Microsoft Teams Integration Guide

Yeastar P-Series Appliance Edition

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Contents

Integrate Yeastar P-Series PBX System with Microsoft Teams

By associating Teams users with SIP extensions of Yeastar P-Series PBX System, the Teams App will work as a softphone that is registered to the PBX. In this way, you can keep your existing phone numbers and SIP devices, make and receive calls directly from the Teams App, and enjoy advanced PBX features including IVR, call queue, call routing, etc.

Networking scenarios

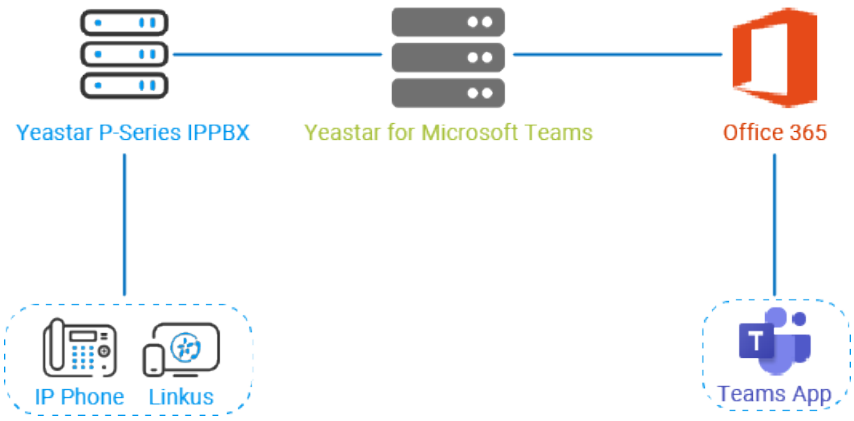
This topic introduces the integration between Yeastar P-Series PBX System and Microsoft Teams, which can be achieved via either Yeastar FQDN or a public IP address/custom domain with NAT.

Yeastar FQDN

The integration between Yeastar P-Series PBX System and Microsoft Teams via FQDN is based on the following test environment:

- The FQDN of Yeastar P-Series PBX System is **yeastardocs.ras.yeastar-.com**.

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



Public IP Address / Custom Domain

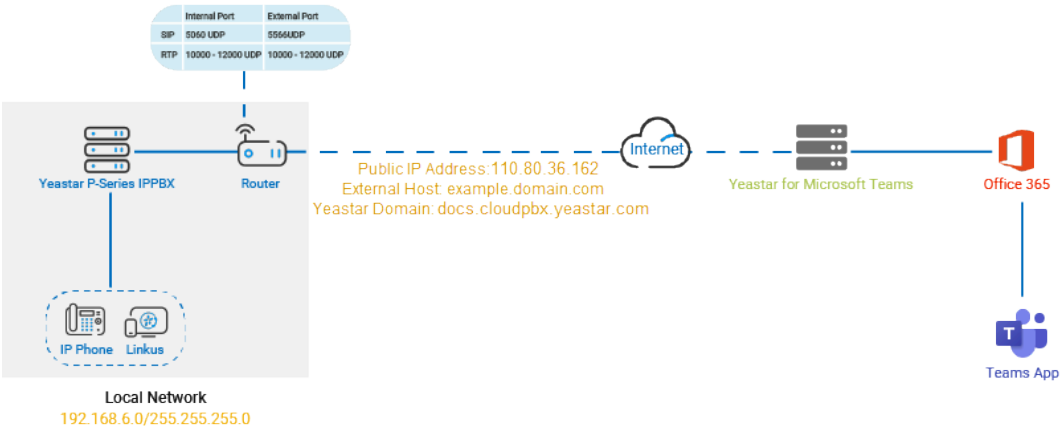
The integration between Yeastar P-Series PBX System and Microsoft Teams via **Public IP Address / Custom Domain** is based on the following test environment:

- The Yeastar P-Series PBX System is deployed in the local network **192.168.6.0/255.255.255.0**.
- The Yeastar P-Series PBX System is behind a router and is accessible through a public IP. The integration via **Public IP Address / Custom Domain** supports three NAT types, you can select the appropriate NAT type according to your network environment and public IP setup. For more information, see Configure NAT.

  The table below lists the example public IP addresses or domains for each NAT type:

NAT type	Public IP Address / Custom Domain
Public IP Address	**110.80.36.162**
External Host	**example.domain.com**
Yeastar Domain	**docs.cloudpbx.yeastar.com**

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



Prerequisites

Microsoft 365

- Get admin access to Microsoft 365 admin center.

• Your Microsoft service must meet the following requirements:

<table>
<tr><th>Microsoft 365 version</th><th>Requirements</th></tr>
<tr><td>Microsoft 365 Business Basic</td><td rowspan="4">Any one of the followings is required:
"Common Area Phone" license
“Phone System" license
"Microsoft 365 Business Voice" add-on
Note:
Not all of them are available in all the countries, buy any one of them according to your country or region.</td></tr>
<tr><td>Microsoft 365 Business Standard</td></tr>
<tr><td>Microsoft 365 Business Premium</td></tr>
<tr><td>Office 365 E1</td></tr>
<tr><td>Office 365 E3</td><td rowspan="3">No additional requirements.</td></tr>
<tr><td>Microsoft 365 E3</td></tr>
<tr><td>Office 365 E5</td></tr>
<tr><td>Microsoft 365 E5</td><td></td></tr>
</table>

Yeastar for Microsoft Teams App

Purchase the Yeastar for Microsoft Teams license by your Microsoft 365 admin account; Activate the license when you receive an activation email.

