



**Dialogic® Brooktrout® SR140 Fax Software with
Siemens HiPath 8000 and Siemens RG8702
Installation and Configuration Integration Note**

This document is not to be distributed to a third party without written permission from Dialogic.

Copyright and Legal Notice

Copyright © 2009 Dialogic Corporation. All Rights Reserved. You may not reproduce this document in whole or in part without permission in writing from Dialogic Corporation at the address provided below.

All contents of this document are furnished for informational use only and are subject to change without notice and do not represent a commitment on the part of Dialogic Corporation or its subsidiaries ("Dialogic"). Reasonable effort is made to ensure the accuracy of the information contained in the document. However, Dialogic does not warrant the accuracy of this information and cannot accept responsibility for errors, inaccuracies or omissions that may be contained in this document.

INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH DIALOGIC® PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT. EXCEPT AS PROVIDED IN A SIGNED AGREEMENT BETWEEN YOU AND DIALOGIC, DIALOGIC ASSUMES NO LIABILITY WHATSOEVER, AND DIALOGIC DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF DIALOGIC PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHT OF A THIRD PARTY.

Dialogic products are not intended for use in medical, life saving, life sustaining, critical control or safety systems, or in nuclear facility applications.

Due to differing national regulations and approval requirements, certain Dialogic products may be suitable for use only in specific countries, and thus may not function properly in other countries. You are responsible for ensuring that your use of such products occurs only in the countries where such use is suitable. For information on specific products, contact Dialogic Corporation at the address indicated below or on the web at www.dialogic.com.

It is possible that the use or implementation of any one of the concepts, applications, or ideas described in this document, in marketing collateral produced by or on web pages maintained by Dialogic may infringe one or more patents or other intellectual property rights owned by third parties. Dialogic does not provide any intellectual property licenses with the sale of Dialogic products other than a license to use such product in accordance with intellectual property owned or validly licensed by Dialogic and no such licenses are provided except pursuant to a signed agreement with Dialogic. More detailed information about such intellectual property is available from Dialogic's legal department at 9800 Cavendish Blvd., 5th Floor, Montreal, Quebec, Canada H4M 2V9. **Dialogic encourages all users of its products to procure all necessary intellectual property licenses required to implement any concepts or applications and does not condone or encourage any intellectual property infringement and disclaims any responsibility related thereto. These intellectual property licenses may differ from country to country and it is the responsibility of those who develop the concepts or applications to be aware of and comply with different national license requirements.**

Dialogic, Dialogic Pro, Brooktrout, Diva, Cantata, SnowShore, Eicon, Eicon Networks, NMS Communications, NMS (stylized), Eiconcard, SIPcontrol, Diva ISDN, TruFax, Exnet, EXS, SwitchKit, N20, Making Innovation Thrive, Connecting to Growth, Video is the New Voice, Fusion, Vision, PacketMedia, NaturalAccess, NaturalCallControl, NaturalConference, NaturalFax and Shiva, among others as well as related logos, are either registered trademarks or trademarks of Dialogic Corporation or its subsidiaries. Dialogic's trademarks may be used publicly only with permission from Dialogic. Such permission may only be granted by Dialogic's legal department at 9800 Cavendish Blvd., 5th Floor, Montreal, Quebec, Canada H4M 2V9. Any authorized use of Dialogic's trademarks will be subject to full respect of the trademark guidelines published by Dialogic from time to time and any use of Dialogic's trademarks requires proper acknowledgement.

The names of actual companies and products mentioned herein are the trademarks of their respective owners.

This document discusses one or more open source products, systems and/or releases. Dialogic is not responsible for your decision to use open source in connection with Dialogic products (including without limitation those referred to herein), nor is Dialogic responsible for any present or future effects such usage might have, including without limitation effects on your products, your business, or your intellectual property rights.

Any use case(s) shown and/or described herein represent one or more examples of the various ways, scenarios or environments in which Dialogic products can be used. Such use case(s) are non-limiting and do not represent recommendations of Dialogic as to whether or how to use Dialogic products.

1. Scope

This document is intended as a general guide for configuring a basic installation of the Siemens HiPath 8000 IP Softswitch and Siemens RG8702 Gateway for use with Dialogic® Brooktrout® SR140 Fax over IP (FoIP) software platform. The interoperability includes SIP call control and T.38/T.30 media.

This document is not intended to be comprehensive and thus does not replace the manufacturer's detailed configuration documentation. Users of this document should already have a general knowledge of how to install and configure the Siemens HiPath 8000 IP Softswitch and Siemens RG8702 Gateway.

