Intercommunication among three MyPBX (via VoIP Trunking)

1. Connect three MyPBX in same network................................. 2
2. Connect three MyPBX in different locations.......................... 16
   2.1 Connect three MyPBX via SIP Trunking............................. 17
   2.2 Connect three MyPBX via IAX Trunking............................ 31
This application note explains how to link three MyPBX in different location. With this function, we can link branches together with MyPBX. Same method can be used when connect more MyPBX in different branches.

1. Connect three MyPBX in same network

The common environment for three MyPBX in different location is: three MyPBX are all behind router and using the private IP.

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

Flowchart:

Application:
The method of connecting three MyPBX in the same LAN is:
1. Point the MyPBX A to MyPBX B and MyPBX C via VOIP (SIP/IAX2) Trunking, so the extensions in MyPBX A can make calls to the extensions in MyPBX B and MyPBX C via this 'Special' trunk.
2. Use the reverse method in MyPBX B and MyPBX C to point to other two MyPBX.

In above structure:
1) The three 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) All the extensions under MyPBX C are in the format 7xx.
5) Extensions under MyPBX A can make calls to extensions under MyPBX B use format 6xx and make calls to extensions under MyPBX C using format 7xx.
6) Extensions under MyPBX B can make calls to extensions under MyPBX A use format 5xx and make calls to extensions under MyPBX C using format 7xx.
7) Extensions under MyPBX C can make calls to extensions under MyPBX A use format 5xx and make calls to extensions under MyPBX B using format 6xx.
8) Yealink-T28 A registers to MyPBX A as an extension 501.
9) Yealink-T28 B registers to MyPBX B as an extension 601.
10) Yealink-T28 C registers to MyPBX C as an extension 701.

**Configure:**

**Step 1:** Set up two SIP Trunkings in MyPBX A, then connect them to MyPBX B and MyPBX C respectively.

Trunks-> Service Provider -> Add Service Provider

![Figure 1-1](image-url)
Make sure the trunks status is ok on Line status page.

MyPBX A trunk’s status:

<table>
<thead>
<tr>
<th>Status</th>
<th>Signal</th>
<th>Trunk Name</th>
<th>Type</th>
<th>User Name</th>
<th>Port/Hostname/IP</th>
<th>Reachability</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK (1 ms)</td>
<td></td>
<td>MyPBX</td>
<td>SIP-SIP</td>
<td></td>
<td>192.168.4.147</td>
<td>OK (1 ms)</td>
</tr>
<tr>
<td>OK (2 ms)</td>
<td></td>
<td>MyPBX</td>
<td>SIP-SIP</td>
<td></td>
<td>192.168.4.148</td>
<td>OK (2 ms)</td>
</tr>
</tbody>
</table>

Figure 1-3
Step 2: Set up two SIP Trunkings in MyPBX B, then connect them to MyPBX A and MyPBX C respectively.

Trunks -> Service Provider -> Add Service Provider

Figure 1-4
Make sure the trunk status is ok on Line status page.

**MyPBX B trunks’ status:**

<table>
<thead>
<tr>
<th>Status</th>
<th>Signal</th>
<th>Trunk Name</th>
<th>Type</th>
<th>User Name</th>
<th>Port/Hostname/IP</th>
<th>Reachability</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK (2 ms)</td>
<td></td>
<td>MyPBX A</td>
<td>SP-SIP</td>
<td></td>
<td>192.168.4.148</td>
<td>OK (2 ms)</td>
</tr>
<tr>
<td>OK (5 ms)</td>
<td></td>
<td>MyPBX C</td>
<td>SP-SIP</td>
<td></td>
<td>192.168.4.148</td>
<td>OK (5 ms)</td>
</tr>
</tbody>
</table>

**Figure 1-6**
Step 3: Set up two SIP Trunkings in MyPBX C, then connect them to MyPBX A and MyPBX B respectively.

Trunks -> Service Provider -> Add Service Provider

Figure 1-7
Intercommunication among three MyPBX (via VoIP Trunking)

Make sure the trunk status is ok on Line status page.

MyPBX C trunks’ status:

<table>
<thead>
<tr>
<th>Status</th>
<th>Signal</th>
<th>Trunk Name</th>
<th>Type</th>
<th>User Name</th>
<th>Port/Hostname/IP</th>
<th>Reachability</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK (2 ms)</td>
<td></td>
<td>MyPBXB</td>
<td>SP-SIP</td>
<td></td>
<td>192.168.4.147</td>
<td>OK (2 ms)</td>
</tr>
<tr>
<td>OK (1 ms)</td>
<td></td>
<td>MyPBXB</td>
<td>SP-SIP</td>
<td></td>
<td>192.168.4.146</td>
<td>OK (1 ms)</td>
</tr>
</tbody>
</table>
Step 4: Set up two Outbound Routes in MyPBX A. All calls start with 6 and 3 digits will be sent to MyPBX B, and all calls start with 7 and 3 digits will be sent to MyPBX C. This is the way to route MyPBX A's call to MyPBX B and MyPBX C.

