

Intercommunication between two MyPBX (via VoIP Trunking)

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This application note explains how to link two MyPBX in different location. With this function, we can link branches together with MyPBX. Same method can be used when connecting more than 2 MyPBX in different branches.

1. Connect two MyPBX in the same network

The common environment for two MyPBX in different locations is: two MyPBX are both behind router and using the private IP.

The simplest case to link two MyPBX together is in the same network. We start from this and then try to expand to different networks. We take MyPBX Standard as the example here, and the method is same for other MyPBX products. Below is the structure of how to link two MyPBX in the same LAN:

Flowchart:



Application:

The method of connecting two MyPBX in the same LAN is:

1. Point the MyPBX A to MyPBX B via VOIP (SIP/IAX2) Trunking, so the extensions in MyPBX A can make calls to MyPBX B's extensions via this 'Special' trunk.

2. Use the reverse method in MyPBX B to point to MyPBX A.

In above structure:

- 1) The two MyPBX link each other via VOIP (SIP/IAX2) Trunking.
- 2) All the extensions under MyPBX A are in the format 5xx.
- 3) All the extensions under MyPBX B are in the format 6xx.
- 4) Extensions under MyPBX A can make calls to extensions under MyPBX B using format



6xx.

5) Extensions under MyPBX B can make calls to extensions under MyPBX A using format 5xx.

6) Yealink-T28 A registers to MyPBX A as an extension 501.

7) Yealink-T28 B registers to MyPBX B as an extension 601.

Configure:

Step 1: Set up a SIP Trunking in MyPBX A, connect which to MyPBX B. Trunks-> Service Provider -> Add Service Provider

Add Service Provider		х
Туре:	SIP 🔻	
Provider Name:	MyPBXB	
Hostname/IP:	192.168.5.137 : 5060	
Maximum Channels 🛈 :	0	
Transport:	UDP 🔻	
Qualify:		
DTMF Mode:	rfc2833 👻	
DOD Settings Global DOD:		
DOD :	Associated Extension : 601 ▼ ↑Add DOD	
	Save Cancel	

Figure 1-1

Make sure the trunk status is ok on Line status page. MyPBX A trunk's status:

		1	Trunks		
Status	Signal	Trunk Name	Туре	Username	Port/Hostname/IP
OK (2 ms)		<u>MyPBXB</u>	SP-SIP		192.168.5.137

Figure 1-2



Step 2: Set up a SIP Trunking in MyPBX B, connect which to MyPBX A. Trunks-> Service Provider -> New Service Provider

Add Service Provider		х
Туре:	SIP 🔻	
Provider Name:	MyPBXA	
Hostname/IP:	192.168.5.136 : 5060	
Maximum Channels 🛈 :	0	
Transport:	UDP 👻	
Qualify:		
DTMF Mode:	rfc2833 🔹	
DOD Settings Global DOD:		
DOD :	Associated Extension : 601 ▼ ↑Add DOD	
	Save X Cancel	

Figure 1-3

Make sure the trunk status is ok on Line status page. MyPBX B trunk's status:

Trunks						
Status	Signal	Trunk Name	Туре	Username	Port/Hostname/IP	
OK (2 ms)		<u>MyPBXA</u>	SP-SIP		192.168.5.136	

Figure 1-4



Step 3: Setup an Outbound Route in MyPBX A. All calls start with 6 and 3 digits will be sent to MyPBX B, this is the way to route MyPBX A's call to MyPBX B. In the page: Outbound Routes -> Add Outbound Route.

Edit Outbound Route - CalltoMyPBXB	x
Route Name	CalltoMyPBXB
Dial Pattern 🛈 :	6XX
Strip ¹ :	digits from front
Prepend these digits	before dialing
Password:	
T.38 Support 1:	No
Rrmemory Hunt	No
Member Extensions	
Available Extensions	Selected
	→ 501(SIP) 502(SIP) 503(SIP) 504(SIP) 505(SIP) 510(FXS) \$11(FXS)
Member Trunks	
Available Trunks	Selected
pstn8(FXO) GSM13(GSM) BriTrunk9(BRI) BriTrunk10(BRI) 3CX(SPS) pstn7(FXO)	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
5	Save Cancel

Figure 1-5

Save and Apply the Changes.