The sample configuration shown and/or referred in the subsequent sections was used for lab validation testing by Dialogic. Therefore, it is possible and even likely that the example configuration will not match the exact configuration and versions that would be present in a deployed environment. However, the sample configuration does provide a possible starting point to work with the equipment vendor for configuring your device. Please consult the appropriate manufacturer's documentation for details on setting up your specific end user configuration.

2. Configuration Details

The following systems were used for the sample configuration described in the document.

2.1 Siemens HiPath 8000 IP Softswitch

Vendor	Siemens
Model	HiPath 8000 V3.0
Software Version	V3.0 R2 PS19.E05
Hardware Version	IBM 3650T
Protocol to Gateway	SIP
Protocol to Dialogic® Brooktrout® SR140 Fax Software	SIP

2.2 Siemens RG8702 Gateway

Vendor	Siemens
Model	RG8702
Software Version	V1.3 R2.2.3 (13.21.02.15)
Protocol to PSTN	PRI E1 ISDN from Telco provider
IP Devices	Dialogic® Brooktrout® SR140 Fax Software Siemens HiPath 8000

2.3 Dialogic® Brooktrout® SR140 Fax Software

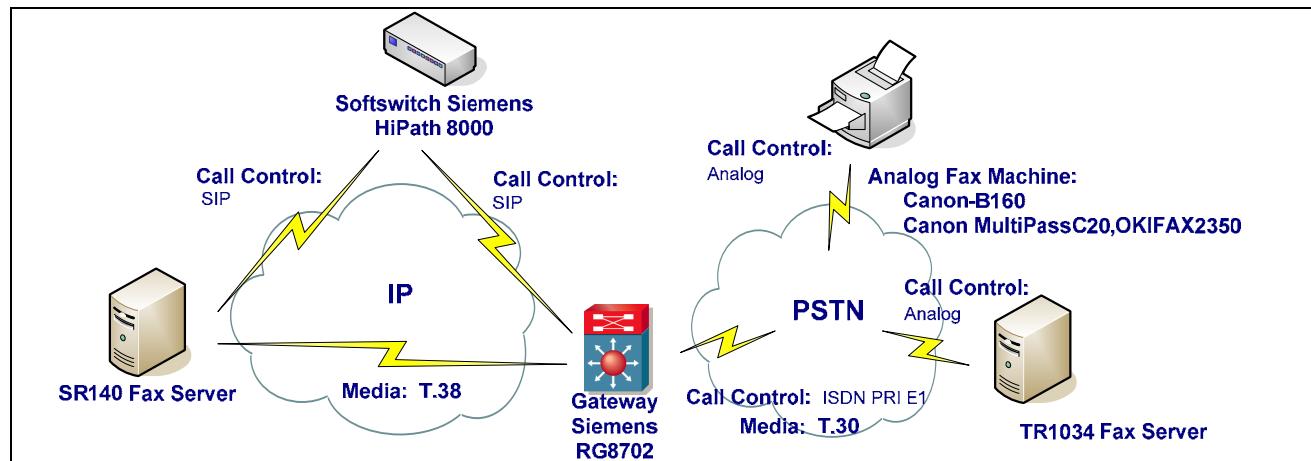
Vendor	Dialogic
Model	Dialogic® Brooktrout® SR140 Fax Software
Software Version	Dialogic® Brooktrout® SDK/API 6.0.0
Protocol to Gateway or Call Manager	SIP
callctrl.cfg file	Default values that come with SDK 6.0.0

2.4 Dialogic® Brooktrout® TR1034 Fax Board

Vendor	Dialogic
PSTN Device	Dialogic® Brooktrout® TR1034 Fax Board (Analog)
Software Version	Dialogic® Brooktrout® SDK/API 6.0.0
Protocol to PSTN Device	Analog from Telco provider
callctrl.cfg file	Default values that come with SDK 6.0.0

2.5 Network System Configuration

The diagram details the setup used for this document.



Notes:

- SR140 Fax Server = Fax Server including Dialogic® Brooktrout® SR140 Fax Software and 2nd party fax application
- TR1034 Fax Server = Fax Server including Dialogic® Brooktrout® TR1034 Fax Board and 2nd party fax application

3. Prerequisites

Dialogic® Brooktrout® SR140 Fax Software: Dialogic® Brooktrout® SDK 6.0.0 or higher.
Siemens RG8702: Version 1.3 or higher is required for T.38 support.

