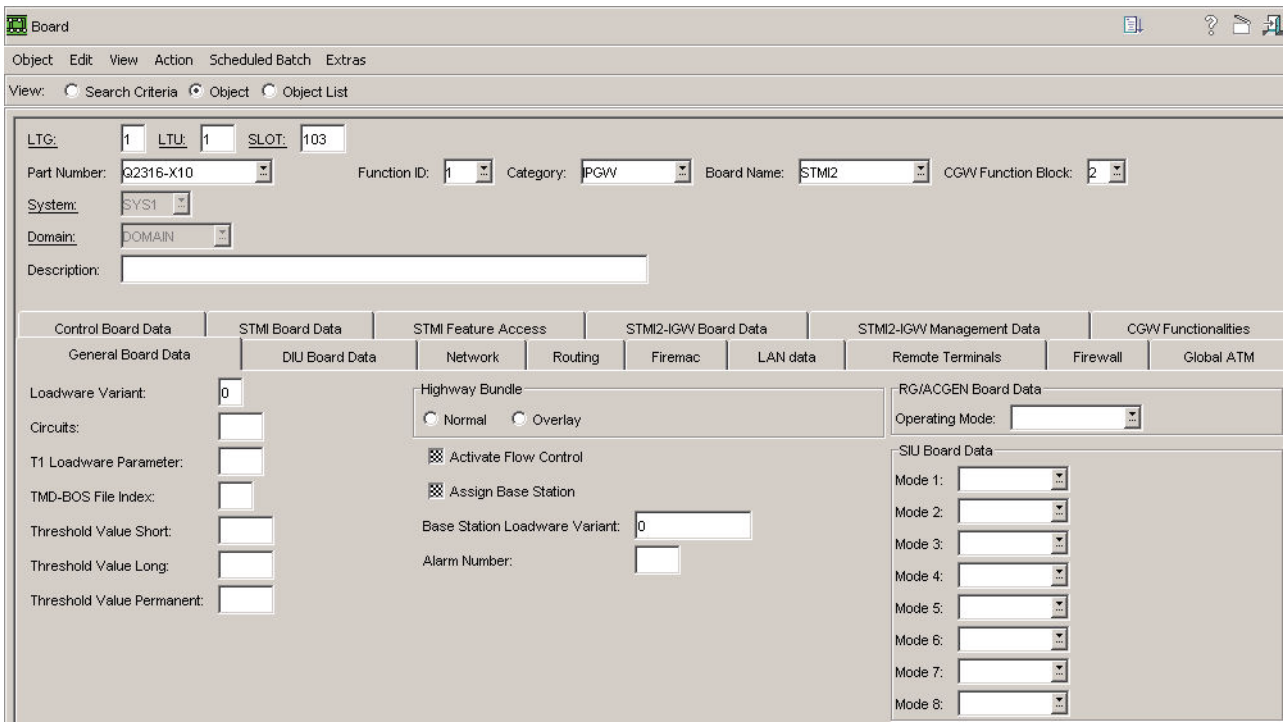

Figure 2-7 Configuration Management - System Data - Board - Board

Select the **STMI2-IGW Board Data** tab (corresponds to AMO BCSU and AMO CGWB). Here you have to enter

- Ethernet interface
  - IP address of customer LAN
  - Subnet mask

  - Standard gateway IP address
- Data for large enterprise gatekeeper
- CO protocol (not used in this example)
- Primary and secondary gatekeeper
- Gateway data
- H.235 security data
- Service interface

