Yeastar P-Series PBX System Integration Guide

Yeastar P-Series Appliance Edition

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Contents

Interconnect Two Yeastar P-Series PBX Systems

If a company has several branch offices, the frequent calls between the offices will result in large phone bills. By interconnecting the Yeastar P-Series PBX Systems in the offices, phone calls between the offices are regarded as free internal calls even if the offices are in different places, thus greatly reducing the company budgets. This integration guide gives configuration examples on how to set up interconnection between two Yeastar P-Series PBX systems via public IP address and Yeastar FQDN and make free calls.

Scenario

A company's headquarters is located in New York, while its branch office is located in Los Angeles, and both offices have deployed a Yeastar P570.

To save budget, the company wants to interconnect these two Yeastar P570 so that employees can make free calls between headquarters and branch office.

The following table lists the detail information of the PBXs in the two offices.

> **Note:**
>
> - The two PBXs should NOT have the same extension numbers, or the calls between the two PBXs will fail.
> - To distinguish the two Yeastar P570, the PBX in headquarters is named as **Headquarters PBX** while the PBX in branch office is named as **Branch PBX** in the later contents.

Table 1.

	Headquarters	Branch office
Device	Yeastar P570	Yeastar P570
Firmware	v37.6.0.46	v37.6.0.46
Extension	1000-1200	2000-2050

Networking topology diagrams

The integration between two Yeastar P570 can be implemented via FQDN and public IP address.
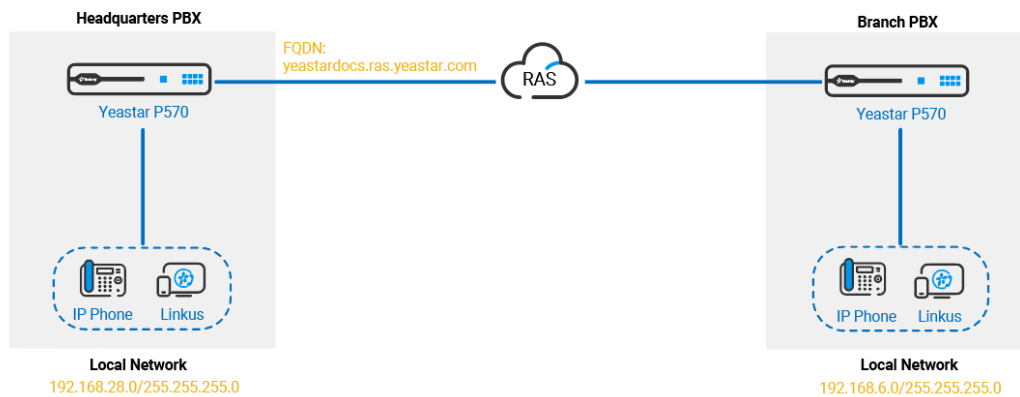
- FQDN (Recommended)
- Public IP address

FQDN (Recommended)

In this guide, the integration between the two Yeastar P570 via FQDN is based on the following environment:

Table 2.

Device	Local network	Public network
Headquarters PBX	192.168.28.0/255.255.255.0	The PBX has enabled the **Yeastar FQDN** feature. The FQDN is **yeastardocs.ras.yeastar-.com**.
Branch PBX	192.168.6.0/255.255.255.0	The PBX has no **Yeastar FQDN** feature.

We provide a diagram to help you understand the integration in a better manner:

To interconnect the two Yeastar P570 via Yeastar FQDN, see Connect Two Yeastar P-Series PBX Systems via FQDN.
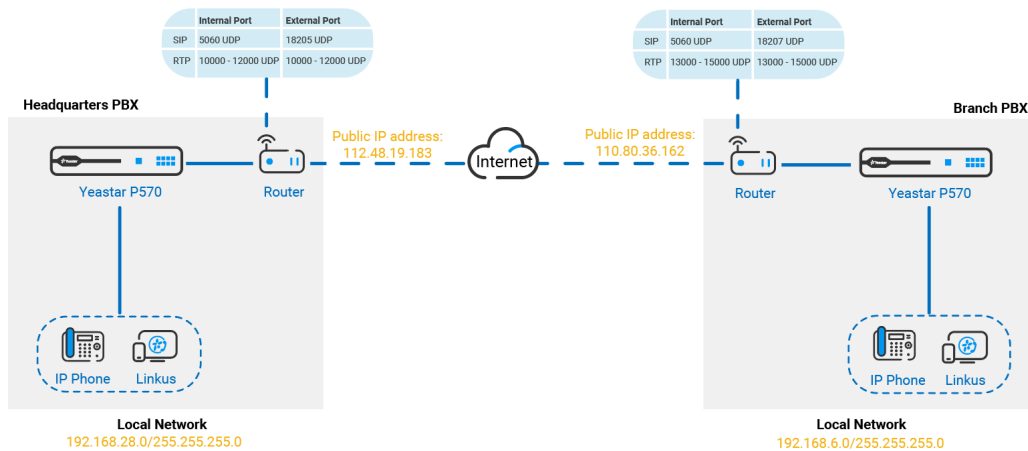
Public IP address