Yeastar P-Series PBX System

Get admin access to Yeastar P-Series PBX System.

Microsoft Teams Integration Preparation

Before the integration, you need to set up a SIP phone, and configure PBX network for remote access based on the method of integration.

Background information

Refer to the following table to check the items to be prepared based on the method of integration:

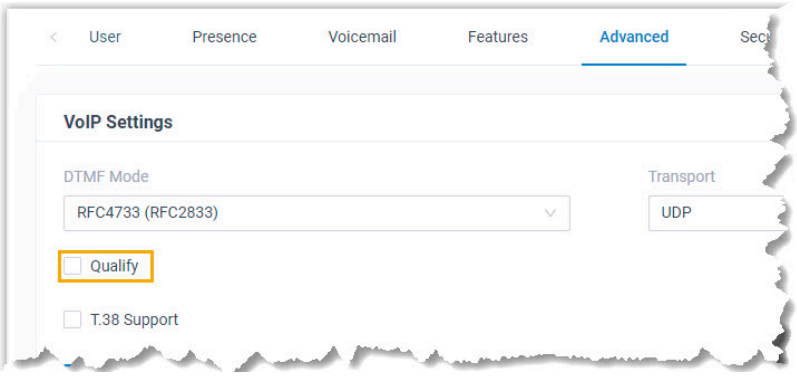
Method of Integration	Instruction
via Yeastar FQDN	• Create a SIP extension • Configure Yeastar FQDN
via public IP address / custom domain	• Create a SIP extension • Configure port forwarding & NAT

Create a SIP extension

1. Log in to PBX web portal, go to **Extension and Trunk > Extension**.
2. Click **Add** and select **Add** to create a SIP extension.
3. In the **Basic** section, select **SIP Extension** from the drop-down list of **Extension Type**.
4. In the **User Information** section, configure user information as follows:
   - **First Name**: Enter the user's first name.
   - **Last Name**: Enter the user's last name.
   - **Email Address**: Leave it blank or configure it as needed.
   - **Mobile Number**: Leave it blank or configure it as needed.
   - **User Password**: Retain default value or configure it as needed.
   - **User Role**: Retain default value or configure it as needed.
5. In the **Extension Information** section, configure extension information as follows:
   - **Extension Number**: Enter a desired extension number.
   - **Caller ID**: Retain default value or configure it as needed.
   - **Registration Name**: Retain default value or configure it as needed.
   - **Registration Password**: Retain default value or configure it as needed.
   - **Concurrent Registrations**: Select a value from the drop-down list. This option defines how many SIP phones are allowed to register with the extension.

   > **Note:**
   > The maximum number of concurrent registrations is 3.

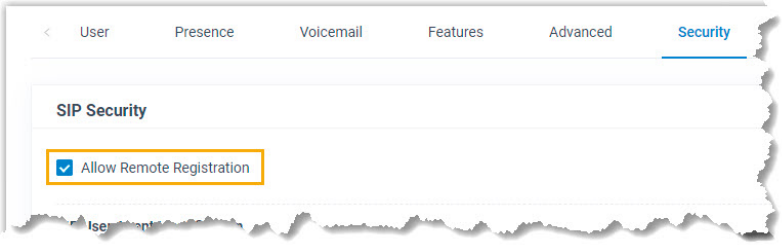
6. Click **Advanced** tab, unselect the checkbox of **Qualify**.



7. Click **Security** tab, select the checkbox of **Allow Remote Registration**.

> **Note:**

> This configuration is required only when you integrate the PBX with Microsoft Teams via public IP address / custom domain.



8. Click **Save** and **Apply**.

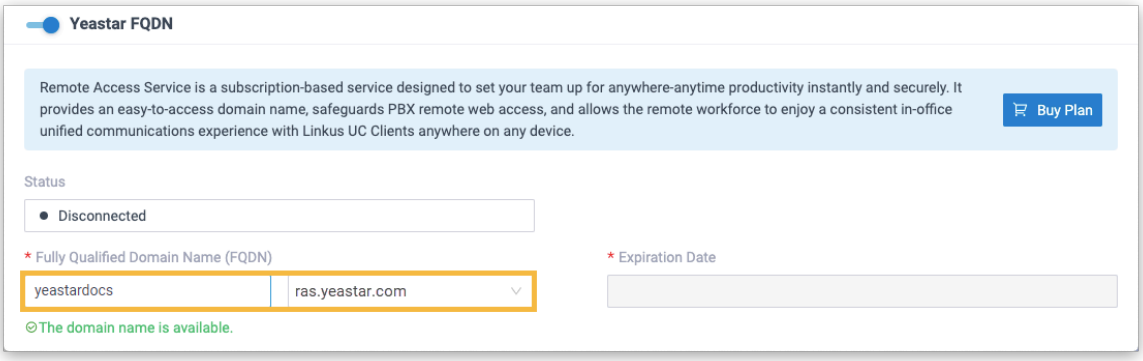
> **Note:**
> The following SIP credentials are required when you configure Teams users on the configuration portal.
> - Extension number
> - Registration name
> - Registration password

Configure Yeastar FQDN

Follow the instructions below to configure Yeastar FQDN in the PBX for remote SIP access.