Step 4: Set up an Outbound Route in MyPBX B. All calls start with 5 and 3 digits will be sent to MyPBX A, this is the way to route MyPBX B's call to MyPBX A. In the page: Outbound Routes -> Add Outbound Route.

Edit Outbound Route - CalltoMyPBXA	x
Route Name	CalltoMyPBXA
Dial Pattern 🛈 :	5XX
Strip ¹ :	digits from front
Prepend these digits	before dialing
Password:	
T.38 Support 🛈 :	No
Rrmemory Hunt 🛈 :	No 🔻
Member Extensions	
Available Extensions	Selected
	602(SIP) 603(SIP) 604(SIP) 605(SIP) 610(FXS) 611(FXS) ≪≪
Member Trunks	••••
Available Trunks	Selected
pstn7(FXO) pstn8(FXO) GSM13(GSM) BrïTrunk9(BRI) BrïTrunk10(BRI) 3CX(SPS)	»» MyPBXA(SPS) ← ««
	Save Cancel

Figure 1-6

Save and Apply the Changes.

Note: For VoIP-Trunking mode connection, there's no need to create inbound routes for MyPBXs, the outbound routes for each MyPBX are enough.



Step 4: Test call.

- 1) Register an IP phone T28 to MyPBX A with 501 extension.
- 2) Register an IP phone T28 to MyPBX B with 601 extension.
- 3) Use 501 to dial 601. And you can see 601 is ringing and you can answer the calls.
- 4) Use 601 to dial 501. And you can see 501 is ringing and you can answer the calls.



2. Connect two MyPBX in different locations

The other case to link two MyPBX together is in the different network. We also take MyPBX Standard as the example here, and the method is same for other MyPBX products. Below is the structure of how to link two MyPBX in the different LANs: **Flowchart:**



Application:

Note: Since the MyPBX doesn't have the public IP, we need to do port forwarding in the router and make MyPBX reachable to others.

The method of connecting two MyPBX in the different location is:

1. Point the MyPBX A to MyPBX B via VOIP (SIP/IAX2) Trunking, so the extensions in MyPBX A can make calls to MyPBX B's extensions via this 'Special' trunk.

2. Use the reverse method in MyPBX B to register to MyPBX A.

In above structure:

1) The two MyPBX links each other via VOIP (SIP/IAX2) trunking.

2) All the extensions under MyPBX A are in the format 5xx.

3) All the extensions under MyPBX B are in the format 6xx.

4) Extensions under MyPBX A can make calls to extensions under MyPBX B using format 6xx.

5) Extensions under MyPBX B can make calls to extensions under MyPBX A using format 5xx.

6) Yealink-T28 A registers to MyPBX A as an extension 501.

7) Yealink-T28 B registers to MyPBX B as an extension 601.



2.1 Connect two MyPBX via SIP Trunking

Step 1 Set port forwarding in the router for MyPBX A.

Example: The router's public IP is '102.42.46.126'.

The MyPBX A is behind the router, to register to MyPBX A via the internet, you need to forward the SIP port in your router, so all the packets received on the router WAN port (102.42.46.126:5060) will be forwarded to the MyPBX A (192.168.5.11:5060). Below is the setting page in a Linksys router:

Note1: we must map UDP port 5060 and UDP port 10001-12000.

Note2: Your public address from network provider maybe a dynamic IP which will be changed periodically. To overcome the problem of dynamic IP, you may need to use the DDNS service, for more info please Google via internet.

