HiPath 3000 V8

Tutorial
Internet telephony configuration guide

Version 1.3
History of Change

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1 Introduction

This document describes how to set up the HiPath 3000 V8 communication system for Internet telephony via ITSP (Internet Telephony Service Provider) using Web-Based Management (WBM) and Manager E. The general administration is covered by the Administrator Documentation.

Prerequisite for the configuration is that the Internet Explorer at a PC has a LAN connection to HiPath, the WBM is started, and you are logged on as an administrator. Please use the menu items as described below.

Current technical information on the products, applications and solutions available from Siemens Enterprise can be found under the following link: http://wiki.siemens-enterprise.com/index.php/Main_Page

For general information see www.siemens-enterprise.com
2 Starting Basis

An Internet telephony system connection is to be set up for the HiPath 3000 communication system.

A customer router is always required to enable the customer to access the Internet. Never open up the firewall in an internal or external router e.g. by forwarding port 5060. The SME platforms take care of opening the firewall for traffic with the selected VoIP providers. Attacks from other internet addresses are therefore blocked. Opening up the router’s firewall would invalidate this security measure.

Notes:

- HiPath 3000 does not support routers with symmetric NAT. An Application Layer Gateway (ALG) in the router should be disabled.
- An ITSP connection via a customer router is only possible via the LAN1 port of an HG 1500 board.
- An ITSP connection via the LAN2 port is not supported.
- The DSL bandwidth at the customer site determines the maximum number of concurrent calls (128 kbit/s for a G.711 call up- and downstream).
- A b-channel license must be available for Internet telephony calls from analog and U_P0/E subscribers. The number of b-channel licenses indicate the number of concurrently possible Internet telephony calls from TDM via the ITSP. In addition, note that a separate b-channel is required for conferences.
- Please note that there is an absolute limit of 32 simultaneous calls.
Configuration

Use 3000 Manager E and the HG 1500 WBM for this purpose. The following configuration steps are necessary:

• Manager E > add trunks
• Manager E > DSL route and parameter configuration
• Manager E > LCR configuration
• WBM of the HG 1500 > ITSP configuration including Internet telephone subscriber and station number
3 Initial Setup via HiPath 3000 Manager E

Add trunks
1. Go to "Settings > Lines / networking..." and select the "IP Trunks" tab.
2. Specify the board that will be used for IP trunking under "Selection > Gatekeeper HG 1500 > Slot X".
3. In the "Number" field, enter the number of trunks (e.g. 2 trunks for SIP Provider 1) that should be configured. When you click the "Add" button, the trunks appear in the corresponding display field.
4. Enable the gateway resources.
5. Apply the settings.

Configure routes
1. Go to "Settings > Lines / networking ..." and select the "Routes" tab.
2. In the "Routes" display field, select Trk Grp. 12 (please rename it to ITSP xy). For the first ITSP add a Route prefix i.e. "80" for establishing calls from the "Missed Calls List" and dialing Trk Grp. 12 (renamed to ITSP xy) directly.
3. PABX number-incoming / PABX number outgoing > Do not make any entries in these fields.
4. In the "Digit transmission" field, activate the transmission type "en-bloc sending".
5. Please verify that flag “Always use DSP” is deactivated.
6. Apply the settings.

Configure routing parameters
1. Go to "Settings > Lines / networking ..." and select the "Routing parameters" tab.
2. Activate the routing type "CO" under "Route type".
3. Activate "Unknown" under "No. and type, outgoing".
4. Activate the type "Direct inward dialling" under "Callnumber type".
5. Apply the settings.
Configure trunks
1. Go to "Settings > Lines / networking ..." and select the "Trunks" tab.
2. In the "Code" column, configure a trunk access code if, for example, the trunks are to be configured as a line key e.g. to be monitored.
3. Apply the settings.

Configure LCR
1. Go to "Settings > Least cost routing..." and select the "Codes and flags" tab.
2. Enable the "LCR" function under "LCR - flags".
3. Apply the settings.

