# **in G**ate

# SIP trunking Configuration Guide for Ingate Solutions: Virgin Media

November 15, 2017



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#### Versions: For Ingate Firewall/SIParator version 6.0.2 or later

**Revision History:** 

Revision	Date	Author	Comments
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1.1	2017-11-29	Ingate Systems AB: Rolf Lindström	Second version of the document



# 1 Introduction

# 1.1 Purpose

This document describes how to configure an Ingate device to work as a Enterprise Session Border Controller (eSBC) for connecting Virgin Media networks.

# 1.2 Prerequisites

This document describes how to install an Ingate E-SBC of the following series:

- Firewall: All availably models with software version 6.0.2 and higher
- Ingate SIParator: All availably models with software version 6.0.2 and higher

The operational mode can be set as a SIParator Standalone eSBC, DMZ/LAN or DMZ using the software version 6.0.2 and above, or as Firewall.

1 SIP trunking license and X ccs license (Concurrent Calls SIP Trunk Sessions) will be required.

# 1.3 Compatibilities and Limitations

This E-SBC has been tested and certified with Virgin Media according Virgin Media's requirements and test procedures of their SIP trunk service. This document will give a description of the configuration between the Ingate E-SBC and the ITSP only.



# 2 Initial configuration

It is recommended to use the StartupToolTG-1.2.4 to automate the deployment of your Ingate E-SBC. The version used for this document is v1.2.4 Before using the Ingate Startup Tool TG to configure a new Ingate Unit for the first time you <u>must</u> install your licenses into the Ingate unit. Please read the Startup Tool TG – Getting Started Guide. You find it on our web. <u>https://www.ingate.com/appnotes/Ingate Startup Tool Getting Started Guide.pdf</u>



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My Ingate Units

# 2.1 Hardware and network setup

After connecting power, connect an Ethernet cable to the port marked **Eth0** of the device. This cable must be connected to your private IP network: the Eth0 port will be used to configure the unit with the Ingate Startup Tool TG (see below).

When you connect the Firewall/SIParator to the external (public IP) network, plug an Ethernet cable into the port marked **Eth1**.

This configuration guide and the Ingate Startup Tool TG assume that **all of the following are connected to the same subnet on the private IP network**:

- Ingate Firewall/SIParator (via port Eth0)
- VoIP Gateway or IP PBX
- Computer running the Ingate Startup Tool TG

If, for some reason, this is not the case (e.g. the VoIP Gateway or IP PBX is on a different subnet from the SIParator), the Startup Tool TG will restrict to Gateways and IP-PBX IP Addresses to the local Subnet of the Ingate. This can be easily changed later on the Ingate Administration GUI. Then you should consult the Ingate Reference Manual (Chapter 6 – Interface: Static Routing) for additional network setup.



# 2.2 Ingate Startup Tool TG

# 2.2.1 Initial Setup

Before you can administer the device, you must configure its IP address and administrative password with the Ingate Startup Tool TG. The tool must run on a PC that is located on the same LAN subnet as the device itself (rather than, for example, a different subnet, across routers, or through a VPN tunnel).

The tool can be downloaded free of charge at <u>http://www.ingate.com/Startup\_Tool\_TG.php</u>. Always use the latest version.

Launch the tool.

G	Select Product Type – 🗖 🗙
Welcome to	the Ingate Startup tool TG - this tool will assist you in setting up your new Ingate unit
Seup	LAN Etho Connect your computer to your Ingate unit like this.
Please	e Select model Ingate Firewall/SIParator V Next

#### Figure 1. Product Type selection Screen

Select the model type of the Ingate unit as Ingate Firewall/SIParator (Figure 1) and click Next.

You will see a configuration page (Figure 2).



ngate Startup Tool TG Version	Help	
You are running the latest version of this tool.		Help
irst select what you would like to do:	Assign IP address and pa	ssword, establish contact
Change unit's IP address	Inside (Interface Etho	))
Change or update configuration of the unit	IP Address:	192 . 168 . 1 . 1
Check SIP configuration and logs	MAC Address:	00:90:fb:3f:e5:c7
	Select a password	
Enable SIP module	Password:	••••
☐ Configure Remote SIP Connectivity ✓ Configure SIP trunking	Confirm Password:	••••
Backup the created configuration	Interface of your PC	
Create a config without connecting to a unit	Ingate LAN	· · · · · · · · · · · · · · · · · · ·
I his tool remembers passwords	L	
		Contact
tatus		
Ingate Startup Tool TG Version 1.2.4 Startup tool version available on the Ingate web: 1. You are running the latest version of the Startup to More information is available here: http://www.inga	2.4 ol. te.com/startuptool.php	^

#### Figure 2. Configure your Ingate unit

In the group box labelled *First select what you would like to do*, select the radio button labelled **Change unit's IP** address.

In the group box labelled *Inside (Interface Eth0)*, go to the *IP Address* field and enter a static IP address by which the Eth0 interface will address on your private network. Then, go to the *MAC Address* field and enter the address that will be found on a sticker attached to the unit. (Figure 2) shows an example.

In the group box labelled *Select a Password*, enter (and confirm) the password to be used hereafter to authenticate administrators of the device.

In the drop-down list labelled *Interface of your PC*, select the network interface (e.g. **Local Area Connection**) that you wish to use to communicate with the SIParator (Figure 3).

	-
Bluetooth Network Connection	
Local Area Connection	
Loopback Pseudo-Interface 1	
Wireless Network Connection	



#### Figure 3. Selecting the network interface used by the Startup Tool TG

When these values have been entered, the **Contact** button at the bottom right of the form (Figure 2) will become active.

Press the **Contact** button.

The Startup Tool TG will find the Ingate unit on the network, communicate with it and assign its IP address and password.

#### 2.2.2 Network Topology

The Ingate SIParator device supports many different configuration modes and functions. Select the Product Type of the Ingate eSBC matching the network topology for your Virgin Media installation, for example as **Standalone SIParator**.

Go to the Network Topology tab.

	-РВХ П	rsp	U	ploa	d Co	onfi	iguration									
Product Type:	Stan	dalor	ne SI	Para	tor	1	~			-	~	~	-			
Inside (Interfac	e Eth0)						_		2	ĩ	nte	rne	et		2	
IP address:	192	2 .	168	a 8	1	50	111			2		1		C		
Netmask:	255	i .	255	. 2	55	ed.	0		- 1		Ĩ		ß			
Outside (Interfa	ace Eth 1)									-	-				Exis	ting firewall
Use DHCP to	obtain I	P						Ingate SIP	arator							
IP Address:	193	s ,	180	. :	23		30	LAN	-	-	-		-	-		
Netmask:	255	i.	255	. 2	55	x	0									
Allow https a	access to	web	inte	rfao	e fri	om	Internet									
Gateway:	193	3.	180	3 3	23	<u>a</u> :	1	1	P-PBX							
								Primary:	8	43	8	5	8	8	8	]
								Secondary: (Optional)	8	8	8	9	4	2	4	]
Status																
Ingate Startup	Tool TG	/ersi	ion 1	.2.4	, co	nne	ected to: Ir	gate Firewall 1210, IG-	094-138-	-519	99-0	E.				
SIP Trunking Advanced SIP VoIP Survival VPN QoS Enhanced Sect	Routing urity															^
Software Vers	ion: 6.0.2	2														~

Figure 4. Configuring Network Topology



In the *Product Type* drop down list, select **Standalone SIParator** (Figure 4). After configuring the product type, the controls on the administrative interface will change, according to the type selected.

