Dialogic® Brooktrout® SR140 Fax Software with Dialogic® Media Gateway DMG4000

Installation and Configuration Integration Note

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1. Scope

This document is intended as a general guide for configuring a basic installation of the ***Dialogic® Media Gateway DMG4000*** when used to interface between a Public Branch Exchange (PBX) and the ***Dialogic® Brooktrout® SR140 Fax over IP (FoIP) software platform***. For the purpose of this integration note, the system was configured for general use and not for automatic (i.e. DID) fax routing. The interoperability includes *SIP* call control and T.38/T.30 media.

This document is not intended to be comprehensive, and thus should not and does not replace ***Dialogic®*** detailed configuration documentation. Users of this document should already have a general knowledge of how to install and configure the ***Dialogic® Media Gateway and the Dialogic® Brooktrout® SR140.***

The sample configuration shown and/or referred in the subsequent sections was used for lab validation testing by Dialogic. Therefore, it is quite possible that the sample configuration will not match an exact configuration or versions that would be present in a deployed environment. However, the sample configuration does provide a possible starting point to work and configure your device.

For ease of reference, the Dialogic® Brooktrout® SR140 Fax Software and Dialogic® Brooktrout® TR1034 Fax Boards will sometimes be denoted herein, respectively, as SR140 and TR1034. All references to the SDK herein refer to the Dialogic® Brooktrout® Fax Products SDK. The Dialogic® Media Gateway DMG4000 will sometimes be denoted herein as DMG4000, or some other form thereof.

2. Configuration Details

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

2.1 Dialogic® DMG4000 Gateway

Vendor	***Dialogic®***
Model	***Dialogic® Media Gateway DMG4000***
Software Version	***Dialogic® Diva® System Release 8.5.6*** ***Dialogic® Diva® SIPcontrol™ 2.1, build 33***
PSTN Device	***Fax Machine or Fax Server***
Protocol to PSTN Device	***T1 E&M Wink line direct from telco provider***
IP Device	***Dialogic® Brooktrout® SR140 Fax Software***
Protocol to IP Device	***SIP***

2.2 Dialogic® Brooktrout® SR140 Fax Software

Vendor	***Dialogic***
Model	***Dialogic® Brooktrout® SR140 Fax Software***
Software Version	***SDK 6.2***
Protocol to Gateway or Call Manager	***SIP***
callctrl.cfg file	***All defaults***

2.3 Network System Configuration

The diagram below details the sample configuration used in connection with this document.

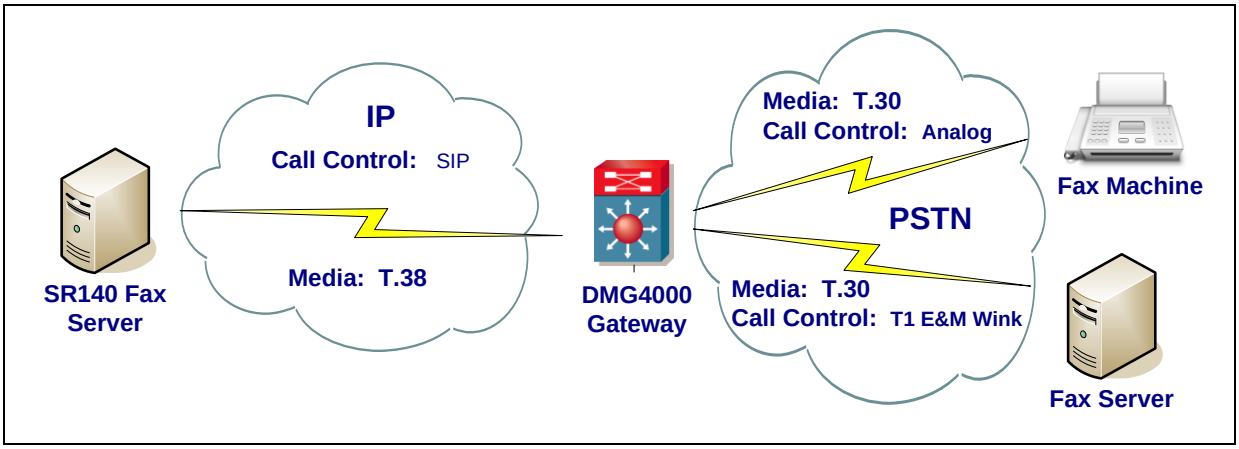


Diagram Notes:

