Custom CRM Integration Guide

Yeastar P-Series Software Edition

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Contents

Custom CRM Integration Overview

Yeastar P-Series Software Edition supports to integrate with a CRM via API, which allows your CRM users to get all the call details right in their CRM entries while keeping the voice traffic in Yeastar P-Series Software Edition. If your desired CRM is not listed among the ready-made integrations provided by Yeastar, you can create a custom CRM integration template to connect the Yeastar P-Series Software Edition with a CRM that supports REST API.

Requirements

- **PBX Server**
    - **Firmware**: Version 83.18.0.102 or later.
    - **Plan**: Enterprise Plan (EP) or Ultimate Plan (UP)
- **CRM System**: Supports REST API.

Key features

The integration of Yeastar P-Series Software Edition with a custom CRM via API provides the following key features:

> **Note:**
> The availability of the features (excluding 'click to call' feature) depends on the capability of the CRM and your template settings.

Click to Call

Users can launch calls by a single click on the detected numbers from CRM via Yeastar Linkus Web Client.

> **Note:**
> This feature requires users to install 'Yeastar Linkus for Google' Chrome extension and set up Linkus Web Client to work with the Chrome extension.

Call Popup

Automatically bring up the contact's profile on the web browser when users (with their Linkus Web Client or Linkus Desktop Client logged in) receive / answer an inbound call from a CRM contact, or finish a call with a CRM contact. In addition, users are able to manually open the contact's profile from the call window during a call with a CRM contact.

Contact Synchronization

Synchronize CRM contacts to an associated PBX phonebook when receiving inbound calls from / or initiating outbound calls to CRM contacts.

Lead or Contact Creation

A new lead or contact can be created automatically in CRM for unknown inbound calls or outbound calls.

Call Journal

All the call activities get logged automatically to CRM when a user ends calls with CRM contacts.

Call Recording Playback

CRM users can see and play recordings stored in the PBX from corresponding call log in CRM interface.

Guidances

- For detailed information about the integration template, see the following topics:
    - Add a CRM Integration Template
    - Manage CRM Integration Templates
    - XML Descriptions for Integration Template
- For integration setup and feature configurations, see the following topics:
    - Integrate Yeastar P-Series Software Edition with a CRM using Template
    - Set up CRM Integration Features

Integration Template

Add a CRM Integration Template

Yeastar P-Series Software Edition allows you to create and configure custom integration templates, which can be used to seamlessly integrate the PBX with a CRM system via API, enabling data exchange and synchronization. This topic describes how to create a CRM integration template and configure the necessary settings to meet specific operational requirements.

Requirements and restrictions

Requirements

- **PBX Server**: The PBX server should meet the following requirements.
  - **Firmware**: Version 83.18.0.102 or later.
  - **Plan**: Enterprise Plan (EP) or Ultimate Plan (UP)
- **CRM System**: Supports REST API.

Restrictions

Supports to add up to **10** custom CRM integration templates.

Prerequisites

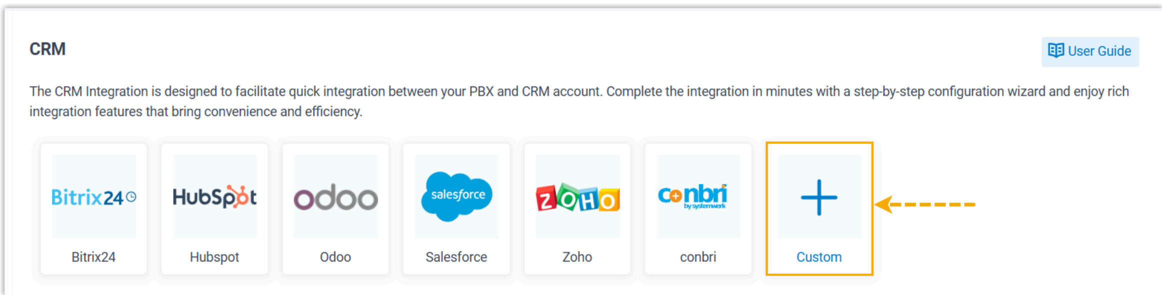
- You have basic coding skills
- You have obtained the REST API documentation of your desired CRM for reference, and get the following information:
  - **Authentication method**: Determine the authentication method used by your desired CRM (None, basic, or OAuth2 authentication method are supported).
  - **API request information**: You have gathered the necessary API request URLs and data specification for the following features according to the capabilities of the CRM and your specific requirements.

API request	Description
Search contacts	The API request URLs to search contacts within the CRM using specific criteria.

API request	Description
Get users	Optional. The API request URL to retrieve user information from the CRM.
Create contacts	Optional. The API request URL to add new contacts to the CRM.
Call journalling	Optional. The API request URL to create call records in the CRM.

Procedure

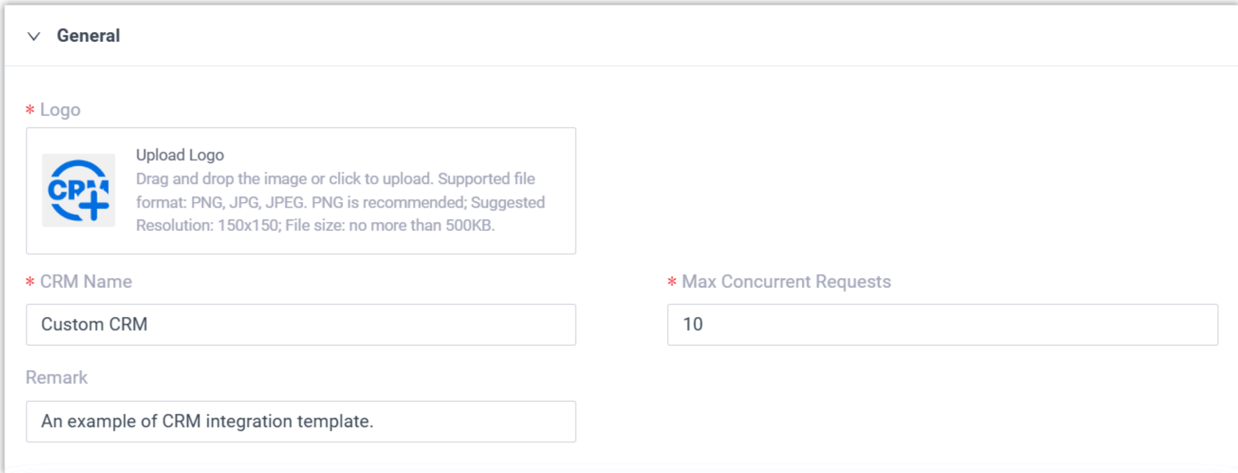
1. Log in to PBX web portal, go to **Integrations > CRM**.
2. In the CRM list, click **Custom**.



   You are redirected to the Template Management page.
3. Click **Add** to add a template.
4. In the pop-window, complete the following template settings according to the capabilities the CRM system and your specific requirements.
   - Configure general settings
   - (Optional) Configure user association
   - Configure authentication method
   - Configure contacts searching for synchronization and call popup
   - (Optional) Configure new contact creation
   - (Optional) Configure call journaling
5. Click **Save** to generate a custom CRM integration template.

Configure general settings

In the **General** section, complete the basic settings for the template.



- **Logo**: Upload a logo for the CRM, which will be displayed in the CRM list on the Integration page.

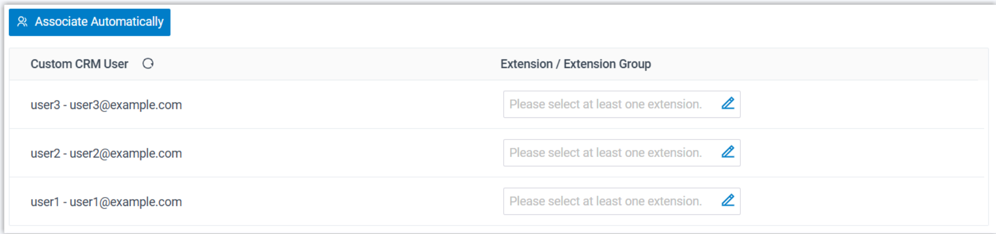
> **Note:**
> The logo file should meet the following requirements:
> - **File format**: PNG (recommended), JPG, or JPEG
> - **Suggested Resolution**: 150 × 150
> - **File size**: Less than 500KB

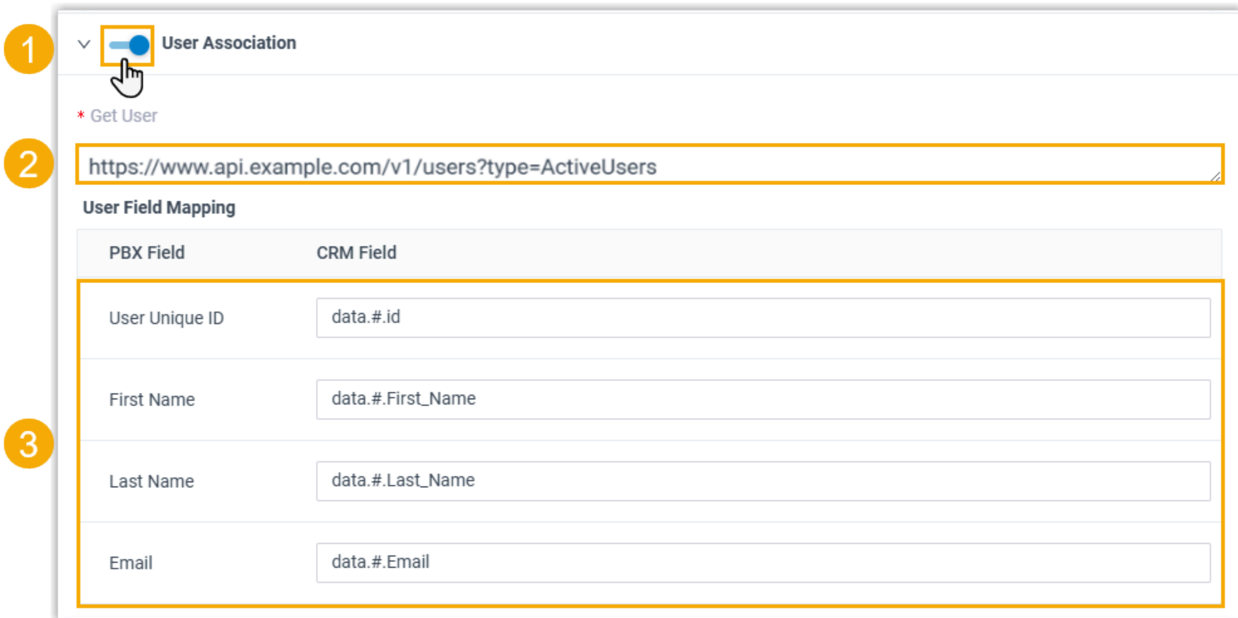
- **CRM Name**: Enter the name of the CRM.
- **Max Concurrent Request**: Specify the maximum number of concurrent HTTP requests allowed to the CRM.
- **Remark**: Optional. Enter a description for the CRM template, which will be displayed in the Template Management page.

(Optional) Configure user association

In the **User Association** section, enable and configure the feature to support associating CRM users with PBX extensions.

> **Note:**
> If enabled, the system will require associating CRM users with PBX extensions during integration, as shown in the following picture. Only the associated extension users can use the CRM integration functionalities.





1. Turn on the switch of **User Association**.
2. In the **Get User** field, enter the CRM API request URL for getting the list of CRM users.

Note:

- The default HTTP request method is `GET`, if you need to use a different request method, you can manually change it in the template later. For more detailed descriptions about the template parameters in this scenario, see XML Description - User Association Scenario.
- The values input by the users during the integration authentication process can be used as variables in the template if necessary.

For example,

```
https://www.api.example.com/v1/users?type=ActiveUsers
```

3. In the **User Field Mapping** section, map the CRM fields to the required PBX fields by specifying the JSON path (e.g. `data.#(key=="value").field`) for the corresponding fields in the CRM response.

> **Tip:**
> For more information about the path syntax, see GJSON Path Syntax.

PBX Field	Description
User Unique ID	The unique ID of the user. For example, `users.#.id`.
First Name	The first name of the user, which will be displayed in the CRM user list. For example, `users.#.First_Name`.
Last Name	The last name of the user, which will be displayed in the CRM user list. For example, `users.#.Last_Name`.
Email	The email of the user, which will be displayed in the CRM user list, and can be used for automatic association of CRM users and PBX extensions. For example, `users.#.Email`.

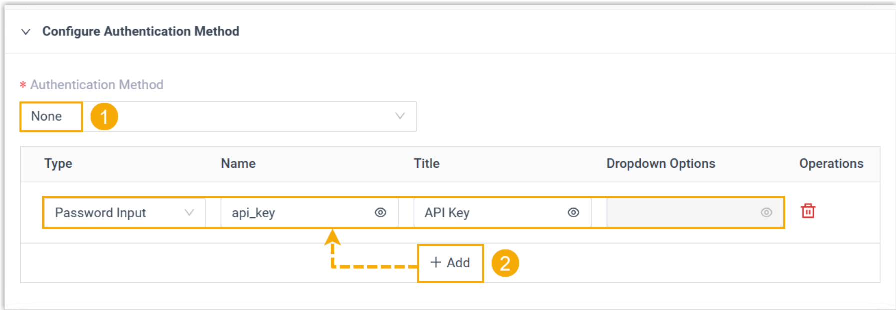
Configure authentication method

In the **Configure Authentication Method** section, configure the authentication method based on the CRM system's requirements.

- None authentication
- Basic authentication
- OAuth2 authentication

None authentication

This method is used when there is no authentication required, or when the CRM only requires relevant variables for the integration, such as an API Key for the request, or a webhook URL for real-time data delivery.



1. In the **Authentication Method** drop-down list, select **None**.
2. **Optional:** Click **Add** to add custom fields, which will be displayed as input field on the integration page, requiring users to provide the necessary information for the integration.

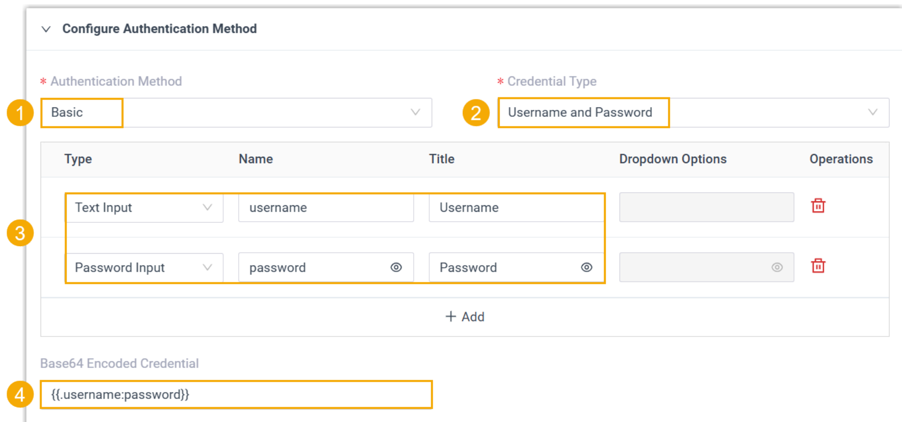
> **Note:**
> - If no fields are added, the CRM will be integrated directly without requiring any additional settings or input from the users.
> - Supports up to 5 custom fields.
> - The values input by users during the integration authentication process can be used as variable values in the template.