To set the operational mode to Standalone SIParator is just as example, set it alternatively as a Firewall, DMZ/LAN or DMZ depending on your network requirements.

The internal network interface details, listed in the group box labelled *Inside (Interface EthO)*, should be consistent with your earlier assignment. These represent the device's interface to your private IP network.

Details of the device's interface to the public IP network can be configured with the controls in the group box labelled *Outside (Interface Eth1)*.

Once you have entered the internal and external interface details, go to the *Gateway* control and enter the address of the router that acts as a firewall gateway for your network.

Finally, enter the DNS server IP addresses. If Virgin has provisioned you with any special DNS servers, those can be supplied here.

#### 2.2.3 IP-PBX Configuration

In the Ingate Startup Tool TG, navigate to the *IP-PBX* tab (Figure 5).

This configuration is related to the eSBC's connection, via its internal interface, to the VoIP gateway or IP PBX



work Topology	IP-PBX	ITSP	Upload Configuration	
IP-PBX (sho	uld be loca	ted on t	the LAN)	
Type:	Cisco	CUCM	/CCM/CME ~	
IP Addres	s: 19	2.16	8 . 1 . 100	
Use do	omain name	2		
SIP Dom	nain:			
Shite				
Status				
Status Ingate Star	rtup Tool T	G Versia	n 1.2.4, connected to: Ingate Firewall 1210, IG-094-138-5199-	-0
Status Ingate Star	rtup Tool T	G Versia	on 1.2.4, connected to: Ingate Firewall 1210, IG-094-138-5199-	0
Status Ingate Star SIP Trunkir	rtup Tool T	G Versio	on 1.2.4, connected to: Ingate Firewall 1210, IG-094-138-5199-	-0
Status Ingate Star SIP Trunkir Advanced	rtup Tool T ng SIP Routin	G Versia	on 1.2.4, connected to: Ingate Firewall 1210, IG-094-138-5199-	-0
Status Ingate Star SIP Trunkii Advanced VoIP Survi	rtup Tool T ng SIP Routin val	G Versia	n 1.2.4, connected to: Ingate Firewall 1210, IG-094-138-5199	0
Status Ingate Star SIP Trunki Advanced VoIP Survi VPN	rtup Tool T ng SIP Routin val	G Versia g	n 1.2.4, connected to: Ingate Firewall 1210, IG-094-138-5199-	-0
Status Ingate Star SIP Trunkir Advanced VoIP Survi VPN QoS	rtup Tool T ng SIP Routin val	G Versia g	n 1.2.4, connected to: Ingate Firewall 1210, IG-094-138-5199-	-0
Status Ingate Star SIP Trunkir Advanced VoIP Survi VPN QoS Enhanced	rtup Tool T ng SIP Routin val Security	G Versia	on 1.2.4, connected to: Ingate Firewall 1210, IG-094-138-5199-	-0
Status Ingate Star SIP Trunkir Advanced VoIP Survi VPN QoS Enhanced	rtup Tool T ng SIP Routin val Security	G Versia	n 1.2.4, connected to: Ingate Firewall 1210, IG-094-138-5199	0
Status Ingate Star SIP Trunki Advanced VoIP Survi VPN QoS Enhanced Software V	rtup Tool T ng SIP Routin val Security /ersion: 6.1	G Versio	n 1.2.4, connected to: Ingate Firewall 1210, IG-094-138-5199	-0
Status Ingate Star SIP Trunkin Advanced VoIP Survi VPN QoS Enhanced Software V	rtup Tool T ng SIP Routin val Security /ersion: 6,1	G Versia g 0.2	n 1.2.4, connected to: Ingate Firewall 1210, IG-094-138-5199	-0
Status Ingate Star SIP Trunkir Advanced VoIP Survi VPN QoS Enhanced Software V	rtup Tool T ng SIP Routin val Security /ersion: 6.1	G Versia g 0.2	on 1.2.4, connected to: Ingate Firewall 1210, IG-094-138-5199-	-0
Status Ingate Star SIP Trunki Advanced VoIP Survi VPN QoS Enhanced Software V	rtup Tool T ng SIP Routin val Security /ersion: 6,1	G Versia g 0.2	n 1.2.4, connected to: Ingate Firewall 1210, IG-094-138-5199	-0
Status Ingate Stat SIP Trunki Advanced VoIP Survi VPN QoS Enhanced Software V	rtup Tool T ng SIP Routin val Security /ersion: 6.1	G Versia g 0.2	on 1.2.4, connected to: Ingate Firewall 1210, IG-094-138-5199	-0
Status Ingate Stat SIP Trunki Advanced VoIP Survi VPN QoS Enhanced Software V	rtup Tool T ng SIP Routin val Security /ersion: 6,1	G Versia g 0.2	n 1.2.4, connected to: Ingate Firewall 1210, IG-094-138-5199-	-0

Figure 5. Configuring the IP PBX or VoIP Gateway details

In the *Type* drop-down list, select an entry that matches your IP PBX or VoIP Gateway. In this example **Cisco CUCM/CCE** is chosen. If you cannot find a matching item, select **Generic IP-PBX**.

In the IP Address field, enter the address of the IP PBX or gateway on your network.

#### 2.2.4 **ITSP Configuration**

In the Ingate Startup Tool TG, navigate to the *ITSP* tab. ITSP stands for Internet Telephony Service Provider.

This configuration is related to the eSBC's connection, via its external interface, to Virgin Media.



work Topology IP-PBX	ITSP	Upload Configuration		
Name:	хо		Select Vir	gin here
			DID (start of range) (user name):	01183374120
			DID range size:	10
Provider address		1.1	PBX local numbers	
IP Address:	81 .	97 . 95 . 188	(start of range): (same as DID if empty)	
Use domain nam	Ne Vou	ano bhe vino neo		
	IP he	ere we will later	Account authentication	
	add	the second server	Authentication name:	Auth Name Virgin
Advanced	man	ually	(same as עוטע ד empty)	Audi Name virgin
Prefix to match	and rem	ove from incoming calls	Increment authenti	cation name for ranges
Prefix:			Password:	
Prefix to add to	outgoin	g calls		
Prefix:				
Emergency pr				
Emergency nr.				
Status				
510103				
0				1.0
				<i></i>
				2
10				

#### Figure 6. Configuring the external SIP interface details

In the *Name* drop-down list, select Virgin.

The IP addresses in this document are just examples, use what Virgin may provision you with, those DNS names/IP addresses should be used.

In the *Provider address* group box, Use the IP or domain name you got from Virgin media. The Provider address will be used in the Request-URI and To header field for outgoing SIP requests.

In the *DID, PBX* and *Account authentication* fields, fill in values for your numbering plan. The information entered here may be further configured at the SIP Trunk page, (see chapter <u>3.8.1 SIP Trunk 1</u>).

The numbering of DID and PBX lines in this document are just examples, use what Virgin may provision you with, those numbers should be used.

#### 2.2.5 Uploading the Configuration

When you have completed the previous configuration steps, use the StartUp Tool TG to load the data into the Ingate SIParator. The tool can also be used to create a backup configuration file for later use.