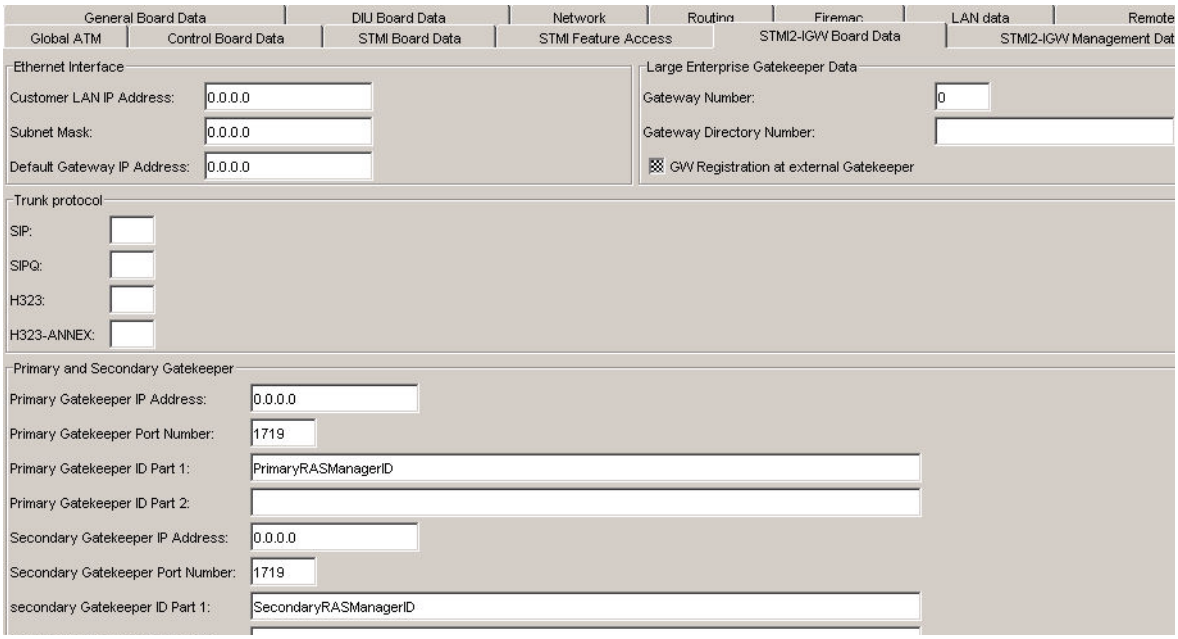

Figure 2-8 Configuration Management - System Data - Board - Board - STMI2-IGW Board Data tab

The next screen shows the **STMI Board Data** tab. Here you can configure for exampe the **Idle Pattern**, **IP Address** and **Number of DMC connections** (corresponds to AMO CGWB).

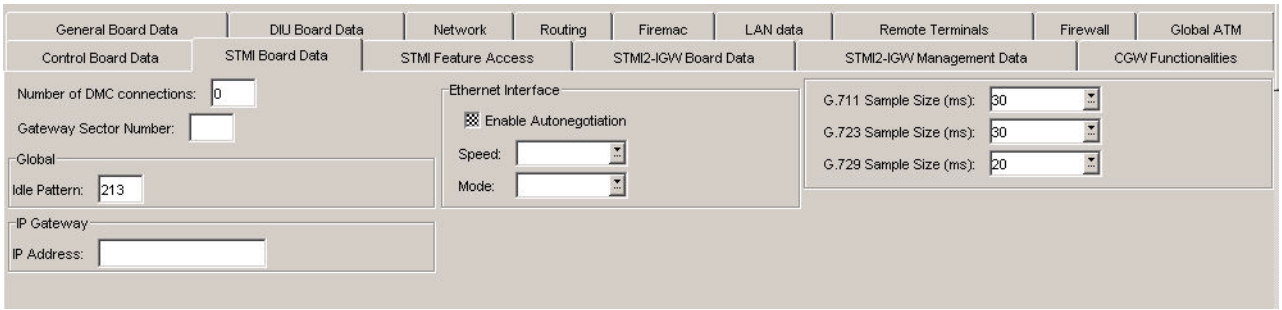

Figure 2-9 Configuration Management - System Data - Board - Board - STMI Board Data tab

Save the completed settings using the **Save** button.

Use the **Search** button to go to the board you have already configured.

In the **STMI Feature Access** tab (corresponds to AMO CGWB) you can configure in which mode the common gateway should work (**Normal**, **Standby Ready** or **Standby Defect**), **Ethernet Interface** data and **Audio Stream Control Data**.

It is important to ensure that the number of UDP ports is at least twice as large as the number of b-channels of the common gateway module.