Setting	Description
Type	Select the type of the custom field. • **Text Input**: A standard input field where users can enter plain text. • **Password Input**: A specialized input field for sensitive information, with text masked for privacy. • **Dropdown List**: A selectable list that allows users to choose from a pre-defined list of options.
Name	Specify the variable name for the field, which can be referenced within the template as needed.
Title	Specify the title for the field, which will be display above the input component.
Dropdown Options	If the **Type** is set to **Dropdown List**, enter the options in this field. **Note:**

Setting	Description
	Use commas to separate multiple options. For example, `option1,option2`.

Basic authentication

This method authenticate requests using credentials, such as username and password or an API key. In this case, every HTTP request sent to the CRM will include a header field in the format of `Authorization: Basic {{.basic_string}}`, where *{{.basic_string}}* is the Base64-encoded combination of the username and password or API key specified during the integration.



1. In the **Authentication Method** drop-down list, select **Basic**.
2. In the **Credential Type** drop-down list, select **Username and Password** or **API Key** according to the CRM system's requirements.
3. Configure the required fields for users to enter credentials, and add additional custom fields if needed.

> **Note:**
> - Supports up to 5 fields.
> - The values input by users during the integration authentication process can be used as variable values in the template.

Setting	Description
Type	Select the type of the custom field. • **Text Input**: A standard input field where users can enter plain text.

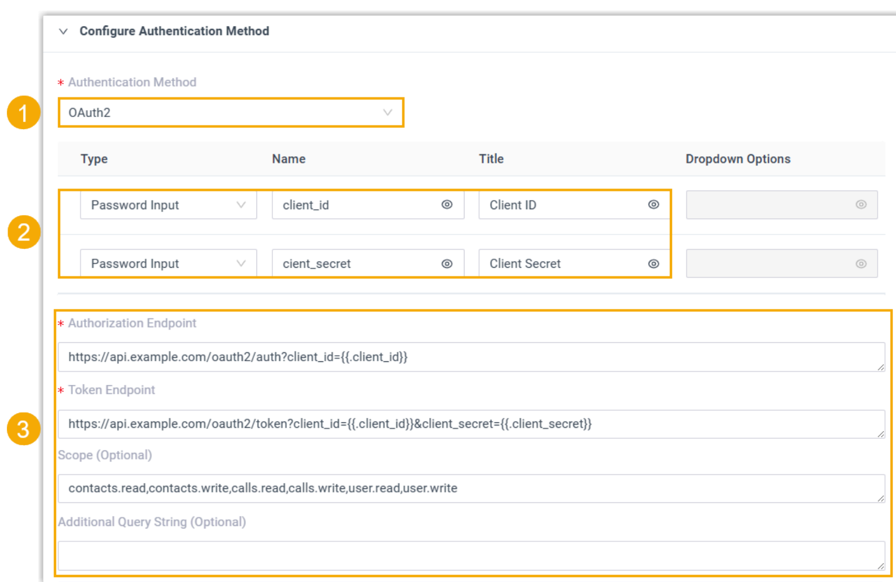
Setting	Description
	• **Password Input**: A specialized input field for sensitive information, with text masked for privacy. • **Dropdown List**: A selectable list that allows users to choose from a pre-defined list of options.
Name	Specify the variable name for the field, which can be referenced within the template as needed.
Title	Specify the title for the field, which will be display above the input component.
Dropdown Options	If the **Type** is set to **Dropdown List**, enter the options in this field. **Note:** Use commas to separate multiple options. For example, `option1,option2`.

4. In the **Base64 Encoded Credential** field, define the combination format of the credential variables, which will be used to generate the basic authentication string (*`basic_string`*).

   For example, `{{.username:.password}}` or `{{.api_key:}}`.

OAuth2 authentication

This method uses tokens to grant access without sharing credentials. It requires obtaining the necessary header and other parameters (e.g. OAuth access token) using specific API requests to the CRM.



1. In the **Authentication Method** drop-down list, select **OAuth2**.
2. Configure the required fields for users to enter credentials.

> **Note:**
> - If more fields are required, you need to manually add custom fields in the template later. For more detailed descriptions about the template parameters in this scenario, see XML Description - Authentication Scenario.
> - The values input by users during the integration authentication process can be used as variable values in the template.

Setting	Description
Type	Select the type of the custom field. • **Text Input**: A standard input field where users can enter plain text. • **Password Input**: A specialized input field for sensitive information, with text masked for privacy. • **Dropdown List**: A selectable list that allows users to choose from a pre-defined list of options.
Name	Specify the variable name for the field, which can be referenced within the template as needed.
Title	Specify the title for the field, which will be display above the input component.
Dropdown Options	If the **Type** is set to **Dropdown List**, enter the options in this field. **Note:** Use commas to separate multiple options. For example, `option1,option2`.

3. In the **Authorization Endpoint** field, enter the CRM authorization URL, to which users will be redirected for authorization during integration.

   For example,

```
https://www.api.example.com/auth/v2/authorize?client_id={{.
client_id}}
```

4. In the **Token Endpoint** field, enter the CRM API request URL for getting access token and refresh token.

For example,

```
https://www.api.example.com/oauth/v2/token?client_id={{.cli
ent_id}}&client_secret={{.client_secret}}
```

5. **Optional:** In the **Scope (Optional)** field, enter the scope to specify the data in the CRM that the PBX is allowed to access.

> **Note:**
> Use comma to separate multiple fields.

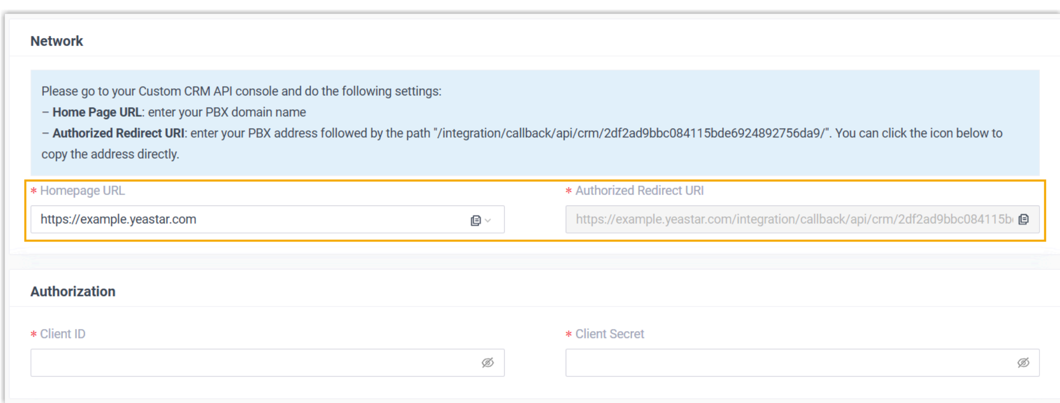
For example,

```
contacts.read,contacts.write,calls.read,calls.write,user.re
ad,user.write
```

6. **Optional:** If the CRM system authenticates requests using query parameters instead of scope, you can add the query parameters in the **Additional Query String (Optional)** field.

For example, `client_id={{.client_id}}&redirect_uri={{.redirect_uri}}`.

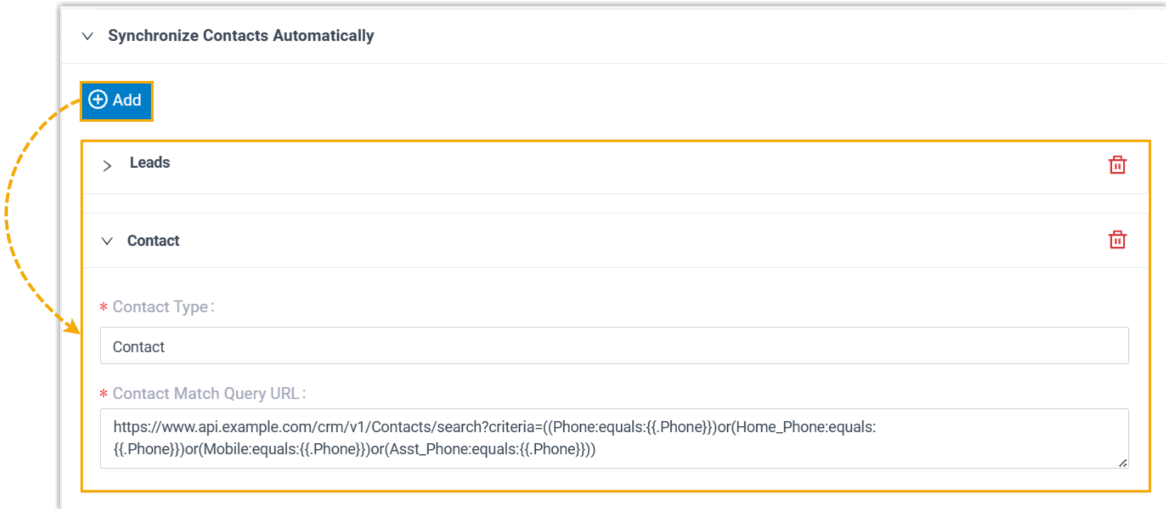
After the template setting is saved, the authentication page of the CRM will automatically display the PBX authentication information, which can be used to create an application in the CRM system and retrieve the required authorization information from the CRM for the integration.



Configure contacts searching for synchronization and call popup

In the **Synchronize Contacts Automatically** section, specify the contacts type available for users to select when configuring integration features, and specify the API requests to search for the specified types of contacts. These configurations can be used to implement CRM contacts searching, automatic contact synchronization and call popup.

1. Add and configure contact types and specify the corresponding API requests.



   - **Contact Type**: Enter the name of the contact type. For example `Contacts`.

     The name set here will appear as an option for automatic contact synchronization when users configure the integration features.
   - **Contact Match Query URL**: Enter the CRM API request URL used to search for contacts with specific criteria.

     In this scenario, the following variables can be used as the values of criteria parameters:

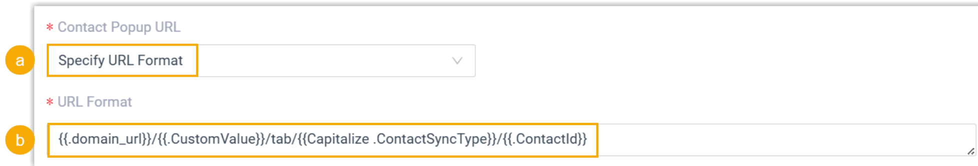
     - The variables obtained from user input during the integration [authentication process](#).
     - *{{.Phone}}*: The phone number associated with inbound or outbound calls, or the number entered by users for contact searching.

     For example,

     ```
     https://www.api.example.com/crm/v1/Contacts/search?criteria=((Pho
     ne:equals:{{.Phone}})or(Home_Phone:equals:{{.Phone}})or(Mobile:eq
     uals:{{.Phone}})or(Asst_Phone:equals:{{.Phone}}))
     ```
2. Configure the URL for call popup using one of the following methods.

   Specify URL Format

   Configure the call popup URL by specifying the URL format, where you can use variables to dynamically construct the URL.



a. In the **Contact Popup URL** drop-down list, select **Specify URL Format**.
b. In the **URL Format** field, enter the expression of the Contact URL.

   In this scenario, the following variables can be used, the values of which are obtained from the CRM contact search results.

   - The variables obtained from user input during the integration authentication process.
   - `{{.ContactSyncType}}`: The contact type.
   - `{{.ContactId}}`: The contact ID.
   - `{{.CustomValue}}`: A custom field mapped in the **Contact Field Mapping** section.

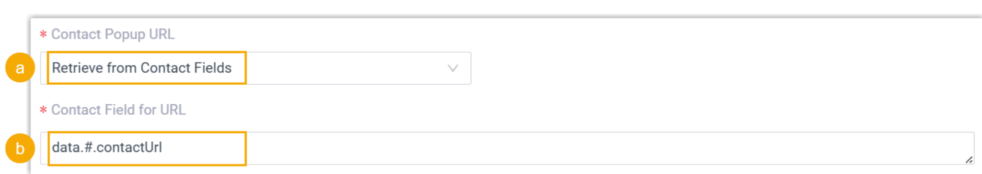
   > **Note:**
   > If the provided variables do not meet your requirements, you can manually edit the template later to define additional custom variables and retrieve the corresponding values. For more detailed descriptions about the template parameters in this scenario, see XML Description - Retrieve Additional Variables.

   For example,

```
{{.crm_url}}/crm/{{.CustomValue}}/
tab/{{Capitalize .ContactSyncType}}/{{.ContactId}}
```

Retrieve from Contact Fields

Extract the Contact URL directly from a specific field in the contact search response, where the contact URL can be retrieved.

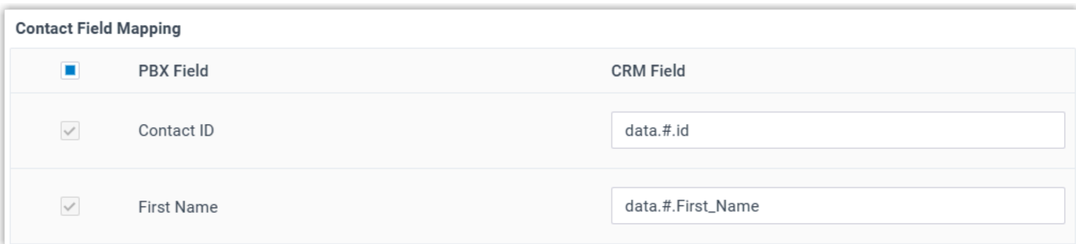


a. In the **Contact Popup URL** drop-down list, select **Retrieve from Contact Fields**.
b. In the **Contact Field for URL** field, specify the JSON path for the corresponding field in the response. For example, `data.#.contactUrl`.

3. In the **Contact Field Mapping** section, map the CRM fields to the required PBX fields by specifying the JSON path (e.g. `data.#(key=="value").field`) for the corresponding fields in the CRM response.

> **Note:**
> If more than one variable need to be retrieved for a field, use commas to separate the variables. For example, `data.#(phone=="{{.Phone}}")#.street,data.#(mobile=="{{.Phone}}")#.street`.

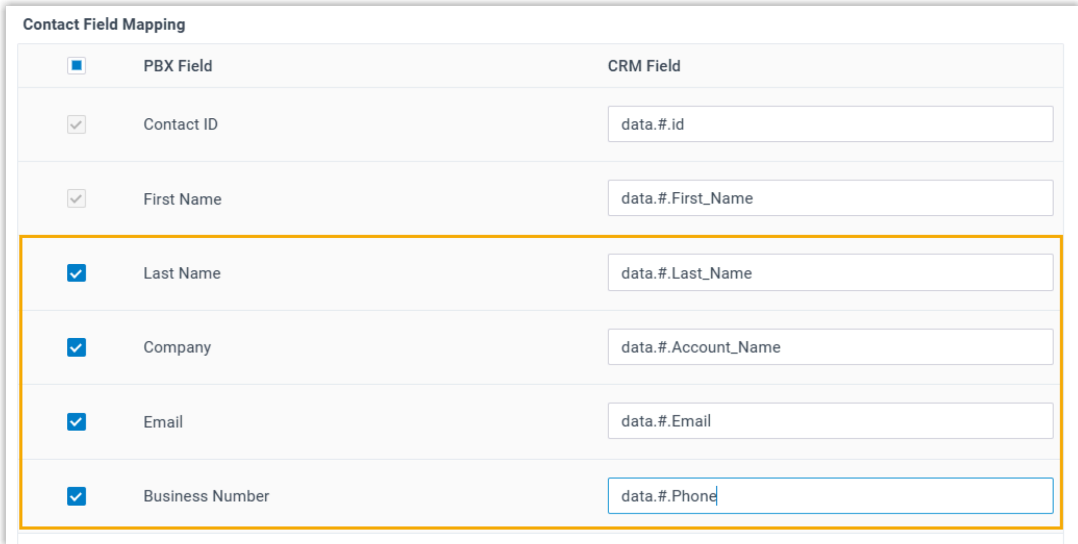
a. Map the following required fields.