In this guide, the integration between the two Yeastar P570 via public IP address is based on the following environment:

Table 3.

Device	Local network	Public network
Headquarters PBX	192.168.28.0/255.255.255.0	**Public IP**: 112.48.19.183
Branch PBX	192.168.6.0/255.255.255.0	**Public IP**: 110.80.36.162

We provide a diagram to help you understand the integration in a better manner:

To interconnect the two Yeastar P570 via public IP address, see Connect Two Yeastar P-Series PBX Systems via Public IP Address.

Connect Two Yeastar P-Series PBX Systems via FQDN

A Yeastar-supplied Fully Qualified Domain Name (FQDN) frees you from complicated network settings. Using Yeastar FQDN, you can quickly establish a secure tunnel to interconnect two Yeastar P-Series PBX systems without exposing the devices' public IP addresses and ports, thus greatly improving system security. This topic describes how to interconnect two Yeastar P570 via Yeastar FQDN.

Background information

Refer to the following instructions to set up the two Yeastar P570 for interconnection via FQDN.
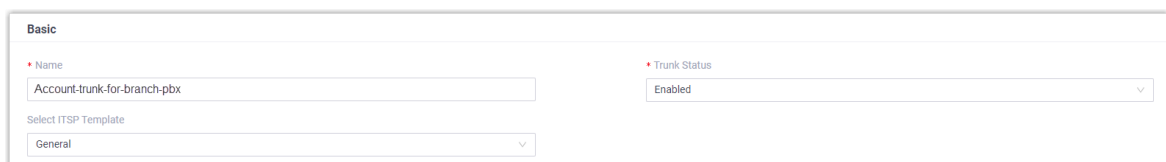
Table 4.

Device	Instruction
Headquarters PBX	• [Create an Account Trunk](#) • [Configure Yeastar FQDN](#)
Branch PBX	• [Create a Register Trunk](#)

Prerequisites

- The PBX firmware version is **37.6.0.46** or later.
- The Headquarters PBX has subscribed the Yeastar P-Series Enterprise Plan (EP) or Ultimate Plan (UP).
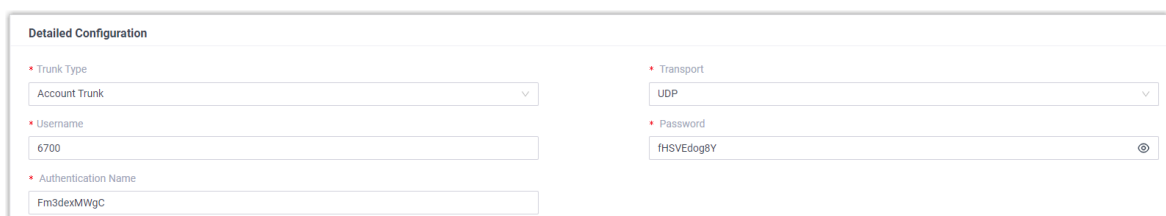
Create an Account Trunk on Headquarters PBX

1. Log in to PBX web portal, go to **Extension and Trunk > Trunk**.
2. Click **Add** to create an Account Trunk.
3. In the **Basic** section, complete the following settings:

   Basic

*Name	*Trunk Status
Account-trunk-for-branch-pbx	Enabled
Select ITSP Template	
General	

   - **Name**: Enter a name to help you identify the trunk.
   - **Trunk Status**: Select **Enabled**.
   - **Select ITSP Template**: Select **General**.

4. In the **Detailed Configuration** section, configure the Account Trunk.

   Detailed Configuration

*Trunk Type	*Transport
Account Trunk	UDP
*Username	*Password
6700	fHSVEdog8Y
*Authentication Name	
Fm3dexMWgC	

- **Trunk Type**: Select **Account Trunk**.
- **Transport**: Select **UDP**.
- **Username**: Specify a username for the trunk.