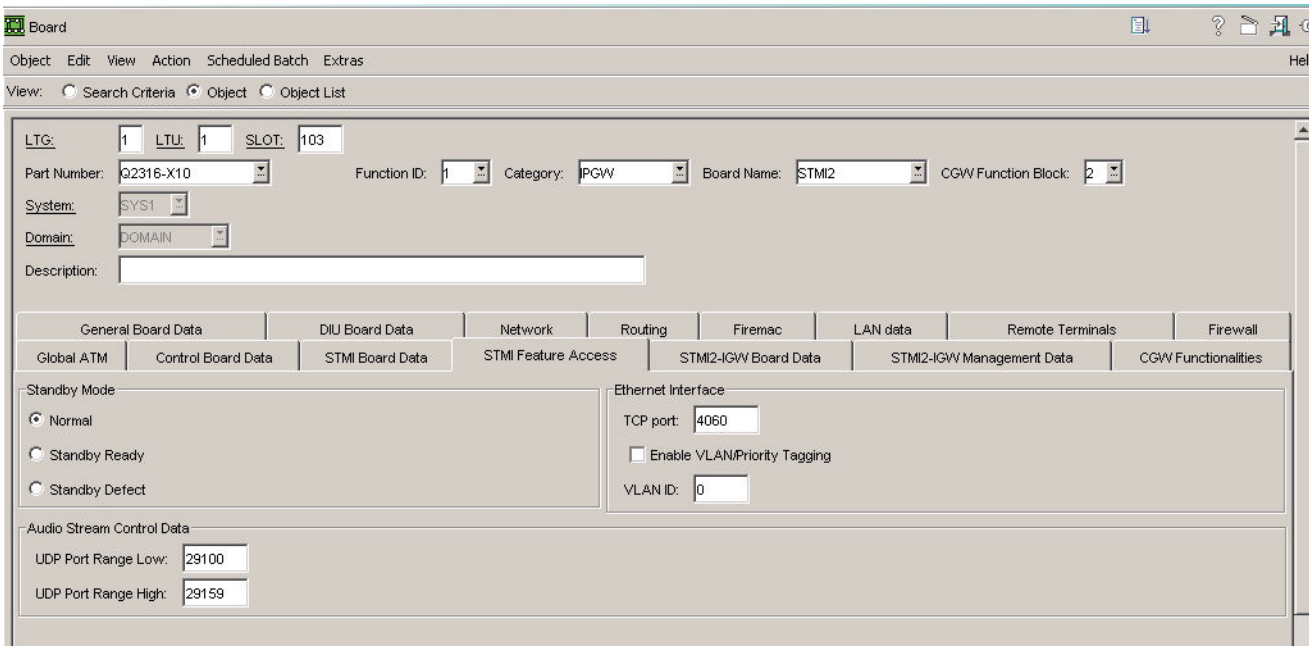

Figure 2-10 Configuration Management - System Data - Board - Board - STMI Feature Access tab

2.5.2 Configure a HFA User via the HiPath 4000 Assistant

HFA users are configured like Up0/E users.

Start **Configuration Management - Station - Station**.

The **Station Number**, **PEN**, **Device Combination**, **Connection Type**, etc. can be entered in the header of the input window.

The **Basic 1** tab contains the default settings and other user data from the AMO SBCSU.

Not shown in the next figure is the **Basic 2** tab where the IPPASSW from the AMO SBCSU is entered. The IP address of a set-up user can also seen there.

