



Cloud PBX  
Solutions

# Administrator's Guide

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## 1. Introduction

This document is intended for telecommunications operator employees (engineers, representatives) performing the configuration of the Cloud PBX Core platform (hereinafter referred to as the platform). The document describes the operation of the operator interface.

## 2. Terms and Abbreviations

CPBX	Cloud Private Branch Exchange
Subscriber	Operator employee with access to the operator interface
Client	Individual or legal entity using the operator's CPBX
Operator	Telecommunications operator
Platform	Cloud PBX Core platform

## 3. General Information About the Platform

The platform is designed to build scalable systems for intelligent processing of telephone calls.

The main application for the platform is a branded system of cloud private branch exchanges designed to operate within the operator's IMS/NGN network.

In addition to implementing all voice functions, the application also includes a client interface, an operator interface of the platform, and software interfaces for connecting platform services and integrating with external systems.

## 4. CPBX Structure

CPBX is an isolated virtual area allocated to a specific operator's client. Typically, one CPBX corresponds to only one customer. Within the CPBX, a list of departments and employees is formed, phone numbers are assigned, call routing logic is configured, and so on.

Each client's CPBX has its address — a domain (name). All client CPBXs are subordinate to the main operator's domain (operator's). The main domain can be assigned either a third- or fourth-level domain.

The main domain has the following format: unique-name.operator-domain

The domain of each client's CPBX has the following format: client-unique-name.operator-domain

The structure and examples of domain names are shown in the figure.

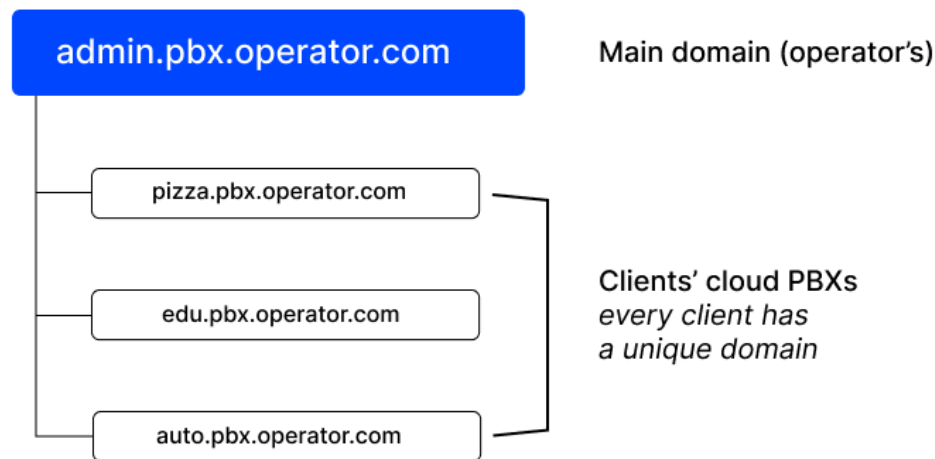


Figure 1: Domain names

## 5. Operator Interface

There are two interfaces provided for working with the platform:

- **Operator Interface** is designed for operators (engineers, reps). It is used to configure interaction with the client interface and make changes to the operator settings of the CPBX that are not accessible to the client.
- **Client Interface** provided to an end user for working with their CPBX.

The Operator Interface allows:

- Creating and managing settings for client domains (client's CPBX).
- Configuring access parameters to own equipment or the equipment of the upstream telecom operator.
- Configuring routing of external calls to/from the CPBX.
- Configuring call handling rules.

The Operator Interface consists of the following sections:

- **Domains** — client domains.
- **Phone numbers** — operator's phone numbers that can be distributed among domains.
- **Audit** - history of actions in the operator interface and client domains.
- **Gateways** — equipment for receiving and sending external calls in the network and from public switched telephone networks (PSTN) or GSM.
- **Routes** — routes for outgoing external calls through gateways. Call routes linked to domains.
- **Dial plans** — rules for translating numbers dialed by CPBX employees for making outgoing external calls.
- **Employees** — employees with access to the operator interface.
- **More** — additional settings required by the operator. By default, this section includes safety settings: installing an SSL certificate and IP address lists, but depending on operator requests, the list of settings may expand.
- **Logs** — direct access to logs from the operator interface.

- **Profile** — here, personal settings can be changed, or the password can be reset.