Configure dial plan
1. Go to "Settings > Least cost routing" and select the "Dial plan" tab.
2. Configure the dial plan / dial rule. Example for COLT xy

In the Dialed Digits enter “80CZ” (80 is the prefix for COLT xy, C is to hear dial tone and Z means all digits following, in other words the dialed number).
In the bottom table you can see the first route "COLT xy", in the second Route you can define i.e. your default ISDN route so that there will be an overflow to "ISDN" if the ITSP is not available.

3. Then press the Dial rule wizard, and configure it as shown below:

![Dial rule wizard](image)

4. Apply the settings and load the data into the system.

**Release transit trunk connections if required**

1. Go to “Settings > System parameters” and select the “Flags” tab.
2. Enable the flag “SIP-Prov. to SIP-Prov. transit” to permit transit trunk connections for ITSP connections. (For transfer scenarios)
3. Apply the settings and load the data into the system.

> Transit trunk connections should only be released with customer agreement. A transit trunk connection exists when a call occupies two trunks of the same system e.g. with external call transfer or external call forwarding. If the flag is not set (the default setting), transit trunk connections for such ITSP connections will be prevented.
Set up MoH sources if required

Music On Hold (MOH) can be played back to callers who cannot be connected immediately with the desired HiPath 3000 subscriber.

1. Go to “Settings > Auxiliary equipment“ and select the “Announcement“ tab.

2. Under "MoH sources", select the “Number of sources" and the audio codecs supported by the ITSP.

3. Apply the settings and load the data into the system.
4 Configuration via HG 1500 WBM

Router Entry via the HG 1500 WBM

The following example illustrates a router entry if the HiPath 3000 system was connected behind a customer router (customer router: 192.168.1.3). The customer router routes all IP packets via the DSL interface to the Internet.

DNS entry

The following example illustrates a DNS entry if the HiPath 3000 system is connected behind a customer router (customer router: 192.168.1.3) and the customer router is a DNS forwarder or DNS proxy for calls in the direction of the Internet Service Provider.

Check gateway settings

In order to guarantee the proper functionality of Internet telephony, the following settings must be checked.

1. Go to:
   “Explorers > Basic Settings > Gateway”.

2. The parameters “Protocol Variant “Extended Fast Connect” active” and “Use RTP Proxy” must be enabled.

Please check internet connectivity e.g. by sending a PING.

> Please reset the HG 1500 at this point!
Add Internet telephony subscriber

1. Go to:
   "Explorers > Voice Gateway > Internet Telephony Service Provider > e.g. COLT (> right click) > Add Internet Telephony Subscriber"

2. Enter the relevant parameters.

   Internet telephony station must be entered.
   Authorization name and Password are optional for some ITSPs. You can find configuration hints how to enter account data for a specific provider at http://wiki.siemens-enterprise.com/index.php/How_to_enter_SIP_Provider_Account_Data

Add a DID range

1. Go to:
   "Explorers > Voice Gateway > Internet Telephony Service Provider > (1) COLT xy > +4989123456 ... > DID Range (> right click) > Add DID Range"

2. Enter the relevant parameters.

3. Optionally you can choose the last flag to assign automatically the DID range to stations. E.g. from subscriber "200" onwards. Otherwise you will have to assign stations for each msn created separately as seen below:
Usually the number of HiPath 3000 subscribers exceeds the number of available Internet telephony call numbers per ITSP. If a subscriber does not have any Internet telephony call number, an outbound call via ITSP is still possible. One number, which is marked as “default entry”, is used as call number. (by default it is not automatically active)

Add an MSN

1. Go to:
   "Explorers > Voice Gateway > Internet Telephony Service Provider > (1) COLT xy > +49891234560 ... > MSNs (> right click) > Add MSN"

2. Enter directly the number of internal station e.g. 100.

Edit SIP Parameters

1. Go to:
   "Explorers > Voice Gateway > SIP Parameters (> right-click) > Edit SIP Parameters".

2. Enter the relevant parameters.

> The default setting "0" in the field "Maximum possible Provider Calls" must be changed to the maximum number of possible calls.
The maximum number of calls possible via the provider (e.g. 2) corresponds to the maximum number of simultaneous calls in the direction of the ITSP. Up to 128 Kbps upstream is reserved for each call. This value may vary, depending on the codec used.