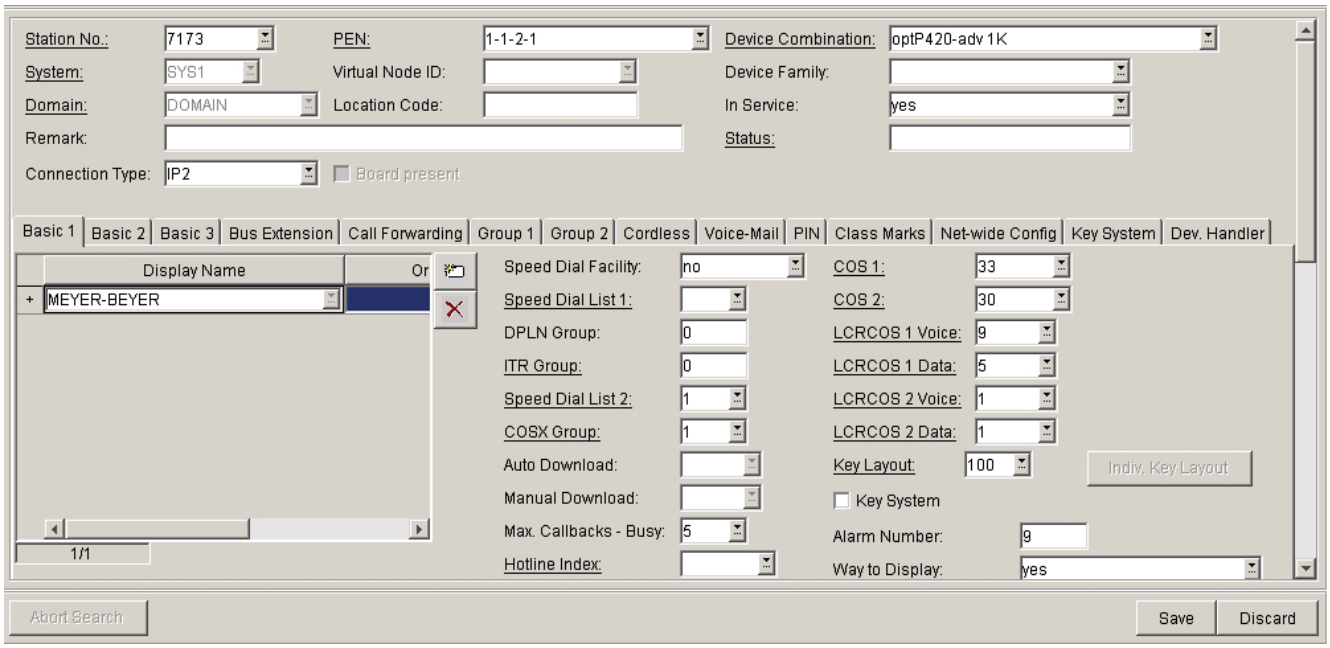

Figure 2-11 Configuration Management - Station - Station - Basic 1 tab

2.6 Deletion

The deletion of HFA components is not symmetrical to the generation: The AMO CGWB has no deletion branch because one-off set-up module data are always valid until deletion of the module with the AMO BCSU.

Example: The HFA components generated in the previous section are to be deleted.

First, the HFA users are deleted:

```
DELETE-SBCSU:STNO=<number>,SVC=ALL;
```

The common gateway board can then be immediately deleted. This also automatically deletes the board data, with the result that an AMO CGWB command is not required.

```
DELETE-BCSU:MTYPE=IPGW,LTG=<ltgno>,LTU=<ltuno>,SLOT=<slotno>;
```

Now you can reconfigure the board with other functions.

2.7 Tuning the voice quality

Depending on the available infrastructure, AMO CGWB (DSP branch)offers different configuration parameters:

- Noise suppression by Voice Activity Detection
- Problem fixing with packet delay and packet sequencing

- Echo suppression
- Sample length

This feature is controlled using the AMO CGWB. When used during operation, the board data does not need to be explicitly reloaded in this case. The data immediately comes into effect on the board.

In HiPath 4000, HG 35XX supports various jitter buffer modes. For HG 3500, two different settings are available:

1. **Static jitter buffer with drift correction**. This variant is an improvement on the "legacy mode" that is no longer supported as of HiPath 4000 V4. The length of the jitter buffer always remains constant (it is set to a fixed value in the same way as with "legacy mode", however, the runtime of the incoming signal is not modified).

   `CHA-CGWB:MTYPE=CGW,LTU=<ltuno>,SLOT=<slotno>,TYPE=JB,JBMODE=1;`

   WBM > Explorers > Payload > HW Modules > Edit DSP Jitter Buffer Settings > Jitter Buffer Type: Static

2. The **adaptive jitter buffer** (default settings). This mode can both correct the drift as well as adapt its depth dynamically. The value set in the `JITBUFD` parameter is not evaluated in this method. The adaptive jitter buffer is activated via

   `CHA-CGWB:MTYPE=CGW,LTU=<ltuno>,SLOT=<slotno>,TYPE=JB,JBMODE=2;`

   WBM > Explorers > Payload > HW Modules > Edit DSP Jitter Buffer Settings > Jitter Buffer Type: Adaptive

The jitter buffer can still be optimized with the values for

- **Average delay for voice (ms) - AVGDLYV**
- **Maximum delay for voice (ms) - MAXDLYV**
- **Minimum delay for voice (ms) - MINDLYV**
- **Packet loss/delay preference - PACKLOSS**
- **Average delay for data (ms) - AVGDLYD**
- **Minimum delay for data (ms) - MINDLYD**

In HG 3500, it is **recommended** to use the **adaptive jitter buffer**. But, if there are older analog fax machines a static jitter buffer could be the better choice.