- SR140 Fax Server = Fax Server including Dialogic® Brooktrout® SR140 Fax Software and fax test application

3. Prerequisites

Both the SR140 and the DMG4000 support V.34 over T.38. If you intend to use V.34 faxing over T.38, you will need a V.34 enabled fax license for the Diva® media board within the DMG4000 that includes the number of fax channels you intend to use. In addition, you must insure your SR140 license is enabled for V.34 faxing. To do this, open the SR140 license file with a text editor and check the number of channels specified by the « V34Enab » parameter matches the « FaxCh » parameter. It is also recommended that the Diva® media board be licensed for this same number for V.34 fax channels to avoid having more SR140 channels than can be used at a given time.

4. Summary of Limitations

The SR140 only supports SIP over UDP. The G.711 codec must be offered in the initial INVITE.

5. Dialogic® Brooktrout® SR140 Fax Software Setup Notes

For the sample test configuration, the SR140 was configured using the default values. The sample callctrl.cfg file is shown below for reference.

For more details, consult the Dialogic® Brooktrout® Fax Products Installation and Configuration Guide which is available from the following site: http://www.dialogic.com/manuals/brooktrout/default.htm

```
  l3l4_trace=none
  l4l3_trace=none
  api_trace=none
  internal_trace=none
  host_module_trace=none
  ip_stack_trace=none
  trace_file=ecc.log
  max_trace_files=1
  max_trace_file_size=10
[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=true
  t38_max_bit_rate=33600
  t38_fax_version=3
  media_passthrough_timeout_inbound=1000
  media_passthrough_timeout_outbound=4000
  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_type_of_service=0
  t38_UDPTL_redundancy_depth_control=5
  t38_UDPTL_redundancy_depth_image=2
[host_module.1/rtp]
  rtp_frame_duration=20
  rtp_jitter_buffer_depth=100
  rtp_codec=pcmu pcma
  rtp_silence_control=inband
  rtp_type_of_service=0
  rtp_voice_frame_replacement=0
```

```
[host_module.1/parameters]
  sip_max_sessions=256
  sip_default_gateway=10.128.24.84:5060
  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=10.128.16.111:5060
  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
  sip_redirect_as_calling_party=0
  sip_redirect_as_called_party=0
  sip_user_agent=Brktsip/6.2.0B5 (Dialogic)
[module.41]
  model=SR140
  virtual=1
  exists=1
  vb_firm=C:\Local\6.2.0_FDTool\bin\bostvb.dll
  channels=60
[module.41/ethernet.1]
  ip_interface={F2987203-DFC9-44E2-A310-E5B2434D47AE}:0
  media_port_min=56000
  media_port_max=57000
[module.41/host_cc.1]
  host_module=1
  number_of_channels=60
```

6. Dialogic® Media Gateway Setup Notes

For the sample test configuration, the DMG4000 was configured as described below.