Isdaimer Please note that this tool generates basic settings for the Ingate product. Further configuration of the Ingate product and the PBX may be required in order to ensure interoperability and security in a specific installation. For technical assistance regarding end-to-end interoperability issues, please contact support@ingate.com.	Verbose Logging (SIP debug) Enable  Final step  I Logon to web GUI and apply settings  Apply settings directly using serial interface
Please note that this tool generates basic settings for the Ingate product. Further configuration of the Ingate product and the PBX may be required in order to ensure interoperability and security in a specific installation. For technical assistance regarding end-to-end interoperability issues, please contact support@ingate.com.	Final step
	Final step Logon to web GUI and apply settings Apply settings directly using serial interface
	Backup the configuration
tatus	Upload
Advanced SIP Routing VoIP Survival VPN QoS Enhanced Security	
Software Version: 6,0.2	

In the tool, navigate to the Upload Configuration tab (Figure 7).

#### Figure 7. Uploading configuration data to the SIParator

In the *Final step* controls, ensure that the radio button labelled *Logon to web GUI and apply settings* is selected. Click the **Upload** button.



The configuration data will be copied from the Startup Tool TG to the Firewall/SIParator.

When the data has been uploaded, a dialog box will appear (Figure 8).



Figure 8. Confirmation of configuration data upload

Click on **OK**. The default web browser will launch and navigate you to the SIParator's web interface.

# 2.3 Ingate Web Interface

#### 2.3.1 Applying the Configuration

Although the configuration data has been uploaded to the eSBC, it must still be explicitly applied before the eSBC's behaviour will change.

Log into the web interface with the administrative password that you selected earlier (in Figure 2).



Figure 9. Applying the uploaded configuration

Under Administration > Save/Load Configuration, click the Apply configuration button.

A window will appear (Figure 10) requesting further input.



Administration	Basic figuration	letwork	ules and Relays	SIP Services	SIP Traffic	Failover	Virtual Private Networks	Quality of Service	Logging and Tools	About
You are currently Continue testing Save configur	testing the g button wit ation	preliminary hin 30 sec Continue	/ configura onds, or t testing	ation. Yo he firew Reve	ou must all will r ert	press eit evert to t	her the Save c he normal pern	onfigurati nanent con	on or the figuration.	

#### Figure 10. Saving the configuration

Click the button labelled Save configuration.

This completes the process of transferring and applying the configuration data to the SIParator device.

Further configuration settings must now be applied through the web interface.



# 3 Continued Configuration via Ingate Web Interface

# 3.1 Network

First, the eSBC must be configured to be aware of the network in which it operates.

#### 3.1.1 Network and Computers

Here, you specify an alias for the groups of IPs relevant to this ITSP, in addition to the eSBCs settings.

Perform the following steps:

- 1. Click on Network -> Network and Computers, see example below, how it looks after been filled in.
- 2. Fill in **IP Address (Lower Limit)** for the first of the Virgin ISTP Servers for **Network and Computers** with **Name** Virgin.
- 3. Add a new row for Network and Computers with Name Virgin\_b or what you want to call the second server.
- 4. Fill in IP Address (Lower Limit) for the second of the Virgin ISTP Servers for Network and Computers with Name Virgin\_b.
- 5. Add a new row for **Network and Computers** with **Name Safe** and add both Virgin servers and LAN.
- 6. Click on **Save** to save the configuration to the preliminary configuration.

See example result in figure below:

n 🤇 mini etwo	stration Basic Configuration	all Network Ry All	Cc les and telays	onfigured by Ing SIP SIP SIP Services Traffic Trunk	gate SUT T	G I Private Quality of L Service an	Log Out ogging Id Tools			
lom Ne	tworks and Co	mputers	LAN E	INU EINT EINZ EINS ST	ITUS PPPOE TUNI	eis Topology				
				Lower Li	mit	Upper (for IP r	Limit anges)			Delet
	Name	Subgrou	ıp	DNS Name or IP Address	IP Address	DNS Name or IP Address	IP Address	Interface/VLAN		Row
٠	Generic IP-PBX	1-	۲	192.168.1.100	192.168.1.100				۲	0
÷	LAN	1-	۲	192.168.1.0	192.168.1.0	192.168.1.255	192.168.1.255	inside (eth0 untagged)	۲	8
٠	Safe	LAN	۲					-	•	0
	Δ	Virgin_A	٠					-	•	0
	U	Virgin_B	٠					-	۲	0
÷	Virgin_A	] -	۲	81.97.95.188	81.97.95.188			outside (eth1 untagged)	۲	0
		-	۲	siptestA1.ipmultimedia	81.97.95.188			outside (eth1 untagged)	۲	
÷	Virgin_B	-	۲	82.14.171.242	82.14.171.242			outside (eth1 untagged)	•	0
		-	۲	siptestB1.ipmultimedia	82.14.171.242			outside (eth1 untagged)	۲	0
-	WAN	1.		0000	0.0.0.0	255 255 255 255	255,255,255,255	outside (eth1 untagged)	•	ie -

Save Undo Look up all IP addresses again

Page generated for 'admin' 2017-11-22 10:14:40 +0100.

Ingate SIParator/Firewall 6.0.2. Copyright © 2017 Ingate Systems AB.



# 3.2 DNS Servers

Here, you specify your DNS server.

#### Click on Basic Configuration -> Basic Configuration

See example result in figure below:

Basic Infiguration	Access Control RADI	DHCP DHC JS SNMP Options Serv	P DHCP er Server Status	Router Advertisement	Dynamic DNS Update	Certificates	TLS Advance	SIParato ed Type
General		Version of In	gate SIParate	or/Firewall				
Name of thi Configured I Default don	s firewall: by Inga nain:	Check for new v Date of last succ Software version	ersions of Inga essful version o 1 in use:	te SIParator/ check:	Firewall: ( N <mark>6</mark>	● Yes ● Not availab .0.2	No le	
•		Policy For Pi	ng To the fire	ewall				
II I Oney								
<ul> <li>Discard</li> <li>Reject I</li> </ul>	l IP packets IP packets V <b>ers</b> <u>(Help</u>	<ul> <li>Only reply to</li> <li>Reply to pin</li> </ul>	o ping to the sa g to all IP addr	me interface esses				
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<ul> <li>Discard</li> <li>Reject I</li> <li>DNS Serv</li> <li>No.</li> <li>1</li> </ul>	I IP packets IP packets vers ( <u>Help</u> Dynamic	<ul> <li>Only reply to</li> <li>Reply to pin</li> <li>DNS Name</li> <li>or IP Address</li> <li>8.8.8.8</li> </ul>	p ping to the sa g to all IP address IP Address 8.8.8.8	me interface esses Delete Row	v v			
<ul> <li>Discard</li> <li>Reject I</li> </ul> DNS Serv No. 1 2	I IP packets IP packets vers (Help Dynamic - • - •	<ul> <li>Only reply to</li> <li>Reply to pin</li> </ul> DNS Name or IP Address 8.8.8.8 8.8.4.4	IP Address 8.8.8.8 8.8.4.4	me interface esses Delete Row	¥ a			

#### 3.2.1 All Interfaces

Add additional routing information for added off-networks subnets for access.