Other important parameters:

- **Voice Activity Detection**: **WBM > Explorers > Voice Gateway > Codec-Parameters**
- **Echo Canceller**: **WBM > Explorers > Payload > HW Modules > Edit DSP Settings**

Additional parameters in AMO CGWB, TYPE=ASC:

Parameter	Description
VAD	Recognition of silence using Voice Activity Detection (AMO CG-WB:TYPE=ASC, VAD=<yes,no>)
RTP	Sample length of the RTP packet depending on the codecs.

Average delay for voice (ms) - AVGDLYV

This defines the standard value (initial value) for the jitter buffer.

Maximum delay for voice (ms) - MAXDLYV

This defines the maximum length of the jitter buffer.

Minimum delay for voice (ms) - MINDLYV

This defines the minimum length of the jitter buffer.

Average delay for data (ms) - AVGDLYD

This defines the standard value (initial value) for the jitter buffer for the data service.

Minimum delay for data (ms) - MINDLYD

This defines the maximum length of the jitter buffer for the data service.

Packet loss/delay preference - PACKLOSS

The jitter buffer can be optimized by the PACKLOSS parameter. The default value 4 should always be preset initially. If the value is set to 0, 1, 2 or 3, the algorithm attempts to prevent packet loss and increases the jitter buffer if problems occur.
Conversely, if PACKLOSS= 5, 6, 7 or 8, the algorithm increasingly attempts to always work with a jitter buffer that is as small as possible and accepts a certain degree of packet loss.

2.8 Activation of the voice compression

In HG 3500, voice compression is activated in the AMO CGWB (ASC branch). The parameter CODECLST is relevant for this setting. The codec sequence is important in this regard. In the example below, HG 3500 uses G.729 as first choice, G.711A as second choice, and G.723 as third choice. The codec that is actually used depends on the settings of the remote system (user).

```
CHANGE-
CGWB:MTYPE=CGW,LTU=<ltunr>,SLOT=<slotnr>,TYPE=ASC,PRIO=PRIO1,CODEC=G729
;

CHANGE-
CGWB:MTYPE=CGW,LTU=<ltunr>,SLOT=<slotnr>,TYPE=ASC,PRIO=PRIO2,CODEC=G711
A;

CHANGE-
CGWB:MTYPE=CGW,LTU=<ltunr>,SLOT=<slotnr>,TYPE=ASC,PRIO=PRIO3,{354}CODEC
=G723;
```

2.9 Relevant AMOs

AMO	Parameter	Sprache/ Language	Beschreibung/Description
BSSU	ADRART=LAGE	d	Adressierung ueber physikalische Lage
	ADDRTYPE=PEN	e	Physical board/module address
BCSU	ALARMNR	d	Alarm Nummer
	ALARMNO	e	Alarm number
	BKAN3530	d	Anzahl der B-Kanäle für die HG3530 Funktion
	BCHL3530	e	Amount of b-channels for HG3530 function
	FCTID	d	Function Id (muss immer 1 sein)
	FCTID	e	Function id (mustbe set to 1)
	FCTBLK	d	Funktionsblock-Index (einen beliebigen freien Funktionsblock zwischen 1-20 wählen)
	FCTBLK	e	Function block index (choose a free function block between 1-20)
	LWVAR	d	Index auf Loadware Block der T1 Baugruppe
	LWVAR	e	Index to loadware block for the t1 board
	SACHNR	d	Baugruppensachnummer (2. und 3. Block) Q2316-X, Q2316-X10, Q2324-X500, Q2324-X510
	PARTNO	e	Part number (2nd and 3rd bloc) Q2316-X, Q2316-X10, Q2324-X500, Q2324-X510