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

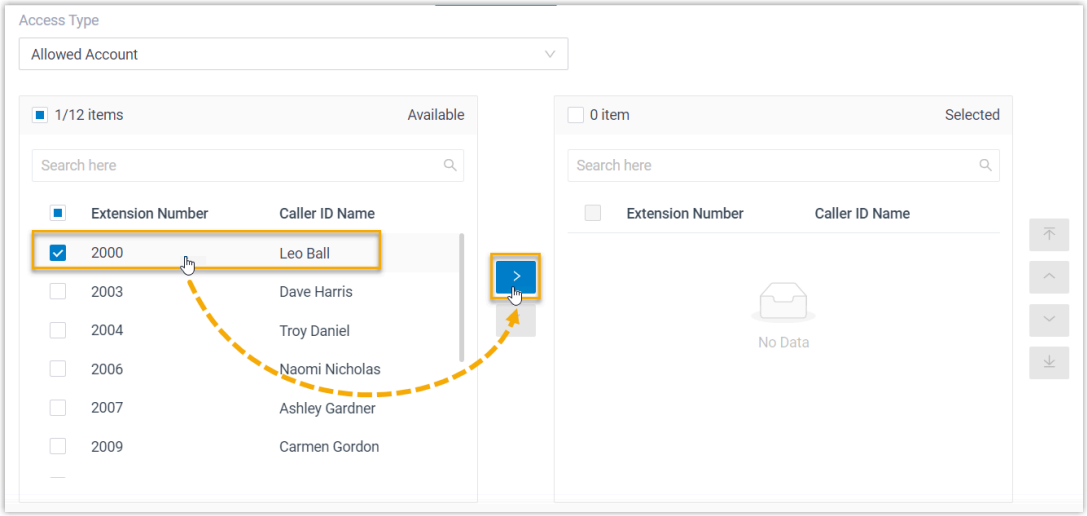
> **Note:**
> Think twice before you enter the hostname. The FQDN can NOT be changed after you save the configurations.



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

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

   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 desired extension 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 configure this option, only the permitted IP address(es) can use the remote access feature.

5. Click **Save**.

Configure port forwarding & NAT

Prerequisites

- **PBX Server**
  If you use Yeastar domain, make sure the following prerequisites are met.
  - **Firmware**: 37.18.0.102 or later.
  - **Subscription**: **Enterprise Plan** or **Ultimate Plan**.
- **DNS Service Platform**
  - If you use external host domain, purchase both a domain name and a valid domain certificate by yourself.

    > **Note:**
    > If you use Yeastar domain, simply prepare a well-formed Yeastar domain name, and the PBX will automatically apply for the domain certificate.

  - Added an A record (for static public IP address) or configured DDNS (for dynamic public IP addresses) at your DNS provider to point your domain to your public IP address.
- **Router**
  - If SIP ALG option is provided in your router, disable it.
  - If using DDNS (Dynamic DNS), ensure that your router is configured to update the DDNS service with its current public IP.
  - You have configured NAT settings and forwarded the following ports to allow remote access of Linkus clients and other SIP devices.

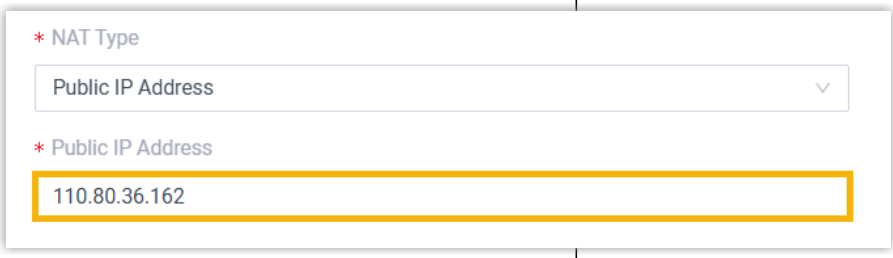
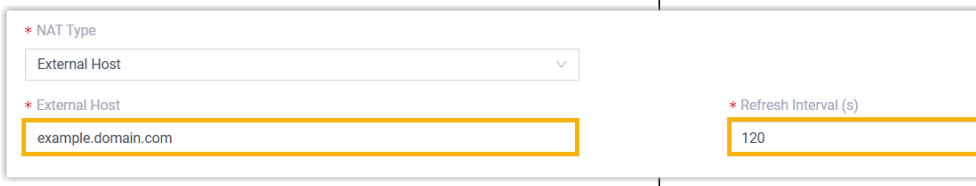
    In this example, configure the port forwarding as follows:

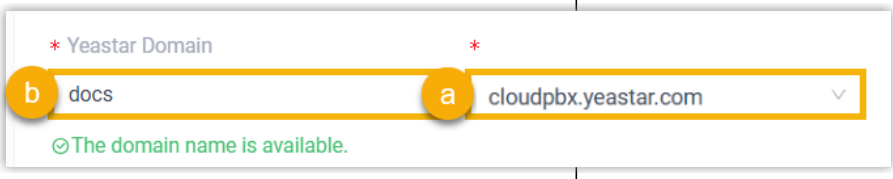
Port	Internal port	External port
SIP	5060 UDP	5566 UDP
RTP	10000-12000 UDP	10000-12000 UDP