LINKSYS® A Division of Cisco Systems, Inc.								imware Version: 1.04.06
Applications					Etherf	ast® Cable	DSL Router	BEFSR41
& Gaming	Setup Port Range Fo	Secu rwarding	rri ty Port Tri	Application: & Gaming ggering	Administr	ation	Status DMZ	QoS
Port Range Forwarding			Port	t Range			Port Ran	ge Forwarding
	Application	Start	End	Protocol	IP Address	Enabled	used to set on your net	up public services work. When users
	SIP	5060 to	5060	UDP 💌	192.168.5.11	2	from the Int requests or Router can	ernet make certain a your network, the forward those
	SIP-RTP	10001 to	12000	UDP 💌	192.168.5.11	•	requests to to handle th	computers equipped e requests. If, for
		0 to	0	Both 💌	192.168.5.0		example, ye number 80	ou set the port (HTTP) to be
		0 to	0	Both 💌	192.168.5.0		forwarded 192.168.1.2	to IP Address , then all HTTP
		0 to	0	Both 💌	192.168.5.0		be forward	om outside users will ed to 192.168.1.2. It
		0 to	0	Both 💌	192.168.5.0		computer	use static IP
		0 to	0	Both 💌	192.168.5.0		audiess.	
		0 to	0	Both 💌	192.168.5.0		establish a	web server or FTP
		0 to	0	Both 💌	192.168.5.0		sure that yo	ou enter a valid
		0 to	0	Both 💌	192.168.5.0		More	
								CISCO SYSTEMS
				Save Sett	ings Cancel	Changes		

Figure 2-1

Step 2: Use the same method do port forwarding in router B for MyPBX B. Example: The router's public IP is '202.35.22.102'.



Step 3: Set up a SIP Trunking in MyPBX A, connect which to MyPBX B. Trunks-> Service Provider -> New Service Provider

Add Service Provider		х
Туре:	SIP 🔻	
Provider Name:	MyPBXB	
Hostname/IP:	202.35.22.102 : 5060	
Maximum Channels 🛈 :	0	
Transport:	UDP 🔻	
Qualify:		
DTMF Mode:	rfc2833 👻	
Global DOD:		
DOD :	Associated Extension : 601 ▼ ↑Add DOD	
	Save Cancel	

Figure 2-2

Make sure the trunk status is ok on Line status page. MyPBX A trunk's status:

		Т	runks		
Status	Signal	Trunk Name	Туре	Username	Port/Hostname/IP
OK (2 ms)		<u>MyPBXB</u>	SP-SIP		202.35.22.102

Figure 2-3



Step 4: Setup a SIP Trunking in MyPBX B, connect which to MyPBX A. Trunks-> Service Provider -> Add Service Provider

Add Service Provider	Х
Type: SIP ▼	
Provider Name: MyPBXA	
Hostname/IP: 102.42.46.126 : 5060	
Maximum Channels 0	
Transport: UDP 💌	
Qualify: 🔽	
DTMF Mode: rfc2833	
DOD Settings Global DOD:	
DOD : Associated Extension : 610 Add DOD	
Save X Cancel	

Figure 2-4

Make sure the trunk status is ok on Line status page. MyPBX B trunk's status:

		т	runks		
Status	Signal	Trunk Name	Туре	Username	Port/Hostname/IP
OK (2 ms)		<u>MyPBXA</u>	SP-SIP		102.42.46.126

Figure 2-5



Step 5: Set up an Outbound Route in MyPBX A. All calls start with 6 and 3 digits will be sent to MyPBX B, this is the way to route MyPBX A's call to MyPBX B. In the page: Outbound Routes -> Add Outbound Route.

Edit Outbound Route - CalltoMyPBXB	x
Route Name	CalltoMyPBXB
Dial Pattern 🛈 :	6XX
Strip ^① :	digits from front
Prepend these digits	before dialing
Password:	
T.38 Support 🛈 :	No
Rrmemory Hunt	No 👻
Member Extensions	
Available Extensions	Selected
	→ 501(SIP) 502(SIP) 503(SIP) 504(SIP) 505(SIP) 510(FXS) ≪≪
Member Trunks	
	Selected
pstn8(FXO) GSM13(GSM) BriTrunk9(BRI) BriTrunk10(BRI) 3CX(SPS) pstn7(FXO)	»» MyPBXB(SPS) → ≪
	Save Cancel

Figure 2-6

Save and Apply Changes.



