SIP Trunking Configuration

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How To Use Your SIP Operator Account Via Ingate Firewall/SIParator®

This is how to configure your Firewall/SIParator to register at your SIP operator, and to use that SIP account for your local users.

This feature is *only available* when the *Advanced SIP Routing* or the *SIP Trunking* module has been installed.

Enter your SIP operator account on the **Local Registrar** page. You enter the username and password from the operator, and select the *XF/Register* account type. This account type will make the Firewall/SIParator register at the SIP operator with the credentials you enter.

Some operators don't require registration. In this case, select the XF account type instead.

You can select any network in the Register from field, as it is not used for these account types.

SIP A	SIP Accounts (Help)										
Edit Row	Username	Domain	Authentication Name	Display Name	Password	Account Type	Delete Row				
	24285722	sipoperator.com	123456789			XF/Register					
	24285723	sipoperator.com	123456789			XF/Register					
	24285724	sipoperator.com	123456789			XF/Register					
	24285725	sipoperator.com	123456789			XF/Register					

If the Firewall/SIParator should act as the registrar, define a local SIP domain. This can be any domain name you like, as long as it isn't an existing domain somewhere else. A good choice is to use your company www domain, but replace the "www" with "sip", like *sip.ingate.com*. The same domain can also be used in pure SIP-to-SIP calls.

This domain should be entered on the Local Registrar page under SIP Traffic.

SIP Methods	Filtering	Local Registrar	Authentication and Accounting	SIP Accounts	Dial Plan	Routing	SIP Status	IDS/IPS	IDS/IPS Status	
Local SIP Domains (Help)										
Edit Re	ow C	omain	Delete Row							
	ingat	e.com								

Then, you define your local users in the **Local SIP User Database** table. These users will register on the Firewall/SIParator with the usernames you enter here. Enter also their passwords and select a network from which they are allowed to register.

		c	
e that no local user can	have the same username	as any of your o	nerator account names
c mai no iocai usci can	have the same username	as any or your o	perator account names.

Edit Row	Username	Domain	Authentication Name	Password	Register From	Delete Row
	arthur	ingate.com			All	
	harry	ingate.com			All	
	helen	ingate.com			All	
	mark	ingate.com			All	
	test	ingate.com			Office network	

Local SIP User Database (Help)

Go to the **Authentication and Accounting** page and turn authentication on. Also enter your SIP domain as the Realm.

SIP Methods	Filtering	Local Registrar	Authentication and Accounting	SIP Accounts	Dial Plan	Routing	SIP Status	IDS/IPS	IDS/IPS Status		
SIP Au	SIP Authentication										
⊙ Ena	ıble SIP a	uthenticati	on								
🔿 Dis	O Disable SIP authentication										
SIP R	ealm										
ingate.	com										

Outgoing Calls

For outgoing calls, you have to define when your SIP operator account should be used. Usually, you use this type of account to call to the PSTN network ("ordinary telephones").

On the **Dial Plan** page, you define what type of calls should be redirected to your SIP operator. First, turn the Dial Plan on.

Use Dial Plan (Help)	Emergency Number	(Help)
⊙ On	911	
⊖ off	,	
🔘 Fallback		

Show One Number When Calling

You can select to show one single calling number regardless of which user makes the call. This is useful when you want others to use your Answering service/Auto Attendant when calling back to you.

In the **Matching From Header** table, you define from which network the calls can come. You can also select what the From header (that tells who is calling) should look like. This is used when matching requests in the **Dial Plan** table below. Name each definition properly, to make it easier to use further on.

Matching From Header (Help)										
Edit Row	Name	Use 1	'his	Or This	Transport	Network	Delete Pow			
	Name	Username	Domain	Reg Expr	mansport	Network	Delete Row			
	Ingate	*	ingate.com		Any	-				
	Office	¢.	*		TCP or TLS	Office network				
Add new	Add new rows									

In the **Matching Request-URI** table, you define callees. This is used when matching requests in the **Dial Plan** table below.

In this case, you want to define the calls that should be routed to your SIP operator, which is call destinations where the usernames consist of numbers only, as these most likely are intended to go to the PSTN network. Call destinations that look like *helen@sip.ingate.com* should not be routed via the SIP operator, but be handled by the Firewall/SIParator itself.

You can let users call international numbers with a + sign instead of the international prefix. For this, define the + sign as a **Prefix**, which means that it will be stripped before the call is forwarded.

The **Min. Tail** is set to 4 here, to open for the possibility of three-digit local extensions, which should not be handled by the **Dial Plan**.

