

# **Troubleshooting of SIP Trunking**

Revision History:			
Revision	Date	Author	Comments
1.0	2007-12-12	Janne Magnusson	1 <sup>st</sup> version

# 1 Introduction

This document describes how to troubleshoot a SIP Trunking configuration including a ITSP, a Ingate Firewall or Ingate SIParator and a IP PBX.

It is assumed that the initial configuration has been made with the help of Ingate's Setup Tool. If not, please first download the tool from <u>www.ingate.com</u> and reconfigure you Ingate unit.

# 2 Troubleshooting

# 2.1 Troubleshooting Outbound Calls

<u>Symptom</u>: When trying to make a call from an internal PBX extension to PSTN, there is no ringing signal on the PSTN phone.

Note: If you get a ringing signal on the PSTN phone, these troubleshooting steps will not help you to find the problem. Please contact your sales representative for support.

Following is an outbound traffic troubleshooting overview.



## 2.1.1 Get a log for the failing call:

First try to make a call to a PSTN number from a PBX phone and notice the behaviour on the PBX phone as well as on the PSTN phone.

Ingate Systems Ingate\_Troubleshooting\_A Next step is to search the log on the Ingate. Log into the Ingate box and navigate to the Display Log page. Make necessary settings on this page according to the picture below. Especially make sure that you have the highlighted checkboxes in the correct state.

isolay Packet Check Display Logging Log Log Capture Network Load Configuration Classes Sending	
Search the Log       (Help)         Displaylog       800       rows/page (timeout seconds)         Periodical search       30       seconds until next search	Support Report (Heb)         Include configuration database:         Yes O No         Make sure the Log class for SIP debug messages is set to Local if you have a SIP-related problem.         Export support report
Packet selection:only those packets that meet the search criteria in the three sections below will be selected. This selection will only have effect on the <b>IP</b> <b>packets as selected</b> choice. Packet Type Selection All packets	Time Limits Show log from: (clear) date (YYYY- time MM-DD) (HH:MM:SS) Show log until: (clear)
IP Address Selection (Help)         A: <ul> <li>not this address</li> <li>B:</li> <li>not this address</li> <li>A src</li> <li>A dst</li> <li>A any</li> <li>A to B</li> <li>B to A</li> <li>Detween A&amp;B</li> <li>not this combination</li> </ul>	MM-DD) (HH:MM:SS)
Protocol/Port Selection <ul> <li>AllIP protocols</li> <li>TCP</li> <li>UDP</li> <li>ICMP</li> <li>ESP</li> </ul>	IIP packets as selected     Configuration server logins     Administration and configuration     Time-controlled reconfigurations     Menual reconfigurations and     reloots     Time changes     DHCP/PPPoE client     RADIUS errors
Protocol number: (Help)     Inot  SIP Packet Selection (Help) Call-ID:     Shory internal SIP signaling SIP Methods: IP addresses: From Header: To Header:	<ul> <li>SNMP problems</li> <li>Hardware errors</li> <li>Mail errors</li> <li>Negotiated IPsec tunnels</li> <li>Blacklisting events</li> <li>IPsec key negotiations</li> <li>IPsec vary negotiation debug metsages</li> <li>IPsec user authentication</li> <li>PPTP negotiations</li> <li>SUP errors</li> <li>SIP signaling</li> </ul>
	<ul> <li>SIP packets</li> <li>SIP license messages</li> <li>SIP media messages</li> </ul>

Then press "Display log" on the top of the same page.  $\checkmark$ 

You will now see a log of all SIP packets received and sent by the Ingate, with the newest log entry on the top.

#### 2.1.2 Ensure the signaling is received from the PBX:

Localize the call initiation from the PBX by searching for "invite sip" in your browser (use Ctrl-f). You should look for the first packet coming from the PBX that starts with a "recv from <IP address of the PBX>" as you can see in the example (only the first lines of the log messages are shown here).

```
>>> Info: sipfw: recv from 10.100.0.40:5060 via UDP connection 12746:
INVITE sip:16037914522@10.100.0.13:5060 SIP/2.0
```

Ingate Systems Ingate\_Troubleshooting\_A If you cannot find a packet like the one above, the problem is in the communication from the PBX to the Ingate. Follow these steps:

- 1. Make sure the configuration is applied. If you have the text: "Changes have been made to the preliminary configuration, but have not been applied" just above the tabs on the top of the page you need to apply the settings. Retest if settings applied.
- 2. Make sure the Ingate SIP module is turned on, SIP Services SIP Module On. Retest if you change any setting.
- 3. Make sure the PBX configuration is correct. Check the IP address pointing at Ingate one extra time. Retest if you change any setting.
- 4. Make sure there is IP connectivity between the PBX and Ingate. On the Ingate use: Logging and Tools Check Network. Contact your network administrator for assistance if needed.

If none of the steps above solves the problem, contact your sales representative for support.