4. Summary of Limitations

G.729 is not currently supported by Dialogic® Brooktrout® SR140 Fax Software. The Siemens IP network should not be a G.729 only network.

5. Deployment Details

5.1 Network Addresses

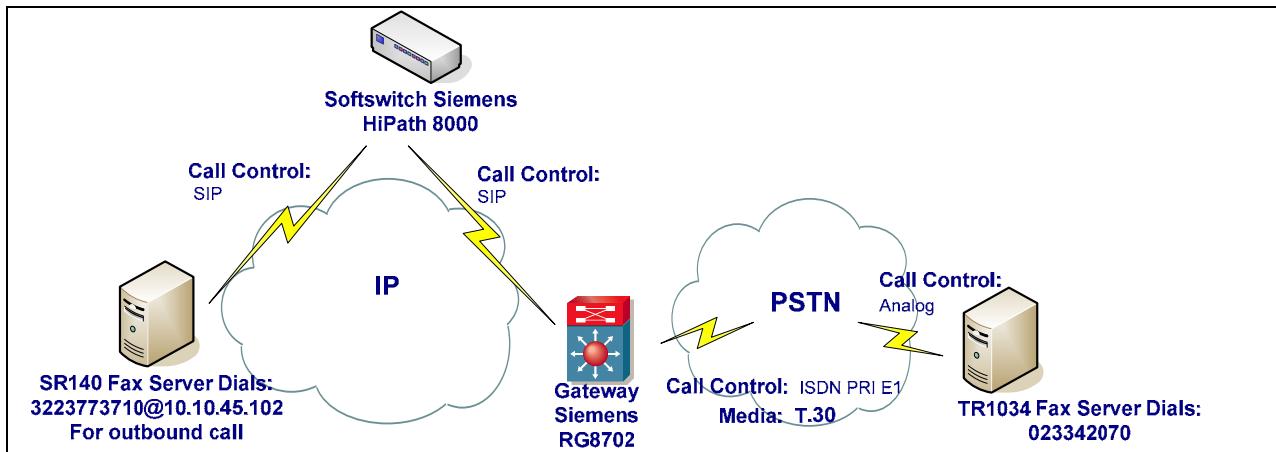
Device #	Device Description	Device IP Address
1	Siemens HiPath 8000 IP Softswitch	10.10.45.102
2	Siemens RG8702 Gateway	10.10.30.60
3	Dialogic® Brooktrout® SR140 Fax Software	10.10.42.32 (also 10.10.42.33)

Dialogic® Brooktrout® SR140 Fax Software Ethernet Adapter Local Area Connection:

Connection-specific DNS Suffix:
IP Address : 10.10.42.32
Subnet Mask : 255.255.255.0
Default Gateway : 10.10.42.1

5.2 Dialing Plan Overview

The diagram provides an overview of the dialing plan used for this document.



Notes:

- SR140 Fax Server = Fax Server including Dialogic® Brooktrout® SR140 Fax Software and 2nd party fax application
- TR1034 Fax Server = Fax Server including Dialogic® Brooktrout® TR1034 Fax Board and 2nd party fax application

6. Dialogic® Brooktrout® SR140 Fax Software Setup Notes

All default Dialogic® Brooktrout® SR140 Fax Software configuration values from Dialogic® Brooktrout® SDK 6.0.0 were used. This means the default BTCALL parameters (btcall.cfg) and the default CALLCONTROL parameters (callctrl.cfg).