Table 2-1 Relevant AMOs - HiPath feature access

AMO	Parameter	Sprache/ Language	Beschreibung/Description
	SACHNR1	d	Sachnummer der zu ersetzenden Baugruppe (2. und 3. Block)
	PARTNO1	e	Part number of module that has to be replaced (2nd and 3rd bloc)
	SACHNR2	d	Sachnummer der neuen Baugruppe (2. und 3. Block)
	PARTNO2	e	Part number of new module (2nd and 3rd bloc)
	TYP=IPGW	d	IP Gateway (Common Gateway Baugruppe)
	MTYPE=IPGW	e	IP gateway (common gateway board)
BFDAT	ANZBKAN	d	Anzahl der funktionsbezogenen B-Kanäle.
	BCHLCNT	e	Defines the number of b-channels related to the selected function.
	ANZSATZ	d	Anzahl der funktionsbezogenen Saetze. Mögliche Werte: 1-240
	LINECNT	e	Defines the number of lines related to the selected function.
	BGBKAN	d	Block fuer Baugruppe mit 60 und/oder 120 B-Kanaelen
	BRDBCHL	e	Dedicates the block for boards with 60 and/or 120 b-channels
	CONFIG=WEITER	d	Weitere Block-Konfiguration ermöglichen
	CONFIG=CONT	e	ontinue block configuration
	CONFIG=OK	d	Block-Konfiguration abschließen
	CONFIG=OK	e	Finish block configuration
	FCTBLK	d	Dieser Index beschreibt den Funktionsblock welcher auf dem Common Gateway konfiguriert werden soll. Anhand des Funktionsblocks wird die Konfiguration der benötigten pyhsikalischen Lines (Sätze der Baugruppe) festgelegt.
	FCTBLK	3	This index describes the function block which should be configured on the common gateway board. With that index the amount of needed physical lines (board circuits) is calculated.

Table 2-1 Relevant AMOs - HiPath feature access

AMO	Parameter	Sprache/ Language	Beschreibung/Description
	FUNCTION	d	Dieser Parameter legt das Konfigurationsprofile des Common Gateways fest. Dabei muss die eventuell benötigte HG 3570 Funktion als erste angeführt werden. Falls ein bestimmter Line-Bereich für die Funktionen HG 3530 oder HG 3550 vorreserviert werden soll, muss die entsprechende Funktion am Ende stehen und mit dem Wert HG35xxR abgeschlossen sein. Die Funktion STANDBY kann nur als Einzel-Funktion konfiguriert werden.
	FUNCTION	e	This parameter defines the configuration profile of the CGW board. If HG3570 functionality is used, it must be configured at first position. If a prereservation of a certain line range of functions HG3530, HG3540 or HG3550 is desired, this function must be at the end of the profile just suffixed by the according HG35xxR value. The function STANDBY can only be configured as single function.
BSSU	WTIME	d	Bei RESTART-Kommando: Wartezeit zwischen Aus- und Wiedereinschalten in Sekunden. Mögliche Werte: 0-20
	WTIME	e	For RESTART command: Wait time between switching off and switching on in seconds. Possible values: 0-20
CGWB	SMODE=NORMAL	d	Standby Mode oder Normal Mode Eine Baugruppe im Normal Mode hat gültige Baugruppendaten und normalerweise auch OPTIIPs konfiguriert. Eine Baugruppe im Standby Ready Mode hat keine gültigen Baugruppendaten, auf diese Baugruppe können OPTIIPs umgeschaltet werden, falls eine andere Baugruppe aus demselben Baugruppen-Pool (AMO BPOOL) defekt wurde. Eine Baugruppe im Standby Defekt Mode hat ebenfalls keine gültigen Baugruppendaten, diese Baugruppe hat aufgrund eines Defekts seine OPTIIPs und seine Baugruppendaten abgegeben.

Table 2-1 Relevant AMOs - HiPath feature access

AMO	Parameter	Sprache/ Language	Beschreibung/Description
	SMODE=NORMAL	e	Standby Mode or Normal Mode A board in Normal Mode has valid board data and normally also OPTIIPs assigned to it. A board in Standby Ready Mode has no valid board data, to this board OPTIIPs can be switched over if another board of the same board reconfiguration pool (AMO BPOOL) becomes defective. A board in Standby Defect Mode has also no valid board data, this board has lost its OPTIIPs and its board data to another board because it's gone defective.
	IPADR	d	IP Adresse der Common Gateway Baugruppe (Source Adresse)
	IPADR	e	Source IP address of common gateway board
	MTYP=INITCGWB	d	Zurücksetzen der Konfigurationsdaten der Common Gateway Baugruppe auf die Standardwerte
	MTYPE=INITCG-WB	e	Reset configuration data of common gateway board to default values
	NETMASK NET-MASKNETMASK	d	IP-Netzmaske des LAN-Segmentes. Die IP-Netzmaske bestimmt die Grenze zwischen Netz- und Host-Teil in der IP-Adresse. Alle IP-Adressen am LAN-Segment müssen bezüglich des Netzanteils der IP-Adresse gleich und bezüglich des Host-Teils unterschiedlich sein (auch der Default Router muss dieser Bedingung entsprechen).
	NETMASK	e	IP net mask of LAN segment The IP net mask determines the network and the host partition of an IP address. All IP addresses of a LAN segment must contain the identical network addresss part but different host address parts (also the Default Router must fulfill this requirement)
DIMSU	CGW	d	Anzahl der Common Gateway-Baugruppen
	CGW	e	Number of common gateway boards
	TYP=APPLIKAT	d	DIMSU-Option: Applikation
	TYPE=APPLICAT	e	DIMSU options: application