> 📝 **Note:**
> The username is regarded as the trunk number.

- **Password**: Specify a password that is associated with the username.
- **Authentication Name**: Specify an authentication name for the Branch PBX to register with.

5. Click **Save** and **Apply**.

Configure Yeastar FQDN on Headquarters PBX

1. Log in to PBX web portal, go to **System > Network > Yeastar FQDN**.
2. Turn on **Yeastar FQDN**.
3. In the **Fully Qualified Domain Name (FQDN)** field, select a domain name, then enter a host name.

   In this example, select domain name **ras.yeastar.com** and enter hostname `yeastardocs`, you will get an FQDN **yeastardocs.ras.yeastar.com**.

4. Enable remote SIP access feature and grant usage permissions.

> 📝 **Note:**
> By default, all accounts are restricted from using the remote SIP access feature, therefore you need to grant permission for the account trunk.

   a. In the **Features** section, go to the **SIP Access** tab.
   b. In the **Status** drop-down list, select **Enabled**.

c. In the **Access Type** drop-down list, select **Allowed Account**.

d. Select the account trunk from the **Available** box to the **Selected** box.

e. **Optional:** Select the checkbox of **Enable IP Restriction**, and add at least one permitted IP address and subnet mask.

   If you set up this option, only the permitted IP address(es) can use the remote access feature.

5. Click **Save**.

   Now you can check the remote SIP access port in the **Remote Access Service Port** field, and set up remote SIP trunk registration using FQDN.

Create a Register Trunk on Branch PBX

1. Log in to PBX web portal, go to **Extension and Trunk > Trunk**.
2. Click **Add** to create a Register Trunk.
3. In the **Basic** section, complete the following settings.

- **Name**: Enter a name to help you identify the trunk.
- **Trunk Status**: Select **Enabled**.
- **Select ITSP Template**: Select **General**.

4. In the **Detailed Configuration** section, configure the Register Trunk.

- **Trunk Type**: Select **Register Trunk**.
- **Transport**: Select **UDP**.
- **Hostname/IP**: Enter the FQDN of Headquarters PBX. In this example, enter `yeastardocs.ras.yeastar.com`.
- **Port**: Enter the remote SIP access port of Headquarters PBX. In this example, enter `5060`.
- **Domain**: Enter the FQDN of Headquarters PBX. In this example, enter `yeastardocs.ras.yeastar.com`.
- **Username**: Enter the username provided by Headquarters PBX.
- **Password**: Enter the password provided by Headquarters PBX.
- **Authentication Name**: Enter the authentication name provided by Headquarters PBX.

5. Click **Save** and **Apply**.

Result

You can check the connection status of the two PBX systems. If the connection is successful, the trunk status will display ⊘.

- On the PBX web portal of Headquarters PBX, go to **Extension and Trunk > Trunk** to check the trunk status.

- On the PBX web portal of Branch PBX, go to **Extension and Trunk > Trunk** to check the trunk status.

What to do next

Now you can set up intercommunication between the two Yeastar P-Series PBX systems. For detailed configurations, see the following topics:

- [Set up Communication from Headquarters PBX to Branch PBX](#)
- [Set up Communication from Branch PBX to Headquarters PBX](#)

Related information

[Connect Two Yeastar P-Series PBX Systems via Public IP Address](#)

Connect Two Yeastar P-Series PBX Systems via Public IP Address

If the Yeastar FQDN feature of PBX is unavailable, you can set up interconnection using public IP address. This topic describes how to connect two Yeastar P570 via public IP address and ports.

Background information

Refer to the following instructions to set up the two Yeastar P570 for interconnection via public IP address.

Table 5.

Device	Instruction
Headquarters PBX	• [Configure port forwarding & NAT](#) • [Create a Peer Trunk](#)
Branch PBX	• [Configure port forwarding & NAT](#) • [Create a Peer Trunk](#)

Configure port forwarding & NAT

1. Configure port forwarding on the routers that are connected to the two Yeastar P570.
   a. Log in to PBX web portal, go to **PBX Settings > SIP Settings > General > Basic**, check the SIP port and RTP Ports.

      Port information on Headquarters PBX

Port information on Branch PBX

b. Log in to the router, forward the SIP registration port and RTP ports.
   In this example, the port forwarding is as shown below:

> 📝 **Note:**
> The internal RTP ports of the PBX should be the same as the forwarded external RTP ports, otherwise the communication may be abnormal.