See the callctrl.cfg file below:

```
api_trace=none
host_module_trace=none
internal_trace=none
ip_stack_trace=none
l3l4_trace=none
l4l3_trace=none
max_trace_files=1
max_trace_file_size=10
trace_file=
[host_module.1]
module_library=brktsip.dll
enabled=true
[host_module.1/t38parameters]
t38_fax_rate_management=transferredTCF
fax_transport_protocol=t38_only
t38_fax_udp_ec=t38UDPRedundancy
rtp_ced_enable=false
```

```
t38_max_bit_rate=14400
t38_fax_version=0
media_renegotiate_delay_inbound=1000
media_renegotiate_delay_outbound=-1
t38_fax_fill_bit_removal=false
t38_fax_transcoding_jbig=false
t38_fax_transcoding_mmr=false
t38_t30_fastnotify=false
t38_UDPTL_redundancy_depth_control=5
t38_UDPTL_redundancy_depth_image=2
[host_module.1/parameters]
sip_max_sessions=256
sip_default_gateway=0.0.0.0:0
sip_proxy_server1=
sip_proxy_server2=
sip_proxy_server3=
sip_proxy_server4=
sip_registration_server1=
sip_registration_server1_aor=
sip_registration_server1_username=
sip_registration_server1_password=
sip_registration_server1_expires=3600
sip_registration_server2=
sip_registration_server2_aor=
sip_registration_server2_username=
sip_registration_server2_password=
sip_registration_server2_expires=3600
sip_registration_server3=
sip_registration_server3_aor=
sip_registration_server3_username=
sip_registration_server3_password=
sip_registration_server3_expires=3600
sip_registration_server4=
sip_registration_server4_aor=
sip_registration_server4_username=
sip_registration_server4_password=
sip_registration_server4_expires=3600
sip_registration_interval=60
sip_Max-Forwards=70
sip_From=Anonymous <sip:no_from_info@anonymous.invalid>
sip_Contact=0.0.0.0:0
sip_username=-
sip_session_name=no_session_name
sip_session_description=
sip_description_URI=
sip_email=
sip_phone=
sip_Route=
sip_session_timer_session_expires=0
sip_session_timer_minse=-1
sip_session_timer_refresh_method=0
sip_ip_interface=
sip_ip_interface_port=5060
```

```
[module.41]
model=SR140
virtual=1
exists=1
vb_firm=C:\fdtool-6.0.0\bin\bostvb.dll
channels=60
[module.41/ethernet.1]
ip_interface={933ECC8B-7B1C-49D1-A036-33B1FFF17F9A}:0
media_port_min=56000
media_port_max=57000
[module.41/host_cc.1]
host_module=1
number_of_channels=60
```

Note: If the fax application does not allow you to enter the IP address of the destination, you will need to set the sip_default_gateway parameter in the callctrl.cfg file. In this test case, this would have been:
sip_default_gateway=10.10.45.102:0, which is the IP address to the Siemens HiPath 8000.

7. Siemens HiPath 8000 IP Softswitch Setup Notes

7.1 System Basics

The Dialogic® Brooktrout® SR140 Fax Software can be configured as a Subscriber (BGL) or as an Endpoint Profile (EPP) on the OSC Voice.

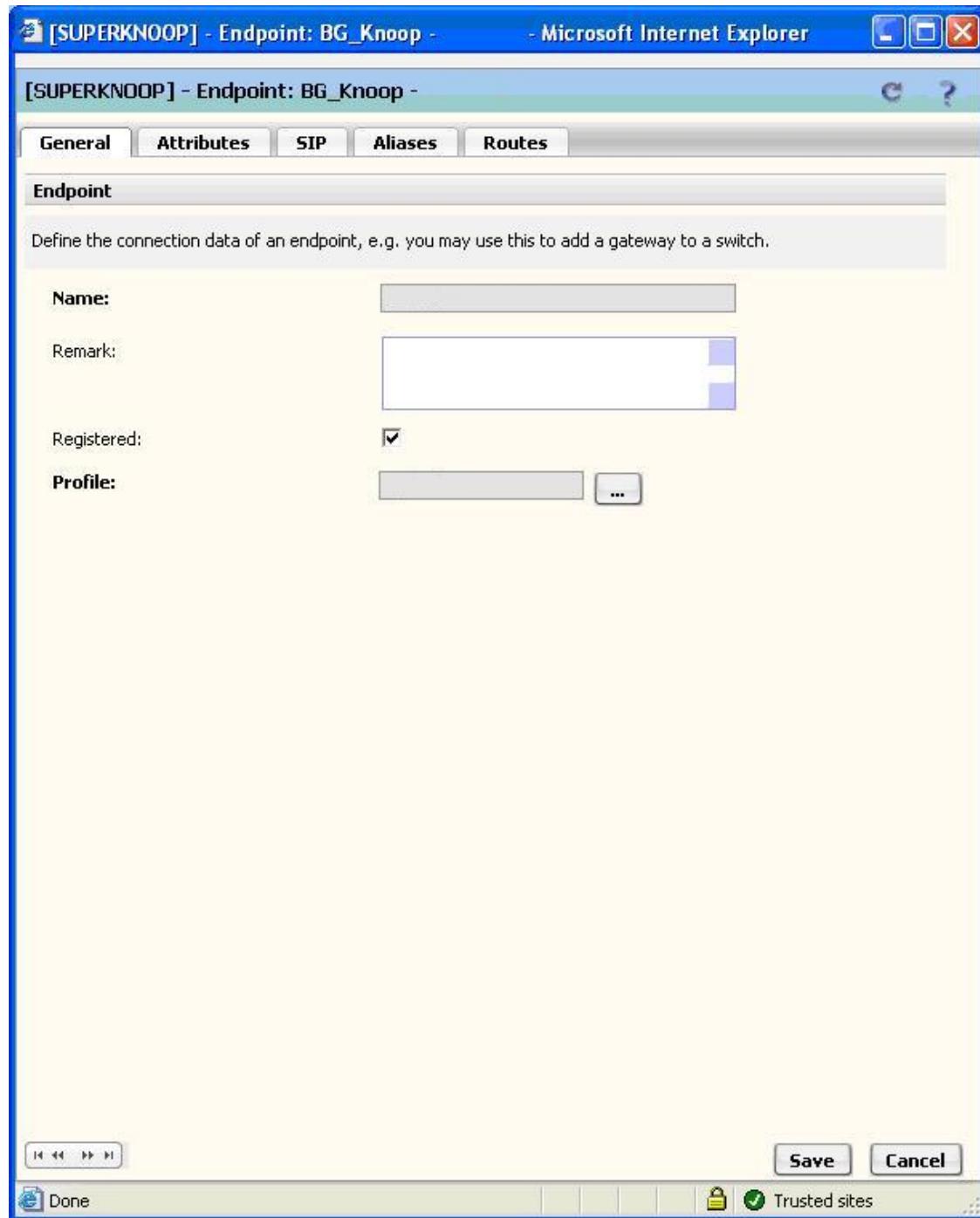
For beneficial functionality and reliability, Siemens suggests the following:
The server should ideally be used with an Endpoint Profile configuration (static registration).