## 6. User Roles

For working with the operator interface, the following roles are provided:

- **System Administrator** can change all settings in the operator interface as well as the client interface.
- **Viewing System Administrator** has access to all settings in the operator interface but cannot modify them. Has access to all client interface settings and can modify them.
- **Viewing Administrator** has access to all settings in both the operator and client interfaces but cannot modify them.

## 7. Operator's Domain Connection

To work with the CPBX, end clients connect to their CPBX control panel using the operator's domain name, which needs to be connected. Each client is allocated an individual CPBX address in client-name.pbx.operator.com, where client-name is the client's name, and pbx.operator.com is the operator's domain name.

At the same time, the operator interface for managing the platform is accessible at the address admin.pbx.operator.com.

To connect your domain, you need to develop a domain name. You can place CPBX domains at the third level of your domain (client-name.operator.com) or the fourth level (for example, client-name.pbx.operator.com, where pbx can be replaced with tel, ats, vats, etc.). This is convenient if you use addresses at the third level for other services.

**Note:** It is recommended that the operator interface address be placed in the same zone. Otherwise, multiple SSL certificates will be required. For example, if clients access client-name.pbx.operator.com, the operator interface should be located at admin.pbx.operator.com, not admin.operator.com.

After you have come up with the address, you should contact technical support at support@digitaltide.io to receive the instructions for the required DNS records.

## 8. Initial Configuration

In this section, the initial configuration of the CPBX is described. All actions are performed in the operator interface.

To create and prepare a new CPBX for operation, follow these steps sequentially:

1. Configure gateways for sending and receiving external calls.
2. Create dial plans.
3. Create routes.
4. Form a pool of phone numbers.
5. Create client domains (CPBX).
6. Distribute phone numbers to created CPBXs.

## 9. Administration

This section describes various scenarios for working in the operator interface.

## 9.1. Gateways

The **Gateways** section contains a list of the operator's equipment from which external calls are received and to which they are sent in the network and from PSTN or GSM. Each gateway contains connection parameters and rules for transferring numbers in both directions.