Table 6.

Port	Internal port	External port
Headquarters PBX (Public IP: 112.48.19.183)		
SIP registration	UDP 5060	UDP 18205
RTP	UDP 10000-12000	UDP 10000-12000
Branch PBX (Public IP: 110.80.36.162)		
SIP registration	UDP 5060	UDP 18207
RTP	UDP 13000-15000	UDP 13000-15000

2. Configure NAT on the PBX.

   a. On PBX web portal, go to **System > Network > Public IP and Ports**.

   b. In the **Public IP (NAT)** section, complete the following configurations:

   NAT settings on Headquarters PBX

   NAT settings on Branch PBX

- **Public IP (NAT)**: Turn on the option.
- **NAT Type**: Select **Public IP Address**.
- **Public IP Address**: Enter the public IP address of the PBX.
- **Local Network Identification**: Add all your local network.

  This setting will allow all your local devices to communicate with the PBX by the local IP address instead of passing through the router.

- **NAT Mode**: Select a SIP NAT mode. In this example, select **Yes**.

  The PBX will use NAT and ignore the address information in the SIP/SDP headers and reply to the sender's IP address and port.

c. In the **Public Ports** section, enter the external ports that you have forwarded on your router.

Public port on Headquarters PBX

Public port on Branch PBX

d. Click **Save** and **Reply**.

Create a Peer Trunk on PBX

1. Log in to PBX web portal, go to **Extension and Trunk > Trunk**.
2. Click **Add** to create a Peer Trunk.

3. In the **Basic** section, complete the following settings:

Basic settings on Headquarters PBX

Basic	
* Name	* Trunk Status
peer-with-branch-pbx	Enabled ⌄
Select ITSP Template	
General ⌄	

Basic settings on Branch PBX

Basic	
* Name	* Trunk Status
peer-with-headquarters-pbx	Enabled ⌄
Select ITSP Template	
General ⌄	

- **Name**: Set a name to help you identify the trunk.
- **Trunk Status**: Select **Enabled**.
- **Select ITSP Template**: Select **General**.

4. In the **Detailed Configuration** section, configure the Peer Trunk.

Peer Trunk settings on Headquarters PBX

Detailed Configuration — Headquarters PBX management portal

* Trunk Type	* Transport
Peer Trunk	[Public IP address of Branch PBX] [External SIP port of Branch PBX]	UDP	[Public IP address of Branch PBX]
* Hostname/IP	* Port	* Domain
110.80.36.162	18207	110.80.36.162

Peer Trunk settings on Branch PBX

Detailed Configuration — Branch PBX management portal

* Trunk Type	* Transport
Peer Trunk	[Public IP address of Headquarters PBX] [External SIP port of Headquarters PBX]	UDP	[Public IP address of Headquarters PBX]
* Hostname/IP	* Port	* Domain
112.48.19.183	18205	112.48.19.183

- **Trunk Type**: Select **Peer Trunk**.
- **Transport**: Select **UDP**.
- **Hostname/IP**: Enter the public IP address of the opposite PBX.
- **Port**: Enter the external SIP port of the opposite PBX.
- **Domain**: Enter the public IP address of the opposite PBX.

5. Click **Save** and **Apply**.

Result

You can check the connection status of the two PBX systems.

- On the PBX web portal of Headquarters PBX, go to **Extension and Trunk > Trunk** to check the trunk status.

	Status	Name	Type	Hostname/Port	Username	Outbound Caller ID
☐	⊘	peer-with-branch-pbx	Peer Trunk	110.80.36.162:18207		

- On the PBX web portal of Branch PBX, go to **Extension and Trunk > Trunk** to check the trunk status.

	Status	Name	Type	Hostname/Port	Username	Outbound Caller ID
☐	⊘	peer-with-headquarters-pbx	Peer Trunk	112.48.19.183:18205		

What to do next

Now you can set up intercommunication between the two PBX systems. For detailed configurations, see the following topics:

- [Set up Communication from Headquarters PBX to Branch PBX](#)
- [Set up Communication from Branch PBX to Headquarters PBX](#)

Related information

[Connect Two Yeastar P-Series PBX Systems via Public IP Address](#)