6.1 Network Connection

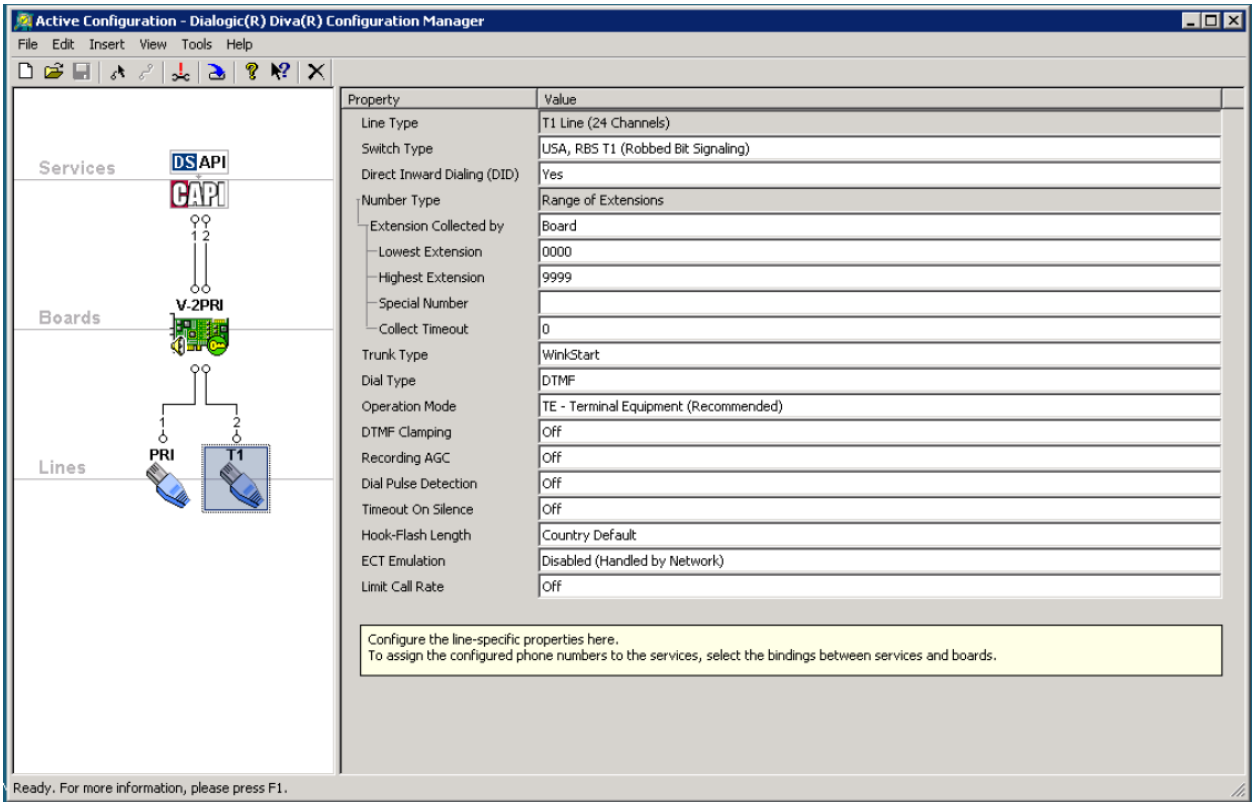
The DMG4000 is a Windows® based gateway. To configure the DMG4000 network connections, assign the gateway a unique, static IP address, subnet mask and network gateway address using the Windows® "Network Connections" wizard.

Wireshark is an open source packet analyzer that is commonly used to troubleshoot and debug network problems. To download and install the "Wireshark" network trace program onto the DMG4000 gateway, visit the following site: http://www.wireshark.org and download the appropriate copy for a Windows® OS.

6.2 T1 / E1 Configuration

The TDM interface in a DMG4000 gateway is provided by the installed Dialogic® Diva® media board, which supports T1/E1, Analog and BRI interfaces. For the sample test configuration, a dual-span card that is configurable for T1 was used. The Diva® media board must be licensed for the number of fax channels you intend to use. For more information on Diva® media board licensing, consult the PDF document on your DMG4000 as follows: *Start->Programs-> Dialogic® Diva®->Manual Diva® Boards, Chapter 3*.

Configure the TDM interfaces on the Diva® media board appropriate to your telco service by using the Dialogic® Diva® Configuration Manager. For detailed information, go to *Start->Programs-> Dialogic® Diva®->Manual Diva® Boards, Chapter 4*.