### 9.1.1. How to Create a Gateway

#### 9.1.1.1. General Configuration

1. Go to the Gateways section. Click **Add a gateway**.

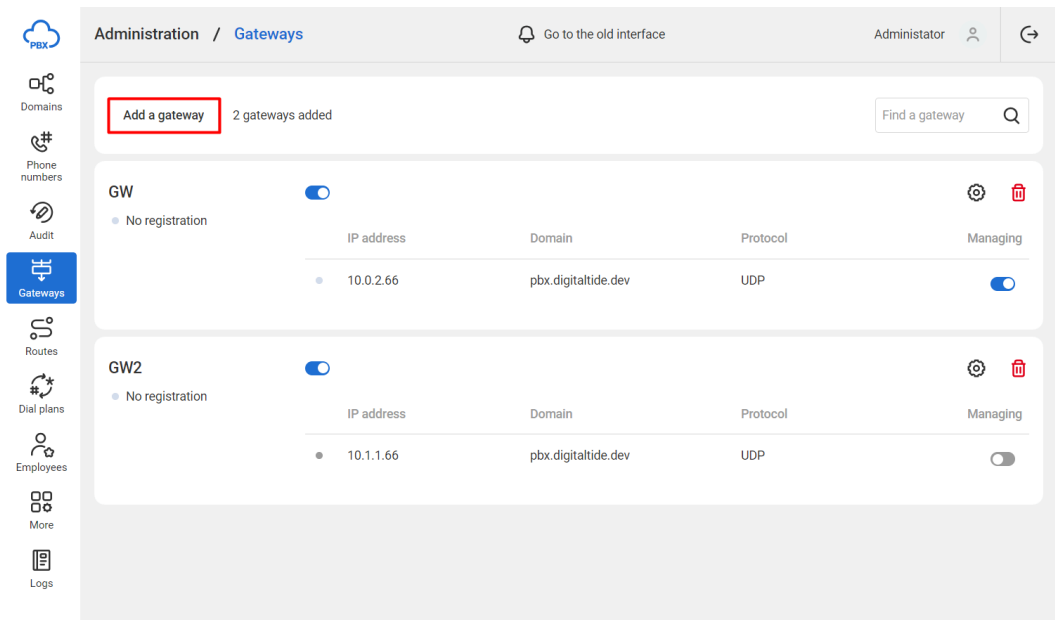


Figure 2: Gateways

2. A gateway creation form will open. Enter the gateway's title and description.

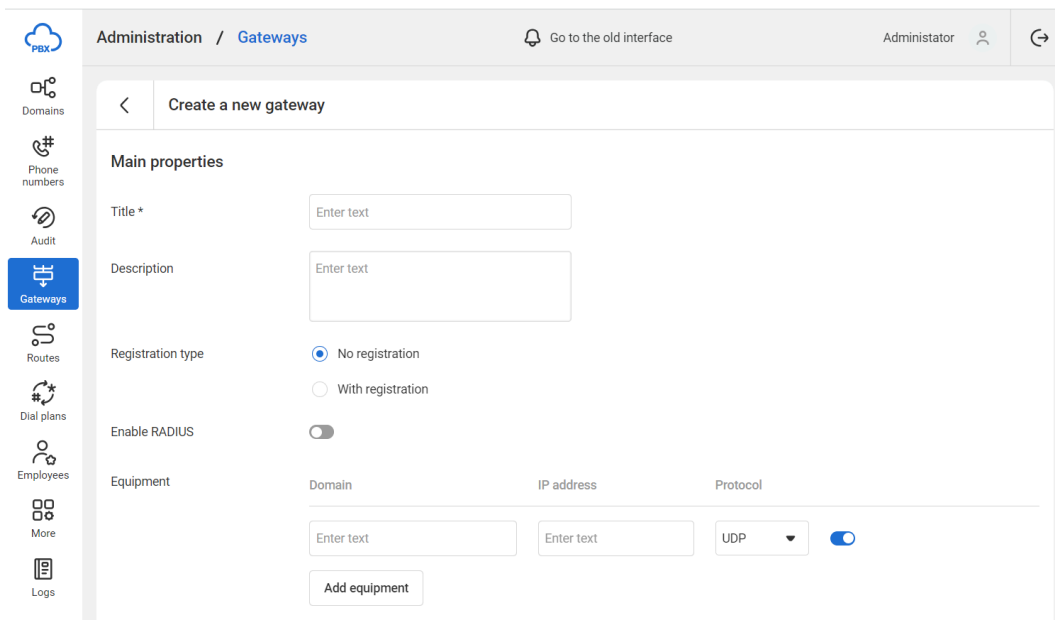


Figure 3: Gateways

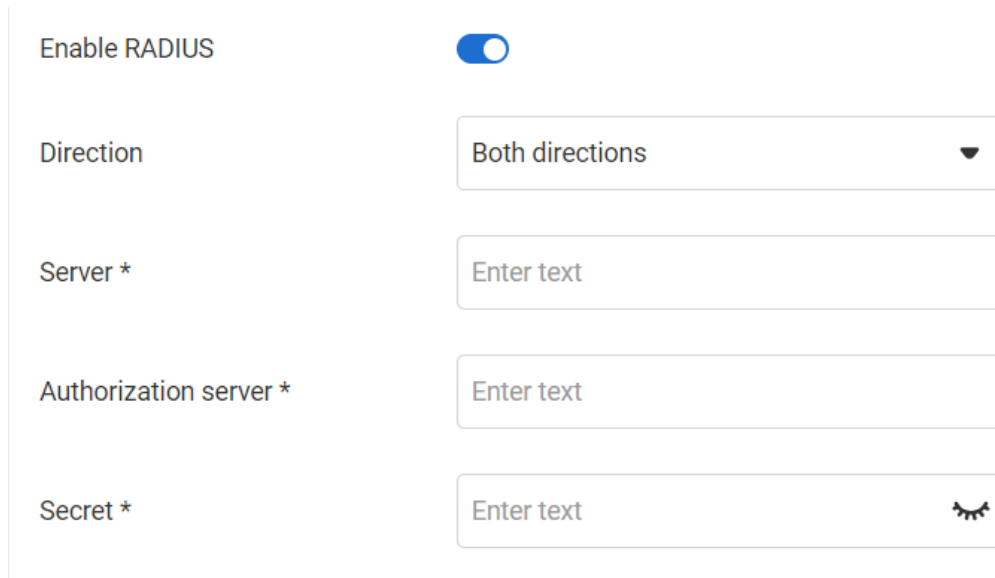
3. If necessary, configure integration with the billing system using the RADIUS protocol by enabling the **Enable RADIUS** switch. **Note:** Before enabling this option, contact Digital Tide technical support for each gateway.