Set up Intercommunication Between the Two PBX Systems

Set up Communication from Headquarters PBX to Branch PBX

After interconnecting the two P-Series PBX systems, you need to set up routes on the PBXs to allow the extensions of Headquarters PBX to make calls to the extensions of Branch PBX. This topic describes the basic route settings for the PBXs.
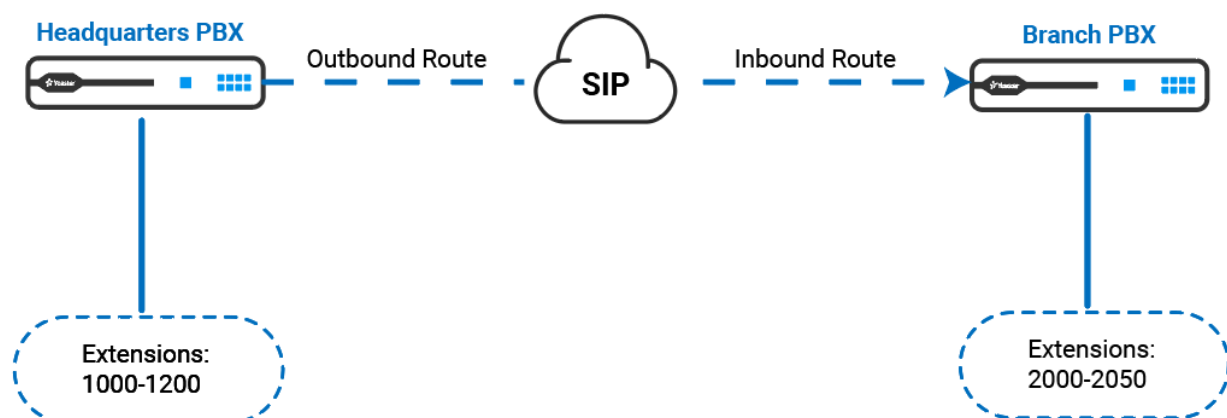
Background information

To make calls from Headquarters PBX to Branch PBX, do as follows:

Table 7.

Device	Instruction
Headquarters PBX	Set up an outbound route on Headquarters PBX to route calls out
Branch PBX	Set up an inbound route on Branch PBX to receive calls

We provide a diagram to help you understand the call routing in a better manner.

Set up an outbound route on Headquarters PBX

1. Log in to the web portal of Headquarters PBX, go to **Call Control > Outbound Route**.
2. Click **Add** to add an outbound route.
3. Configure the outbound route.
   a. In the **General** section, specify a name to help you identify the outbound route.
   b. In the **Dial Pattern** section, configure dial rules for the outbound route as needed.

   In this example, retain the default settings.
   c. In the **Trunk** section, select the trunk that is created for Branch PBX from **Available** box to **Selected** box.

   d. In the **Extension/Extension Group** section, select all the extensions from **Available** box to **Selected** box.

   In this way, all extension users are allowed to make calls to Branch PBX.
4. Click **Save** and **Apply**.

Set up an inbound route on Branch PBX

1. Log in to the web portal of Branch PBX, go to **Call Control > Inbound Route**.
2. Click **Add** to add an inbound route.
3. Configure the inbound route.
   a. In the **General** section, specify a name to help you identify the inbound route.
   b. In the **DID Pattern** section, set up the DID matching rule.
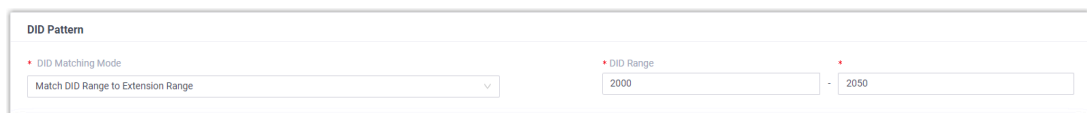
   • **DID Matching Mode**: Select **Match DID Range to Extension Range**.

- **DID Range**: Enter the DID range. In this example, enter the extension range of Branch PBX, namely `2000-2050`.

  When the dialed number is matched with the DID number, the call will be routed to the corresponding extension.

c. In **Caller ID Pattern** section, set up the caller ID match patterns as needed.

  In this example, retain the default settings.

d. In the **Trunk** section, select the trunk that is created for Headquarters PBX from **Available** box to **Selected** box.

e. In the **Default Destination** section, select the desired destination.

  i. In the **Default Destination** drop-down list, select **Match Extension Range**.

  ii. In the extension range field, enter the extension range of Branch PBX. In this example, enter `2000-2050`.