Matching	Request-URI	(Help)
----------	-------------	--------

	Name		Use This Or This		Dalata Baw				
Edit Row	Name	Prefix	Head	Tail	Min. Tail	Domain	Reg Expr	Delete Row	
	External numbers			09	4	*local			
	International numbers	+		09	4	*local			

In the **Forward To** table, you define where calls should be forwarded. This is used in the **Dial Plan** table below.

In this case, the calls should be forwarded to your SIP operator account that was defined before. You select the account under **Account**.

The calls can also be forwarded to your SIP operator using the operator's IP address in the **Replacement URI** field.

Forward	To (Help)							
Edit	Name	Future	Use This Or This				Or This	Delete
Row	Name	Subno.	Account	Replacement Domain	Port	Transport	Reg Expr	Row
	+ SIP Operator	1	24285722@sipoperator.com			-		

At last, you combine these definitions in the **Dial Plan** table. Make one line for international calls and one for other calls, because we need to add the international prefix for international calls only.

Dial I	Plan	(Help)									
Edit		From	Permetuipi	Action	Forward	Add P	refix	ENUM	Time	Comment	Delete
Row	10.	Header	Requestion	Action	То	Forward	ENUM	Root	Class	Comment	Row
	1	Office	International numbers	Forward	SIP Operator	00		-	24/7	Change prefix for international calls	
	2	Office	External numbers	Forward	SIP Operator			-	24/7	External calls sent to operator	

Now, when a local user calls an external phone number, the Firewall/SIParator will route this call to your SIP operator and rewrite the signaling to use your SIP operator account.

Show Different Numbers When Calling

You can select to show different calling numbers based on which user makes the call. This is useful when you want to let the called person use number presentation to see who is calling.

In the **Matching From Header** table, you define from which network the calls can come. You can also select what the From header (that tells who is calling) should look like. This is used when matching requests in the **Dial Plan** table below. Name each definition properly, to make it easier to use further on.

Create one row per user. These will be used to present the correct calling number for the called user.

	Name	Use Th	is	Or This	Transport	Network	
Edit Kow	Name	Username	Domain	Reg Expr	rransport	Network	Delete Row
	From Arthur	arthur	*local		Any	Office network	
	From Harry	harrry	*local		Any	Office network	
	From Helen	helen	*local		Any	Office network	
	From Mark	mark	*local		Any	Office network	

Matching From Header (Help)

In the **Matching Request-URI** table, you define callees. This is used when matching requests in the **Dial Plan** table below.

In this case, you want to define the calls that should be routed to your SIP operator, which is call destinations where the usernames consist of numbers only, as these most likely are intended to go to the PSTN network. Call destinations that look like *helen@sip.ingate.com* should not be routed via the SIP operator, but be handled by the Firewall/SIParator itself.

You can let users call international numbers with a + sign instead of the international prefix. For this, define the + sign as a **Prefix**, which means that it will be stripped before the call is forwarded.

The Min. Tail is set to 4 here, to open for the possibility of three-digit local extensions, which should not be handled by the **Dial Plan**.

Matching	Matching Request-URI (Help)									
E dit D au	Nama		ι	Jse 1	Or This	Dalata Daw				
Ealt Row	Name	Prefix	Head	Tail	Min. Tail	Domain	Reg Expr	Delete Row		
	External numbers			09	4	*local				
	International numbers	+		09	4	*local				

In the Forward To table, you define where calls should be forwarded. This is used in the Dial Plan table below.

In this case, calls from one user should be forwarded to the corresponding SIP operator account. Create one row per user and select the account under Account.

Forward	To (Help)						
E de Dour	Name	Eutom	Use This	Or Th	Or This		
Ear Kow	name	Subno.	Account	Replacement Domain	Port	Transport	Reg Expr
	Arthur PSTN	1	24285723@sipoperator.com			-	
	Harry PSTN	1	24285724@sipoperator.com			-	
	+ Helen PSTN	1	24285725@sipoperator.com			-	

24285722@sipoperator.com

Mark PSTN 1

At last, you combine these definitions in the Dial Plan table. For each user, make one line for international calls and one for other calls, because we need to add the international prefix for international calls only.