### 2.1.3 Ensure that the signaling to the ITSP works:

If you find the incoming packet, you should find a similar packet leaving the Ingate just above (just after in time) the incoming packet. The first rows of the outgoing packet will look something like this:

>>> Info: sipfw: send sf (0x8422820) to 208.49.124.49:5060 via UDP connection 12748: INVITE sip:16037914522@208.49.124.49:5060;transport=udp SIP/2.0

If you don't see the outgoing packet, something is probably wrong with the Ingate configuration or you lack Internet connectivity:

- 1. Make sure the Ingate is configured correctly.
- 2. Make sure the IP connectivity between the Ingate and the ITSP is working. On the Ingate use: Logging and Tools Check Network and ping the ITSP IP address. Contact your network administrator for assistance if needed.
- 3. If you see a packet sent from the Ingate, verify that it was sent to the IP address provided by the ITSP. If not, correct your configuration and retest.

If none of the steps above solves the problem, contact your sales representative for support.

## 2.2 Troubleshooting Inbound calls

<u>Symptom</u>: When trying to make an inbound call to a PBX phone via the SIP Trunk, there is no ringing signal on the PBX phone.

Note: If you get a ringing signal on the PBX phone, these troubleshooting steps will not help you to find the problem. Please contact your sales representative for support.



#### 2.2.1 Get a log for the failing call:

First try to make a call to a PBX phone from a PSTN phone and notice the behaviour on the PBX phone as well as on the PSTN phone.

Next step is to search the log on the Ingate. Log in to the Ingate box and navigate to the Display Log page. Make necessary settings on the logging page according to the picture below. Especially make sure that you have the highlighted checkboxes in the correct state.

lay Packet Check Display Logging Log Log g Capture Network Load Configuration Classes Sending	
Search the Log (Help)	Support Report (Help)
Displaylog 800 rows/page (timeout seconds)	Include configuration database:
Periodical search 30 seconds until next search	🔿 Yes 💿 No
	Make sure the Log class for SIP debug messages is set to Local if you have a SIP-related problem.
	Export support report
acket selection:only those packets that meet the search criteria in the three	Time Limits
ections below will be selected. This selection will only have effect on the ${f P}$	Show log from: (clear)
ackets as selected choice.	date (YYYY- time
Packet Type Selection	
All packets 🗸 🗸	Show log until: (clear)
IP Address Selection (Help)	date (YYYY- time
	MM-DD) (HH:MM:SS)
B: not this address	Shaw newest at top
○ A src ○ A dist ○ A any ○ A to B ○ B to A ○ Between A&B	
	Show This
Protocol/Port Selection	P packets as selected
<ol> <li>AllIP protocols</li> </ol>	Gonfiguration server logins
● TCP	Administration and configuration
O UDP	Manual reconfigurations and
	reboots
○ ICMP	🗖 Time changes
○ ESP	DHCP/PPPoE client
	RADIUS errors
O Protocol number: (Help)	□ SNMP problems
	🔄 🗖 Hardware errors
SIP Packet Selection (Help)	Mailerrors
all-ID:	Negotiated IPsec tunnels
IP Methods:	Blacklistingevents
Paddwaraer	IPsec key negotiations IPsec key negotiation debug
	messages
rom Header:	IPsec user authentication
'o Header:	PFTP negotiations
	SIP errors
	□ SIP signaling
	□ SIP signaling ☑ SIP packets
	- SIP signaling SIP packets SIP license messages

Then press "Display log" on the top of the page.

You will now see a log of all SIP packets received and sent by the Ingate, with the newest log entry on the top.

#### 2.2.2 Ensure that the signaling is received from the ITSP:

Localize the call initiation from the Trunking provider by searching for "invite sip" in your browser. (use Ctrl-F). You should look for the first packet coming from the ITSP system that starts with a "recv from <IP address of the ITSP>" as you can see in the example (only the first lines of the log message are shown here).

>>> Info: sipfw: recv from 208.49.124.49:5060 via UDP connection 12748: INVITE sip:6023574058;npdi=yes@193.12.253.37:5060 SIP/2.0

If you cannot find a packet like the one above, the problem is in the communication from the ITSP to the Ingate. Follow these steps:

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- 1. Make sure the configuration is applied. If you have the text: "Changes have been made to the preliminary configuration, but have not been applied" just above the tabs on the top of the page you need to apply the settings. Retest if settings applied.
- 2. Make sure you have IP connectivity between the Ingate and your ITSP. On the Ingate use: Logging and Tools Check Network and ping the ITSP IP address. Contact your network administrator for assistance if needed.
- 3. Make sure the Ingate SIP module is turned on, SIP Services SIP Module On. Retest if you change any setting.

If you still don't see any packets in the log, contact your ITSP for further troubleshooting.

#### 2.2.3 Ensure correct signaling to the PBX PBX:

If you find the incoming packet, you should find a similar packet leaving the Ingate just above (just after in time) the incoming packet. The first lines of the outgoing packet will look something like this:

>>> Info: sipfw: send sf (0x8419848) to 10.100.0.40:5060 via UDP connection 12746: INVITE sip:6023574058;npdi=yes@10.100.0.40:5060;transport=udp SIP/2.0

If you don't see the outgoing packet, something is probably wrong with the Ingate configuration or you might lack a connection to your LAN where the PBX is located:

- 1. Ensure you have IP connectivity between PBX and the Ingate. On the Ingate use: Logging and Tools Check Network and ping the PBX IP address. Contact your network administrator for assistance if needed.
- 2. Make sure your Ingate is configured correctly.
- 3. If you see the outgoing packet, make sure that it was sent to the IP address that was used by the PBX.

If the call still fails after executing the steps described above, please contact your sales representative for support.