Procedure

1. Log in to PBX web portal, go to **System > Network > Public IP and Ports**.
2. In the **Public IP (NAT)** section, complete the following configurations:

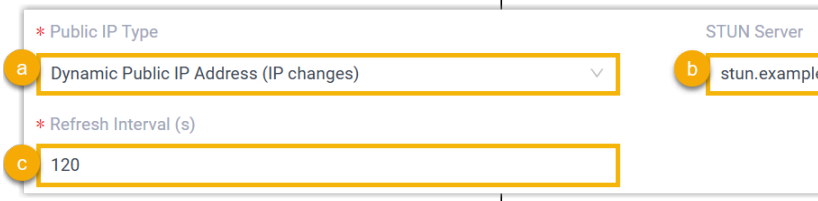
- **Public IP (NAT)**: Turn on this option.
- **NAT Type**: Select the desired NAT type and complete the corresponding configurations.

<table>
<tr><th>NAT Type</th><th>Instruction</th></tr>
<tr><td>Public IP Address</td><td>Configure the following settings.
◦ Public IP Address: Enter a public IP address.
In this example, enter <code>110.80.36.162</code>.
 
</td></tr>
<tr><td>External Host</td><td>Configure the following settings.
 

◦ External Host: Enter a custom domain name.
In this example, enter <code>example.domain.com</code>.
◦ Refresh Interval (s): Leave the default setting or change the interval (in seconds) for PBX to request the external host for public IP.</td></tr>
<tr><td>Yeastar domain</td><td>Configure the following settings.
◦ Yeastar Domain: set up the Yeastar domain name.
In this example, set the Yeastar domain name to <code>docs.cloudpbx.yeastar.com</code>.
 

a. Select a domain suffix from the drop-down list.
In this example, select <code>cloudpbx.yeastar.com</code>.</td></tr>
</table>

<table>
<tr><th>NAT Type</th><th>Instruction</th></tr>
<tr><td></td><td>
b. Enter the subdomain in the first field.
In this example, enter <code>docs</code>.
Note:
Think twice before you enter the subdomain, as the Yeastar domain name cannot be changed after you save the configurations.
◦ Public IP Type: select the type of public IP as needed, and complete the related settings.
▪ To use a static public IP address, do as follows:


a. Select Static Public IP Address (IP address does not change).
b. In the Public IP Address field, enter your public IP address.
▪ To use a dynamic public IP address, do as follows:


a. Select Dynamic Public IP Address (IP changes).
b. Optional: In the STUN Server field, enter the address of your STUN server.
Note:
If left empty, Yeastar's STUN server will be used by default.
c. In the Refresh Interval (s) field, specify the time interval for the PBX to request the STUN server for public IP.
</td></tr>
</table>

NAT Type	Instruction
	Note: The supported value range is 30 to 3600.

- **Local Network Identification**: Add all your local network. In this example, add `192.168.6.0/255.255.255.0`.

  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.

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

   In this example, enter `5566` in **External SIP UDP Port**.
4. Click **Save** and **Apply**.

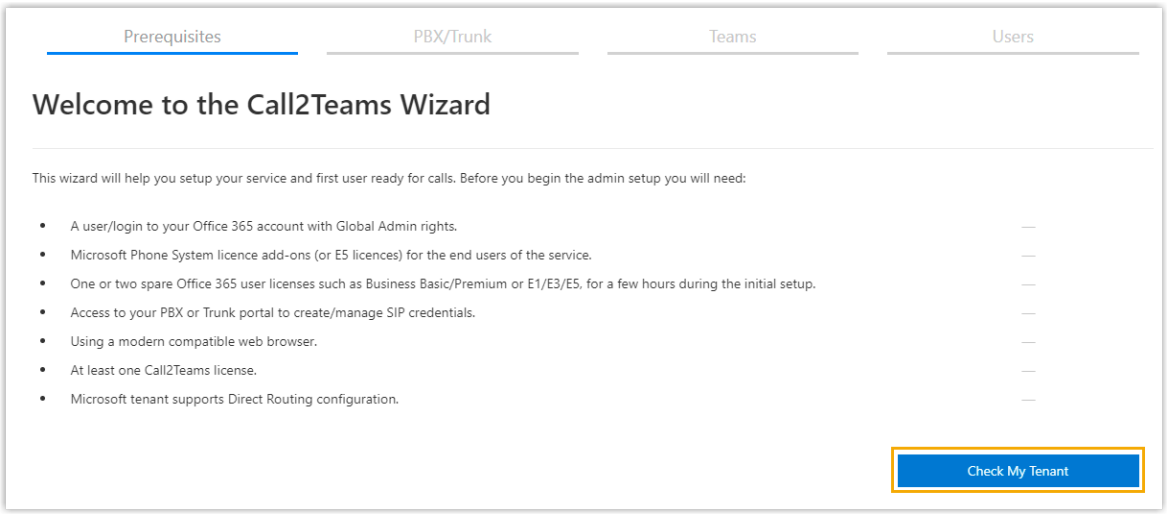
Integrate Yeastar P-Series PBX System and Microsoft Teams

After the preparation, log in to the configuration portal by your Microsoft 365 admin account to integrate Yeastar P-Series PBX System and Microsoft Teams.