- **Contact ID**: The ID of the searched contact. For example, `data.#.id`.
- **First Name**: The first name of the searched contact. For example, `data.#.first_name`.

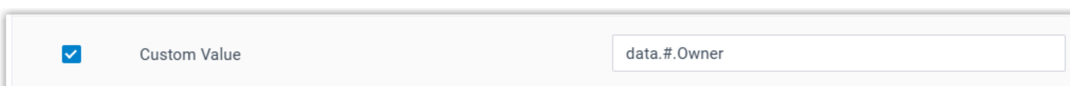
b. Enable and map the respective PBX fields according to your needs.

> **Note:**
> You need to enable and map at least one phone number.



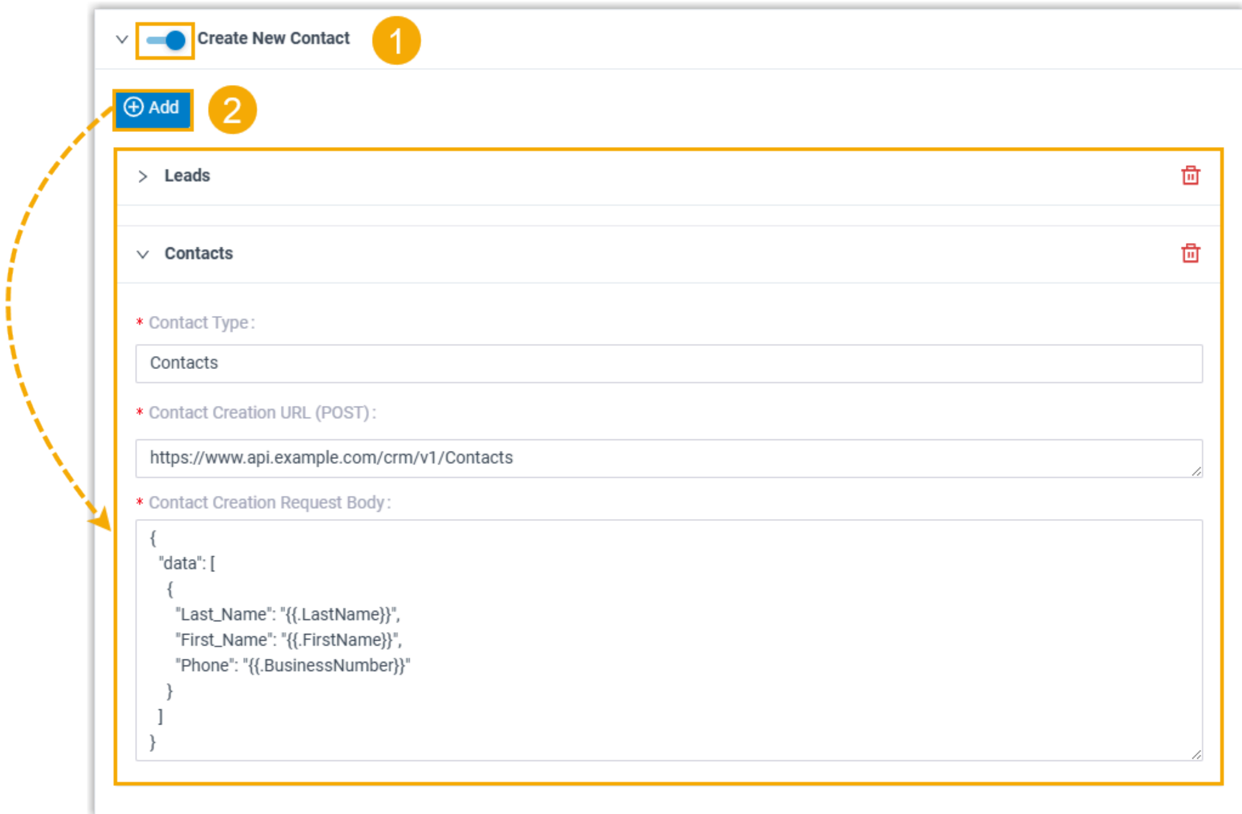
c. If the existing PBX fields do not provide the variables you need, enable and map the desired response field to the **Custom Value** field, which can be referenced in the template with the variable name `{{.CustomValue}}`.

> **Note:**
> This variable is specially used for constructing the Contact URL, and will not appear in the PBX contact details.



(Optional) Configure new contact creation

If you want to enable the creation of a new contact in the CRM when the caller's number does not match any existing CRM contact, enable and configure the **Create New Contact** settings.



1. Turn on the switch of **Create New Contact**.
2. Add and configure the contact types available for users to select when configuring integration features.
    - **Contact Type**: Specify the type of the contact. For example, `Contacts`.
    - **Contact Creation URL (POST)**: Enter the CRM API request URL used to create a new contact.
      For example,

      ```
      https://www.api.example.com/crm/v1/Contacts
      ```
    - **Contact Creation Request Body**: Enter the request body (in JSON format) to pass the contact information.
      In this scenario, the following variables can be used:
        - The variables obtained from user input during the integration authentication process.
        - *{{.LastName}}*: Required. The last name of the contact.
        - *{{.FirstName}}*: Required. The first name of the contact.
        - *{{.BusinessNumber}}*: Required. The phone number of the contact.

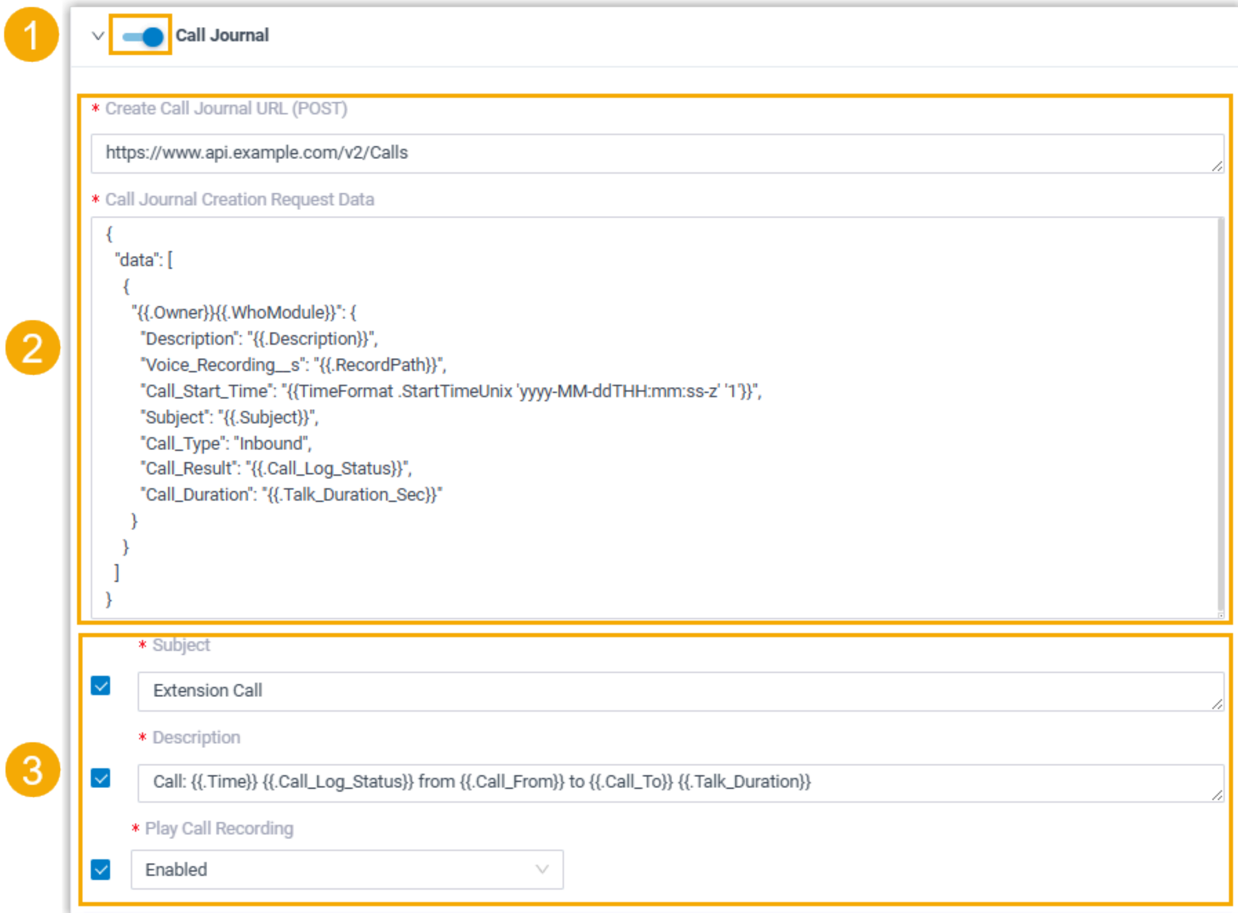
Note:
If the provided variables do not meet your requirements, you can manually edit the template later to define additional custom variables and retrieve the corresponding values. For more detailed descriptions about the template parameters in this scenario, see XML Description - Retrieve Additional Variables.

For example,

```
{
  "data": [
    {
      "Last_Name": "{{.LastName}}",
      "First_Name": "{{.FirstName}}",
      "Phone": "{{.BusinessNumber}}"
    }
  ]
}
```

(Optional) Configure call journaling

If you want to enable call journaling to automatically log call activities and details in the CRM, enable and configure the **Call Journal** feature.



1. Turn on the switch of **Call Journal**.
2. Configure the API request and body for call journaling.
    - **Create Call Journal URL (POST)**: Enter the CRM API request URL used to create a call log in the CRM.

      For example,

      ```
      https://www.api.example.com/crm/v2/Calls
      ```
    - **Call Journal Creation Request Data**: Enter the request body (in JSON format) to pass the call details.

      > **Note:**
      > For the variables supported in the request body, see [XML Description - Call Journal Variables](#).

      For example,

```
{
  "data": [
    {
      "{{.Owner}}{{.WhoModule}}": {
        "Description": "{{.Description}}",
        "Voice_Recording__s": "{{.RecordPath}}",
        "Call_Start_Time": "{{TimeFormat .StartTimeUnix
 'yyyy-MM-ddTHH:mm:ss-z' '1'}}",
        "Subject": "{{.Subject}}",
        "Call_Type": "Inbound",
        "Call_Result": "{{.Call_Log_Status}}",
        "Call_Duration": "{{.Talk_Duration_Sec}}"
      }
    }
  ]
}
```

3. If you want to allow users to customize specific settings for call journaling, including key attributes such as logging details and call recording playback option, enable the following options and configure the default values as needed.

> **Note:**
> - The values set in these fields will also be captured as variable values if necessary.
> - For more information about the supported variables, see XML Description - Call Journal Variables.

- **Subject**: If enabled, enter a default subject for call journal. All call logs will be created with the specified subject.
- **Description**: If enabled, specify the details of the call logs.
  For example,

```
Call: {{.Time}} {{.Call_Log_Status}} from {{.Call_From}} to
 {{.Call_To}} {{.Talk_Duration}}
```

- **Play Call Recording**: Decide whether to allow users to configure the option for playing call recordings in the CRM.

Related information

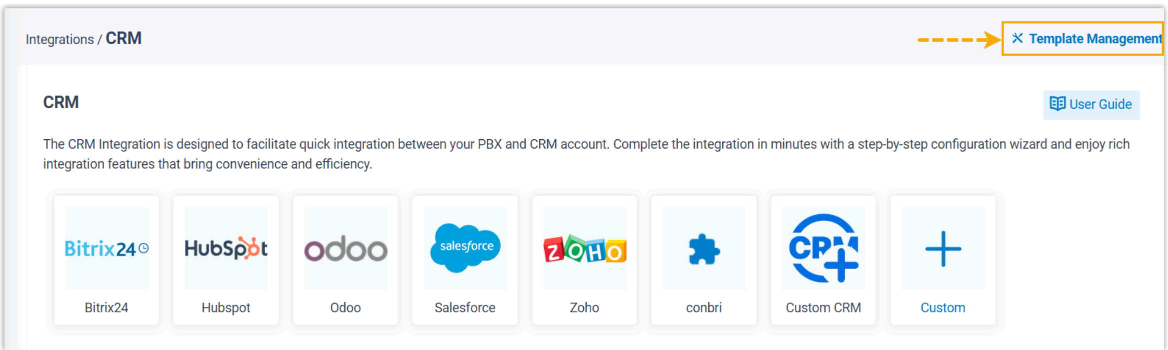
Integrate Yeastar P-Series Software Edition with a CRM using Template

Manage CRM Integration Templates

This topic describes how to manage the CRM integration templates.

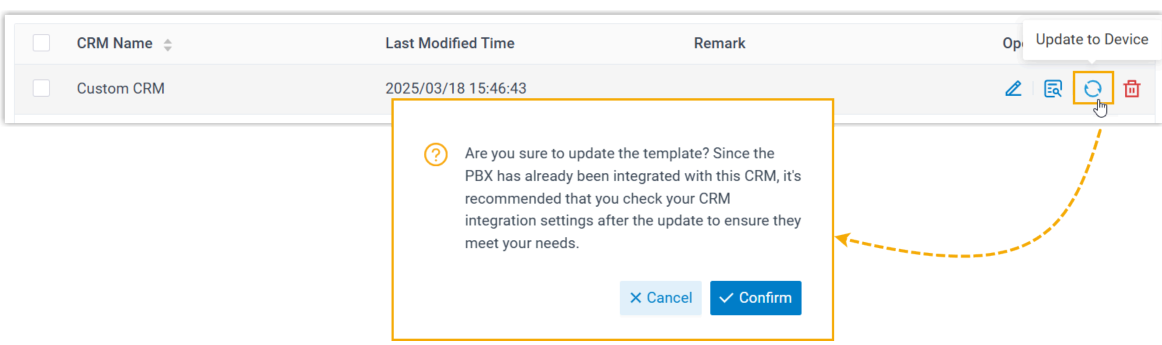
Edit an integration template

1. Log in to PBX web portal, go to **Integrations > CRM**.
2. At the top-right corner of the page, click **Template Management**.



You are redirected to the Template Management page.

3. Go to the **Custom Templates** tab, then click  beside the desired template.
4. In the pop-up window, edit the template settings according to your needs.
5. Click **Save**.
6. If you have integrated the custom CRM with PBX, do as follows to directly apply the changes to the current integration.