When RADIUS is enabled, choose the call direction:

- Both Directions (all call directions will be processed),
- Incoming Calls (only incoming calls will be processed),
- Outgoing Calls (only outgoing calls will be processed).

Fill in the form fields according to your system's requirements:

- Server,
- Authentication Server,
- Secret.



Enable RADIUS ☒

Direction Both directions

Server \*

Authorization server \*

Secret \*

Figure 4: RADIUS

4. Specify the gateway type:

- **No registration** (most commonly used and recommended type, calls are authorized by IP address),
- **With registration** (registers with the operator's equipment and supports active registration at specified time intervals; calls are possible only with active registration).

Configuring a gateway with a registration has the following characteristics:

- Can contain max ten numbers,
- It's impossible to call anonymously,
- It's impossible to call with another caller ID.

#### 9.1.1.2. Configure a Gateway Without a Registration

##### 9.1.1.2.1. Equipment Settings

5. Fill in the Equipment form fields. This form only appears for gateways without registration.

- **Domain.** Enter the operator's gateway's domain name or IP address.

The value in this field will be indicated in the "Request URI" of the INVITE request from the platform, and the request itself will be sent to the IP address specified in the IP address field (if this field is filled).

- **IP address.** If the gateway receives incoming calls, enter the IP address of the operator's gateway. If the gateway does not receive incoming calls, you can leave the field blank. In this case, the request will be sent to the IP address obtained by the domain name.

**Note.** In the IP Address field, you can specify the port in the format IP address: port. For example, 103.112.60.255:9660. If a port is additionally specified in this field, the platform will accept calls from the operator's gateway only with the specified IP address: port pair. If the port is not specified, the platform will accept calls from the operator's gateway from any port but only with the specified IP address.

The logic of forming the INVITE request from the platform to the operator's gateway is as follows:

Domain	IP Address	INVITE Format	Sending Address for UDP*
mydomain.com	103.112.60.255	sip:number@mydomain.com	103.112.60.255:5060
103.112.60.255	103.112.60.255	sip:number@103.112.60.255	103.112.60.255:5060
103.112.60.255	77.125.5.47	sip:number@103.112.60.255	77.125.5.47:5060
mydomain.com	103.112.60.255:9660	sip:number@mydomain.com	103.112.60.255:9660
103.112.60.255	103.112.60.255:9660	sip:number@103.112.60.255	103.112.60.255:9660
103.112.60.255	103.112.60.255:9660	sip:number@103.112.60.255	77.125.5.47:9060

\* If a port is additionally specified in the IP Address field, the platform will send requests to the operator's gateway on the IP address:port pair. If the port is not specified, the platform will send requests to the operator's gateway on the IP address:5060 pair (standard port).

- **Protocol.** Choose the transport protocol (UDP, TCP, or TLS). The choice of the transport protocol depends on the protocols used by the operator's company.

Figure 5: Protocol

6. Add equipment if multiple backup IP addresses need to be used by clicking **Add equipment**. Arrows can be used to adjust the equipment order in the list.

Figure 6: Equipment

Configure the options for **Call Time on One Gateway** and **Session Expiry** by selecting values from the dropdown list.

**Call Time on One Gateway** (transaction timeout timer) - this is the maximum time the sender will wait to confirm the INVITE message.

**Session Expiry** (Session-Expires) - the period in seconds after which the session will be forcibly terminated if the session is not updated in time. To make the session indefinite, select **Disable**.

#### 9.1.1.3. Incoming Call Configuration

When configuring telephony settings, it is necessary to set up both inbound and outbound calls. In the **Setting up incoming calls** section, enable **Receive incoming calls**. This will reveal settings for the called number and the received Caller ID.

##### Setting up incoming calls

Receive incoming calls ☒

**Called number**

Gateway sends a number ☒ In E.164 format  
☐ In native format

Take an incoming number from ☒ Request URI  
☐ To

Figure 7: Equipment

##### 9.1.1.3.1. Called Number

For the called number, choose:

- The format in which the gateway sends the number - E.164 or a custom format.
- Where to retrieve the inbound number from - the Request URI field or the To field.