In the page: Outbound Routes -> Add Outbound Route.

Figure 1-8
Save and Apply the Changes.
**Step 5:** Setup two Outbound Routes in MyPBX B. All calls start with 5 and 3 digits will be sent to MyPBX A, and all calls start with 7 and 3 digits will be sent to MyPBX C. This is the way to route MyPBX B’s call to MyPBX A and MyPBX C.

In the page: Outbound Routes -> Add Outbound Route.

![Add Outbound Route](image)

**Figure 1-10**
Save and Apply the Changes.
**Step 6:** Setup two Outbound Routes in MyPBX C. All calls start with 5 and 3 digits will be sent to MyPBX A, and all calls start with 6 and 3 digits will be sent to MyPBX B. This is the way to route MyPBX C’s call to MyPBX A and MyPBX B.

In the page: Outbound Routes -> Add Outbound Route.

![Image of Outbound Route settings](figure12.png)

Figure 1-12
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 calls.

1) Register an IP phone T28 to MyPBX A with extension 501.
2) Register an IP phone T28 to MyPBX B with extension 601.
3) Register an IP phone T28 to MyPBX C with extension 701.
4) Test calls from MyPBX A to MyPBX B and MyPBX C: Use 501 to dial 601, then you can see 601 is ringing and you can answer the calls; Use 501 to dial 701, then you can see 701 is ringing and you can answer the calls.
5) Test calls from MyPBX B to MyPBX A and MyPBX C: Use 601 to dial 501, then you can see 501 is ringing and you can answer the calls; Use 601 to dial 701, then you can see 701 is ringing and you can answer the calls.
6) Test calls from MyPBX C to MyPBX A and MyPBX B: Use 701 to dial 501, then you can see 501 is ringing and you can answer the calls; Use 701 to dial 601, then you can see 601 is ringing and you can answer the calls.
2. Connect three MyPBX in different locations

The other case to link three 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 three MyPBX in the different LANs:

**Flowchart:**

![Flowchart diagram](image)

**Application:**

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

The method of connecting three MyPBX in the different location is:
1. Point the MyPBX A to MyPBX B and MyPBX C via VOIP (SIP/IAX2) Trunking, so the extensions in MyPBX A can make calls to MyPBX B’s extensions and MyPBX C’s extensions via these two ‘Special’ trunks.
2. Use the reverse method in MyPBX B to register to MyPBX A and MyPBX C.
3. Use the reverse method in MyPBX C to register to MyPBX A and MyPBX B.

In the above structure:
1) The three 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) All the extensions under MyPBX C are in the format 7xx.
5) Extensions under MyPBX A can make calls to extensions under MyPBX B using format 6xx and make calls to extensions under MyPBX C using format 7xx.
6) Extensions under MyPBX B can make calls to extensions under MyPBX A using format 5xx and make calls to extensions under MyPBX C using format 7xx.
7) Extensions under MyPBX C can make calls to extensions under MyPBX A using format 5xx and make calls to extensions under MyPBX B using format 6xx.
8) Yealink-T28 A registers to MyPBX A as an extension 501.
9) Yealink-T28 B registers to MyPBX B as an extension 601.
10) Yealink-T28 C registers to MyPBX C as an extension 701.

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

Step 3: Use the same method to do port forwarding in router C for MyPBX C. Example: The router's public IP is ‘112.23.86.162’.

Step 4: Set up two SIP Trunkings in MyPBX A, then connect them to MyPBX B and MyPBX C respectively.  
Trunks -> Service Provider -> New Service Provider

Figure 2-2
Intercommunication among three MyPBX (via VoIP Trunking)

Figure 2-3

Make sure the trunk status is ok on Line status page.

MyPBX A trunks’ status:

<table>
<thead>
<tr>
<th>Status</th>
<th>Signal</th>
<th>Trunk Name</th>
<th>Type</th>
<th>User Name</th>
<th>Port/Hostname/IP</th>
<th>Reachability</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK (1 ms)</td>
<td></td>
<td>MyPBX B</td>
<td>SP-SIP</td>
<td></td>
<td>202.35.22.102</td>
<td>OK (1 ms)</td>
</tr>
<tr>
<td>OK (2 ms)</td>
<td></td>
<td>MyPBX C</td>
<td>SP-SIP</td>
<td></td>
<td>112.23.86.162</td>
<td>OK (2 ms)</td>
</tr>
</tbody>
</table>

Figure 2-4
Step 5: Setup two SIP Trunkings in MyPBX B, then connect them to MyPBX A and MyPBX C respectively.