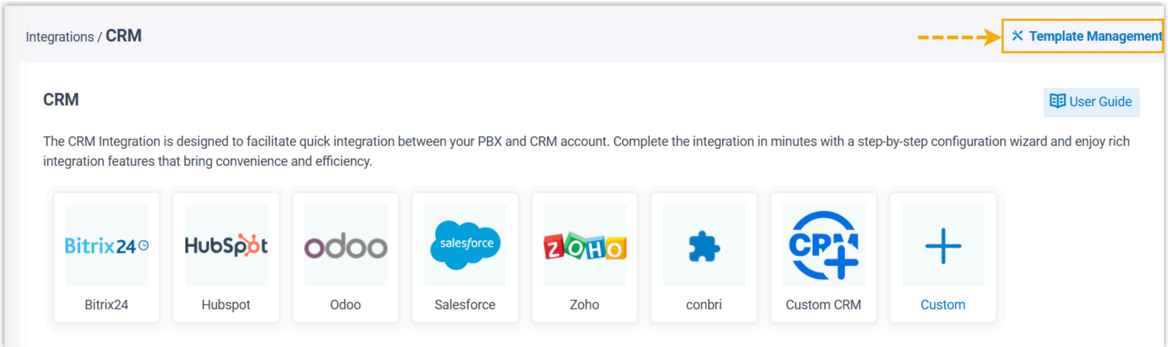


   a. Click  beside the template.
   b. In the pop-up window, click **Confirm**.

Download integration templates

You can download the integration template to upload to other PBX systems for integration or manually modify the template parameters to customize settings for specific needs.

1. Log in to PBX web portal, go to **Integrations > CRM**.
2. At the top-right corner of the page, click **Template Management**.



You are redirected to the Template Management page.
3. Select the desired template(s), then click **Download**.

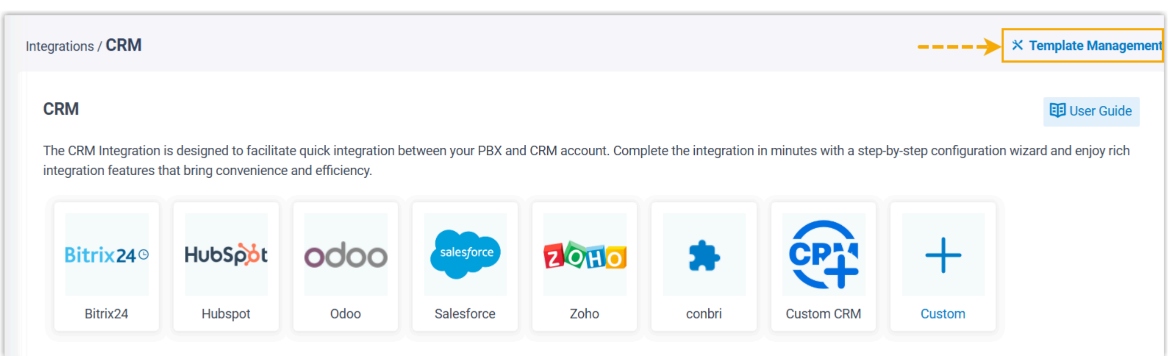
The template files are downloaded to your local computer.

Upload an integration template

You can upload an integration template to the PBX systems for quick integration.

> **Note:**
>
> - Supports up to **10** custom CRM integration templates.
> - The file size should be less than 1 MB.

1. Log in to PBX web portal, go to **Integrations > CRM**.
2. At the top-right corner of the page, click **Template Management**.



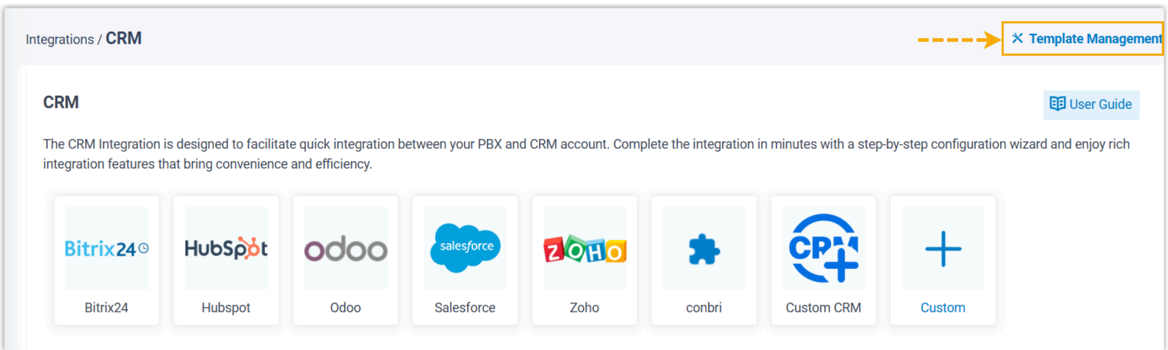
You are redirected to the Template Management page.
3. At the top of the template list, click **Upload**.

4. In the pop-up window, click **Browse**, then select the desired template file to upload.
5. Click **Save**.

   The template file is uploaded to the PBX system, and displayed in the template list.

Delete integration templates

1. Log in to PBX web portal, go to **Integrations > CRM**.
2. At the top-right corner of the page, click **Template Management**.

   You are redirected to the Template Management page.
3. To delete a single template, do as follows:
   a. Click beside the template.
   b. In the pop-up window, click **OK**.
4. To delete multiple templates, do as follows:
   a. Select the desired templates.
   b. At the top of the template list, click **Delete**.
   c. In the pop-up window, click **OK**.

Integration Setup

Integrate Yeastar P-Series Software Edition with a CRM using Template

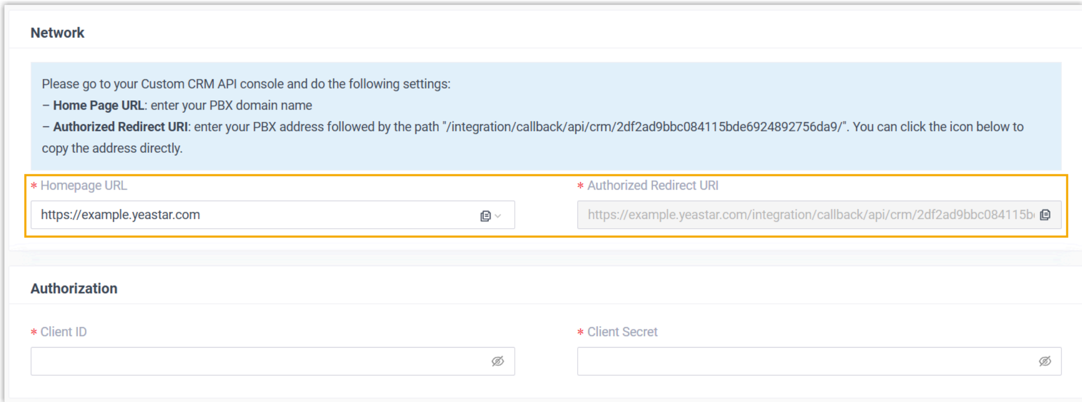
If your desired CRM is not in the list of ready-made integrations, you can implement a custom integration via a CRM integration template. This topic describes how to establish the integration.

Requirements

- **Firmware**: Version 83.18.0.102 or later.
- **Plan**: Enterprise Plan (EP) or Ultimate Plan (UP)

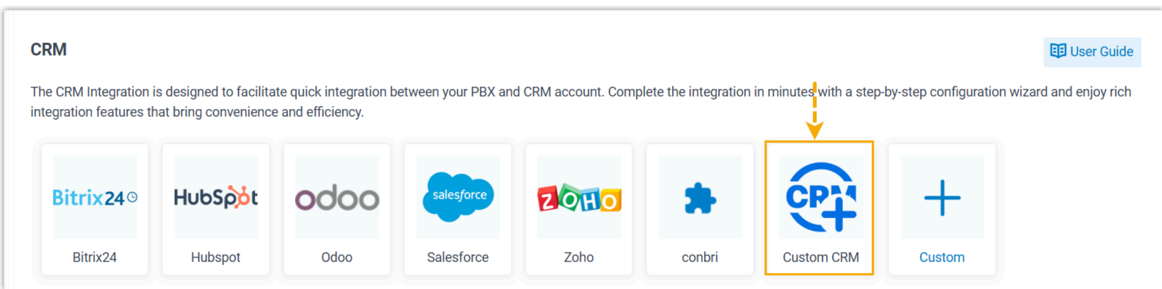
Prerequisites

- You have added a CRM integration template.
- You have obtained the necessary authorization information from the CRM system according to its authentication requirements.
    - **None authentication**: Obtain the required integration information (such as API key or Webhook URL) if needed.
    - **Basic authentication**: Obtain the credential for authentication (such as username and password, or API key).
    - **OAuth2 authentication**: Obtained the PBX authentication information first (Path: **Integrations > CRM > Custom CRM**), then use the information to create an application on the CRM system, and obtain the corresponding authorization information (such as client ID and client secret).



Procedure

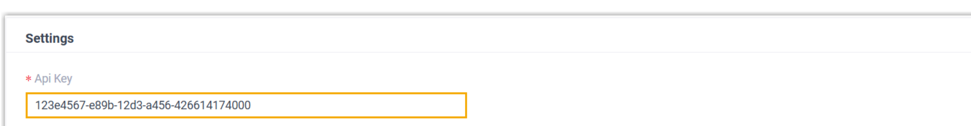
1. Log in to PBX web portal, go to **Integrations > CRM**.
2. In the CRM list, click the CRM that you have added via a template.



3. Complete the authentication according to the CRM system's requirements.

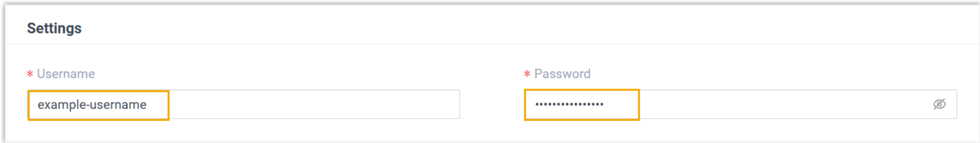
None authentication

> **Note:**
> If no additional information is required, the integration will be completed once you click the CRM.



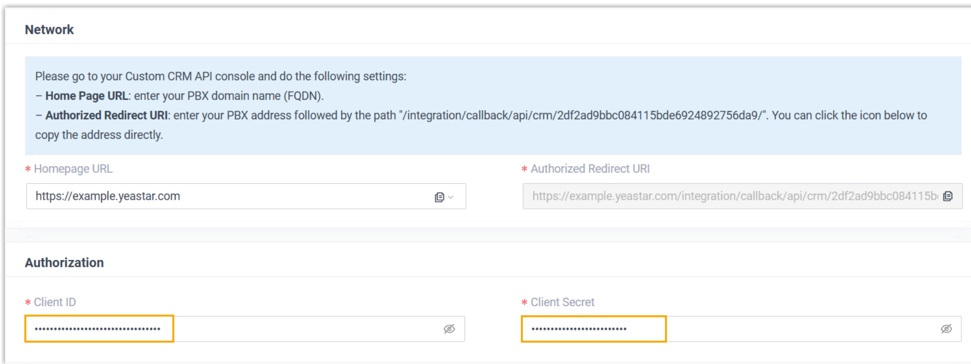
   a. In the **Settings** section, enter the required information for integration.
   b. Click **Save**.

Basic authentication



a. In the **Settings** section, enter the required credentials.
b. Click **Save**.

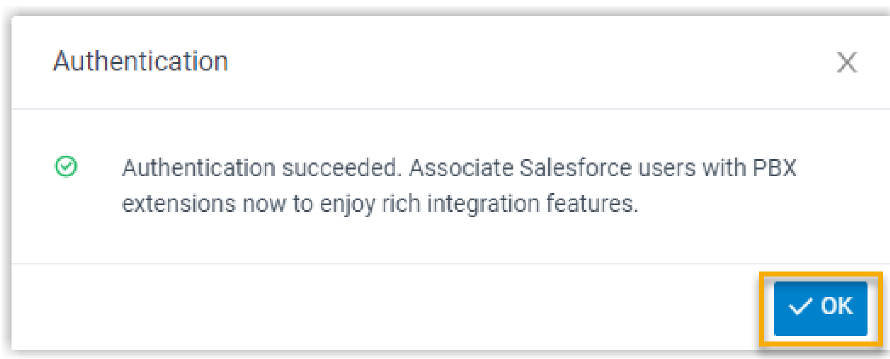
OAuth2 authentication



a. In the **Authorization** section, enter the authorization information obtained from the application created in the CRM system.
b. Click **Save**.

   A new browser page will be launched to request for CRM data access permission.
c. Accept the request to allow the PBX to access data in your CRM account.

   On the PBX configuration page, a pop-up window displays the authentication result.



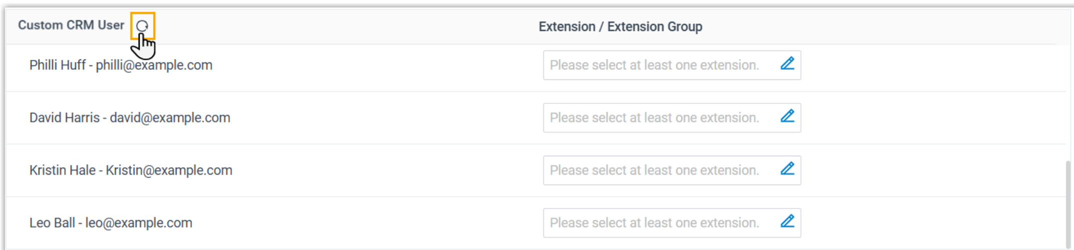
d. Click **OK** to confirm.

The **Status** field displays **Connected**, indicating that the CRM integration is successfully set up.

4. Associate CRM users with PBX extensions.

   If the CRM requires the association of CRM users with PBX extensions to access the integration functionalities, complete the following settings.

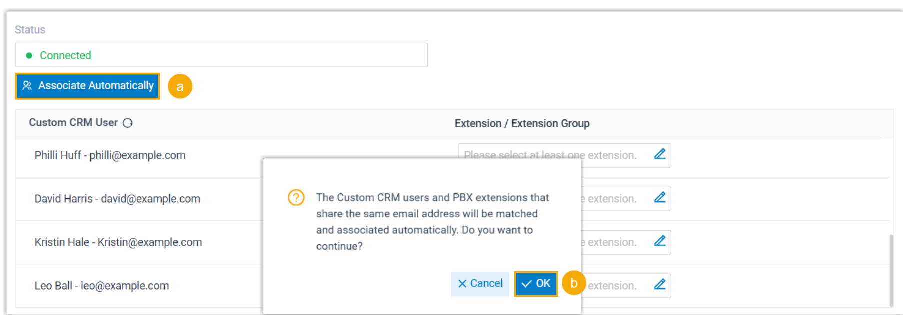
   a. On the CRM integration page, click to synchronize the latest list of CRM users.



   b. Associate the CRM users with PBX extensions.