Step 6: Set up an Outbound Route in MyPBX B. All calls start with 5 and 3 digits will be sent to MyPBX A, this is the way to route MyPBX B's call to MyPBX A. In the page: Outbound Routes -> Add Outbound Route.

Edit Outbound Route - CalltoMyPBXA	x
Route Name 🛈 :	: CalltoMyPBXA
Dial Pattern 🛈 :	: 5XX
Strip ¹ :	: digits from front
Prepend these digits 🛈 :	: before dialing
Password:	
T.38 Support 🛈 :	: No 💌
Rrmemory Hunt 🛈 :	: No 🔻
Member Extensions	
Available Extensions	Selected
	602(SIP) 603(SIP) 604(SIP) 605(SIP) 610(FXS) 611(FXS) ≪≪
Member Trunks	
Available Trunks	Selected
pstn7(FXO) pstn8(FXO) GSM13(GSM) BriTrunk9(BRI) BriTrunk10(BRI) 3CX(SPS)	»» MyPBXA(SPS) → ««
	Save Cancel

Figure 2-7

Save and Apply Changes.

Note: For VoIP-Trunking mode connection, there's no need to create inbound routes for MyPBXs, the outbound routes for each MyPBX are enough.



Step 7: Test call.

- 1) Register an IP phone T28 to MyPBX A with 501 extension.
- 2) Register an IP phone T28 to MyPBX B with 601 extension.
- 3) Use 501 to dial 601. And you can see 601 is ringing and you can answer the calls.
- 4) Use 601 to dial 501. And you can see 501 is ringing and you can answer the calls.



2.2 Connect two MyPBX via IAX Trunking

Step 1 Set port forwarding in the router for MyPBX A. Example: The router's public IP is '102.42.46.126'.

The MyPBX A is behind the router, to register to MyPBX A via the internet, you need to forward the IAX port in your router, so all the packets received on the router WAN port (102.42.46.126:4569) will be forwarded to the MyPBX A (192.168.5.11:4569). Below is the setting page in a Linksys router:

Note1: we must map UDP port 4569.

Note2: Your public address from network provider maybe a dynamic IP which will be changed periodically. To overcome the problem of dynamic IP, you may need to use the DDNS service, for more info please Google via internet.

LINKSYS® A Division of Cisco Systems, Inc.										Firmware Version: 1.04.06
Applications						Etherf	ast® Cabl	e/DS	L Router	BEFSR41
& Gaming	Setup Port Range Fo	s rwarding	ecur 	r ity Port Tri	Applications & Gaming ggering	B Administr	ation	Sta D	tus MZ	QoS
Port Range Forwarding									Port Rar	nge Forwarding
				Port	t Range				Port Range used to set	Forwarding can be tup public services
	Application	Start		End	Protocol	IP Address	Enabled		on your ne from the In	twork. When users ternet make certain
	IAX	4569	to	4569	Both 💌	192.168.5.11			requests o Router can	n your network, the forward those
		0	to	0	Both 💌	192.168.5.0			requests to to handle ti	o computers equipped he requests. If, for
		0	to	0	Both 💌	192.168.5.0			example, y number 80	ou set the port (HTTP) to be
		0	to	0	Both 💌	192.168.5.0			forwarded 192.168.1.1	to IP Address 2, then all HTTP
		0	to	0	Both 💌	192.168.5.0			requests fi be forward	rom outside users will add to 192.168.1.2. It
		0	to	0	Both 💌	192.168.5.0			is recomi computer	nended that the ruse static IP
		0	to	0	Both 💌	192.168.5.0			address.	
		0	to	0	Both 💌	192.168.5.0			You may u establish a	se this function to web server or FTP
		0	to	0	Both 💌	192.168.5.0			server via sure that y	an IP Gateway. Be ou enter a valid
		0	to	0	Both 💌	192.168.5.0			More	
										CISCO SYSTEMS
					Save Sett	ings Cancel	Changes			ուլլիւսուլիրո

Figure 2-6

Step 2: Use the same method do port forwarding in router B for MyPBX B. Example: The router's public IP is '202.35.22.102'.