Step1. Check your tenant

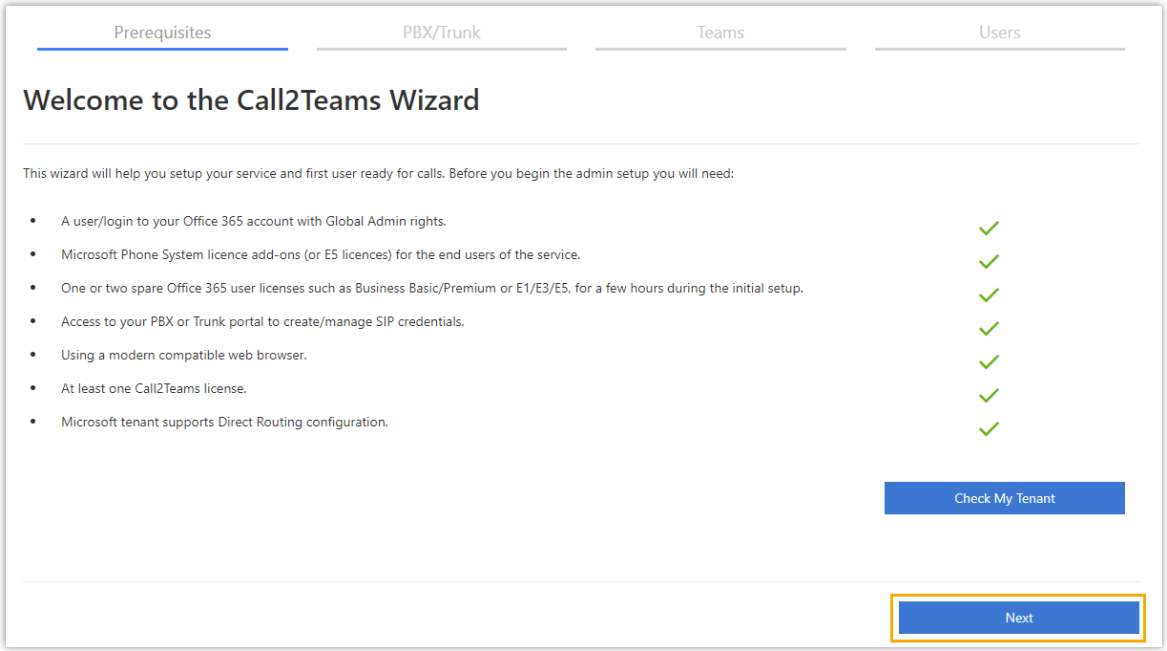
Check if your Microsoft 365 tenant is ready for the integration.

1. On the top navigation bar, click **Getting Started** tab.
2. On the **Prerequisites** page, click **Check My Tenant**.



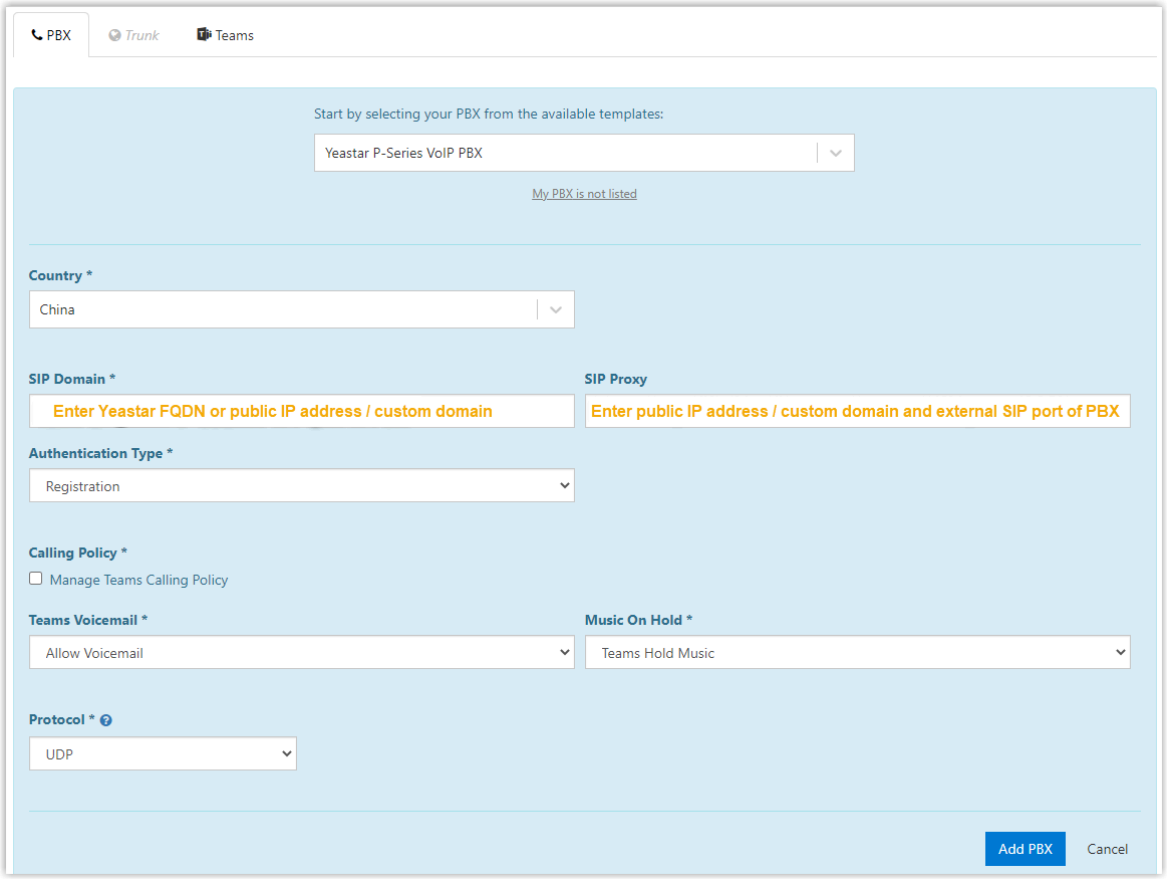
3. In the pop-up window, select your Microsoft 365 admin account.