Associate automatically

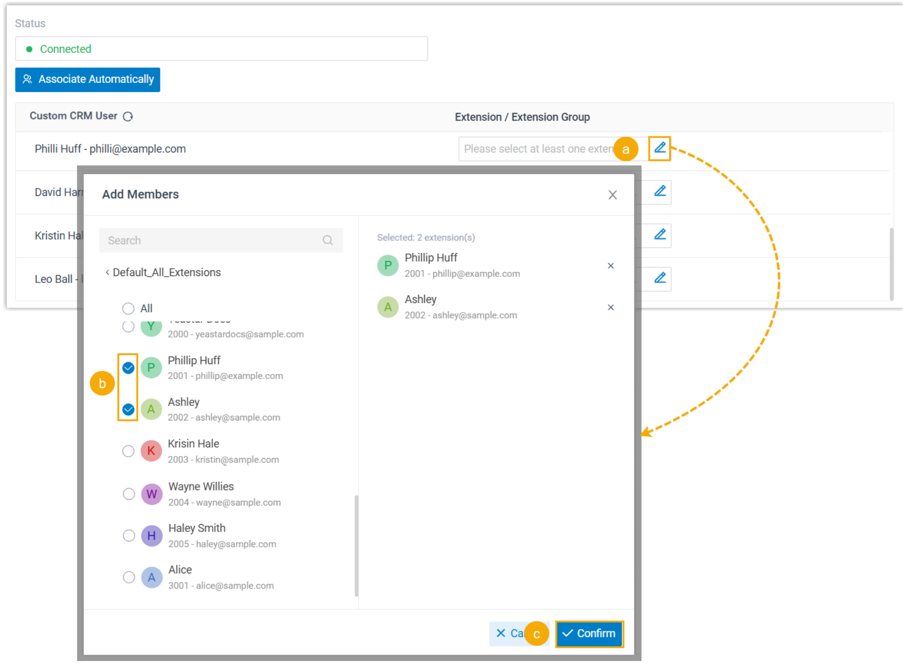
If users bind the same email address to their CRM accounts and PBX extensions, you can implement automatic association of their CRM accounts and PBX extensions as follows:



i. Click the **Associate Automatically** button.
ii. On the pop-up window, click **OK**.

Associate manually

If the user binds different email addresses to their CRM account and PBX extension, you need to manually associate the user's CRM user account and PBX extension.



i. In the **Extension** field beside the CRM user, click .
ii. In the pop-up window, select the desired user's extension(s).
iii. Click **Confirm**.

c. Click **Save**.

Related information

[Set up CRM Integration Features](#)

Set up CRM Integration Features

This topic describes how to set up the integration features after you integrate the PBX with a custom CRM, including contact synchronization, contact creation, call journal, etc.

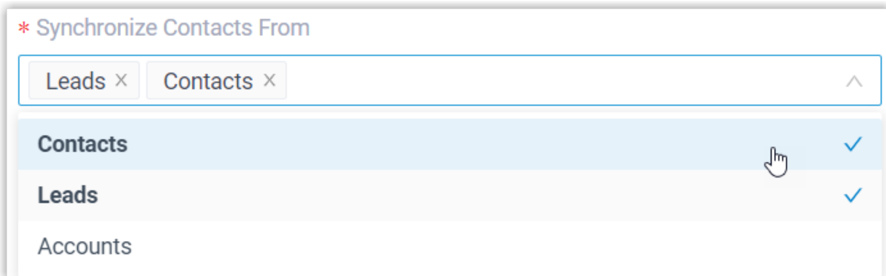
Prerequisites

You have integrated the PBX with a custom CRM via template.

Set up contact synchronization

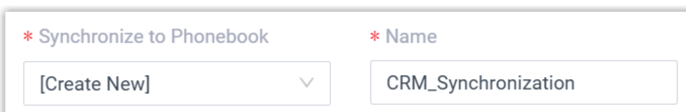
If this feature is enabled, inbound calls and outbound calls will trigger a contact lookup in the CRM system. If there exists the same number in CRM, the matched contact will be synchronized to the associated PBX phonebook, and the synchronized contact is read-only on PBX.

1. Log in to PBX web portal, go to **Integrations > CRM**.
2. In the **Synchronize Contacts Automatically** section, turn on the switch.
3. In the **Synchronize Contacts From** drop-down list, select the type(s) of contacts to be synchronized from CRM.

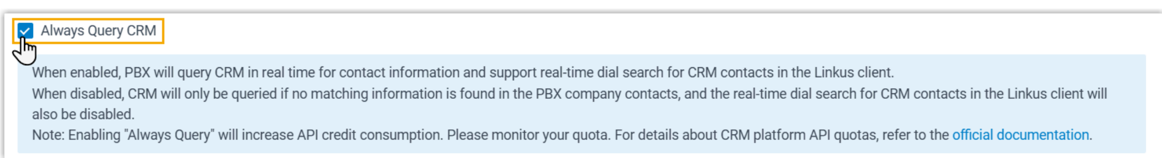


4. In the **Synchronize to Phonebook** drop-down list, select an existing empty phonebook or create a new phonebook to store the contacts that will be synchronized from CRM.

> **Note:**
> The contacts can only be synchronized to an empty phonebook.



5. On the **Always Query CRM** option, decide whether to search contacts in the CRM real-time.



- If enabled, PBX will query CRM in real time for contact information, and support real-time dial search for CRM contacts in the Linkus clients of the associated extension users.
- If disabled, PBX will only query CRM when there is no matching information found in the PBX company contacts.

> **Note:**
> - Enabling this feature will increase API usage, so make sure to monitor your quota accordingly.

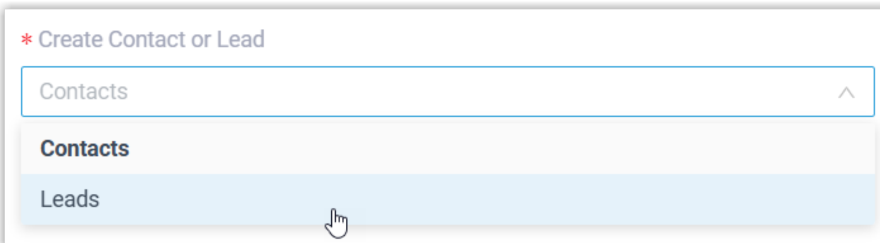
> - The real-time search is not supported when masked number is enabled.

6. Click **Save**.

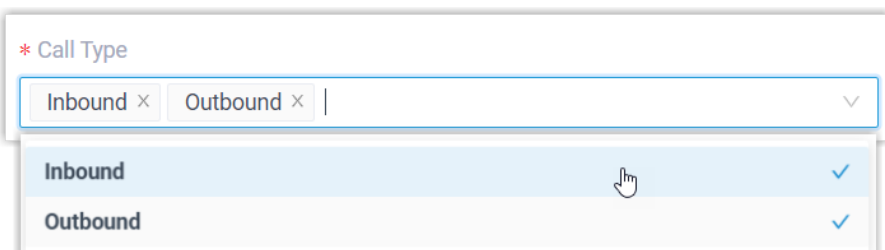
Set up contact creation

If this feature is enabled, a new contact can be created in the CRM, automatically or manually depending on your settings, when the associated extensions call or receive calls from an unknown number.

1. Log in to PBX web portal, go to **Integrations > CRM**.
2. In the **Create New Contact** section, turn on the switch.
3. In the **Create Contact or Lead** drop-down list, select the desired type of contact.



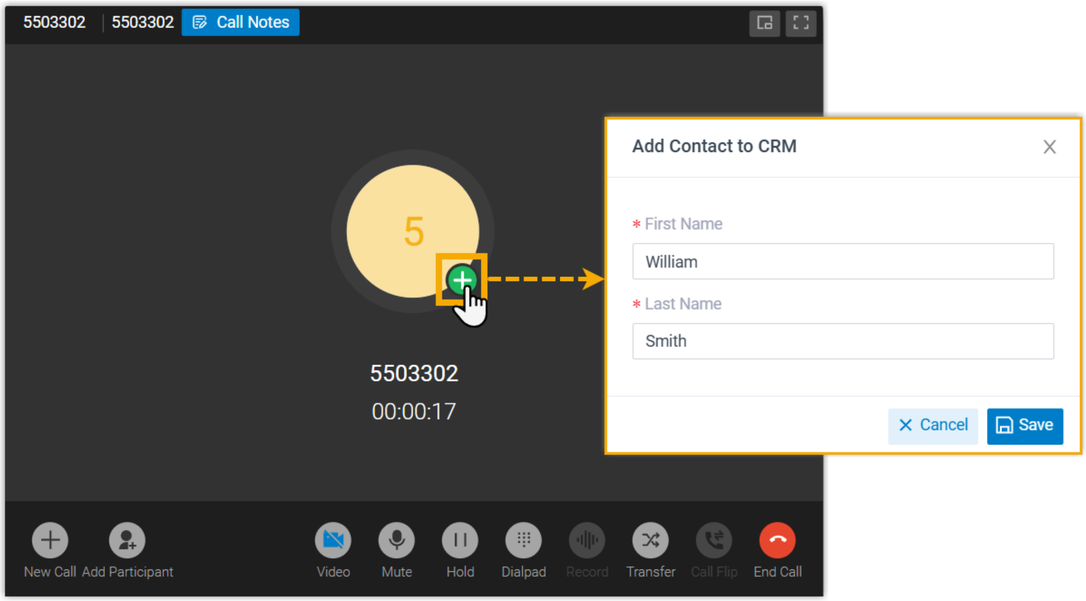
4. In the **Create Method** section, select the desired creation method according to your needs.
   - If you want the system to automatically create contacts in the CRM based on specified types of calls, do as follows:
     a. Select **Automatically**.
     b. In the **Call Type** drop-down list, select when will a contact be automatically created in the CRM.



- **Inbound**: Inbound call from an unknown number that doesn't match a Contact, Lead, or Account already in the CRM.
- **Outbound**: Outbound call to an unknown number that doesn't match a Contact, Lead, or Account already in the CRM.

- If you want to allow associated extension users to manually create contacts in the CRM during a call, select **Manually**.

  During a call with an unknown number, users can add the contact to the CRM directly on the call window.

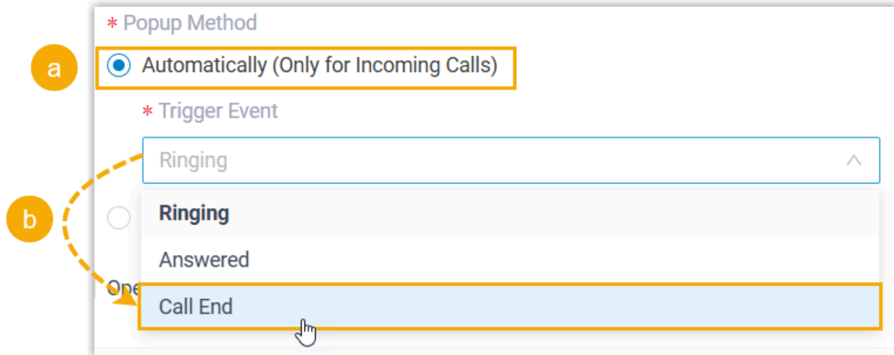
  

5. Click **Save**.

Set up call popup

You can set up call popup for an extension user's Linkus Web Client or Desktop Client, which allows the user to receive automatic popup URL of the contact's profile based on specified call-related events, or manually open the contact's URL from the call window directly during the call with a CRM contact.

1. Log in to PBX web portal, go to **Extension and Trunk > Extension**.
2. Click to edit the extension associated with a CRM user.
3. In the **Linkus Clients** tab, scroll down to your desired Linkus client, then select the checkbox of **Open Contact URL Using System-Integrated CRM**.
4. In the **Popup Method** section, decide the method of call popup.
   - If you want the system to automatically open the CRM contact details page, do as follows:



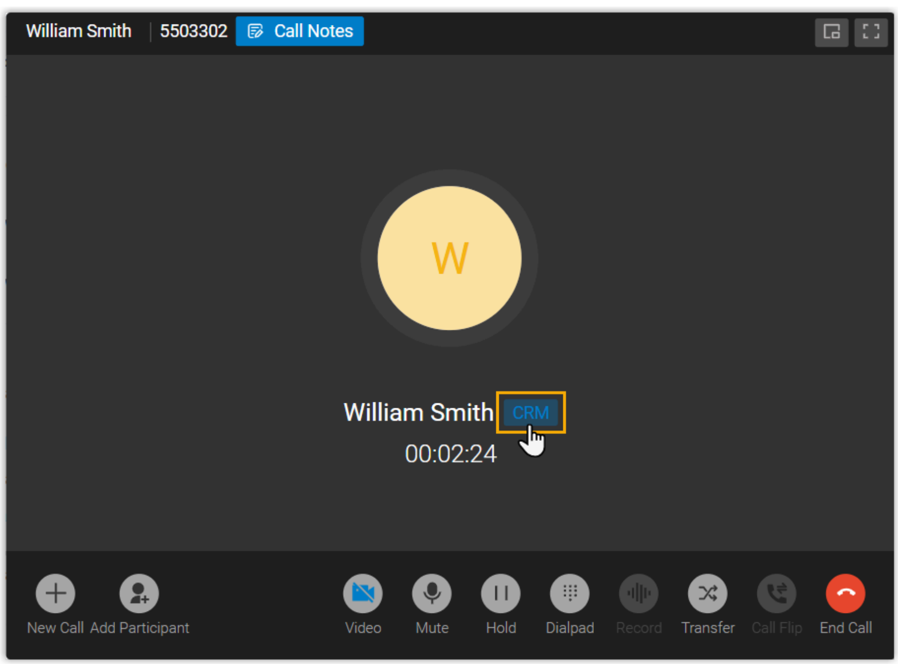
a. Select **Automatically (Only for Incoming Calls)**.

b. In the **Trigger Event** drop-down list, set when the call popup will be automatically triggered.

- **Ringing**: A call popup will be triggered when a user receives an inbound call from a CRM contact.
- **Answered**: A call popup will be triggered when a user answers an inbound call from a CRM contact.
- **Call End**: A call popup will be triggered when a user finishes a call with a CRM contact.

• If you want the associated extension user to manually open the contact's URL during a call with a CRM contact, select **Manually**.

During a call with a CRM contact, users can manually open the contact URL.

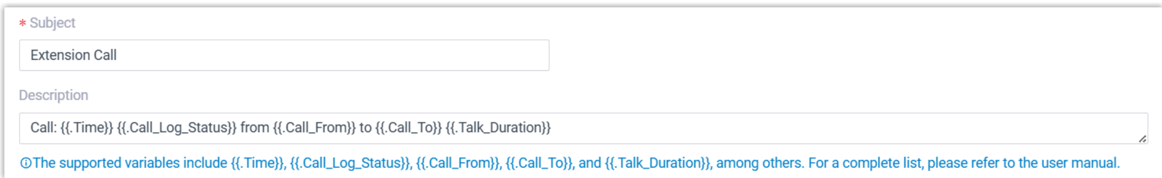


5. Click **Save**.

Set up call journaling

If this feature is enabled, all outbound calls, incoming calls, and missed call records will be logged to CRM automatically, which helps users to keep track of every conversation.

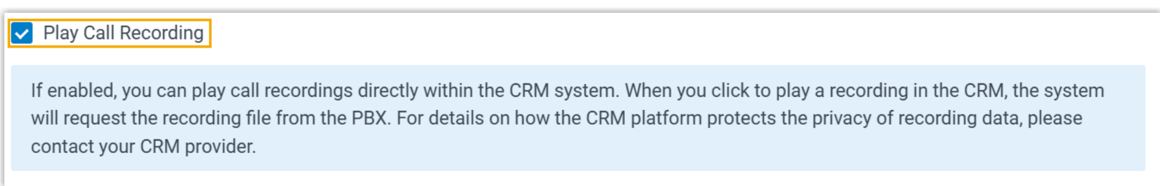
1. Log in to PBX web portal, go to **Integrations > CRM**.
2. In the **Call Journal** section, turn on the switch.
3. Configure the following call log information according to your needs.



    - **Subject**: The subject of the call log.
    - **Description**: The description of the call log.

> **Note:**
> The contents can be composed of variables. For the supported variables, see [XML Description - Call Journal Scenario Variables](#).

4. **Optional:** Select the checkbox of **Play Call Recording**.



    If enabled, the CRM users who associated with extensions on PBX can directly view and play call recordings stored on the PBX within the CRM system.