Perform the following steps:

- 1. Click on Network -> All Interfaces, see example below, how it looks after been filled in.
- 2. Create one new row for your **Static Routing** by clicking on: **Add new rows** and fill in 1 as number of rows to add.
- 3. Fill in Network Address, Netmask / bits, Router IP Address and Interface.
- 4. Click on **Save** to save the configuration to the preliminary configuration.

wall	Confi	gured	by Ingate	SUT TG	L	.og Out					
ic Network	ules and S Relays Ser	SIP SI rvices Tra	IP SIP ffic Trunks Failo	ver Virtual Private Networks	Quality of Logging Service and Tools	About					
All Interfaces NAT	VLAN EthO	Eth1 Eth2	Interface Eth3 Status F	PPoE Tunnels Topolo	ad A	_					
view	Contraction (Contraction of	And and a second second		(h. 70)							
Interface Nam	e Active	Speed	l and Duplex	1							
inside	Yes V	Autoneg	otiation 🔻								
outside	Yes V	Autoneg	otiation 🔻								
Ethernet2	No 🔻	Autoneg	otiation 🔻								
Ethernet3	No 🔻	Autoneg	otiation 🔻								
Address Type Static <b>1</b>	DNS Na or IP Ad 92 168 1 11	ame dress	IP Address 192.168.1.111	Netmask / Bits	Address	Address	Interface o Tunnel	r •	VLAN Id	VLAN Name	Dele
Type Static T 1	or IP Ad	dress	192 168 1 111	255 255 255 0	Address	Address	Tunnel	•	Id	Name	Rov
Static • 1	93.180.23.3	0	193.180.23.30	255.255.255.0	193.180.23.0	193.180.23.255	outside (eth1)	•		-	0
rows.											
me Iress IP Addres	s Interfac	e <mark>Dele</mark> te	Row								
me Iress IP Addres rows.	ss Interfac	e Delete	Row								
me IP Addres rows.	ss Interfac	e Delete	Row								
me IP Addres lress rows.	ss Interfac Proxy A	e Delete	Row etwork								
	wall and and a second s	All     Rules and Relays     Set       s     Interfaces     NAT     VLAN     Eth0       view     Interface     Yes     View       Interface     Yes     Yes     Yes       Interface     Yes     Yes     Yes       Interface     Yes     Yes     Yes       Interface     Yes     Yes </td <td>All     Substand       s     Interfaces       NAT     VLAN       Ethernet2     No       No     Autoneg       Ethernet2     No       Ethernet3     No       Static     192.168.1.111       Static     193.180.23.30</td> <td>Configured by Ingate       All     SIP     SIP     SIP     SIP     Trunks     Folio       s     All     Services     Folio       Interface     Nat     VLAN     Etho     Etho     Ethel     Ethe     Services     Serv</td> <td>Configured by Ingate SUTTG         well       Configured by Ingate SUTTG         oton       Network       Rules and Relays       SIP Services       SIP Taffic       SIP Traffic       Fillower       Virtual Private Networks         s       All Interface       NAT       VLAN       Eth0       Eth1       Eth2       Eth3       Status       PPPoE       Tunnels       Topolo         view       Interface       NAT       VLAN       Eth0       Eth       Eth2       Eth3       Status       PPPoE       Tunnels       Topolo         view       Interface       Na       Autonegotiation</td> <td>Configured by Ingate SUTTG         Interface SUP SP Services         SIP SIP SIP Follower Virtual Private Quality of Networks       Couging and Tools         All Services NAT VIAN Eth0 Eth1 Eth2 Eth3 Status PPPoE Tunnels Topology         View         Interface Name Active Speed and Duplex inside Yes &lt; Autonegotiation          Yes &lt; Autonegotiation          outside Yes &lt; Autonegotiation          Yes &lt; Autonegotiation          cted Networks (Help)         Maddress DNS Name DNS Name Sitatic        IP Address Netmask / Bits Network Address Sitatic        Network Address 192.168.1.111       255.255.255.0       192.168.1.0         Static &lt; 192.168.1.111       193.180.23.30       193.180.23.30       255.255.255.0       193.180.23.0         rows.</td> <td>Log Out         Log Out         Log Out         Configured by Ingate SUTTG       Log Out         Ingrafic SIP SIP Failower Virtual Private Quality of Logging About         All constrained and the text of text</td> <td>Log Out         Configured by Ingate SUTTG       Log Out         Metwork       Rules and Relays       SIP Service       SIP Service       SIP Toffic       SIP Toffic       SIP Full       Full       Full       Interface       Quality of Service       Log Out         All Interfaces       NAT       VLAN       Eth       Eth       Eth       Full       Full&lt;</td> <td>Log Out         construction       Configured by Ingate SUT TG       Log Out         construction       Sile       Sile</td> <td>Log Out         Log Out         Configured by Ingate SUTTG       Out         Add sead       SPP of Trunke Felor       Out/ Network       Log Out         Interface Name Active Speed and Duplex       Inside       Yes &lt; Autonegotiation          Interface Name Active Speed and Duplex       Inside Yes &lt; Autonegotiation          Interface Name Active Speed and Duplex       Inside Yes &lt; Autonegotiation          Interface Name Active Speed and Duplex       Inside Yes &lt; Autonegotiation          Interface Name Active Speed and Duplex       Inside Yes &lt; Autonegotiation          Interface Name Active Speed and Duplex       Inside Yes        Autonegotiation        VIAN         Address DNS Name or IP Address       Proteom Yes / So Spee Spee Spee Spee Spee Spee Spee S</td> <td>Image: Strate of the service of the</td>	All     Substand       s     Interfaces       NAT     VLAN       Ethernet2     No       No     Autoneg       Ethernet2     No       Ethernet3     No       Static     192.168.1.111       Static     193.180.23.30	Configured by Ingate       All     SIP     SIP     SIP     SIP     Trunks     Folio       s     All     Services     Folio       Interface     Nat     VLAN     Etho     Etho     Ethel     Ethe     Services     Serv	Configured by Ingate SUTTG         well       Configured by Ingate SUTTG         oton       Network       Rules and Relays       SIP Services       SIP Taffic       SIP Traffic       Fillower       Virtual Private Networks         s       All Interface       NAT       VLAN       Eth0       Eth1       Eth2       Eth3       Status       PPPoE       Tunnels       Topolo         view       Interface       NAT       VLAN       Eth0       Eth       Eth2       Eth3       Status       PPPoE       Tunnels       Topolo         view       Interface       Na       Autonegotiation	Configured by Ingate SUTTG         Interface SUP SP Services         SIP SIP SIP Follower Virtual Private Quality of Networks       Couging and Tools         All Services NAT VIAN Eth0 Eth1 Eth2 Eth3 Status PPPoE Tunnels Topology         View         Interface Name Active Speed and Duplex inside Yes < Autonegotiation          Yes < Autonegotiation          outside Yes < Autonegotiation          Yes < Autonegotiation          cted Networks (Help)         Maddress DNS Name DNS Name Sitatic        IP Address Netmask / Bits Network Address Sitatic        Network Address 192.168.1.111       255.255.255.0       192.168.1.0         Static < 192.168.1.111       193.180.23.30       193.180.23.30       255.255.255.0       193.180.23.0         rows.	Log Out         Log Out         Log Out         Configured by Ingate SUTTG       Log Out         Ingrafic SIP SIP Failower Virtual Private Quality of Logging About         All constrained and the text of text	Log Out         Configured by Ingate SUTTG       Log Out         Metwork       Rules and Relays       SIP Service       SIP Service       SIP Toffic       SIP Toffic       SIP Full       Full       Full       Interface       Quality of Service       Log Out         All Interfaces       NAT       VLAN       Eth       Eth       Eth       Full       Full<	Log Out         construction       Configured by Ingate SUT TG       Log Out         construction       Sile       Sile	Log Out         Configured by Ingate SUTTG       Out         Add sead       SPP of Trunke Felor       Out/ Network       Log Out         Interface Name Active Speed and Duplex       Inside       Yes < Autonegotiation          Interface Name Active Speed and Duplex       Inside Yes < Autonegotiation          Interface Name Active Speed and Duplex       Inside Yes < Autonegotiation          Interface Name Active Speed and Duplex       Inside Yes < Autonegotiation          Interface Name Active Speed and Duplex       Inside Yes < Autonegotiation          Interface Name Active Speed and Duplex       Inside Yes        Autonegotiation        VIAN         Address DNS Name or IP Address       Proteom Yes / So Spee Spee Spee Spee Spee Spee Spee S	Image: Strate of the service of the