Step 3: Set up an IAX Trunking in MyPBX A, connect which to MyPBX B. Trunks-> Service Provider -> Add Service Provider

Add Service Provider	х
Type: IAX -	
Provider Name: MyPBXB	
Hostname/IP: 202.35.22.102 : 4569	
Maximum Channels 0	
DOD Settings Global DOD:	
DOD : Associated Extension : 610 Add DOD	
Save X Cancel	

Figure 2-2

Make sure the trunk status is ok on Line status page. MyPBX A trunk's status:

		т	runks		
Status	Signal	Trunk Name	Туре	Username	Port/Hostname/IP
OK (2 ms)		MyPBXB	SP-IAX		202.35.22.102

Figure 2-3



Step 4: Set up an IAX Trunking in MyPBX B, connect which to MyPBX A. Trunks-> Service Provider -> New Service Provider

Add Service Provider		Х
Туре:	IAX 🔻	
Provider Name:	MyPBXA	
Hostname/IP:	102.42.46.126 : 4569	
Maximum Channels 🛈 :	0	
DOD Settings Global DOD:		
DOD :	Associated Extension : 610 Add DOD	

Figure 2-4

Make sure the trunk status is ok on Line status page. MyPBX B trunk's status:

		т	runks		
Status	Signal	Trunk Name	Туре	Username	Port/Hostname/IP
OK (2 ms)		<u>MyPBXA</u>	SP-IAX		102.42.46.126

Figure 2-5



Step 5: Setup an Outbound Route in MyPBX A. All calls start with 6 and 3 digits will be sent to MyPBX B, this is the way to route MyPBX A's call to MyPBX B. In the page: Outbound Routes -> Add Outbound Route.

Edit Outbound Route - CalltoMyPBXB	x
Route Name 🛈 :	CalltoMyPBXB
Dial Pattern 🛈 :	6XX
Strip 🛈 :	digits from front
Prepend these digits	before dialing
Password:	
T.38 Support 🛈 :	No 👻
Rrmemory Hunt ¹ :	No 👻
Member Extensions	
Available Extensions	Selected
	S00(SIP) S01(SIP) S02(SIP) 503(SIP) 504(SIP) 510(FXS) 511(FXS) ≪≪
Member Trunks	
Available Trunks	Selected
pstn8(FXO) GSM13(GSM) BriTrunk9(BRI) BriTrunk10(BRI) 3CX(SPS) pstn7(FXO)	>>> MyPBXB(SPX) →
	Save X Cancel

Figure 2-6

Save and Apply the Changes.



Step 6: Setup an Outbound Route in MyPBX B. All calls start with 5 and 3 digits will be sent to MyPBX A, this is the way to route MyPBX B's call to MyPBX A. In the page: Outbound Routes -> Add Outbound Route.

Edit Outbound Route - CalltoMyPBXA	x
Route Name 🛈 :	CalltoMyPBXA
Dial Pattern 🛈 :	5XX
Strip ¹ :	digits from front
Prepend these digits 🛈 :	before dialing
Password:	:
T.38 Support	No 👻
Rrmemory Hunt 🛈 :	: No 🔻
Member Extensions	
Available Extensions	Selected
	602(SIP) 603(SIP) 604(SIP) 605(SIP) 605(SIP) 610(FXS) 611(FXS) ≪≪
Member Trunks	Calastad
pstn7(FXO) pstn8(FXO) GSM13(GSM) BriTrunk9(BRI) BriTrunk10(BRI) 3CX(SPS)	>>> MyPBXA(SPX) → ««
	✓ Save X Cancel

Figure 2-7

Save and Apply the Changes.

Note: For IAX-Trunking mode connection, there's no need to create inbound routes for MyPBXs, the outbound routes for each MyPBX are enough.



Step 7: Test call.

- 1) Register an IP phone T28 to MyPBX A with 501 extension.
- 2) Register an IP phone T28 to MyPBX B with 601 extension.
- 3) Use 501 to dial 601. And you can see 601 is ringing and you can answer the calls.
- 4) Use 601 to dial 501. And you can see 501 is ringing and you can answer the calls.

<The End>