   The configuration portal starts checking your Microsoft 365 tenant.
4. If your tenant is ready, click **Next** to set up PBX service.



Step2. Set up PBX service

1. On the **PBX/Trunk** page, click **PBX** tab.
2. Set up PBX service.



- **Start by selecting your PBX from the available templates**: Select **Yeastar P-Series VoIP PBX**.
- **Country**: Select your country.
- **SIP Domain**: Enter the remote access information of your PBX.
  - If you integrate PBX with Microsoft Teams via FQDN, enter the Yeastar FQDN.

    In this example, enter `yeastardocs.ras.yeastar.com`.
  - If you integrate PBX with Microsoft Teams via NAT-mapped public IP address / custom domain, enter the public IP address / custom domain according to the NAT type you have configured on the PBX.

    In this example, enter public IP address or custom domain as shown in the table below:

NAT Type	Public IP Address / Custom Domain
Public IP Address	`110.80.36.162`
External host	`example.domain.com`

NAT Type	Public IP Address / Custom Domain
Yeastar Domain	`docs.cloudpbx.yeastar.com`

- **SIP Proxy**: Enter the public IP address / custom domain and external SIP port of your PBX according to the NAT type you have configured.

> **Note:**
> This option is required only when you integrate PBX with Microsoft Teams via public IP address / custom domain.

- **Authentication Type**: Select **Registration**.
- **Protocol**: Select the protocol of external SIP port.

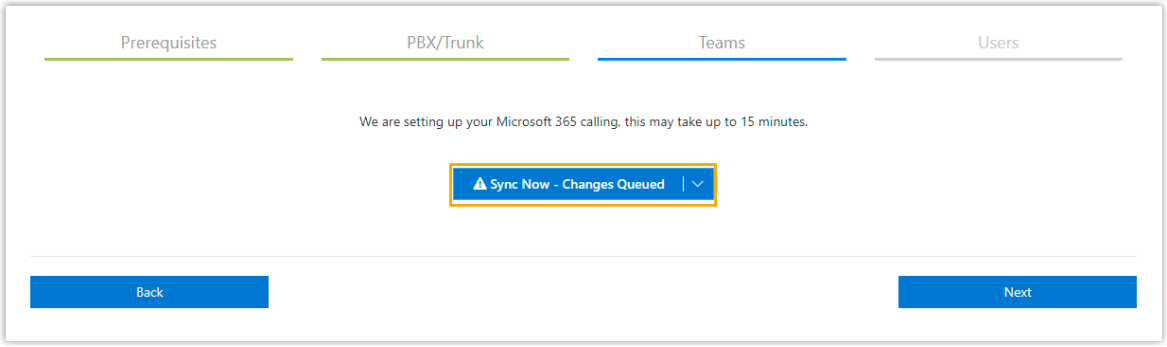
> **Note:**
> - If you integrate PBX with Microsoft Teams via public IP address / custom domain, the protocol is the one for the SIP port that you have forwarded. In this scenario, select **UDP**.
> - If you integrate PBX with Microsoft Teams via FQDN, the protocol is the one for remote SIP registration port. In this scenario, select **UDP**.

3. Click **Add PBX**.

   A green checkmark prompting "Service successfully enabled" appears. It automatically enters into **Teams** page to synchronize Yeastar P-Series PBX System with Microsoft 365.