Trunks-> Service Provider -> Add Service Provider

Figure 2-5
Intercommunication among three MyPBX (via VoIP Trunking)

Make sure the trunk status is ok on Line status page.

MyPBX B trunks’ status:

<table>
<thead>
<tr>
<th>Status</th>
<th>Signal</th>
<th>Trunk Name</th>
<th>Type</th>
<th>User Name</th>
<th>Port/Hostname/IP</th>
<th>Reachability</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK (2 ms)</td>
<td></td>
<td>MyPBXA</td>
<td>SP-SIP</td>
<td></td>
<td>102.42.46.125</td>
<td>OK (2 ms)</td>
</tr>
<tr>
<td>OK (5 ms)</td>
<td></td>
<td>MyPBXC</td>
<td>SP-SIP</td>
<td></td>
<td>112.23.86.162</td>
<td>OK (5 ms)</td>
</tr>
</tbody>
</table>
**Step 6**: Setup two SIP Trunkings in **MyPBX C**, then connect them to MyPBX A and MyPBX B respectively.

Trunks-> Service Provider -> Add Service Provider

![Add Service Provider](image)

**Figure 2-8**
Make sure the trunk status is ok on Line status page.

MyPBX C trunks’ status:

<table>
<thead>
<tr>
<th>Status</th>
<th>Signal</th>
<th>Trunk Name</th>
<th>Type</th>
<th>User Name</th>
<th>Port/Hostname/IP</th>
<th>Reachability</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK (2 ms)</td>
<td></td>
<td>MyPBX A</td>
<td>SP-SIP</td>
<td></td>
<td>102.42.48.126</td>
<td>OK (2 ms)</td>
</tr>
<tr>
<td>OK (1 ms)</td>
<td></td>
<td>MyPBX B</td>
<td>SP-SIP</td>
<td></td>
<td>202.35.22.102</td>
<td>OK (1 ms)</td>
</tr>
</tbody>
</table>
Step 7: Setup two Outbound Routes in MyPBX A. All calls start with 6 and 3 digits will be sent to MyPBX B, and all calls start with 7 and 3 digits will be sent to MyPBX C. This is the way to route MyPBX A’s call to MyPBX B and MyPBX C.

In the page: Outbound Routes -> Add Outbound Route.

Figure 2-11
Save and Apply the Changes.
**Step 8**: Set up two Outbound Routes in **MyPBX B**. All calls start with 5 and 3 digits will be sent to **MyPBX A**, and all calls start with 7 and 3 digits will be sent to **MyPBX C**. This is the way to route **MyPBX B**’s call to **MyPBX A** and **MyPBX C**.

In the page: Outbound Routes -> Add Outbound Route.
Save and Apply the Changes.

Figure 2-14
**Step 9**: Set up two Outbound Routes in MyPBX C. All calls start with 5 and 3 digits will be sent to MyPBX A, and all calls start with 6 and 3 digits will be sent to MyPBX B. This is the way to route MyPBX C’s call to MyPBX A and MyPBX B.

In the page: Outbound Routes -> Add Outbound Route.

![Figure 2-15](image)
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 10: Test call.

1) Register an IP phone T28 to MyPBX A with extension 501.
2) Register an IP phone T28 to MyPBX B with extension 601.
3) Register an IP phone T28 to MyPBX C with extension 701.
4) Test calls from MyPBX A to MyPBX B and MyPBX C: Use 501 to dial 601, then you can see 601 is ringing and you can answer the calls; Use 501 to dial 701, then you can see 701 is ringing and you can answer the calls.
5) Test calls from MyPBX B to MyPBX A and MyPBX C: Use 601 to dial 501, then you can see 501 is ringing and you can answer the calls; Use 601 to dial 701, then you can see 701 is ringing and you can answer the calls.
6) Test calls from MyPBX C to MyPBX A and MyPBX B: Use 701 to dial 501, then you can see 501 is ringing and you can answer the calls; Use 701 to dial 601, then you can see 601 is ringing and you can answer the calls.
2.2 Connect three 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.

![Figure 2-17](image-url)
**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**: Use the same method do port forwarding in router C for MyPBX C. Example: The router’s public IP is ‘112.23.86.162’.