Dial	Plan	(Help)									
Edit		From	Democration	Action	Forward	Add P	refix	ENUM	Time	Commont	Delete
Row	NO.	Header	Request-OKI	Action	То	Forward	ENUM	Root	Class	Comment	Row
	1	From Helen	International numbers	Forward	Helen PSTN	00		-	24/7	Change prefix for international calls.	
	2	From Helen	External numbers	Forward	Helen PSTN			-	24/7	External calls sent to operator.	
	3	From Arthur	International numbers	Forward	Arthur PSTN			-	24/7		
	4	From Arthur	External numbers	Forward	Arthur PSTN			-	24/7		
	5	From Harry	International numbers	Forward	Harry PSTN			-	24/7		
	6	From Harry	External numbers	Forward	Harry PSTN			-	24/7		
	7	From Mark	International numbers	Forward	Mark PSTN				24/7		
	8	From Mark	External numbers	Forward	Mark PSTN			-	24/7		

Now, when a local user calls an external phone number, the Firewall/SIParator will route this call to your SIP operator and rewrite the signaling to use your SIP operator account.

Delete Row

Incoming Calls

User Routing (Help)

If your SIP account provides several phone numbers, you can assign separate numbers for your local users. You do that on the **Routing** page.

There are two different ways of mapping phone numbers to users; either the PSTN numbers are mapped to users or the users are given numbers as aliases. The latter only works when the Advanced SIP Routing module has been installed and the SIP operator does not require registration.

In the **User Routing** table, you can select a local user and assign a SIP operator phone number as an Alias for that user. This will only work when the Advanced SIP Routing module has been installed and the SIP operator does not require registration.

User	User Routing (Help)											
Edit	llear	Allac	Restrict	Forwa	Forward Send To Ti Action To Mail		ward Send To Time		Commont	Delete		
Row	User	Anas	Callers	Action			Class	Comment	Row			
	arthur@sip.ingate.com	24285723	No	-		-	-					
	harry@sip.ingate.com	24285724	No	-		-	-					
	helen@sip.ingate.com	24285725	No	-		-	-					
	mark@sip.ingate.com	24285722	No	-		-	-					

You can also select each phone number, and enter which user calls should be forwarded to.

Edit	liter	Allac	Restrict		Forward	Send To	nd Time	d Time	Comment	Delete
Row	User	AIRS	Callers	Action	ction To		Class	Comment	Row	
	24285722@sipoperator.com		No	Forward	mark@sip.ingate.com	-	-			
	24285723@sipoperator.com		No	Forward	arthur@sip.ingate.com	-	-			
	24285724@sipoperator.com		No	Forward	harry@sip.ingate.com	-	-			
	24285725@sipoperator.com		No	Forward	helen@sip.ingate.com	-	-			

Now, when someone calls 34382753, the call will be routed from the SIP operator to the Firewall/SIParator and finally to *harry@sip.ingate.com*.

Note that you can only use the **User Routing** table for incoming call forwarding. The **Static Registrations** should not be used when XF or XF/Register accounts are involved.

Finally, go to the **Save/Load Configuration** page under **Administration** and apply the new settings by pressing **Apply configuration**.



How To Use Your SIP Operator Account and Your IP-PBX Via Ingate Firewall/SIParator®

This is how to configure your Firewall/SIParator to forward requests between your SIP operator and your local IP-PBX.

The configuration varies slightly depending on if the operator uses accounts or IP addresses for the authentication.

This feature is *only available* when the *Advanced SIP Routing* or the *SIP Trunking* module has been installed.

Instead of configuring this manually, you can use the Ingate Startup Tool, which can be found at http://www.ingate.com/Startup_Tool_TG.php.

Outgoing Calls

SIP Accounts (Help)

Authentication by Accounts a.k.a SIP Trunk via SIP accounts

Enter your SIP operator account on the **Local Registrar** page. You enter the username and password from the operator, and select the *XF/Register* account type. This account type will make the Firewall/SIParator register at the SIP operator with the credentials you enter.

Some operators don't require registration. In this case, select the XF account type instead.

You can select any network in the Register from field, as it is not used for these account types.

	ccounts 1	13.197					
Edit Row	Username	Domain	Authentication Name	Display Name	Password	Account Type	Delete Row
	24285722	sipoperator.com	123456789			XF/Register	
	24285723	sipoperator.com	123456789			XF/Register	
	24285724	sipoperator.com	123456789			XF/Register	
	24285725	sipoperator.com	123456789			XF/Register	

For outgoing calls, you have to define when your SIP operator account should be used. Usually, you use this type of account to call to the PSTN network ("ordinary telephones").

On the **Dial Plan** page, you define what type of calls should be redirected to your SIP operator. First, turn the Dial Plan on.

Use Dial Plan (Help)	Emergency Number	(Help)
⊙ On	911	
⊖ Off	,	
○ Fallback		

In the **Matching From Header** table, you define from which network the calls can come. You can also select what the From header (that tells who is calling) should look like. This is used when matching requests in the **Dial Plan** table below. Name each definition properly, to make it easier to use further on.