Activate ITSP

1. Go to "Explorers > Voice Gateway > Internet Telephony Service Provider > COLT xy (> right click) > Activate Internet Telephony Service Provider > Information"

For released ITSPs all necessary parameters are already configured. See also Siemens Experts Wiki: Tested_VoIP_Providers_by_Countries
5 Checking the Setup

1. In the WBM of the HG 1500, go to: “Maintenance > Traces > Customer Trace Log (> right click) > Display”. All results reported by the HG 1500 will be displayed in a list.

![Customer Trace]

2. In order to check if the internet connection is OK, go to Explorers > Routing > IP Routing > ICMP Request > Ping. Click an address to ping i.e. www.google.com and Send. Check if there is a response. If yes then everything is OK and then your ITSP should turn into green in the ITSPs list in the WBM.

![Ping Test]
6 Appendix

6.1 Fax Setup

Fax is possible in two ways. Either by protocol T.38 or by using clear channel with codec G.711. Fax over T.38 is more reliable and secure than fax over G.711.

- For fax T.38, nothing needs to be configured.
- If the ITSP does not support T.38, then T.38 needs to be disabled in order to send the fax via G711:

HG1500 WBM > Explorers > Voice Gateway > Right click & Edit on Codec Parameters > Disable the flag “Fax T.38”. All the other settings should remain at the default values.

→ It is strongly recommended to disable T38 only if your provider does NOT support it.
→ Fax via ITSP using OpenScape Office HX Application will be available starting from OSO HX V3. If the ITSP does not support T.38, then fax via the OSO application is NOT possible.
6.2 Codec and RFC2833 Setup

In the screen in chapter 6.1 you can also configure the codecs and its priorities for Gateway calls (calls via analog stations). If G.729 is used by the provider, then both G.729A and G.729AB MUST be activated in HG1500.

RFC2833 is also configured here. Usually the RFC2833 dynamic payload type is negotiated between the HiPath 3000 system and the ITSP. If the provider does not support negotiation and requests a specific value, this must be entered under "Payload Type for RFC2833".

6.3 Provider Hints

You can find configuration hints how to enter account data for a specific provider at

http://wiki.siemens-enterprise.com/index.php/How_to_enter_SIP_Provider_Account_Data

Please feel free to add information from your experience to this web page.

6.4 Configure STUN

1. Go to: "Explorers > Voice Gateway > Internet Telephony Service Provider (> right click) > Edit STUN Configuration"

Notes on setting STUN mode:

The necessary STUN mode depends on ITSP infrastructure and the used router. STUN is not required for ITSPs that resolve NAT traversal using infrastructure components in the provider network such as Session Border Controller (SBC). See also:


- **"Automatic" (Default)** If no ITSP is active, STUN is fully disabled (same behavior as for "Off"). With an active ITSP, STUN determines the used firewall type (NAT type) at system startup and detects IP address changes during runtime. Depending on the detected NAT type, STUN changes certain parameters in SIP messages (NAT traversal). Please note: symmetric NAT is not supported.

- **"Always"** STUN is always active, even if no ITSP is active, for example. Depending on the detected NAT type, some parameters in SIP messages (NAT traversal) are adapted.

- **"Use static IP"** If you are using a static IP on your ADSL modem/router then use this mode and enter here the static IP and port.
• “Port Preserving Router” (Use this option if none of the above is working, there are some specific Modem/Routers that have a special port for NAT and need this option to work properly)

Switching off STUN completely:

Up to HiPath 3000 V8: set STUN mode to “Off”. STUN is deactivated, IP address changes are not detected.

Since HiPath 3000 V9: The usage of STUN can be activated / deactivated individually for each provider. This is possible with the new profile parameter: “Use STUN” Therefore STUN mode “Off” is no longer available in the global STUN modes.
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