> **Note:**
> When users click to play call recording in the CRM, the system will request recording file from the PBX. For details on how the CRM platform protects the privacy of recording data, please contact CRM provider.

5. Click **Save**.

Related information

[Custom CRM Integration - Key features](#)

Reference

XML Descriptions for Integration Template

Yeastar P-Series Software Edition allows you to create CRM/Helpdesk integration templates, where you can define the necessary settings, including specific API endpoints, data fields, and functional scenarios required for the integration. This topic provides detailed description of the setting elements in the XML templates.

Template conventions

The template follows the **XML 1.1 standard** specification. This section describes the syntax and conventions of the template.

Variable

The template supports the use of variables for dynamic data. When the template is executed, the variables referenced within the template will be replaced with their respective values.

The following table shows the source of variable values and how to reference the variables in the template.

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Source</td><td>Variables in this template can be obtained form the following sources:

Pre-defined variables in the PBX system
Parameter values input by users during the integration
Values retrieve from the request response
You can retrieve values from the response body by specifying a JSON path, as shown in the examples below.

Tip:
For more information about the path syntax, see GJSON Path Syntax.

To retrieve a response value, use the following syntax:
<code><Output Name="UserUniqueId" Path="data.#.id"></Output></code>
For retrieve a value that meets specific conditions, use following syntax:

</td></tr>
</table>

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td></td><td><code><Output Name="BusinessNumber2" Path="identities.#(type=="phone_number")#|1.value"></Output></code></td></tr>
<tr><td>Reference format</td><td>Variables in this template follow the <code>text/template</code> syntax specification of Go Language, as shown below:

• Standard variable: <code>{{.varname}}</code>
• Conditional variable: <code>{{ if .varname }} Welcome, member! {{ else }} Please sign up. {{ end }}</code>
• Function calls with variable: <code>{{ Capitalize .varname }}</code></td></tr>
</table>

Function

The template supports the following function, which can be used in conjunction with variables to dynamically manipulating or formatting the variable value.

<table>
<tr><th>Function</th><th>Description</th></tr>
<tr><td>TimeFormat</td><td>The function can be used to customize the format of a timestamp.

Format: {{ TimeFormat Timestamp_variable "format_string" "Whether_to_convert_to_UTC_time" }}

Example: <code>{{ TimeFormat .StartTimeUnix "yyyy-MM-ddTHH:mm:ss.000Zz" "1" }}</code>

Assuming the value of {{.StartTimeUnix}} is <code>1672531199</code>, the final output would be <code>2023-01-01T00:59:59.000Z</code>.</td></tr>
<tr><td>ToMillis</td><td>The function can be used to convert a seconds timestamp to a milliseconds timestamp.

Format: {{ ToMillis Timestamp_variable}}

Example: <code>{{ ToMillis .StartTimeUnix }}</code>

Assuming the value of {{.StartTimeUnix}} is <code>1672531199</code>, the final output would be <code>1672531199000</code>.</td></tr>
<tr><td>Capitalize</td><td>The function can be used to capitalizes the first letter of a string.

Format: {{ Capitalize variable_string}}

Example: <code>{{ Capitalize .variable_string }}</code>

Assuming the value of {{.variable_string}} is <code>hello world</code>, the final output would be <code>Hello world</code>.</td></tr>
<tr><td>UrlEncode</td><td>The function can be used to URL encode a string.

Format: {{ UrlEncode .variable }}</td></tr>
</table>

Function	Description
	Example: `{{ UrlEncode .variable}}` Assuming the value of *`{{.variable_string}}`* is `hello world!`, the final output would be `hello%20world%21`.

Elements

The templates offers the following main elements that help define the integration interactions, ensuring that the template can seamlessly connect with the third-party system and process data based on integration requirements.

The following example shows the main structure of the template.

```
<Information>
  <Scenarios>
    <Scenario Id="1" Type="REST">
      <Parameters>
        <Parameter Name="example" Value="example"></Parameter>
        ...
      </Parameters>
      <Requests>
        <Request Name="ExampleRequest" Method="GET" URL="https:/
/api.example.com/getuser">
           <Outputs>
            <Output Name="ContactId" Path="data.#.id" Type="stri
ng"></Output>
            ...
          </Outputs>
        </Request>
      </Requests>
    </Scenario>
  </Scenarios>
</Information>
```

Main Element	Description
Information	The `<Information>` element is a root element of the XML template, providing the basic information and configuration overview through its attributes. It also contains the `<Scenarios>` child element to describe the functional scenarios and integration capabilities of the template. For the details of the attributes, see Template property.
Scenarios	The `<Scenarios>` element provides a collection of `<Scenario>` child elements, which contains further child elements, such as

Main Element	Description
	`<Parameters>`, `<Requests>`, and `<Outputs>`, to describe specific functional scenarios for the integration. The PBX will load the configured scenarios and execute the HTTP requests or operations defined within it. The template supports the following scenarios. • Authentication scenario • User association scenario • Automatic contact synchronization scenario • Automatic contact creation scenario • Automatic ticket creation scenario (for Helpdesk system only) • Call journal scenario **Note:** If the specified scenarios do not meet your requirements, you can manually edit the template configurations for supplementary usage. For more information, see Extended configurations.
Parameters	The `<Parameters>` element is used to define a collection of parameters that are associated with the scenarios or requests. These parameters typically include dynamic values or configuration settings required for the execution of the scenario. They can be passed in the request URL, body, or headers, depending on the use case.
Requests	This `<Requests>` element provides a collection of requests for the scenarios to implement specific features.
Outputs	The `<Outputs>` element contains a list of `<Output>` elements that define the data to be extracted from the API response.

Template property

The `<Information>` element provides the properties of the template, including the basic template information and configuration overview, as listed below:

Attribute	Description
Provider	The type of the template, with a fixed value of `crm` or `helpdesk`.
Name	The name of the template.
Key	Unique identifier for the template.
Logo	The filename of the logo.

Attribute	Description
Remark	A description or remark about the template.
Version	The version of the template. E.g. `1.0.0`.
AuthType	The authentication method used in the integration. • `none`: None authentication. • `basic`: Basic authentication. • `oauth2`: OAuth2 authentication.
MaxConcurrentRequest	The maximum number of concurrent HTTP requests allowed to the CRM/Helpdesk.
UserAssociation	Whether the User Association feature is enabled or not. • `0`: Disabled. • `1`: Enabled.
CallJournal	Whether the Call Journal feature is enabled or not. • `0`: Disabled. • `1`: Enabled.
CreateNewContact	Whether the Create New Contact feature is enabled or not. • `0`: Disabled. • `1`: Enabled.
CreateNewTicket	Whether the Create New Ticket Automatically feature is enabled or not. • `0`: Disabled. • `1`: Enabled.

Authentication scenario

This scenario defines the authentication method used by the CRM/Helpdesk system. The structure of the scenario and its key elements are outlined as below:

```
<Scenario Id="AuthMethod" Type="AUTH">
  <Presets></Presets>
  <Parameters>
   <Parameter Name="AuthMethod" Value="oauth2"></Parameter>
   <Parameter Name="AuthEndPoint"
Value="https://api.example.com/oauth/v2/auth?client_id={{.client_id}}"></P
arameter>
   <Parameter Name="TokenEndPoint"
Value="https://api.example.com/oauth/v2/token?client_id={{.client_id}}&amp
;client_secret={{.client_secret}}"></Parameter>
```

```
    <Parameter Name="AdditionalQueryString"></Parameter>
    <Parameter Name="Scope"
 Value="contacts.read,contacts.write,calls.read,calls.write,user.read,user.
write"></Parameter>
    <Parameter Name="CredentialType"></Parameter>
    <Parameter Name="Base64EncodedCredential"></Parameter>
    <Parameter Father="CustomFieldList" Name="client_id" Editor="password"
 Title="Client ID"></Parameter>
    <Parameter Father="CustomFieldList" Name="client_secret"
 Editor="password" Title="Client Secret"></Parameter>
   </Parameters>
   <Requests></Requests>
  </Scenario>
```

Here is a detailed explanation of the specific elements within the scenario.

Scenario element

The `<Scenario>` element has the following attributes:

Attribute	Description
Id	The unique identifier of the scenario, the value should be fixed as `AuthMethod`.
Type	The type of the scenario, the value is `AUTH`, which means the scenario will execute authentication operations.

Parameter element

Attribute	Description
Name	The name of the authentication parameter.
Value	The value of the authentication parameter.
Father	The name of a parent parameter (should be fixed as `CustomFieldList`), which serves as a container for the following child parameters, organizing custom fields that allow users to input values for the associated parameters in the configuration UI. **Note:** The variables captured in the custom fields are accessible for all the subsequent requests in the template. • `Name`: The variable name of the custom field, which can be reference in the template. • `Editor`: The type of the custom field.

Attribute	Description
	Valid value: ◦ `string`: A standard input field where users can enter plain text. ◦ `password`: A specialized input field for sensitive information, with text masked for privacy. ◦ `list`: A selectable list that allows users to choose from a pre-defined list of options. • `Title`: The title of the custom field. • `Value`: The pre-defined list of options.

Authentication parameters

Parameter	Description
AuthMethod	Authentication method. **Valid value**: • `none`: This method is used when there is no authentication required, or when the CRM/Helpdesk only requires relevant variables for data exchange, such as an API Key or a webhook URL. • `basic`: This method authenticate requests using credentials, such as username and password or an API key. These credentials are be base64-encoded into a basic string and included in a header field of every HTTP request sent to the CRM/Helpdesk. • `oauth2`: This method uses tokens to grant access without sharing credentials. It requires obtaining the necessary header and other parameters (e.g. OAuth access token) using specific API requests to the CRM/Helpdesk.
AuthEndPoint	The CRM/Helpdesk authorization URL that needs to be opened to initiate the authorization process. **Note:** This parameter is only available for `oauth2` authentication method.
TokenEndPoint	The CRM/Helpdesk API request URL for getting access token and refresh token. **Note:** This parameter is only available for `oauth2` authentication method.

Parameter	Description
AdditionalQueryString	If the CRM/Helpdesk system authenticates requests using query parameters instead of scope, you can add the query variables in this parameter. **Note:** This parameter is only available for `oauth2` authentication method.
Scope	Specify the scope of CRM/Helpdesk data that the PBX is allowed to access. **Note:** This parameter is only available for `oauth2` authentication method.
CredentialType	The type of the credential. **Note:** This parameter is only available for `basic` authentication method. **Valid value**: • `username_password` • `api_key`
Base64EncodedCredential	Define the combination format of the credential variables, which will be used to generate the basic authentication string. **Note:** This parameter is only available for `basic` authentication method. E.g. `{{.username:.password}}` or `{{.api_key:}}`.

User association scenario

This scenarios is used to retrieve the list of users from the CRM/Helpdesk system. The structure of the scenario and its key elements are outlined as below:

```
<Scenario Id="UserAssociation" Type="REST">
   <Parameters></Parameters>
   <Requests>
```

```
    <Request Name="UserAssociation" Method="GET"
 ResponseType="application/json" RequestEncoding=""
 URLFormat="https://www.api.example.com/v1/users?type=ActiveUsers">
      <Parameters></Parameters>
      <Outputs>
       <Output Name="UserUniqueId" Path="users.#.id" Type=""></Output>
       <Output Name="FirstName" Path="users.#.First_Name" Type=""></Output>
       <Output Name="LastName" Path="users.#.Last_Name" Type=""></Output>
       <Output Name="Email" Path="users.#.Email" Type=""></Output>
      </Outputs>
    </Request>
   </Requests>
</Scenario>
```

Here is a detailed explanation of the specific elements within the scenario.

Scenario element

The `<Scenario>` element has the following attributes:

Attribute	Description
Id	The unique identifier of the scenario, the value should be fixed as `UserAssociation`.
Type	The type of the scenario, the value is `REST`, which means the scenario will execute a REST API using an HTTP request.

Request element

The `<Request>` element has the following attributes:

Attribute	Description
Name	The name of the request, which helps to identify the request within the scenario. The value should be fixed as `UserAssociation`.
Method	The HTTP method to be used for the request. In this scenario, the default HTTP method is `GET`, you can modify it if necessary.
ResponseType	The expected response format for the request, which should be in **JSON** format (`application/json`).
RequestEncoding	How the request should be encoded. In this scenario, the value is empty.
URLFormat	The request URL of the API endpoint.

Output element

The `<Output>` element has the following attributes:

Attribute	Description
Name	The name of the output variable, which represents the variables need to be retrieved from the response data.
Path	The location of the desired data field within the API response, using a path syntax to access nested data (e.g. `users.#.id`).
Type	The data type of the output variable. In this template, the type is fixed as `string`.

Variables

Variable	Description
UserUniqueId	The unique ID of the CRM/Helpdesk user.
FirstName	The first name of the user.
LastName	The last name of the user.
Email	The email of the user.

Automatic contact synchronization scenario

This scenarios is used to search for contacts in the CRM/Helpdesk system, and the returned information can be used to implement CRM contacts searching, automatic contact synchronization and call popup. The structure of the scenario and its key elements are outlined as below:

```
<Scenario Id="SyncContactAuto" Type="REST">
 <Presets></Presets>
 <Parameters>
  <Parameter Name="ContactUrlType"
Value="retrieve_from_contact"></Parameter>
  <Parameter Name="URLFormat"></Parameter>
  <Parameter Name="ContactFieldForUri"
Value="data.#.contactUrl"></Parameter>
  <Parameter Name="ContactsIdEnable" Value="1"></Parameter>
  <Parameter Name="FirstNameEnable" Value="1"></Parameter>
  <Parameter Name="BusinessNumberEnable" Value="1"></Parameter>
  <Parameter Name="CustomValueEnable" Value="0"></Parameter>
 </Parameters>
 <Requests>
  <Request Name="Contacts" Method="GET" ResponseType="application/json"
RequestEncoding=""
URLFormat="https://www.api.example.com/v1/Contacts/search?criteria=((Phone
:equals:{{.Phone}})or(Home_Phone:equals:{{.Phone}})or(Mobile:equals:{{.Phon
e}})or(Asst_Phone:equals:{{.Phone}}))">
```

```
    <Parameters></Parameters>
    <Outputs>
     <Output Name="ContactsId" Path="data.#.id" Type=""></Output>
     <Output Name="FirstName" Path="data.#.First_Name" Type=""></Output>
     <Output Name="BusinessNumber" Path="data.#.Phone" Type=""></Output>
     ...
     <Output Name="CustomValue" Path="data.#.Owner" Type=""></Output>
    </Outputs>
   </Request>
  </Requests>
 </Scenario>
```

Here is a detailed explanation of the specific elements within the scenario.

Scenario element

The `<Scenario>` element has the following attributes:

Attribute	Description
Id	The unique identifier of the scenario, the value should be fixed as `SyncContactAuto`.
Type	The type of the scenario, the value is `REST`, which means the scenario will execute a REST API using an HTTP request.

Parameter element

The `<Parameter>` element provides has the following attributes:

Attribute	Description
Name	The name of the configuration settings used in the scenario.
Value	The value of the configuration settings.

Configuration settings

Setting	Description
ContactUrlType	Specify the method for retrieving the contact URL for call popup. **Valid value**: • `specify_url_format`: Configure the call popup URL by specifying the URL format, where you can use variables to dynamically construct the URL.