Table 2-1 Relevant AMOs - HiPath feature access

AMO	Parameter	Sprache/ Language	Beschreibung/Description
	WSPROT	d	Sprach/Daten Applikation mit Workstation Protokoll
	WSPROT	e	integrated voice/data application using workstation prot.
SBCSU	ANSCHL=IP2	d	Anschluss-Art der Geräte IP2=Anschluss ueber IP (HFA Gateway Version 2)
	CONN=IP2	e	Device Connection Type IP2=Connection via IP (HFA gateway version 2)
	ART=OPTI	d	Hauptrufnummer des IP-Telefonanschluss einrichten
	OPT=OPTI	e	Specification of bus type or unit to be expanded
	GERKON=OPTIIP	d	Geräte-Konstellation eines Teilnehmers OPTIIP=IP Sprachterminal
	DVCFIG=OPTIIP	e	Device Configuration OPTIIP=Digital IP voice terminal
	IPPASSW	d	passwort fuer ip login prozedur
	IPPASSW	e	Password for IP logon procedure
	SNU	d	Standard Tastaturbelegung
	STD	e	Standard Key Layout
ZAND	APIMAX	d	Maximale Anzahl der gleichzeitig aktiven API Sessions. DB-Initialisierung: 10
	APIMAX	e	Maximum number of allowable active API sessions. DB initialization: 10
	KENNL	d	Linearisierungs- und Kompandierungskennlinien bei der PCM-Kodierung/Dekodierung. Der eingegebene Wert wird zum einen in die zentralen Anlagendaten übernommen, zum anderen bei eingerichteter LTG auch in die entsprechenden COFI-Daten. Der Wert in den zentralen Anlagendaten ist auch gültig bei der Konfiguration von NCUI-Baugruppen in NBCS-Shelfs.Es sollte daher nach Konfiguration von NBCS-Shelfs dieser Wert nicht mehr geändert werden!

Table 2-1 Relevant AMOs - HiPath feature access

AMO	Parameter	Sprache/ Language	Beschreibung/Description
	CODE	e	Speech coding.The entered value will be issued once to central system data and once for assigned LTG in the according COFI-data. The value in central system data is also valid for configuration of NCUI-boards in NBCS shelfs. Therefore this value should not be changed after configuration of NBCS-shelfs!
	TYP=CIT	d	Konfigurieren von fiktiven Geräten, Einstellungen für API Schnittstelle
	TYPE=CIT	e	Configure virtual stations, settings for API interface
	TYP=CONFC	d	Länderspezifische Einstellung für KENNL, K- oder TDAEMPF. Dieser Zweig gilt nur für kompakte Hardware.
	TYPE=CONFC	e	Selection of country-specific settings for CODE, CONFAT STNAT. This branch is only for compact hardware.

Table 2-1 Relevant AMOs - HiPath feature access

3 Frequently Asked Questions

1. **Question**: How far can an IP phone be located from the host?

   Answer: There are no hard distance limitations. However delays limit the practical distance:
   The larger the distance between the host and the IP workpoint, the more delay is introduced via the underlying network. If possible one way delays should be less than 200ms.

2. **Question**: How many IP phones are supported per HiPath 4000?

   Answer: Up to 12000 IP phones can be supported per HiPath 4000. Note that the HG 3500 is supported on all IP Access Points.

3. **Question**: How many IP phones can be supported per HG 3500?

   Answer: A maximum of 240 IP phones can be supported per HG 3500. Depending on the traffic requirements of the subscribers either a 60 connection GW or a 120 connection GW will be required.

4. **Question**: Are calls between IP phones switched in the IP network?

   Answer: Yes. HG 3500 gateways support peer-to-peer (IP switching).

5. **Question**: Do IP phones connected to HG 3500 gateways support mobility?