DNS Name or Network Address     Netmask / Bits     Dynamic     DNS Name or IP Address     Interface or Tunnel     Delete IP       efault     default     •     193.180.23.1     193.180.23.1     outside (eth1) •     •       id new rows     1     rows.     •     •     •     •     •		Routed Network			Router			
efault default 193.180.23.1 193.180.23.1 outside (eth1) V default default 193.180.23.1 outside (eth1) V default inreachable (Help)	DNS Name or Network Address	Network Address	Netmask /	Bits Dynam	nic DNS Name or IP Address	IP Address	Interface or Tunnel	Delete Rov
id new rows 1 rows.	efault	default		- 7	193.180.23.1	193.180.23.1	outside (eth1) •	8
Unreachable Network	Uni	eachable Network						
DNS Name or etwork Address Network Address Netmask / Bits	DNIC N	Network Address N	etmask / Bits	Delete Row				
	JNS Name or letwork Address	Network Address 1						

# 3.3 Basic Configuration

Add more networks for access control if wanted.

#### 3.3.1 Access Control

Here, you specify any additional off-networks subnets for access.

Perform the following steps:

- 1. Click on *Basic Configuration* -> Access Control, see example below, how it looks after been filled in.
- 2. Create one new row for your **Configuration Computers** by clicking on: **Add new rows** and fill in 1 as number of rows to add.
- 3. Fill in Network Address, Netmask / bits and Configuration Transport.
- 4. Click on **Save** to save the configuration to the preliminary configuration.



n©ate	Firewall	Config	ured by	Ingate	SUT TG			L	og Out		
dministration	Basic Configuration Network	ules and SIP Relays Service	SIP es Traffic	SIP Trunks Failo	ver Virtual Priva Networks	te Qual Ser	ity of vice	Logging and Tools	About		
Basic Configuration	Access control RADIUS SNMP Op	HCP DHCP tions Server Se	DHCP rver Status A	Router Advertisement	Dynamic DNS Update Cer	tificates	TLS A	dvanced	SIParator Type		
Configura	tion Allowed Via In	iterface ( <u>He</u>	<u>lp)</u>								
Interface o inside (eth0 Add new row	r Tunnel Allowed Do	elete Row									
Configura	ntion Transport (He	<u>dp)</u>									
Protocol	IP Address	Port	Cert	TLS	Delet	e Row					
HTTP •	inside (192.168.1.111)	▼ 80			•						
User Auth <ul> <li>Local use</li> <li>RADIUS</li> <li>Local use</li> </ul>	<b>tentication For Web</b> ers S database ers or RADIUS databa	Interface A	ccess (H	<u>elp)</u>							
Web Inter	face Access Setting	s (Heln)									
Login timeor	ut: 3600 seconds	3									
Configura	ntion Computers (E	<u>Ielp)</u>									
N	DNS Name or Network Address	Network Address	Netmas	sk / <mark>Bits</mark>	Range	Via IPsec Peer	SSH	нттр	HTTPS	Log Class	Delete Row
INO.			(i	5.0	192 168 1 0 -		In.		-		0
1	192.168.1.0	192.168.1.0	255.255.25	5.0	192.168.1.255	3			<b>U</b>	LUCAI	

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# 3.4 Administration

Set Clock and NTP.

## 3.4.1 Date and Time

Perform the following steps:

- 1. Click on *Administration* -> Date and Time, see example below, how it looks after been filled in.
- 2. Select Time Zone in Change Time Zone.
- 3. Select Yes for Synchronize time with NTP.
- 4. Fill in DNS Name or IP Address for NTP Server To Use.
- 5. Click on Save to save the configuration to the preliminary configuration.

See example result in figure below:

nGate Firewall	Cont	figured l	oy Ing	ate <mark>S</mark> U	Г TG		Log Ou
dministration Basic Netwo	rk Rules and Relays S	SIP SIP ervices Traffi	SIP c Trunks	Failover	irtual Private Networks	Quality of Loggi Service and To	ng pols Abor
Save/Load Show Us Configuration Configuration Adminis	er stration Upgrade	Table Date a Look Time	nd Restart	Change Language			
Change Time Zone (Help	<u>))</u>						
St Johns (America) St Kitts (America) St Lucia (America) St Thomas (America) St Thomas (America) St Vincent (America) Stanley (Atlantic) Stockholm (Europe)	Change tim	e zone	hongo T	arope)	<b>Fine XV</b> 24	NTD (Tab)	
Change Date and Time M	lanually <u>(H</u>	elp) C	hange L	Date and	lime With	1 NIP (Help)	
Date: 2017-11-22		Sy	nchronize	e time with	NTP: •	Yes 🔍 No	
Set date and time manually		N	TP Serv	ers To U	se If NTP	Is Enabled	
		D	ynamic	DNS or IP A	Name Address	IP Address	Delete Row
		-	•	0.se.pool.n	tp.org	192.36.143.130	
Sava Undo Look un all IP :	iddresses anein	Ac	ld new rov	vs 1	rows.		

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# 3.5 SIP Services

#### 3.5.1 Basic

The eSBC at its core is a Firewall. To increase security, you can choose whether the eSBC will only accept SIP signalling from a configured range of addresses. Addresses outside of the permitted ranges will not succeed in making a connection to the eSBCs SIP port.

Perform the following steps:

- 1. Click on SIP Services -> Basic
- 2. Under SIP Signalling Access Control: Select the Network group safe.
- 3. You shall monitor your ITSPs SIP servers to ensure they are up. This is used by the eSBC when SIP signalling should be passed on to the ITSP SBC server. This is useful when a domain resolves to several individual hosts, or there are multiple IPs for the ITSP; the eSBC will know immediately if one of them is down, which accelerates call connection.

The IP addresses that Virgin may provision you with may differ from this document. In which case, those DNS names/IP addresses should be used.

Server	Port	Transport	Delete Row
81.97.95.188			
82.14.171.242		][- •	
Add new rows	rows.		
STD Sourcen Signa	tuno (II	alm)	

Perform the following steps:

- 4. Create new rows for your **SIP Servers to Monitor** by clicking on: **Add new rows** and fill in 2 as number of rows to add.
- 5. Fill in Server, Port and Transport for respective Server.
- 6. Click on Save to save the configuration to the preliminary configuration.