Step3. Synchronize Yeastar P-Series PBX System with Microsoft 365

1. Click **Sync Now - Changes Queued** to synchronize Yeastar P-Series PBX System with Microsoft 365.



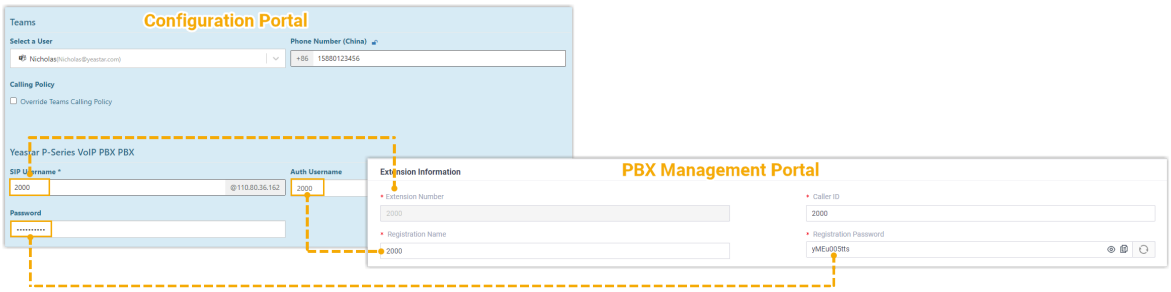
It takes several minutes to proceed with the synchronization.

2. After the synchronization completes, click **Next** to associate Teams users with SIP extensions.

Step4. Associate a Microsoft Teams user with a SIP extension

To ensure that users can make and receive calls on Microsoft Teams using the PBX phone service, you need to associate Microsoft Teams users with SIP extensions.

1. On the **Users** page, complete the followings:



- **Select a User**: Select a Teams user from the drop-down list.

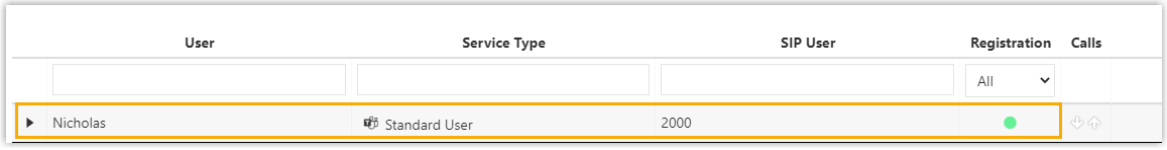
> **Note:**
> Make sure the selected user has the required licenses of both Microsoft and Yeastar for Microsoft Teams, or the user can NOT make or receive calls.

- **Phone Number**: Set the user's phone number.
- **SIP Username**: Enter the extension's **Extension Number**.
- **Auth Username**: Enter the extension's **Registration Name**.
- **Password**: Enter the extension's **Registration password**.

2. Click **Add User and Sync**.

   A green checkmark prompting "Service user successfully added" appears.

   If the user is successfully associated with the PBX, the Registration status shows .



Result

After integrating Yeastar P-Series PBX System with Microsoft Teams, Teams users can make and receive internal calls from the PBX extensions.

What to do next

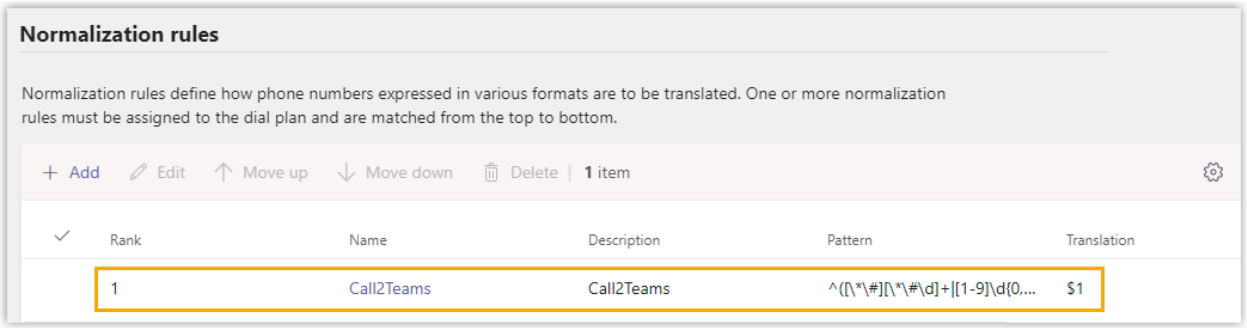
- To allow Teams users to make outbound calls through PBX's trunk, you need to configure dial plans in Microsoft Teams.
- To allow Teams users to receive inbound calls through PBX's trunk, you need to make sure at least an inbound route is configured to reach the extensions that are associated with the Teams users.

Configure Dial Plans in Microsoft Teams

To allow Teams users to make outbound calls through PBX's trunk, you need to set up normalization rules of dial plan in Microsoft teams.

Background information

Microsoft Teams generates a dial plan rule named "Call2Teams" after you integrate Yeastar P-Series PBX System with Microsoft Teams. The default rule with the pattern **^([*\#][*\#\d]+|[1-9]\d{0,5})$** only allows Teams users to dial numbers with maximum 6 digits, and start with digit 1-9.