   Answer: Yes. The following is possible:

   - The user can take an IP phone to a new office or location and all relevant information is transferred automatically and no manual intervention is necessary.
   - A user can log in from any location via a soft-client to his workpoint, which will automatically disconnect itself from the HiPath 4000 gateway. The soft-client will provide the user with the same features and privileges as the standard workpoint.
   - A user can log in from any IP phone within a system or HiPath CorNet network and make this phone his temporary phone. The home phone will automatically be logged off and calls to the home phone are forwarded as defined for CFNR (Call Forwarding No Reply). The temporary phone will provide the user with the same features and privileges as the standard home workpoint.

6. **Question**: Do the Phones require static IP addresses?

   Answer: No, the current version of the HG 3500 line gateway does support clients configured for DHCP. Note that a DHCP server has to be configured in the IP network; otherwise static IP addresses are required for all clients.

7. **Question**: Can I connect a user via a wireless connection?

Answer: Yes. Given that IP line gateways support standard TCP/IP protocol and have been designed to work over WAN links only excessive delays are a concern. Make sure that wireless transceivers are working like Ethernet bridges in order to minimize delays.

8. **Question**: When payload and/or signaling IP packets arrive out of sequence, are they automatically re-arranged?

   Answer: As long as all the relevant payload IP packets are still held within the jitter buffer, out of sequence IP packets will be re-arranged automatically.
   Given that signaling is using TCP/IP out of sequence packets are correctly processed by the protocol.

9. **Question**: Which protocols are we using for signaling and QOS?

   Answer: Signaling: TCP/IP,
   QOS: LAN-tagging according IEEE 802.1p/q; DiffServ according to RFC 2474.

10. **Question**: Is the H.323 fast connect procedure implemented on the HG 3500?

    Answer: Yes, in order to minimize call setup time, the H.323 fast connect procedure is used to exchange H.245 logical channel information.

11. **Question**: If IP network is down and the 4000 does not see the IP phones what do callers get when calling?

    Answer: If connectivity to the IP phone is lost, the phone will be in a reset state trying to reconnect to the gatekeeper. There is a display indicating that state. There will be no dial tone. Incoming calls can be re-directed using the feature “Alternate Routing On Error” that can use LCR rules for forwarding the call to anything you like, e.g. to PhoneMail.

12. **Question**: Do we have QoS/payload monitoring of the DMC connection?

    Answer: No, the HG 3500 is not aware of DMC connections.

13. **Question**: How long does it take for IP phones to re-register with a standby gateway?

    Answer: Based on performance testing with standby HG 3500s, it takes approximately 2 - 3 minutes for 240 phones to re-register onto a backup card.

14. **Question**: Why can’t we support more than 240 users on the 120 connection version?

    Answer: Based on traffic values you could support over 600 users at 6 C.C.S and 1% blocking. However you would not be able to support the signaling traffic required for that many users. Customers would not configure that many users on a single card for reliability reasons either.

15. **Question:** The effect of default setting recommended by popular router manufacturers and the TOS byte default values documented for HFA, that is, the pre-defined DiffServ Code-Points (DSCP) is exactly the opposite of the intended effect. The packets we marked as high priority are rejected straightaway by the router. What is this nonsense about?

Answer: The default values used for HFA come from an internal Siemens standard that was implemented in all HG 35xx gateways. The interoperability problem has since come to light with the result that the company standard will be modified shortly.
The default values can be modified at any time and modified in line with actual conditions in the customer network.

16. **Question:** Does HFA support VLANs?

    Answer: Yes but only in conjunction with priority tagging. In accordance with IEEE 802.1 p/q, tagging was introduced for HFA to support priority tagging. If tagging is activated then the permanently preset priority bits of the various types of traffic are always set. If tagging is active, the VLAN ID can also be set (default value is zero). VLAN ID is not supported without the set priority bits.

17. **Question:** Does HFA support subnetting (RFC 950)?

    Answer: Yes. When the network mask is entered, a check is performed to determine whether the block of ones that has been set meets the minimum length required for the class of the address, i.e. 8 ones for Class A, 16 for B and 24 for C. If the number of ones is greater than the number required for the class, subnetting is activated.

18. **Question:** Does HFA support supernetting (RFC 1338)?

    Answer: No.

Index

F
Frequently Asked Questions 29

O
Overview 5