7.1.1 Endpoint

Create an Endpoint Profile.

The screenshot shows a Microsoft Internet Explorer window with the title bar "[SUPERKNOOP] - Endpoint Profile: BG_Knoop - Microsoft Internet Explorer". The main content area displays the "Endpoint Profile" configuration screen. At the top, there are tabs: General (selected), Endpoints, Services, and Blocked Numbers. A note says "Enter the profile data." Below this, the "Endpoint Profile" section asks for a unique name, with "BG_Knoop" entered in the "Name" field. Other fields include "Remark" (empty), "Business Group" (BG_Knoop), and "Numbering Plan" (NP_Subscribers). The "Management Information" section contains fields for "Class of Service", "Routing Area", "Calling Location", "SIP Privacy Support" (set to "Basic"), and "Failed Calls Intercept Treatment" (set to "Disabled"). At the bottom right are "Save" and "Cancel" buttons, and at the bottom left is a "Done" button.

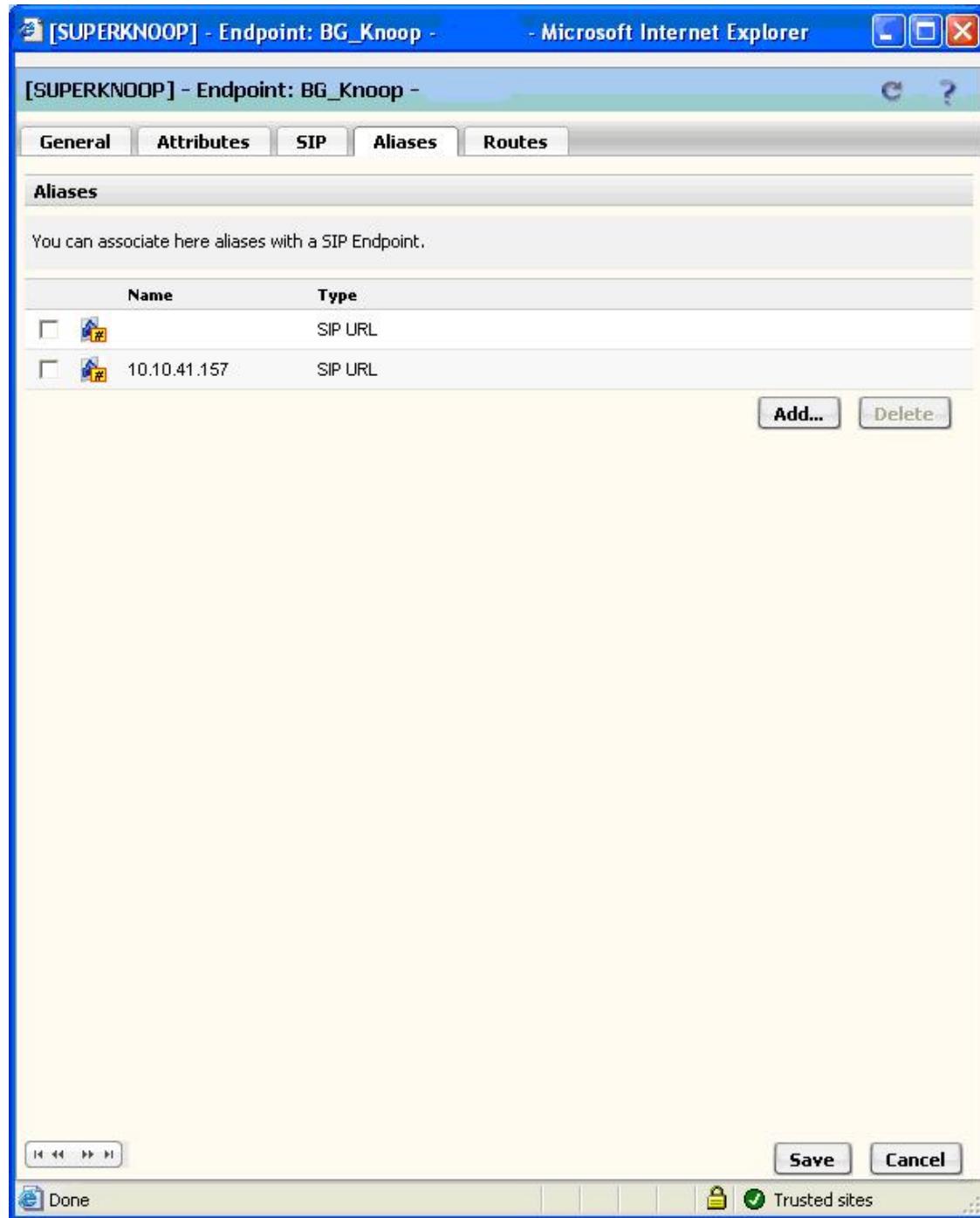
Create an Endpoint and assign the Endpoint Profile to it. Nothing needs to be ticked in the Attributes tab.



Go to the SIP tab and choose your registration type. In this test configuration, Type = Static.

The screenshot shows a Microsoft Internet Explorer window with the title bar "[SUPERKNOOP] - Endpoint: BG_Knoop - - Microsoft Internet Explorer". The main content area displays the "SIP Configuration" settings for the endpoint. The "Type" dropdown is set to "Static". Other fields include "FQDN: fully qualified domain name" and "Max. number of sessions per subscriber: 1-10000". Below these, there are sections for "SIP-Q Signaling" (unchecked), "Transport protocol" (set to UDP), and "Signaling Binding" (IP address 10.10.41.157 and port 5060). A "Security" section follows, explaining realms and their association with signaling IPs. A table lists a realm entry for IP 10.10.41.157 with the value "true" under the "Trusted" column. At the bottom, there are "Save" and "Cancel" buttons, along with a "Done" link and a "Trusted sites" icon.