Setting	Description
	• `retrieve_from_contact`: Extract the contact URL directly from a specific field in the contact search response, where the contact URL can be retrieved.
URLFormat	The expression of the Contact URL. The following variables can be used to construct the URL. • The variables captured from the custom field inputs in the authentication process. • `ContactSyncType`: The contact type, which is retrieve from the name of the request used to search specific types of contact. • `ContactId`: The contact ID, which is retrieved from the response data in this scenario. • `CustomValue`: A custom field, which is retrieved from the response data in this scenario. For example, `{{.crm_url}}/crm/{{.CustomValue}}/tab/{{Capitalize .ContactSyncType}}/{{.ContactId}}`. **Note:** If the provided variables do not meet your requirements, you can define additional requests and retrieve the corresponding values for your desired variables. For more information, see Extended Configurations - Retrieve Additional Variables.
ContactFieldForUri	The JSON path used to retrieve the corresponding field for the contact URL from the response data. For example, `.data.#.contactUrl`.
ContactsIdEnable	Whether to retrieve contact's ID from the response data. The value should be set to `1`.
FirstNameEnable	Whether to retrieve the contact's first name from the response data. The value should be set to `1`.
LastNameEnable	Whether to retrieve the contact's last name from the response data. **Valid value**: • `0`: Do not retrieve the data. • `1`: Retrieve the data.
CompanyEnable	Whether to retrieve the contact's company from the response data.

Setting	Description
	Valid value: • `0`: Do not retrieve the data. • `1`: Retrieve the data.
EmailEnable	Whether to retrieve the contact's email from the response data. **Valid value**: • `0`: Do not retrieve the data. • `1`: Retrieve the data.
BusinessNumberEnable	Whether to retrieve the contact's business phone number from the response data. **Note:** At least one phone number is required. **Valid value**: • `0`: Do not retrieve the data. • `1`: Retrieve the data.
BusinessNumber2Enable	Whether to retrieve the contact's second business phone number from the response data. **Valid value**: • `0`: Do not retrieve the data. • `1`: Retrieve the data.
BusinessFaxNumberEnable	Whether to retrieve the contact's business fax number from the response data. **Valid value**: • `0`: Do not retrieve the data. • `1`: Retrieve the data.
MobileNumberEnable	Whether to retrieve the contact's mobile number from the response data. **Valid value**: • `0`: Do not retrieve the data. • `1`: Retrieve the data.
MobileNumber2Enable	Whether to retrieve the contact's second mobile number from the response data. **Valid value**:

Setting	Description
	• `0`: Do not retrieve the data. • `1`: Retrieve the data.
HomeNumberEnable	Whether to retrieve the contact's home number from the response data. **Valid value**: • `0`: Do not retrieve the data. • `1`: Retrieve the data.
HomeNumber2Enable	Whether to retrieve the contact's second home number from the response data. **Valid value**: • `0`: Do not retrieve the data. • `1`: Retrieve the data.
HomeFaxNumberEnable	Whether to retrieve the contact's home fax number from the response data. **Valid value**: • `0`: Do not retrieve the data. • `1`: Retrieve the data.
OtherNumberEnable	Whether to retrieve the contact's other type of number (other than business number or home number) from the response data. **Valid value**: • `0`: Do not retrieve the data. • `1`: Retrieve the data.
ZipCodeEnable	Whether to retrieve the zip code from the response data. **Valid value**: • `0`: Do not retrieve the data. • `1`: Retrieve the data.
StreetEnable	Whether to retrieve the street from the response data. **Valid value**: • `0`: Do not retrieve the data. • `1`: Retrieve the data.
CityEnable	Whether to retrieve the city from the response data. **Valid value**: • `0`: Do not retrieve the data. • `1`: Retrieve the data.

Setting	Description
StateEnable	Whether to retrieve the state/province from the response data. **Valid value**: • `0`: Do not retrieve the data. • `1`: Retrieve the data.
CountryEnable	Whether to retrieve the country from the response data. **Valid value**: • `0`: Do not retrieve the data. • `1`: Retrieve the data.
RemarkEnable	Whether to retrieve the remark for the contact from the response data. **Valid value**: • `0`: Do not retrieve the data. • `1`: Retrieve the data.
CustomValueEnable	Whether to enable a custom variable, which can be used to construct the Contact's URL. **Valid value**: • `0`: Disable. • `1`: Enable.

Request element

The `<Request>` element has the following attributes:

Attribute	Description
Name	The name of the request, which helps to identify the request within the scenario. **Note:** The value should be the actual name of the specific contact type to be searched in the CRM/Helpdesk system, and will be referenced as a `ContactSyncType` variable.
Method	The HTTP method to be used for the request. In this scenario, the default HTTP method is `GET`, you can modify it if necessary.
ResponseType	The expected response format for the request, which should be in **JSON** format (`application/json`).

Attribute	Description
RequestEncoding	How the request should be encoded. In this scenario, the value is empty.
URLFormat	The request URL of the API endpoint.

Output element

The `<Output>` element has the following attributes:

Attribute	Description
Name	The name of the output variable, which represents the variables need to be retrieved from the response data.
Path	The location of the desired data field within the API response, using a path syntax to access nested data (e.g. `users.#.id`).
Type	The data type of the output variable. In this template, the type is fixed as `string`.

Variables

Variable	Description
ContactsId	**(Required)** The unique ID of the contact.
FirstName	**(Required)** The first name of the contact.
LastName	The last name of the contact.
Company	The company of the contact.
Email	The email of the contact.
BusinessNumber	The business phone number of the contact. **Note:** At least one phone number is required.
BusinessNumber2	The second business phone number of the contact.
BusinessFaxNumber	The business fax number of the contact.
MobileNumber	The mobile number of the contact.
MobileNumber2	The second mobile number of the contact.
HomeNumber	The home number of the contact.

Variable	Description
HomeNumber 2	The second home number of the contact.
HomeFaxNumber	The home fax number of the contact.
OtherNumber	The other type of phone number of the contact.
ZipCode	Zip code.
Street	Street.
City	City.
State	State or province.
Country	Country.
Remark	Remark.
CustomValue	A custom variable, which is used to construct the Contact's URL.

Automatic contact creation scenario

This scenarios is used to create a new contact in the CRM/Helpdesk system when the caller's number does not match any existing contact. The structure of the scenario and its key elements are outlined as below:

```
<Scenario Id="CreateNewContact" Type="REST">

  <Parameters></Parameters>
  <Requests>
   <Request Name="Contacts" Method="POST" ResponseType="application/json"
RequestEncoding="" URLFormat="https://www.api.example.com/v1/Contacts">
    <Parameters>
     <Parameter Name="Data" Type="Body" Value="{"data":
[{"Last_Name":"{{.LastName}}","First_Name":"{{.FirstName}}","Phone":"{{.Bu
sinessNumber}}";}]}"></Parameter>
    </Parameters>
    <Outputs></Outputs>
   </Request>
  </Requests>
 </Scenario>
```

Here is a detailed explanation of the specific elements within the scenario.

Scenario element

The `<Scenario>` element has the following attributes:

Attribute	Description
Id	The unique identifier of the scenario, the value should be fixed as `CreateNewContact`.
Type	The type of the scenario, the value is `REST`, which means the scenario will execute a REST API using an HTTP request.

Request element

The `<Request>` element has the following attributes:

Attribute	Description
Name	The name of the request, which helps to identify the request within the scenario. **Note:** The value should be the actual name of the specific contact type to be created in the CRM/Helpdesk system.
Method	The HTTP method to be used for the request. In this scenario, the HTTP method is `POST`.
ResponseType	The expected response format for the request, which should be in **JSON** format (`application/json`).
RequestEncoding	How the request should be encoded. In this scenario, the value is empty.
URLFormat	The request URL of the API endpoint.

Parameter element

The `<Parameter>` element nested within the `<Request>` element defines the parameters included in the request body.

Attribute	Description
Name	The name of the parameter, which should be fixed as `Data`.
Type	The type of the parameter, which should be fixed as `Body`.
Value	Defines the required parameters to be passed through the request body, within a `data` structure. The parameter values can be retrieved from the pre-defined variables in the PBX system. **Note:**

Attribute	Description
	The format should follows XML parameter standards. For example, if a line break is required, you must use the escape character `
` to represent a newline.

Variables

> **Note:**
> Only required variables are listed here. If you need additional parameters and variables, see Extended Configurations - Retrieve Additional Variables.

Variable	Description
{{.LastName}}	The last name of the contact.
{{.FirstName}}	The first name of the contact.
{{.BusinessNumber}}	The phone number of the contact.

Automatic ticket creation scenario (for Helpdesk system only)

This scenarios is used to create a new ticket in the Helpdesk system. The structure of the scenario and its key elements are outlined as below:

```
<Scenario Id="CreateNewTicket" Type="REST" >
   <Presets></Presets>
   <Parameters>
    <Parameter Name="EnableSubject" Value="1"></Parameter>
    <Parameter Name="Subject" Value="{{.Communication_Type}}
 {{.Call_Status}} - from {{.Call_From}} to {{.Call_To}}"></Parameter>
    <Parameter Name="EnableDescription" Value="1"></Parameter>
    <Parameter Name="Description" Value="{{.Time}} {{.Communication_Type}}
 {{.Call_Status}} - from {{.Call_From}} to {{.Call_To}}
 {{.Talk_Duration}}"></Parameter>
   </Parameters>
   <Requests>
    <Request Name="CreateNewTicket" Method="POST" Weight="0"
 ResponseType="application/json" RequestEncoding=""
 URLFormat="https://{{.domain}}/api/v1/tickets">
     <Parameters>
```

```
      <Parameter Name="Data" Type="Body"
 Value="{"subject":"{{.Subject}}","contactId":"{{.ContactId}}","phone":"{{.
ContactNumber}}","description":"{{.Description}}";}"></Parameter>
     </Parameters>
     <Outputs></Outputs>
    </Request>
   </Requests>
</Scenario>
```

Here is a detailed explanation of the specific elements within the scenario.

Scenario element

The `<Scenario>` element has the following attributes:

Attribute	Description
Id	The unique identifier of the scenario, the value should be fixed as `CreateNewTicket`.
Type	The type of the scenario, the value is `REST`, which means the scenario will execute a REST API using an HTTP request.

Parameter element

Attribute	Description
Name	The name of the configuration settings used in the scenario.
Value	The value of the configuration settings.

Configuration settings

Settings	Description
EnableSubject	Whether to allow users to customize the subject of the ticket. **Valid value**: • `0`: Disable. • `1`: Enable.
Subject	Specify the default value of the subject. **Note:** The default value is `{{.Communication_Type}} {{.Call_Status}} - from {{.Call_From}} to {{.Call_To}}`. For more supported variables, see the parameter variable list.

Settings	Description
EnableDescription	Whether to allow users to customize the description of the ticket. **Valid value**: • `0`: Disable. • `1`: Enable.
Description	Specify the default value of the description. **Note:** The default value is `{{.Time}} {{.Communication_Type}} {{.Call_Status}} - from {{.Call_From}} to {{.Call_To}} {{.Talk_Duration}}`. For more supported variables, see the parameter variable list.

Request element

The `<Request>` element has the following attributes:

Attribute	Description
Name	The name of the request, which helps to identify the request within the scenario. The value should be fixed as `CreateNewTicket`.
Method	The HTTP method to be used for the request. In this scenario, the HTTP method is `POST`.
ResponseType	The expected response format for the request, which should be in **JSON** format (`application/json`).
RequestEncoding	How the request should be encoded. In this scenario, the value is empty.
URLFormat	The request URL of the API endpoint.

Parameter element

The `<Parameter>` element nested within the `<Request>` element defines the parameters included in the request body.

Attribute	Description
Name	The name of the parameter, which should be fixed as `Data`.
Type	The type of the parameter, which should be fixed as `Body`.
Value	Defines the required parameters to be passed through the request body. The parameter values can be retrieved from the pre-defined variables in the PBX system.

Attribute	Description
	Note: The format should follows XML parameter standards. For example, if a line break is required, you must use the escape character `
` to represent a newline.

Variables

> **Note:**
> Only required variables are listed here. If you need additional parameters and variables, see Extended Configurations - Retrieve Additional Variables.

Variable	Description
Variables obtained from the `AuthMethod` scenario	The variables captured from the user input for authentication process.
{{.Subject}}	The subject of the ticket. This variable value is retrieved from the `Subject` parameter.
{{.Description}}	The description of the ticket. The variable value is retrieved from the `Description` parameter.
{{.Time}}	The time the call was made or received (in PBX system's time format).
{{.StartTimeUnix }}	The Unix timestamp of the call start time.
{{.EndTimeUnix}}	The Unix timestamp of the call end time.
{{.Call_From }}	The name and number of the calling party that initiated the call. **Format**: `Caller’s name <Caller’s number>`.
{{.CallerName}}	Caller’s name.
{{.CallerNumber}}	Caller’s number.
{{.CalleeName}}	Callee’s name.
	Callee’s number.

Variable	Description
{{.CalleeNumber}}	
{{.CrmId}}	The unique ID of the CRM/Helpdesk user associated with a PBX extension.
{{.ExtensionFirstName}}	The first name of the extension user.
{{.ExtensionLastName}}	The last name of the extension user.
{{.ExtensionEmail}}	The email of the extension user.
{{.ContactSyncType}}	The type of the contact.
{{.ContactNumber}}	The number of the contact.
{{.ContactId}}	The unique ID of a contact.
{{.TicketId}}	The unique ID of the ticket created based on a call. **Note:** To get the ticket ID, you need to configure additional settings in the template. For more information, see Extended Configuration - Retrieve Ticket ID.
{{.CallDuration}}	The time between the call stared and the call ended.
{{.Talk_Duration}}	The time between the call answered and the call ended (in a format of `hh:mm:ss`).
{{.Talk_Duration_Sec}}	The time between the call answered and the call ended (in seconds).
{{.Communication_Type}}	The direction of the call. **Possible value**: • `Inbound`: Inbound call. • `Outbound`: Outbound call.
{{.Call_Status}}	The processing status of the call. **Possible value**: • `Missed`: A call that was not answered.

Variable	Description
	• `Completed`: A call that was successfully connected and completed.
{{.Call_Log_Status}}	The status of the call. **Possible value**: • `Missed Call`: A call that was not answered, • `Outgoing Call`: An outbound call that was initiated by the system. • `Incoming Call`: An inbound call that was received by the system. • `Voicemail`: A call that was not answered and was directed to voicemail.
{{.CallDisposition}}	The disposition of the call. **Possible value**: • `MISSED`: The call was not answered. • `VOICEMAIL`: The call was sent to voicemail. • `BUSY`: The recipient was on another call and could not answer. • `ANSWERED`: The call was successfully answered. • `NO ANSWER`: The recipient did not answer the call.