Procedure

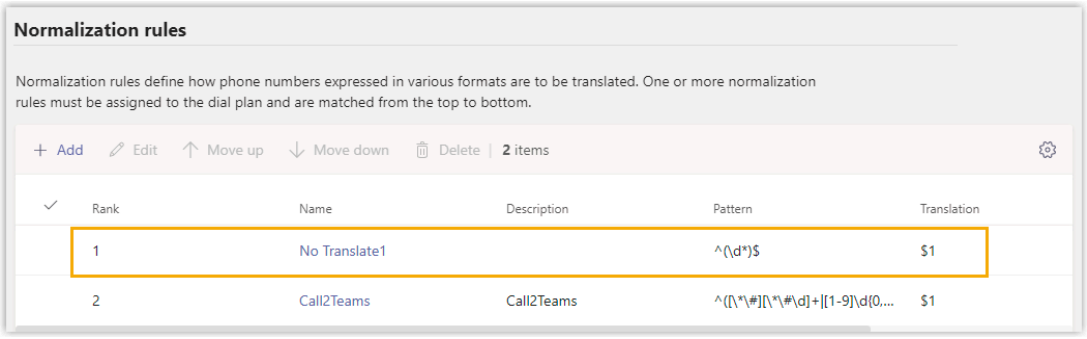
1. Log in to Microsoft Teams admin center.
2. In the left navigation bar, click **Voice > Dial plans**.
3. Click the default dial plan **Global (Org-wide default)**.
4. In the **Normalization rules** section, click **+Add** to add a dial plan rule.

5. On the **Add new rule** page, set the rule.
    a. In the **Name** field, set a name for the rule.
    b. **Optional:** In the **Description** field, add a note to the rule.
    c. Select **Advanced**.
    d. Go to **If condition > The number dialed matches this regular expression**, enter `^(\d*)$`.

    Teams users can make outbound calls to any numbers.
    e. Go to **Then do this > Translate the number based on this regular expression**, enter `$1`, which means no translation, Microsoft Teams will send the dialed number out without any modification.
    f. Go to **Test this rule > Enter a phone number to test**, enter a phone number and click **Test** to test if the number matches the pattern.
    g. Click **Save**.
6. Change the rule's priority.

> **Note:**
> Microsoft Teams traverses the list of normalization rules from the top down, and uses the first rule that matches the dialed number. Move the rule to the top, or users may fail to call out.

    a. In the ✓ column, click the desired rule.
    b. On the menu bar, click **Move up** to move the rule to the top.



    c. Click **Save**.

Result

Teams users can dial external numbers according to the dial pattern of PBX's outbound route.

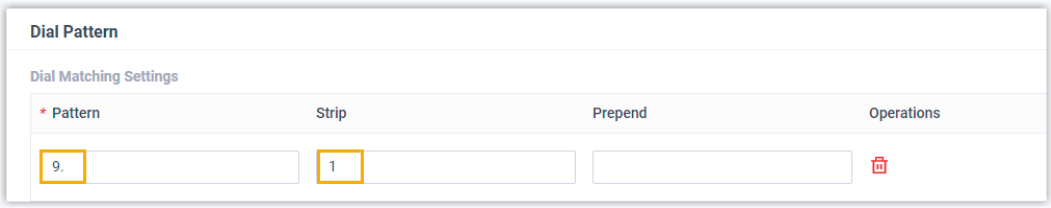
To test phone calls, see Test Phone Calls on Microsoft Teams.

Test Phone Calls on Microsoft Teams

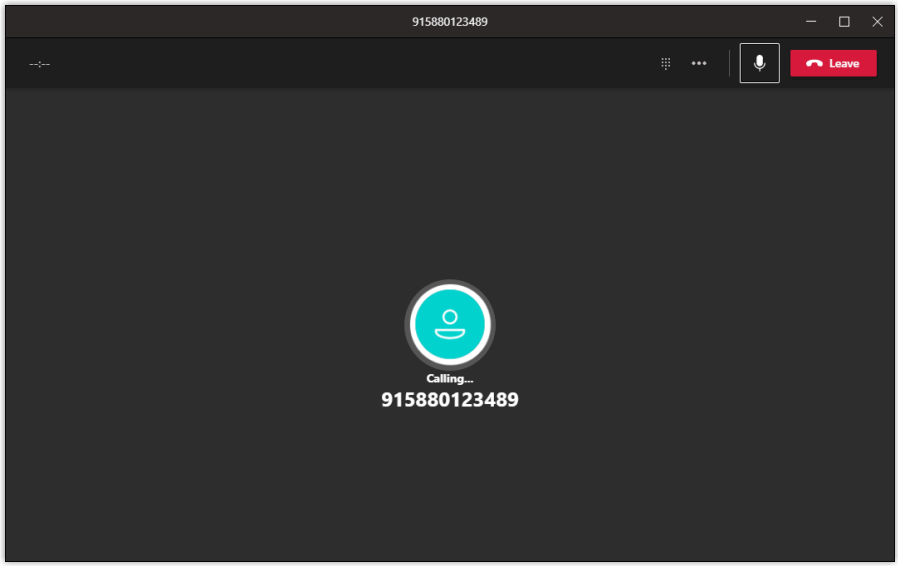
After the integration, you can test phone calls on Microsoft Teams.

Make a call

1. On the left navigation bar, click **Calls**.
2. Click **Make a call**.
3. On the dialpad, enter a desired number.

> **Note:**
> Make sure the dialed number matches at least one outbound route on Yeastar P-Series PBX System. For example, there is an outbound route on the PBX as follows. In this case, you need to dial 915880123489 in order to reach 15880123489.
>
> 
>

4. Click **Call**.



Receive a call

When a call reaches a user's extension number, the user will receive a pop-up notification of an incoming call, and the user can decide whether to answer the call or not.