Go to the Aliases tab. It is important to add one or more aliases, from which at least one is the IP address or DNS record the Endpoint is operating under. Once this is done, the Endpoint is set up.



Go to the Routes tab (screen shot not available) and create an empty destination under Destinations and Routes and name it: "toFaxServer" and click Save. The details can be filled in later on.

Create a Prefix Access Code to route all "222" dialed digits to the Fax Server.

The screenshot shows a Microsoft Internet Explorer window with the title bar "[SUPERKNOOP] - Prefix Access Code : BG_Knoop - 222 - Microsoft Internet Explorer". The main content area has tabs for "General" and "Destination Codes", with "General" selected. Under the "Identification" section, there is a note: "If the dialed digits match this code, the specified modification to these dialed digits is executed." The "Prefix Access Code:" field contains "222". The "Remark:" field is empty. The "Minimum Length:" field contains "4". The "Maximum Length:" field contains "4". The "Digit Position:" field contains "0". The "Digits to insert:" field is empty. Under the "Settings" section, there is a note: "Specify additional parameters to determine how the call will be routed." The "Prefix Type:" dropdown is set to "Off-net Access". The "Nature of Address:" dropdown is set to "Unknown". The "Destination Type:" dropdown is set to "None". The "Destination Name:" field is empty and has a "... button". At the bottom right, there are "Save" and "Cancel" buttons, and at the bottom left, there is a "Done" button.

Create a Destination Code of "222" to point to the Fax Server destination that was entered earlier.