4. Click **Save** and **Apply**.

What to do next

Make a call to test.

For example, extension user 1000 in the headquarters dials 2000, the extension 2000 in the branch office will ring.

Related information

Set up an Outbound Route
Set up an Inbound Route

Set up Communication from Branch PBX to Headquarters PBX

After interconnecting the two P-Series PBX systems, you need to set up routes on the PBXs to allow the extensions of Branch PBX to make calls to the extensions of Headquarters PBX. This topic describes the basic route settings for the PBXs.
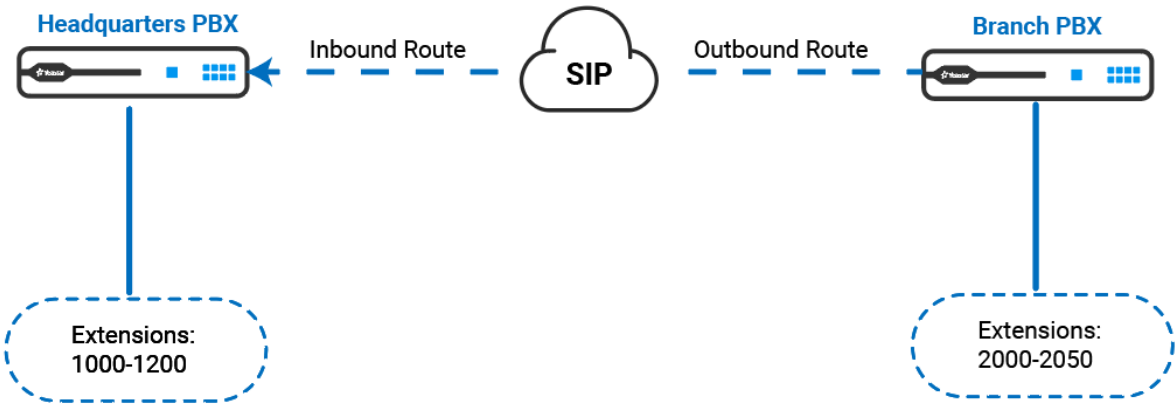
Background information

To make calls from Branch PBX to Headquarters PBX, do as follows:

Table 8.

Device	Instruction
Branch PBX	Set up an outbound route on Branch PBX to route calls out
Headquarters PBX	Set up an inbound route on Headquarters PBX to receive calls

We provide a diagram to help you understand the call routing in a better manner.

Set up an outbound route on Branch PBX

1. Log in to the web portal of Branch PBX, go to **Call Control > Outbound Route**.
2. Click **Add** to add an outbound route.
3. Configure the outbound route.
   a. In the **General** section, specify a name to help you identify the outbound route.

b. In the **Dial Pattern** section, configure dial rules for the outbound route as need-ed.

In this example, retain the default settings.

c. In the **Trunk** section, select the Trunk that is created for Headquarters PBX from **Available** box to **Selected** box.

d. In the **Extension/Extension Group** section, select all the extensions from **Available** box to **Selected** box.

In this way, all extension users are allowed to make calls to Headquarters PBX.

4. Click **Save** and **Apply**.

Set up an inbound route on Headquarters PBX

1. Log in to the web portal of Headquarters PBX, go to **Call Control > Inbound Route**.
2. Click **Add** to add an inbound route.
3. Configure the inbound route.

a. In the **General** section, specify a name to help you identify the inbound route.

b. In the **DID Pattern** section, set up the DID matching rule.

• **DID Matching Mode**: Select **Match DID Range to Extension Range**.
• **DID Range**: Enter the DID range. In this example, enter the extension range of Headquarters PBX, namely `1000-1200`.

When the dialed number is matched with the DID pattern, the call will be routed to the corresponding extension.

c. In the **Caller ID Pattern** section, set up the caller ID match patterns as needed.

In this example, retain the default settings.

d. In the **Trunk** section, select the trunk that is created for Branch PBX from **Available** box to **Selected** box.

e. In the **Default Destination** section, select the desired destination.

    i. In the **Default Destination** drop-down list, select **Match Extension Range**.

    ii. In the extension range field, enter the extension range of Headquarters PBX. In this example, enter `1000-1200`.

4. Click **Save** and **Apply**.

What to do next

Make a test call.

For example, extension user 2000 in the branch office dials 1000, the extension 1000 in headquarters will ring.

Related information

    [Set up an Outbound Route](#)
    [Set up an Inbound Route](#)