**Step 4**: Setup two IAX Trunkings in MyPBX A, connect to MyPBX B and MyPBX C respectively.
Trunks-> Service Provider -> Add Service Provider

![Add Service Provider](image)

Figure 2-18
Intercommunication among three MyPBX (via VoIP Trunking)

Make sure the trunk status is ok on Line status page.
MyPBX A trunks’ status:

<table>
<thead>
<tr>
<th>Status</th>
<th>Signal</th>
<th>Trunk Name</th>
<th>Type</th>
<th>User Name</th>
<th>Port/Hostname/IP</th>
<th>Reachability</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK (1 ms)</td>
<td></td>
<td>MyPBX</td>
<td>SP-IAX</td>
<td></td>
<td>202.36.22.102</td>
<td>OK (1 ms)</td>
</tr>
<tr>
<td>OK (2 ms)</td>
<td></td>
<td>MyPBX</td>
<td>SP-IAX</td>
<td></td>
<td>112.23.86.162</td>
<td>OK (2 ms)</td>
</tr>
</tbody>
</table>

Figure 2-19

Figure 2-20
Step 5: Set up two IAX Trunkings in MyPBX B, then connect them to MyPBX A and MyPBX C respectively.
Trunks-> Service Provider -> New Service Provider

Figure 2-21

Figure 2-22
Make sure the trunk status is OK on Line status page.

**MyPBX B trunks’ status:**

![Trunk Status Table](image)

**Figure 2-23**

**Step 6:** Set up two IAX Trunkings in **MyPBX C**, then connect them to MyPBX A and MyPBX B respectively.

Trunks -> Service Provider -> New Service Provider

![Add Service Provider](image)

**Figure 2-24**
Intercommunication among three MyPBX (via VoIP Trunking)

Make sure the trunk status is ok on Line status page. MyPBX C trunks’ status:

<table>
<thead>
<tr>
<th>Status</th>
<th>Signal</th>
<th>Trunk Name</th>
<th>Type</th>
<th>User Name</th>
<th>Port/Hostname/IP</th>
<th>Reachability</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK (2 ms)</td>
<td></td>
<td>MyPBX A</td>
<td>SP-IAX</td>
<td></td>
<td>102.42.46.126</td>
<td>OK (2 ms)</td>
</tr>
<tr>
<td>OK (1 ms)</td>
<td></td>
<td>MyPBX B</td>
<td>SP-IAX</td>
<td></td>
<td>202.35.22.102</td>
<td>OK (1 ms)</td>
</tr>
</tbody>
</table>
**Step 7:** Set up two Outbound Routes in *MyPBX A*. All calls start with 6 and 3 digits will be sent to MyPBX B, and all calls start with 7 and 3 digits will be sent to MyPBX C. This is the way to route MyPBX A’s call to MyPBX B and MyPBX C.

In the page: Outbound Routes -> Add Outbound Route.

![Diagram](image_url)

*Figure 2-27*
Save and Apply the Changes.
Step 8: Set up two Outbound Routes in MyPBX B. All calls start with 5 and 3 digits will be sent to MyPBX A, and all calls start with 7 and 3 digits will be sent to MyPBX C. This is the way to route MyPBX B’s call to MyPBX A and MyPBX C.

In the page: Outbound Routes -> Add Outbound Route.

![Figure 2-29](image-url)
Save and Apply the Changes.
**Step 9:** Set up two Outbound Routes in MyPBX C. All calls start with 5 and 3 digits will be sent to MyPBX A, and all calls start with 6 and 3 digits will be sent to MyPBX B. This is the way to route MyPBX C’s call to MyPBX A and MyPBX B.

In the page: Outbound Routes -> Add Outbound Route.

![Outbound Route Configuration](image_url)

**Figure 2-31**
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 10: Test calls.

1) Register an IP phone T28 to MyPBX A with extension 501.
2) Register an IP phone T28 to MyPBX B with extension 601.
3) Register an IP phone T28 to MyPBX C with extension 701.
4) Test calls from MyPBX A to MyPBX B and MyPBX C: Use 501 to dial 601, then you can see 601 is ringing and you can answer the calls; Use 501 to dial 701, then you can see 701 is ringing and you can answer the calls.
5) Test calls from MyPBX B to MyPBX A and MyPBX C: Use 601 to dial 501, then you can see 501 is ringing and you can answer the calls; Use 601 to dial 701, then you can see 701 is ringing and you can answer the calls.
6) Test calls from MyPBX C to MyPBX A and MyPBX B: Use 701 to dial 501, then you can see 501 is ringing and you can answer the calls; Use 701 to dial 601, then you can see 601 is ringing and you can answer the calls.

<The End>