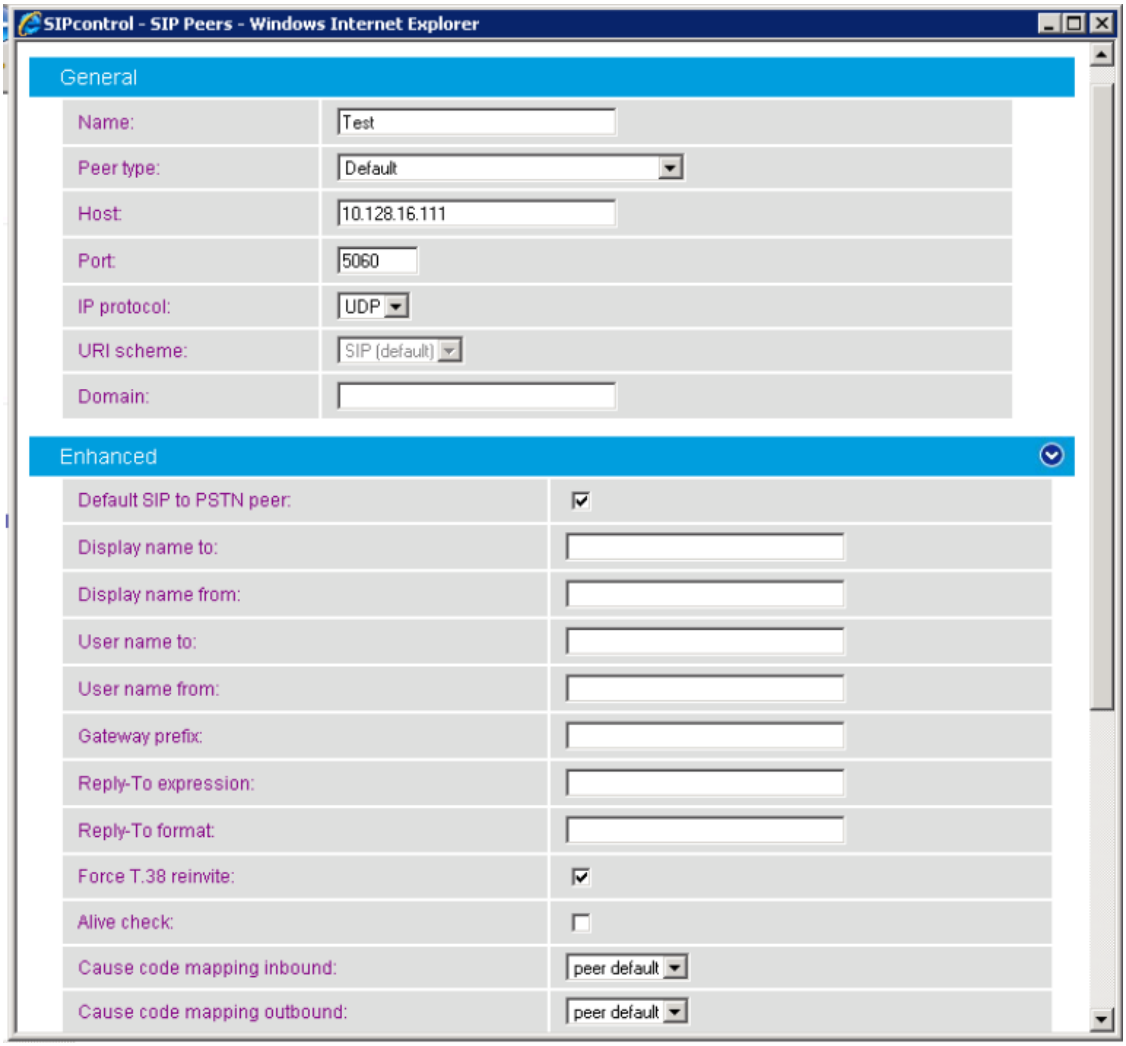


6.3 SIP Configuration

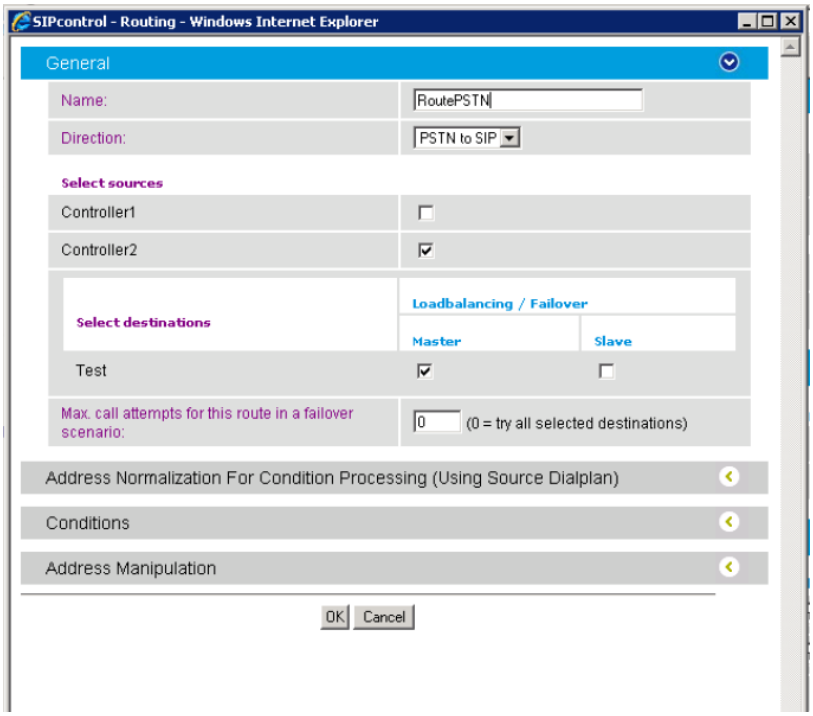
The Dialogic® Diva® SIPcontrol™ Configuration is used to configure the IP side of the DMG4000 gateway. For information on how to configure the in SIPcontrol values, refer to the HTML manual provided on the DMG4000 as follows: *Start->Programs-> Dialogic® Diva®-> SIPcontrol™ Manual*.

The following SIPcontrol parameters were set for the sample test configuration:

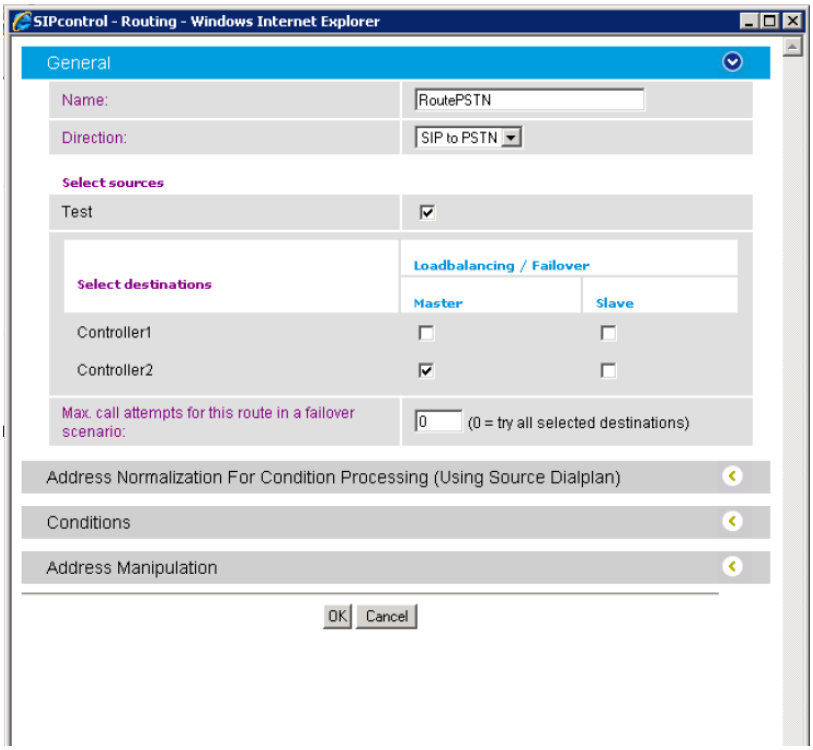
PSTN Interfaces → Enable the ports to be used.
Network Interfaces → On the NIC being used on the DMG4000, check the box "UDP listen port" and specify port 5060.
IP protocol → UDP
SIP Peers → Create a SIP peer that points to the IP address of the fax server.
Force T.38 reinvite → check box.
System Settings → For purposes of debugging in future, set the "Event log level" to "Errors, Warnings, Informational messages" and the "Debug level" to "Extended".



Routing → Create PSTN-to-SIP route to the fax server.



Routing → Create SIP-to-PSTN route from the fax server.



7. 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.