In this case, we want to match on calls coming from the IP-PBX. This will ensure that only users who have been autorized by the PBX to use the SIP trunk will be able to make outgoing calls.

Matching From Header (Help)

Name	Use Th	is	Or This	Transport	Network	Delete Row
Name	Username	Domain	Reg Expr	Transport	Network	Delete Row
IP-PBX	*	*		Any	IP-PBX	

In the **Matching Request-URI** table, you define callees. This is used when matching requests in the **Dial Plan** table below.

In this case, you want to define the calls that should be routed to your SIP operator, which is call destinations where the usernames consist of numbers only, as these most likely are intended to go to the PSTN network. Call destinations that look like *helen@sip.ingate.com* should not be routed via the SIP operator, but be handled by the Firewall/SIParator itself.

You can let users call international numbers with a + sign instead of the international prefix. For this, define the + sign as a **Prefix**, which means that it will be stripped before the call is forwarded.

The **Min. Tail** is set to 4 here, to open for the possibility of three-digit local extensions, which should not be handled by the **Dial Plan**.

Matching	Matching Request-URI (Help)									
	Nama		ι	Jse T	'his	Or This	Dalata Daw			
Edit Row	Name	Prefix	Head	Tail	Min. Tail	Domain	Reg Expr	Delete Row		
	External numbers			09	4	*local				
	International numbers	+		09	4	*local				

In the **Forward To** table, you define where calls should be forwarded. This is used in the **Dial Plan** table below.

In this case, the calls should be forwarded to your SIP operator account that was defined before. You select the account under **Account**.

The calls can also be forwarded to your SIP operator using the operator's IP address in the **Replacement URI** field.

Forward	To (Help)							
Edit	Name	Furthered	Use This	Or Th	is		Or This	Delete
Row	Name	Subno.	Account	Replacement Domain	Port	Transport	Reg Expr	Row
	+ SIP Operator	1	24285722@sipoperator.com			-		

At last, you combine these definitions in the **Dial Plan** table. Make one line for international calls and one for other calls, because we need to add the international prefix for international calls only.

Edit		From	0		Forward	Add P	refix	ENUM	Time	Commund.	Delete
Row	NO.	Header	Request-ORI	Action	То	Forward	ENUM	Root	Class	Comment	Row
	1	From Helen	International numbers	Forward	Helen PSTN	00		•	24/7	Change prefix for international calls.	
	2	From Helen	External numbers	Forward	Helen PSTN			-	24/7	External calls sent to operator.	
	3	From Arthur	International numbers	Forward	Arthur PSTN			-	24/7		
	4	From Arthur	External numbers	Forward	Arthur PSTN			•	24/7		
	5	From Harry	International numbers	Forward	Harry PSTN			-	24/7		
	6	From Harry	External numbers	Forward	Harry PSTN			-	24/7		
	7	From Mark	International numbers	Forward	Mark PSTN			•	24/7		
	8	From Mark	External numbers	Forward	Mark PSTN			•	24/7		

Now, when a local user calls an external phone number, the Firewall/SIParator will route this call to your SIP operator and rewrite the signaling to use your SIP operator account.

Authentication by IP Addresses a.k.a SIP Trunk via IP address

On the **Dial Plan** page, you define what type of calls should be redirected to your SIP operator. First, turn the Dial Plan on.



In the **Matching From Header** table, you define from which network the calls can come. You can also select what the From header (that tells who is calling) should look like. This is used when matching requests in the **Dial Plan** table below. Name each definition properly, to make it easier to use further on.

Matching From Header (Help)								
Edit Row	Name	Use T	'his	Or This	Transport	Network	Delete Row	
		Username	Domain	Reg Expr	mansport	Network		
	Ingate	*	ingate.com		Any	-		
	Office	e	*		TCP or TLS	Office network		

Add new rows 1 rows.

Matching Description (10)

Forward To (Hele)

In the **Matching Request-URI** table, you define callees. This is used when matching requests in the **Dial Plan** table below.

In this case, you want to define the calls that should be routed to your SIP operator, which is call destinations where the usernames consist of numbers only, as these most likely are intended to go to the PSTN network. Call destinations that look like *helen@sip.ingate.com* should not be routed via the SIP operator, but be handled by the Firewall/SIParator itself.

You can let users call international numbers with a + sign instead of the international prefix. For this, define the + sign as a **Prefix**, which means that it will be stripped before the call is forwarded.