Call journal scenario

This scenarios is used to log the call activities of associated users to the CRM / Helpdesk. The structure of the scenario and its key elements are outlined as below:

```
 <Scenario Id="CallJournal" Type="REST">
  <Presets></Presets>
  <Parameters>
   <Parameter Name="EnableSubject" Value="1"></Parameter>
   <Parameter Name="Subject" Value="Extension Call"></Parameter>
   <Parameter Name="EnableDescription" Value="1"></Parameter>
   <Parameter Name="Description" Value="Call: {{.Time}}
{{.Call_Log_Status}} from {{.Call_From}} to {{.Call_To}}
{{.Talk_Duration}}"></Parameter>
   <Parameter Name="EnablePlayCallRecording" Value="1"></Parameter>
   <Parameter Name="PlayCallRecording" Value="0"></Parameter>
  </Parameters>
  <Requests>
   <Request Name="CallJournal" Method="POST" Weight="0"
ResponseType="application/json" RequestEncoding=""
URLFormat="https://www.api.example.com/crm/v2/Calls">
    <Parameters>
```

```
      <Parameter Name="Data" Type="Body"
 Value="{"data"[{"{{.Owner}}{{.WhoModule}}":
 {"Description":"{{.Description}}","Voice_Recording__s":"{{.RecordPath}}","
Call_Start_Time":"{{TimeFormat .StartTimeUnix "yyyy-MM-ddTHH:mm:ss-z"
 "1"}}","Subject&":"{{.Subject}}","Call_Type":
 "Inbound","Call_Result": "{{.Call_Log_Status}}","Call_Duration":
 "{{.Talk_Duration_Sec}}"}}]}"></Parameter>
     </Parameters>
     <Outputs></Outputs>
   </Request>
  </Requests>
 </Scenario>
```

Here is a detailed explanation of the specific elements within the scenario.

Scenario element

The `<Scenario>` element has the following attributes:

Attribute	Description
Id	The unique identifier of the scenario, the value should be fixed as `CallJournal`.
Type	The type of the scenario, the value is `REST`, which means the scenario will execute a REST API using an HTTP request.

Parameter element

Attribute	Description
Name	The name of the configuration settings used in the scenario.
Value	The value of the configuration settings.

Configuration settings

Settings	Description
EnableSubject	Whether to allow users to customize the subject of the call log. **Valid value**: • `0`: Disable. • `1`: Enable.
Subject	Specify the default value of the subject. **Note:**

Settings	Description
	The default value is `Extension Call`, you can also specify the subject using the supported variables.
EnableDescription	Whether to allow users to customize the description of the call log. **Valid value**: • `0`: Disable. • `1`: Enable.
Description	Specify the default value of the description. **Note:** The default value is `{{.Time}} {{.Communication_Type}} {{.Call_Status}} - from {{.Call_From}} to {{.Call_To}} {{.Talk_Duration}}`. For more supported variables, see the parameter variable list.
EnablePlayCallRecording	Whether to allow users to configure the option for playing call recordings in the CRM. **Valid value**: • `0`: Disable. • `1`: Enable.
PlayCallRecording	Specify the default status of the call recording playback option. **Valid value**: • `0`: Disable. • `1`: Enable.

Request element

The `<Request>` element has the following attributes:

Attribute	Description
Name	The name of the request, which helps to identify the request within the scenario. The value should be fixed as `CallJournal`.
Method	The HTTP method to be used for the request. In this scenario, the HTTP method is `POST`.
ResponseType	The expected response format for the request, which should be in **JSON** format (`application/json`).
RequestEncoding	How the request should be encoded. In this scenario, the value is empty.

Attribute	Description
URLFormat	The request URL of the API endpoint.

Parameter element

The `<Parameter>` element nested within the `<Request>` element defines the parameters included in the request body.

Attribute	Description
Name	The name of the parameter, which should be fixed as `Data`.
Type	The type of the parameter, which should be fixed as `Body`.
Value	Defines the required parameters to be passed through the request body. The parameter values can be retrieved from the pre-defined variables in the PBX system. **Note:** The format should follows XML parameter standards. For example, if a line break is required, you must use the escape character `
` to represent a newline.

Variables

> **Note:**
> Only required variables are listed here. If you need additional parameters and variables, see Extended Configurations - Retrieve Additional Variables.

Variable	Description
Variables obtained from the `AuthMethod` scenario	The variables captured from the user input for authentication process.
{{.Subject}}	The subject of the call. This variable value is retrieved from the `Subject` parameter.
{{.Description}}	The description of the call. The variable value is retrieved from the `Description` parameter.
{{.Time}}	The time the call was made or received (in PBX system's time format).

Variable	Description
{{.StartTime Unix }}	The Unix timestamp of the call start time.
{{.EndTimeUnix}}	The Unix timestamp of the call end time.
{{.Call_From }}	The name and number of the calling party that initiated the call. **Format**: `Caller’s name <Caller’s number>`.
{{.CallerName}}	Caller’s name.
{{.CallerNumber}}	Caller’s number.
{{.CalleeName}}	Callee’s name.
{{.CalleeNumber}}	Callee’s number.
{{.CrmId}}	The unique ID of the CRM/Helpdesk user associated with a PBX extension.
{{.ExtensionFirstName}}	The first name of the extension user.
{{.ExtensionLastName}}	The last name of the extension user.
{{.ExtensionEmail}}	The email of the extension user.
{{.ContactSyncType}}	The type of the contact.
{{.ContactNumber}}	The number of the contact.
{{.ContactId}}	The unique ID of a contact.
{{.TicketId}}	The unique ID of the ticket created based on a call. **Note:** To get the ticket ID, you need to configure additional settings in the template. For more information, see Extended Configuration - Retrieve Ticket ID.
{{.CallDuration}}	The time between the call stared and the call ended.

Variable	Description
{{.Talk_Duration}}	The time between the call answered and the call ended (in a format of `hh:mm:ss`).
{{.Talk_Duration_Sec}}	The time between the call answered and the call ended (in seconds).
{{.Communication_Type}}	The direction of the call. **Possible value**: • `Inbound`: Inbound call. • `Outbound`: Outbound call.
{{.Call_Status}}	The processing status of the call. **Possible value**: • `Missed`: A call that was not answered. • `Completed`: A call that was successfully connected and completed.
{{.Call_Log_Status}}	The status of the call. **Possible value**: • `Missed Call`: A call that was not answered, • `Outgoing Call`: An outbound call that was initiated by the system. • `Incoming Call`: An inbound call that was received by the system. • `Voicemail`: A call that was not answered and was directed to voicemail.
{{.CallDisposition}}	The disposition of the call. **Possible value**: • `MISSED`: The call was not answered. • `VOICEMAIL`: The call was sent to voicemail. • `BUSY`: The recipient was on another call and could not answer. • `ANSWERED`: The call was successfully answered. • `NO ANSWER`: The recipient did not answer the call.
{{.EnableCallRecording}}	Whether the call recording is enabled. **Possible value**: • `0`: Disabled. • `1`: Enabled.

Extended configurations

In addition to the scenarios specified in the configuration page, you can also manually add custom configurations for supplementary use.

> **Important:**
> After modification, if the template is updated via the PBX web portal, the custom configurations might be overwritten unexpectedly.

Set custom request headers

If custom request headers are needed, you can add parameter(s) with the type set to `Header`. This will add the headers to the request body.

As shown in the following example, a `X-Auth-Token` header is used to pass the API key. The `Father` attribute (fixed as `PopulateTemplateString`) groups a set of related parameters, while the `Type` (fixed as `Header`) indicates that the parameter is intended to be passed as an HTTP header. The `Name` and `value` specify the header's name and value. In this case, the header included in the request would be `X-Auth-Token:{{.api_key}}`.

```
 <Requests>
        <Request Name="contacts" Method="GET" ResponseType="appl
ication/json" URLFormat="https://api.example.come/contacts/searc
h?number={{.Phone}}">
          <Parameters>
            <Parameter Father="PopulateTemplateString" Name="X-A
uth-Token" Type="Header" Value="{{.api_key}}" />
          </Parameters>
          <Outputs>
           ...
          </Outputs>
        </Request>
```

Identify token errors

In the `AuthMethod` scenario, you can add a parameter `TokenInvalid` to help identify whether the issue in the request is related to the token or other underlying problems.

You can refer to the following example, and change the `Value` to the token-related error code or specific content. If the HTTP status code returned is not

`200` and the response body contains the content specified in `Value`, the error will recognized as **TokenInvalid**.

```
   <Scenario Id="AuthMethod" Type="AUTH">
      <Presets />
      <Parameters>
        <Parameter Name="AuthMethod" Value="oauth2" />
        ...
        <Parameter Father="TokenErrorMap" Type="TokenInvalid" Na
me="TokenInvalid" Value="INVALID_TOKEN" />
        ...
      </Parameters>
      <Requests />
      <Responses />
    </Scenario>
```

Retrieve additional variables for global use

If you require additional variables beyond the provided ones, if you want to use certain common information globally during the integration process, you can define a `GetGlobalInfo` scenario and set up the related requests to retrieve the necessary values.

When the integration is completed or the PBX is started, requests set within the `GetGlobalInfo` scenario will be sent to the CRM/Helpdesk system, and the required variables will be stored in the `Output` elements, with their names directly corresponding to the variable names, making them accessible for reference in other scenarios (excluding the authentication scenario).

As shown in the following example, the `GetGlobalInfo` scenario contains requests for retrieving essential information `DepartmentId` and `PortalName`.

```
<Scenario Id="GetGlobalInfo" Type="REST">
      <Presets />
      <Parameters />
      <Requests>
        <Request Name="GetDepartments" Method="GET" ResponseType
="application/json" URLFormat="https://desk.example.{{.domain_su
ffix}}/api/v1/departments">
          <Parameters />
          <Outputs>
            <Output Name="DepartmentId" Path="data.#.id" />
          </Outputs>
        </Request>
```

```
        <Request Name="GetOrganizations" Method="GET" ResponseTy
pe="application/json" URLFormat="https://desk.example.{{.domain_
suffix}}/api/v1/organizations">
          <Parameters />
          <Outputs>
            <Output Name="PortalName" Path="data.#(portalName!="
").portalName" />
          </Outputs>
        </Request>
      </Requests>
</Scenario>
```

Supplement contact query information

If the initial query for contact information does not return all the necessary information you need, further queries may be required using the returned contact ID or other contact information.

As shown in the example below, in a scenario of contact synchronizing, the initial query request does not return the desired phone numbers.

```
<Scenario Id="SyncContactAuto" Type="REST">
   <Presets />
   <Parameters>
     <Parameter Name="ContactUrlType" Value="specify_url_format"
 />
        ...
     </Parameters>
     <Requests>
       <Request Name="contacts" Method="GET" ResponseType="appli
cation/json" URLFormat="https://{{.subdomain}}.example.com/api/v
2/users?query=phone:{{UrlEncode .Phone}}&role[]=end-user">
         <Parameters />
         <Outputs Next="GetIdentities">
            <Output Name="ContactsId" Path="users.#.id" />
            <Output Name="FirstName" Path="users.#.name" />
            <Output Name="BusinessNumber" Path="users.#.phone" /
>
            ...
            //The following phone number fields returns empty.

            <Output Name="BusinessNumber2" Path=""></Output>

            <Output Name="BusinessFaxNumber" Path=""></Output>
            <Output Name="MobileNumber" Path=""></Output>
```

```
          <Output Name="MobileNumber2" Path=""></Output>
          <Output Name="HomeNumber" Path=""></Output>
          <Output Name="HomeNumber2" Path=""></Output>
          ...
        </Outputs>
      </Request>
    </Requests>
  </Scenario>
```

In this case, you can perform a further query to retrieve the desired numbers by chaining scenarios, as described in the following steps:

1. **Add a Next Attribute in the original scenario**

   In the contact synchronizing scenario, add a `Next` attribute in the `<Outputs>` element of the initial query request. The attribute value must be the name of the desired request configured in the `Common` scenario. In this example, the request name is `GetIdentities`.

   ```
   <Outputs Next="GetIdentities">
   ```

2. **Create a Common scenario**

   Create a scenario named `Common` with a type of `REST` (both the name and type are fixed), then add a request named `GetIdentities` to query additional contact information using the variable `{{.ContactsId}}` obtained from the initial request.

   ```
   <Scenario Id="Common" Type="REST">
     <Presets></Presets>
     <Parameters></Parameters>
     <Requests>
       <Request Name="GetIdentities" Method="GET" URLFormat="https://{{.subdomain}}.example.com/api/v2/users/{{.ContactsId}}/identities"  ResponseType="application/json">
         <Parameters></Parameters>
         <Outputs>
           <Output Name="BusinessNumber2" Path="identities.#(type=="phone_number")#|1.value"></Output>
           <Output Name="BusinessFaxNumber" Path="identities.#(type=="phone_number")#|2.value"></Output>
           <Output Name="MobileNumber" Path="identities.#(type=="phone_number")#|3.value"></Output>
           <Output Name="MobileNumber2" Path="identities.#(type=="phone_number")#|4.value"></Output>
   ```

```
        <Output Name="HomeNumber" Path="identities.#(type==
"phone_number")#|5.value"></Output>
        <Output Name="HomeNumber2" Path="identities.#(type=
="phone_number")#|6.value"></Output>
        <Output Name="HomeFaxNumber" Path="identities.#(typ
e=="phone_number")#|7.value"></Output>
        <Output Name="OtherNumber" Path="identities.#(type=
="phone_number")#|8.value"></Output>
       </Outputs>
    </Request>
   </Requests>
</Scenario>
```

Since the request is referenced via the `NEXT` attribute in the original scenario, the variable from the initial query will be passed to the request. The request will execute and backfill the `Outputs` into the initial request's response to complete the information.

Retrieve TicketID for further operations

In a Helpdesk integration template, you can configure additional settings to retrieve the ticket ID for subsequent operations, such as updating the ticket or referencing the variable in call journal.

For example, when the ticket is created before the call (i.e. when the phone rings), it might be missing some information. In this case, you can update the information for the created ticket by using the `TicketId` in the corresponding call record later, as described in the following steps:

```
<Scenario Id="CreateNewTicket" Type="REST">
   <Presets />
   <Parameters>
      <Parameter Name="EnableSubject" Value="1" />
      ...
      <Parameter Name="NeedSyncContact" Value="1" />
    </Parameters>
    <Requests>
       <Request Name="CreateNewTicket" Method="POST" ResponseTyp
e="application/json" URLFormat="https://{{.domain}}/api/v1/ticke
ts">
         <Parameters>
          <Parameter Name="Data" Type="Body" Value="{"department
Id":"{{.DepartmentId}}","subject":"{{.Subject}}","contactId":"{{
.ContactId}}","phone":"{{.ContactNumber}}","description":"{{.Des
cription}}"}" />
```

```
          </Parameters>
          <Outputs>
            <Output Name="TicketId" Path="id" />
          </Outputs>
        </Request>
        <Request Name="UpdateTicket" Method="POST" ResponseType=
"application/json" URLFormat="https://{{.domain}}/api/v1/tickets
/{{.TicketId}}/comments">
          <Parameters>
            <Parameter Name="Data" Type="Body" Value="{"isPublic
":"true","content":"{{.Description}}"}" />
          </Parameters>
        <Outputs />
       </Request>
    </Requests>
</Scenario>
```

1. **Retrieve ticket ID**
   In the `CreateNewTicket` scenario, add an `<Output>` element to extract the ticket ID from the response of `CreateNewTicket` request.

   ```
   <Outputs>
     <Output Name="TicketId" Path="id" />
   </Outputs>
   ```

   This allows the system to store the `TicketId` for future use.
2. **Update the ticket**
   Add a request to update the ticket in the corresponding call record using the previously retrieved ticket ID.

   ```
   <Request Name="UpdateTicket" Method="POST" ResponseType="ap
   plication/json" URLFormat="https://{{.domain}}/api/v1/ticke
   ts/{{.TicketId}}/comments">
      <Parameters>
        <Parameter Name="Data" Type="Body" Value="{"isPublic":
   "true","content":"{{.Description}}"}" />
      </Parameters>
      <Outputs />
   </Request>
   ```

   The ticket is updated with all necessary data after the initial creation.