Administration	Basic Configuration	Network Rules a Relay	nd SIP Services	SIP Traffic	SIP Trunks	Failover	Virtua Net	Private works	Quality of Service	Logging and Tools	About				
Basic Signal	ing Media ion Encryption	Interoperability a	essions Re nd Media Co	emote SIP nnectivity	VoIP Survival	VolP Sur State	rvival us								
SIP Mod	lule ( <u>Help</u> )														
<ul> <li>Enable</li> <li>Disable</li> </ul>	e SIP module e SIP module	e													
SIP Sig	naling Acc	ess Control @	<u>Ielp)</u>						SIP Lo	gging (	<u>Help)</u>				
Specify t Signaling Safe	he networks g.	and computers fr	om which	the firewa	all acce	epts SIP			Log class signaling Local	s for SIP		Log pack	class fo ets: al	or SI	<b>P</b>
SIP Sig	naling Por	ts <u>(Help)</u>							Log class messages	s for SIP 1 s:	icense	Log	class fo	or SI	P errors:
Active	Port	Transport	Intercept	c	Comme	nt	Dele Ro	ete w	Local Log class	▼ s for SIP r	nedia	Log mess	class fo sages:	or SI	P debug
Yes <b>*</b>	5060	UDP and TCP •	Yes 🔻	Standard	d SIP po	ort			messages	•:		Loc	al	٠	]
No 🔻	5061	TLS •	Yes •	Standard	d TLS p	ort			Local Log class	s for SIP					
Add new	rows 1	rows.							Local	•					
SIP M	edia Port R	ange (Help)							Hide sen	sitive dat	a: • Y	es 🔘	No		
Ports: 58	- 3024	60999							SIP Set	rvers To	Monit	or (]	<u>Help)</u>		
Public This setti	IP Address	for NATed fir	ewall ( <u>H</u> ndalone co	<u>elp)</u> onfigurati	ion.				Se	erver	Po	rt	Trans	port	Delete Row
DNS	S Name	TP Address					-	~	81.97.9	5.188			-	•	
or IP	Address	II Address					-	~	82.14.1	71.242			-	•	
									Add new	rows 1	rov	vs.			
									SIP Se	rver Sig	ature	(Helj	<u>p)</u>		
									%product	/%version		]			

#### 3.5.2 Sessions and Media

Perform the following steps:

- 1. Click on SIP Services -> Sessions and Media
- 2. In Limitation of RTP Codecs
  - a. This is set to **Allow all Codecs** for greatest flexibility. This section is used to lock CODECs permitted via the eSBC down.
  - b. Some ITSPs only allow specific CODECs. In such cases, choose Limit Codecs as Configured and add or remove rows as necessary to match the ITSPs requirements. A Row of Type: "Audio", Name: "pcma", Allowed: "Yes", Add: "No" will suffice. This is normally not done for Virgin.
  - c. Ingate version (6.0.2) Virgin media prefer to use G711A –law as the first codec to be offered. For example 0, 8, 101 (A- law, u-law, telephone events).

3. If you change codec configuration: Click on **Save** to save the configuration to the preliminary configuration. See example result in figures below:



Administration Basic Configuration Network Rules and SIP Relays Services Traffi	ic Trunks Failover Virtual Private Quality of Logging About
SignalingMediaSessionsBasicEncryptionEncryptionInteroperabilityAnd MediaConnectivityConnectivityConnectivity	IP VoIP VoIP Survival ty Survival Status
Session Configuration	
Session timer: Allowed amount of con (leave blank for no lime) Timeout for SIP over TCP/TLS: (max 100 90 seconds val	ncurrent sessions it): )) ange session timer to 3600, default ue is 14400
Media Proxy (Help) <ul> <li>Enable Media Proxy</li> <li>Disable Media Proxy</li> </ul> Media Configuration (Help)	
Limitation of sender of media streams:	Timeout for one-way media streams:
<ul> <li>Lock IP address and port to first sender</li> <li>Only allow receiving IP address, but multiple ports</li> </ul>	seconds
<ul> <li>Allow multiple sender IP addresses and ports</li> </ul>	Tear down media streams at RTP/RTCP timeouts:
Allowed number of senders:	○ Yes ● No Timeout for RTP streams:
Allowed amount of media streams per SIP session:	seconds
6	Timeout for RTCP streams:
Support forked media streams: O Yes  No	seconds
Always Relay Media (Help)	
Always relay media: O Yes 💿 No	
Reuse Port Numbers When Changing Media	<u>Help)</u>
Reuse port numbers when changing media (e.g. T.38 FA) O Don't reuse port numbers Reuse port numbers	X):



#### Reuse Port Numbers Within Same Session (Help)

Reuse port numbers within same session:

- Don't reuse port numbers
- Reuse port numbers
- Reuse port numbers even when IP has changed

#### Detect codec changes (Help)

Detect codec changes in mid call answers in the B2BUA:

- Detect only changes to the first payload type listed
- Detect changes to all payload types (except dynamic)
- O not detect changes to payload types in mid call answers

#### Third Party Call Control Codecs (Help)

No.	Name	Payload Type	Rate	Channels	Parameters	Delete Row
1	PCMU					] 0
2	G729				annexb=yes	
3	telephone-event	96	8000		0-15	10

Add new rows 1 rows.

#### Limitation of RTP Codecs (Help)

- Allow all codecs
- Limit codecs as configured

#### Strip SDP Lines (Help)

Reg Expr Case Delete Row

Add new rows 1 rows.

#### Local Ringback (Help)

#### Local Ringback Played at Call Transfer

- Never play local ringback
- Play local ringback when transferer hangs up
- Play local ringback when new target rings
- Play local ringback when new target rings or makes progress



Music on Hold Redirection (Help)	
<ul> <li>Redirect calls on hold to Music on H</li> <li>Leave calls on hold as they are</li> </ul>	old server
Resolve domain names in the SDP	(Help)
<ul> <li>Resolve domain names in the SDP</li> <li>Don't resolve domain names in the S</li> </ul>	Default timeout for Invite, Default value = 180, you DP shall change this value to 200.
Requests (Help)	
Default timeout for INVITE requests:	Base retransmission timeout for SIP requests:
180 seconds	0.5 seconds
Maximum timeout for INVITE requests:	Maximum amount of retransmissions for INVITE requests:
300 seconds	6
SIP blacklist interval:	Maximum amount of retransmissions for non-INVITE requests:
40 seconds B2BUA request pending timeout:	10 Limit Max-Forwards:
2 seconds	70 Maximum SIP packet size:
Save Undo	131072 bytes

Note: RTP media from your ITSP may come from a different address than the ITSPs SIP servers – this is normal. The Ingate eSBC manages this automatically.

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# 3.6 SIP Traffic

Filtering determines what to do with SIP signalling from configured addresses when it arrives at the eSBC. By default, the eSBC is configured to "**Process all**".

Filtering also handles internal processing of SIP OPTIONS packets, which serve as a ping method, used by PBXs and ITSPs to determine if a remote endpoint is alive.