The platform works with numbers in the +E.164 format. Often, numbers arrive in a different format. Translation rules need to be set to convert the number to the +E.164 format.

### Setting up incoming calls

Receive incoming calls



#### Called number

Gateway sends a number



In E.164 format



In native format

Add a rule

Check number transformation:

0933741904198



Result

Take an incoming number from



Request URI



To

Figure 8: Format

To set a translation rule, enter the number to be translated in the left field and the translation result in the right field.

For example, if the incoming call number format is 093XXXXXXXXXX, and the platform expects numbers in the format +374XXXXXXXXXX, a translation rule needs to be defined.

093995355



37493995355

Add a rule

Figure 9: Translation

In the left field, rules can be set for a specific number or a universal rule can be configured using the following values:

- (n) — a specific number of digits.
- (n1-n2) — a range of digits from n1 to n2.
- \* — any sequence (will be passed “as is” from the original number).

To delete a rule, click **Delete**. Arrows can be used to specify the priority of translation rules. Translation rules are applied in the order they are listed in the table, so it's essential to place more specific rules at the top and more general rules at the bottom.

Enter the inbound number in the validation field to verify that the rules work correctly.

### 9.1.1.3.2. Accepted Caller IDs

If it is necessary to process the Caller ID sent by the operator's gateway, enable **Accepted caller IDs**.

**Accepted caller IDs**

Enable option ☒

Gateway sends a caller ID ☒ In E.164 format  
☐ In native format

Caller ID transmission fields

- ☒ From field ▼ ▲
- ☒ P-Asserted-Identity ▼ ▲
- ☒ P-Preferred-Identity ▼ ▲
- ☒ Remote-Party-Id ▼ ▲

Choose the format in which the gateway will send the Caller ID:

- In the E.164 format
- In a custom format.

If a custom number format is chosen, define the number transformation rules.

Depending on the technical architecture, select the fields:

- From field
- P-Asserted-Identity
- P-Preferred-Identity
- Remote-Party-Id.

Arrows can be used to specify the priority of field viewing. The first field is searched first. If found, its value is taken. If the field or value is not found, the second field is searched, and so on.

### 9.1.1.4. Outgoing Call Configuration

To use the FMC (Fixed Mobile Convergence) numbers as outbound, toggle the switch to the “Enabled” position. Failure to do so will result in the FMC numbers connected to this gateway not being usable as primary, personal, or regional outbound numbers. They will not be displayed in the “Settings” \* “More” \* “Outgoing numbers” section in a client’s account.

**Setting up outgoing calls**

FMC numbers ☒ Allow using FMC numbers as outgoing numbers

**Called number**

Gateway waiting number ☒ In E.164 format  
☐ In native format

**Caller ID sent**

Enable option ☐

Figure 10: Caller IDs

Next, specify the settings for the called number and the received Caller ID. For the called number, the settings in this section are similar to those for inbound calls.

#### 9.1.1.4.1. Caller ID Sent

If the operator's gateway expects a caller ID, enable the option in the **Caller ID sent** section.

**Caller ID sent**

Enable option ☒

Gateway awaits a caller ID ☒ In E.164 format  
☐ In native format

Gateway accepts caller IDs with prefixes Any prefixes  
Add prefix

Exceptions for caller IDs with prefixes Empty list  
Add prefix

Methods of sending a caller ID ☐ From field  
☐ P-Asserted-Identity  
☐ P-Preferred-Identity  
☐ Remote-Party-Id

Figure 11: Caller IDs

1. Choose the format in which the operator's gateway will send the number: in E.164 format or in a custom format.
2. Specify the prefixes of the caller IDs (outgoing numbers of the CPBX) that the gateway can accept. If the accepted caller ID satisfies the specified list, the call will be directed toward a telecom provider's gateway. If prefixes are not specified, the gateway will accept caller IDs with any prefixes.

- To specify prefixes, click “Add prefix” and enter the value.

### Caller ID sent

Enable option ☒

Gateway awaits a caller ID ☒ In E.164 format  
☐ In native format

Gateway accepts caller IDs with prefixes Any prefixes

**Add prefix**

Exceptions for caller IDs with prefixes Empty list

Add prefix

To add an additional prefix, click this button again. To delete a prefix, click the bin icon.