The screenshot shows a Microsoft Internet Explorer window titled "[SUPERKNOOP] - Destination Code - 222 - Microsoft Internet Explorer". The page displays a form for configuring a destination code. The "General" tab is selected. The "Identification" section contains fields for Destination Code (222), Remark (empty), Country Code (empty), Nature Of Address (Unknown), and Traffic Type (NONE). The "Originator Attributes" section contains fields for Class Of Service (empty) and Routing Area (empty). The "Destination" section contains fields for Destination Type (Destination), Destination Name (empty), and DN Office Code (empty). At the bottom right are "Save" and "Cancel" buttons, and at the bottom left is a "Done" button.

[SUPERKNOOP] - Destination Code - 222 - Microsoft Internet Explorer

[SUPERKNOOP] - Destination Code - 222

General Extensions

Identification

This destination code will be used for a call if the dialed or modified (in PAC) digits and the Nature of Address are matching.

Destination Code: 222

Remark:

Country Code:

Nature Of Address: Unknown

Traffic Type: NONE

Originator Attributes

Optionally, an additional match is required if the originator of the call belongs to the specified Class of Service and Routing Area.

Class Of Service:

Routing Area:

NPA:

Destination

Specify additional parameters to determine how the call will be routed.

Destination Type: Destination

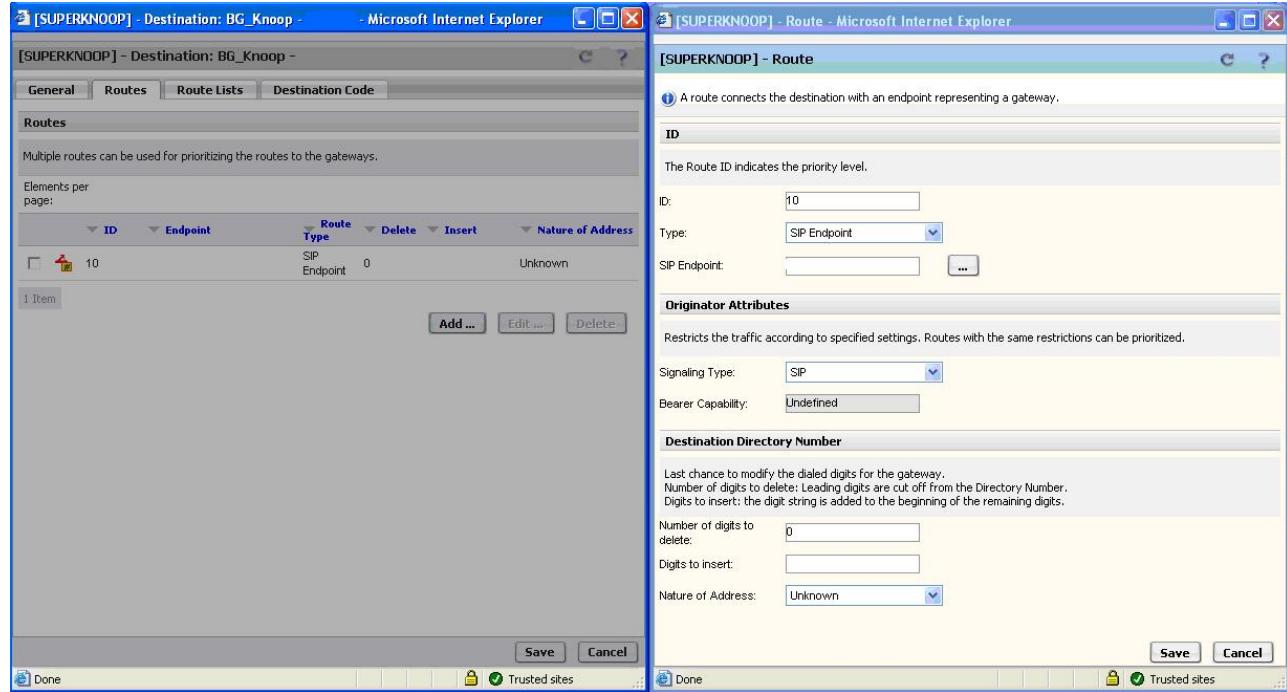
Destination Name:

DN Office Code:

Save Cancel

Done Trusted sites

Open the Destination and new Route that points to the correct Endpoint. Click Save to save the configuration.