#### 3.6.1 Filtering

Perform the following steps:

- 1. Click on SIP Services -> Filtering
- 2. Under Default Policy For SIP Requests choose "Reject all".
- 3. Fill in other settings according to your requirements.
- 4. Click on Save to save the configuration to the preliminary configuration.

n <b>G</b> ate	Firewa	н	Config	gured b	y Ing	gate S	UT T	G			Log Ou
ministration	Basic Configuration	Network Ru	les and SI Relays Serv	P SIP ices Traffic	SIP Trunks	Failove	r Virtua Net	l Privo works	ate Quality Service	of Log and	ging Tools Abou
SIP lethods Filterin	Local Registrar	Authentication and Accounting	SIP Accounts	ial Ian Routing	SIP Status	IDS/IPS	IDS/IPS Status	SIP Test	SIP Test Status		
Sender IP	Filter Ru	iles (Help)									
No.	From !	Network	Action	Delete Row	De	fault P	olicy F	or S	IP Requ	ests	
1	Safe	• P	rocess all 🔻		0	Local of	nlv				
Preloaded	Route R	ules <u>(Help)</u> Action Dele	ete Row	Defaul	t Polic	y For l	Preload	led ]	Routes		
Add new row	vs 1	tows		Reje	ct	7					
ridu new 100		10115.		O Auth	enticat	e					
				Rem	ove						
				O Allo	W						
Allowed (	Drigins fo	r SIP over	WebSocke	t (Help)							
Scheme H	ost Port 1	Delete Row									
Add new row											

## 3.6.2 Dial Plan

The dial plan is automatically configured when using SUT TG. Make any necessary changes here in order to ensure your dial plan is suitable to permit SIP traffic between your WAN and LAN segments. Global format +44 is Virgin media preferred dial plan although Virgin Media can support Dial plan format of, National, Global, and E164 format.



Perform the following steps:

- 1. Click on SIP Traffic -> Dial Plan
- 2. Fill in the dial plan according to your wishes.
- 3. Click on **Save** to save the configuration to the preliminary configuration.

	e mew	all	Co	nfigur	ed by Ingat	te SUT	TG	2035-	Log Out							
ninistration SIP	Basic Configurati	ion Netwo	rk Rules and Relays	SIP Services P Dial	SIP Traffic Trunks F	ailover Virt	tual Privat Networks PS SIP	e Quality of Lo Service and	gging Tools About							
thods Filte	ering Kegistr	rar and Ace	counting Acco	unts Plan	Routing Status ID	S/IPS Statu	us lest	Test Status								
Use Dia On Off Fallba	al Plan <u>(F</u>	<u>Help)</u>	Emerger 999 112 180	icy Num 000 911	ber ( <u>Help</u> )											
Matchi	ing From	Header	(Help)													
			Use Th	is		Or Thi	s		1.20							
N	ame	User	name	Doma	in	Reg Exp	r	Transport	Netwo	rk	Delete Row					
Generic	IP-PBX	*	•					Any •	Generic IP-I	PBX 🔻	0					
Virgin_o	ptionsA	8						Any 🔻	Virgin_A	۲						
Virgin_o	ptionsB	*	*					Any •	Virgin_B	•	8					
WAN		*						Any 🔻	WAN	٠	8					
Add new	rows 1	rows.														
Matchi	ing Reque	est-URI	(Help)													
		[			Use T	his					Or This					
N	ame	Pr	efix	Head	a T	ail	Min.	Tail Do	main		Reg Expr	Delete Row				
Options	In		- Ir		nothing	•		193.180	.23.30							
Outboun	nd	0			0.9							10				
			101		00											
Outboun Add new	nd_world	00 rows.			09	•		(*								
Outboun Add new Forwar	nd_world rows 1 rd To (He Name	00 rows. elp) No.	Use This .		0.9	This	T	*	Or This		Oi	This	Use A	lias IP	Delete	Rov
Outboun Add new Forwar	nd_world rows 1 rd To (He Name eric (regall)	00 rows. elp) No.	Use This Account	 Replac	Or ement Domain	This Port	Trans	sport R	Or This eg Expr	S	Oı Tırı IP Trunk 1: Virgin_	This ank A Generic IP-PBX	Use A	lias IP	Delete	e Rov
Outboun Add new Forwar ? @ Gene orward	nd_world rows 1 rd To (He Paric (regall)	00 rows. elp) No. 1	Use This . Account	 Replac	Or	This Port	Trans -	sport R	Or This eg Expr	S	Or Trr IP Trunk 1: Virgin_ Or 1	This ank A,Generic IP-PBX 1	Use A	lias IP	Delete	• Rov
Outboun Add new Forwar ? * Gene orward Na	nd_world rows 1 rd To (He Name aric (regall) I To (Help ame	00 rows. elp) No. 1	Use This Account Use This Account	 Replac	Or nent Domain	This Port	Trans	sport R • C ort Ref	Or This eg Expr r This g Expr		Or Tri IP Trunk 1: Virgin_ Or 1 Trun	This ank A,Generic IP-PBX	Use A	lias IP as IP D	Delete Delete F	2 Rov
Outboun Add new Forwar (†) Gene orward Na	nd_world rows 1 rd To (He sric (regall) i To (Help ame c (regall)	00 rows. elp) No. 1	Use This Account - V Use This Account	 Replace	Or nent Domain	This Port	Trans Transport	sport R C ort Ref	Or This eg Expr r This g Expr	SIP	Or Tri IP Trunk 1: Virgin_ Or 1 Trun Trunk 1: Virgin_A;	This ank A,Generic IP-PBX	Use A Use Aliz	lias IP as IP D	Delete Pelete F	≥ Rov
Outboun Add new Forwar ? (* Gene orward Na * Generic dd new ro	d_world rows 1 rd To (He Name eric (regall) 1 To (Help ame c (regall) 1 (Help)	00 rows. elp) No. 1 groups w	Use This Account - • vith 1	Replace	Or T nent Domain proup.	This Port	Transp Transp - T	sport R v C	Or This eg Expr r This Expr	SIP	Or Tru IP Trunk 1: Virgin_ Or 1 Trun Trunk 1: Virgin_A:	This ank A.Generic IP-PBX	Use A • • •	lias IP	Delete	≥ Row
Outboun Add new Forwar © Generic dd new ro Dial Plan	d_world   rows 1   rd To (He Name eric (regall) i To (Help ame c (regall) wws 1   a (Help)	00 rows. elp) No. 1 1 groups w	Use This Account - V See This Account - V	Replace rows per g	Or 1 nent Domain group.	This Port	Transp Transp	sport R T C ort Ref	Or This eg Expr r This t Expr	SIP	Or IP Trunk 1: Virgin_ Or 1 Trun Trunk 1: Virgin_A: Prefix	This ank A Generic IP-PBX T k Generic IP-PBX V	Use A Use Ali:	lias IP as IP D	Delete elete F	≥ Row Cow
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# 3.7 Routing

Sip Traffic -> Routing

To spread the workload over 2 or more SIP server at Virgin fill in DNS Overide For SIP Request as shown

in the figure below. This will not work in Firmware version 6.0.2 without a patch delivered by

**Ingate systems AB**, send Ingate a mail <u>support@ingate.com</u> and tell them that you need Round Robin patch for Virgin Media.

From Firmware 6.0.3 the patch is not needed, this fix is inbuilt in firmware 6.0.3. Name of the patch is.

"patch-6-0-2-dnsrr"

Perform the following steps:

- 1. Click on SIP Traffic -> Routing
- 2. Fill in the IP address you got from Virgin media.
- 3. Click on **Save** to save the configuration to the preliminary configuration.

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# 3.8 SIP Trunks

The SIP Trunk page is automatically configured when using SUT TG. Make any necessary changes here in order to ensure your eSBCs settings match those required by your ITSP, in this case, Virgin.

#### 3.8.1 SIP Trunk 1

Perform the following steps:

- 1. Click on SIP Trunks -> SIP Trunk 1
- 2. Chose in **Restrict to calls from** Servers according to your wish, in this example to ITSP *Virgin* as defined in <u>Network and Computers</u>.
- 3. It is possible to change the settings for the **From Header Domain** according to the ITSPs requirements, e.g. the ITSPs IP Address, or something else Virgin requires. SUT TG has configured this according what was filled in as *Provider Domain* at ITSP settings and set **as entered**.
- 4. Fill in rest of parameters according to your requirements. More information about how to fill in the SIP Trunk page is found in <u>How To Guide: SIP Trunking Configuration Using the SIP Trunk Page</u>.