3. Exceptions for caller IDs with prefixes — specify the prefixes from which caller IDs will not be accepted. If prefixes are not specified, the gateway will accept caller IDs with any prefixes.
4. Choose the methods for sending the caller ID:
  - From field;
  - P-Asserted-Identity;
  - P-Preferred-Identity;
  - Remote-Party-Id.

The selected fields will be added to the outgoing request to the telecom provider's gateway.

Click **Save** to create the gateway. After saving, the general list of gateways will be displayed.

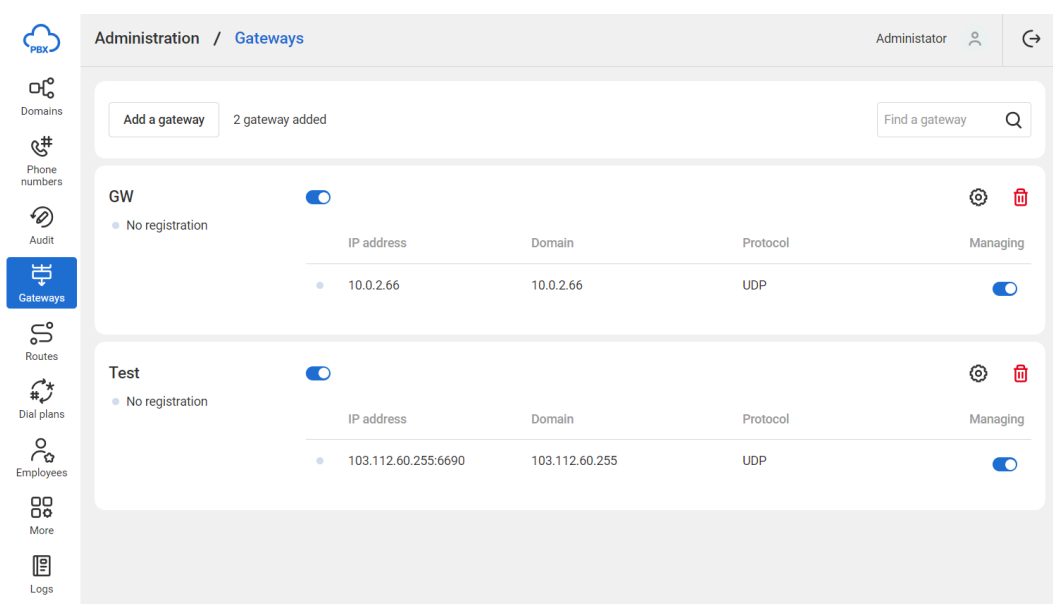


Figure 12: Gateways

Check the saved settings and modify the gateway settings if necessary by clicking on the gear icon next to the gateway name. After making changes, click the “Save” button.

### 9.1.2. Configuring a Gateway With Registration

To create a gateway with registration, you need to add the registration in the settings for inbound and outbound calls.

#### 9.1.2.1. Incoming Calls Configuration

1. In the “Setting up incoming calls” section, click the “Add registration” button.

Figure 13: Incoming calls

Fill in the form fields:

- **Number:** The phone number in the +E.164 format provided by the operator for its clients. Note: The entered number will automatically be added to the “Phone Numbers” section.
  - **Domain:** The domain name or IP address of the server where the registration takes place.
  - **IP address:** The IP address of the operator’s gateway. This field can be left empty. In this case, the registration request will be sent to the IP address obtained from the domain name.
  - **Username.**
  - **Authorization Name:** The user’s name during authorization. If not specified, the user name is used for login.
  - **Password:** The user’s password.
  - **Expiration Time:** Registration lifetime.
2. If you need to register additional equipment in the gateway settings, click the “Add Registration” link. To delete the registration, click the bin icon.
3. If necessary, change the “Send to Contact” option:
- Number
  - Username
  - Authorization name.

The “Send to Contact” option controls the value of the Contact field in the REGISTER request from the platform.

Fill in the settings for the accepted caller ID similarly to the instructions for the registration-free gateway.

#### 9.1.2.2. Outgoing Calls Configuration

7. In the “Setting up outgoing calls” section, you can:

- Use credentials for incoming calls by toggling the switch.
- Add another registration by clicking the “Add Registration” button and filling in all the fields similar to the registration in the inbound settings.