7.1.2 Subscriber

For beneficial functionality and reliability, Siemens suggests configuring the server as an Endpoint Profile configuration (refer to section 7.1.1). However, if you plan to configure as a Subscriber, you can add a Subscriber as you would do for a SIP phone. Most Fax Servers are able to register dynamically on the Subscriber Number you just created. In the Feature Profile, enable all appropriate features such as Call Transfer, Music on Hold, and Name Delivery options.

[SUPERKNOOP] - Quick Add Subscriber - Microsoft Internet Explorer

[SUPERKNOOP] - Quick Add Subscriber

The most common settings for a subscriber are used here.

Business Group

Select the BG-related attributes for this subscriber from the lists.

Business Group: BG_Knoop ...

Numbering plan: NP_Subscribers ...

Office Code: +32 (2) 334 ...

Subscriber Number: <mynumber> ... **Create Home DNs**

DLS Server: ...

Subscriber

The display name is used as external and internal display name. The routing area is optional if the BG has several locations.

Display Name:

Routing Area: ...

Calling Location: ...

Configuration

Keyset Operation: this attribute describes whether a DN is to be used for Keyset Operation, and if so, in what way
Class of Service: call permission control
Feature Profile: predefined set of services used for the subscriber
Add Routing Entry: individual routing entries can be created for special cases.

Device Profile: ...

Transport Protocol: UDP

MAC Address:

Keyset Operation: None

Class Of Service: ...

Feature Profile: FP_BG_Knoop ...

Save **Cancel**

Done Trusted sites

8. Siemens RG8702 Gateway Setup Notes

Verify that T.38 Negotiation is enabled on the Siemens RG8702 Gateway.

The screenshot shows a Windows Internet Explorer window titled "Edit VoIP / Echo Cancellation [10.10.45.205 - RG50LLAB] - Windows Internet Explorer". The page has a blue header bar with the title and standard window controls. Below the header is a toolbar with icons for back, forward, search, and help. The main content area is titled "Edit VoIP / Echo Cancellation".
General
Name: RGSOLLAB
Comment:
Gain: 0
High Water: 100
T38 Negotiation:
Echo Cancellation
Enabled:
Echo Tail Length: 30
At the bottom right are "Save" and "Cancel" buttons.

Enable CNG tone detection in the gateway. See below for an indication of where this parameter can be found.
Select the CNG Detection box.

The screenshot shows a Windows Internet Explorer window titled "Edit IPMP / ETP [10.10.45.205 - RGSOLLAB] - Windows Internet Explorer". The main title bar has icons for minimize, maximize, and close. Below the title bar, there's a toolbar with a globe icon, a "Save" button, and a "Cancel" button. The main content area has a header "Edit IPMP / ETP" with three tabs: "IPMP" (selected), "T38" (highlighted with a dashed border), and "Codec Profiles". The "T38" tab contains several configuration fields:

T38 Fax Data Redundancy:	3
T30 Message Redundancy:	3
muLaw Payload Type:	126
aLaw PCM Payload Type:	127
Max Datagram Size:	512
Max T38 Percentage:	25%
CNG Detection:	<input type="checkbox"/>

At the bottom right of the configuration area are "Save" and "Cancel" buttons.

DMTF detection settings can be found as shown below.

The screenshot shows a configuration interface for a 'Codecs Profile'. The title bar reads 'Edit Codecs Profile default [10.10.45.205 - RGSOLLAB] - Windows Internet Explorer'. The main window has a tab bar with 'General' and 'Assigned To' tabs, where 'General' is selected. The 'General' section contains fields for 'Name' (set to 'default'), 'Comment' (empty), and 'Min Packet Interval' (set to '20 ms'). The 'Transport Type' section includes dropdown menus for 'Fax' (set to 'Events Only') and 'Modem' (set to 'Bypass'). The 'Ditter Buffer' section contains numerical input fields for 'Minimum Delay' (set to '0') and 'Option Factor' (set to '12'). At the bottom right are 'Save' and 'Cancel' buttons.

9. Frequently Asked Questions

- *"I'm configured as near as possible to this the sample configuration described in this document, but calls are still not successful; what is my next step?"*
 - ➔ Provide this document to your gateway support.
 - ➔ Ensure T.38 is enabled on the gateway.
 - ➔ Confirm that basic network access is possible by pinging the gateway.
- *"How do I obtain Wireshark traces?"*
 - ➔ The traces can be viewed using the Wireshark network analyzer program, which can be freely downloaded from <http://www.wireshark.org>.
 - ➔ To view the call flow in Wireshark, open the desired network trace file and select "Statistics->VoIP Calls" from the drop down menu. Then highlight the call and click on the "Graph" button.