The **Min. Tail** is set to 4 here, to open for the possibility of three-digit local extensions, which should not be handled by the **Dial Plan**.

Matching Request-ORI (Help)										
Edit Row	Name	Use This					Or This	Delete Pow		
	Maine	Prefix	Head	Tail	Min. Tail	Domain	Reg Expr	Delete Kow		
	External numbers			09	4	*local				
	International numbers	+		09	4	*local				

In the **Forward To** table, you define where calls should be forwarded. This is used in the **Dial Plan** table below.

In this case, the calls should be forwarded to your SIP operator account that was defined before. You select the account under **Account**.

The calls can also be forwarded to your SIP operator using the operator's IP address in the **Replacement URI** field.

Tornara	in the state						
Edit Row Name	Eukan	Use This	Or Th	Or This			
	Name	Subno.	Account	Replacement Domain	Port Transport	Reg Expr	Delete Kow
	• SIP Operator	1	-	202.202.202.202	ŀ		

At last, you combine these definitions in the **Dial Plan** table. Make one line for international calls and one for other calls, because we need to add the international prefix for international calls only.

Dial	Plan	(Help)															
Edit		From	Permet IIPI	Action	Forward	Add Prefix		Add Prefix		Add Prefix		Forward Add Pr		ENUM	Time	Comment	Delete
Row	NO.	Header	Requestori	Action	То	Forward	ENUM	Root	Class	Comment	Row						
	1	IP-PBX	International numbers	Forward	SIP Operator	00		-	24/7	Change prefix for international calls.							
	2	IP-PBX	External numbers	Forward	SIP Operator			-	24/7	External calls sent to operator.							

Now, when a local user calls an external phone number, the Firewall/SIParator will route this call to your SIP operator and rewrite the signaling to use your SIP operator account.

Incoming Calls

All incoming calls from the operator should be forwarded to the PBX. This is done on the **Dial Plan** page.

On the **Dial Plan** page, you define what type of calls should be redirected to your SIP operator. First, turn the Dial Plan on.

Use Dial Plan (Help)	Emergency Number	(Help)
⊙ On	911	
⊖ off	,	
○ Fallback		

In the **Matching From Header** table, you define from which network the calls can come. You can also select what the From header (that tells who is calling) should look like. This is used when matching requests in the **Dial Plan** table below. Name each definition properly, to make it easier to use further on.

In this case, we only need to define the operator by its sending network.

Matching From Header (Help)									
Edit Dow	Name	Use Th	is	Or This	Transport	Network	Delete Row		
Eait Kow	Name	Username	Domain	Reg Expr	Transport	Network			
	SIP Operator	÷	±		Any	SIP Operator			

In the **Matching Request-URI** table, you define callees. This is used when matching requests in the **Dial Plan** table below.

In this case, you want to define the calls that should be routed to your PBX, which is call destinations where the usernames consist of numbers only. For extra matching, enter the outside IP address of the Firewall/SIParator, which the operator will be using.

Matching Request-URI (Help)								
	Name			U	Or This	Delete Row		
Ealt Row	Name	Prefix	Head	Tail	Min. Tail	Domain	Reg Expr	Delete Kow
	Incoming calls			09	4	193.12.253.115		

In the **Forward To** table, you define where calls should be forwarded. This is used in the **Dial Plan** table below.

In this case, the calls should be forwarded to your SIP operator account that was defined before. You select the account under **Account**.

Enter the IP address of the IP-PBX in the **Replacement URI** field. This will make the Firewall/SIParator replace the domain part in the incoming call with this IP address. The username part of the URI will be kept.

Forward To (Help)									
			Use This	Jse This Or This				Dalata Row	
Ealt Row	Name	Subno.	Account	Replacement Domain	Port	Transport	Reg Expr	Delete Row	
	+ PBX	1	-	10.47.2.77		-			

At last, you combine these definitions in the **Dial Plan** table. Select the operator and the Request-URI, and forward to the PBX.

Dial	Plan	(Heln)
		1110107

Edit Row	No.	From Header	Request-URI	Action	Forward To	Add P Forward	refix ENUM	ENUM Root	Time Class	Comment	Delete Row
	1	SIP Operator	Incoming calls	Forward	РВХ			-	24/7		

Finally, go to the **Save/Load Configuration** page under **Administration** and apply the new settings by pressing **Apply configuration**.

Save/Load Configuration	Show Configuration	User Administration	U					
Test Run and Apply Conf (Help) Duration of limited test mode:								
30 see	conds							
Apply cont	figuration							