For example: add 01723 for outgoing call, in *PBX Lines, Outgoing calls, Display Name*. This will set the SIP Display Name 01723204908 when calling from PBX line 204908.

5. Click on **Save** to save the configuration to the preliminary configuration.



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# 4 Optional Configuration via Ingate Web Interface 4.1 Certificates

To use HTTPS to access the firewall web interface a certificate is needed.

Perform the following steps:

- 1. Click on Basic Configuration -> Certificates
- 2. Choose a name for the certificate and write it in the Name field.
- 3. Click Create New.
- 4. Fill in desired Information for the Certificate.
- 5. Click on Save to save the configuration to the preliminary configuration.

If you already have the certificates you can import them instead of doing above steps.



Administration	Basi Configur	c ation Network	Rules an Relays	d SIP Services	SIP Traffi	SIP Trunks	Failover	Virtual Private Networks	Quality of Service	Logging and Tools	About	
Basic Configuration	Access Control	RADIUS SNM	DHCP Server	DHCP Server Status	Dy DNS	namic Update G	ertificates	Advanced SI	Parator Type			
Private	Certific	cates (Help	)									
Nam	ie		Certifica	te				Inform	ation			Delete Row
Add new re	DWS 1	Create New rows.	Import	View/Downi	load	Subject: // Issuer: /C MD5 Fingerpri Valid fror Valid to: 2	CN=212.1 N=212.11 nt: C7:C0 n: 2014-02 2015-02-1	16.95.113 6.95.113 :16:DD:00:19: 2-19 08:58:49 9 08:58:49	3D:9A:FA:78	3:E9:83:F8:2	54:A7:7D	
CA Cert	tificate	s (Help)										
Add new ro	A Certinows 1	ficate CA C	RL Infor	mation De	elete	Row						

# 4.2 Access Control

You also need to configure how to access the web interface of the firewall.

Perform the following steps:

- 1. Click on Basic Configuration -> Access Control
- 2. Configuration via HTTP is already on for inside from the startup of the firewall.
- 3. If you want to be able to configure the firewall from the outside this is done over HTTPS. Select which **IP address** and **Port** the firewall administrator should direct the web browser to.
- 4. Select the **Certificate to use** you created/imported in the previous chapter.
- 5. Create new rows for your **Configuration Computers** by clicking on: **Add new rows** and fill in number of rows to add.
- 6. Fill in **IP Address** and **Netmask/Bits** and chose HTTP or HTTPS for respective Configuration Computer.
- 7. Click on **Save** to save the configuration to the preliminary configuration.



n©ate	Firewall	Config	ured by	y Ingate	SUT TG	ì		L	og Out		
dministration	Basic Configuration Network	ules and SIP Relays Service	SIP Traffic	SIP Trunks Failo	ver Virtual Pr Networ	ivate Qual ks Ser	ity of vice	Logging and Tools	About		
Basic / Configuration C	ontrol RADIUS SNMP Op	HCP DHCP tions Server Se	DHCP rver Status	Router Advertisement	Dynamic DNS Update	Certificates	TLS A	dvanced	SIParator Type		
Configura	tion Allowed Via I	nterface <u>(He</u>	<u>elp)</u>								
Interface o inside (eth0 Add new row	r Tunnel Allowed D ) ▼ Yes ▼ s 1 rows.	elete Row									
Configura	tion Transport (He	elp)									
Protocol	IP Address	Port	Cert	TLS	De	lete Row					
HTTP 🔻	inside (192.168.1.111)	▼ 80		-	•						
User Auth <ul> <li>Local use</li> <li>RADIUS</li> <li>Local use</li> </ul>	eentication For Web ers 5 database ers or RADIUS databa	• Interface A	access (	<u>Help)</u>							
Web Inter	face Access Setting	s <u>(Help)</u>									
Login timeou	ut: 3600 second	s 🧲	1								
No.	DNS Name or Network Address	Network Address	Netm	ask / Bits	Range	Via IPsec Peer	SSH	нттр	HTTPS	Log Class	Delete Row
1	192.168.1.0	192.168.1.0	255.255	255.0	192.168.1.0 192.168.1.2	) - <b>- •</b> 255				Local 🔹	
Add new row Save Undo	s 1 rows.	sses again									

# 5 Finalize the configuration

Finally click on the Administration tab and click the Apply Configuration button to apply the changes

to the Ingate unit. Press **Save configuration** to complete the saving process.



# 6 Where entered configuration ends up

Beside pages already shown in this document, following pages includes configurations that was entered with the SUT TG.

# 6.1 All Interfaces

To get an overview of all interfaces.

```
Click on Network -> All Interfaces
```

nGate Fin	ewall	Con	figured	by Inga	te SU	T TG		Log	Dut					
dministration Bas	ic Network	Rules and	SIP SI	P SIP Fire Trunke	Failover	Virtual Private Q	uality of	Logging nd Took	pout					
Connigor	Tallon	Keluys .	Services	IIC ITUIIKS		Welworks	Service							
etworks and Default Computers Gateway	All Interfaces N	AT VLAN EthO	Eth1 Eth2	Eth3 Status	ce s PPPoE	Tunnels Topolog	IY							
iterface Ovei	view			No. 1			100							
General														
Physical Device	Interface N	ame Activ	e Speed	and Duple	x									
eth0	inside	Yes •	Autonego	otiation	•									
eth1	outside	Yes •	Autonego	otiation	•									
eth2	Ethernet2	No 🔻	Autonego	otiation	•									
eth3	Ethernet3	No 🔻	Autonego	otiation	•									
Directly Conne	cted Netwo	rks (Help)												
Name	Address Type	DNS I or IP A	Name .ddress	IP Addre	ss N	etmask / Bits	Netv	vork l	Broadcast Address	Interfac Tunn	e or el	VLAN Id	VLAN Name	Delete Row
inside	Static •	192.168.1.111 192.		192.168.1.1	111 255	255.255 <mark>.</mark> 0	192.16	8.1.0 19	2.168.1.255	inside (eth0	) •		]-	
outside	Static •	193.180.23	30	193.180.23	.30 255.	255.255.0	193.18	0.23.0 19	3.180.23.255	outside (eth	1) 🔻		-	
Proxy ARP ①田 Get Network Fr	elp) om DNS N Network	Proxy ame or Address N	ARPed No etwork Ad	etwork dress Netn	nask / Bi	ts Interface 1	VLAN Id	VLAN N:	ame Delete	Row				
Add new rows 1	rows.													
Static Routing	(Help)													
DNS Name or	Routed	Network Address	Netmask	: / Bits I	Dynamic	Rou DNS Na	ter me tross	IP Addres	Interface	e or <mark>Tunnel</mark>	Delete I	Row		
default	default			10	- 7	193.180.23.1	1 (35)	193.180.23	.1 outside (e	eth1) 🔻				
Add new rows 1	rows.	J.		]					p					
Unreachable @	Help)													
U	nreachable N	etwork												
DNS Name or Network Addres	s Network A	ddress Net	mask / Bit	Delete Ro	ow									
Add new rows	rows.													