8. Fill in the settings for the called number and the sent caller ID similarly to the instructions for the registration-free gateway.

### 9.1.2.3. Other Actions With Gateways

For each gateway in the table, you can find:

- Title
- Equipment the gateway works with
- Gateway activity status. For gateways without registration, the status is not tracked (always gray), for gateways with registration, the following statuses are possible:
  - Green: registration is present
  - Gray: no registration.

You can search, block, and delete gateways directly from the gateway table and grant other employees access to manage gateways.

### 9.1.2.4. Finding a Gateway

To find a gateway, enter the title or part of the gateway title in the search bar. Press Enter. Only gateways with the searched fragment in their titles will be displayed in the list.

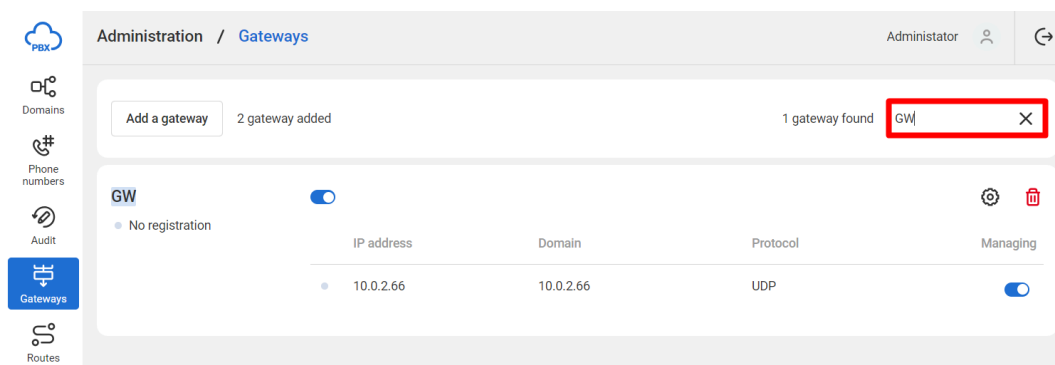


Figure 14: Finding

To return to the full list of gateways, click the ‘x’ in the search bar.

### 9.1.2.5. Blocking a Gateway

To block a gateway, toggle the switch next to the gateway title.

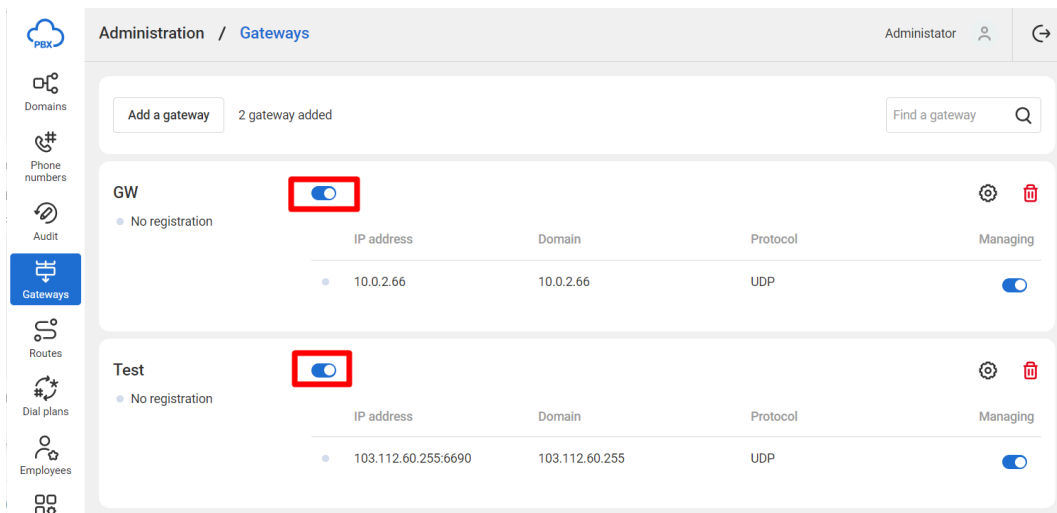


Figure 15: Toggle

To unblock a gateway, toggle the switch again.

### 9.1.3. Granting Employee Access to Gateway Management

System administrators can grant access to other employees by toggling the switch in the “Managing” column.

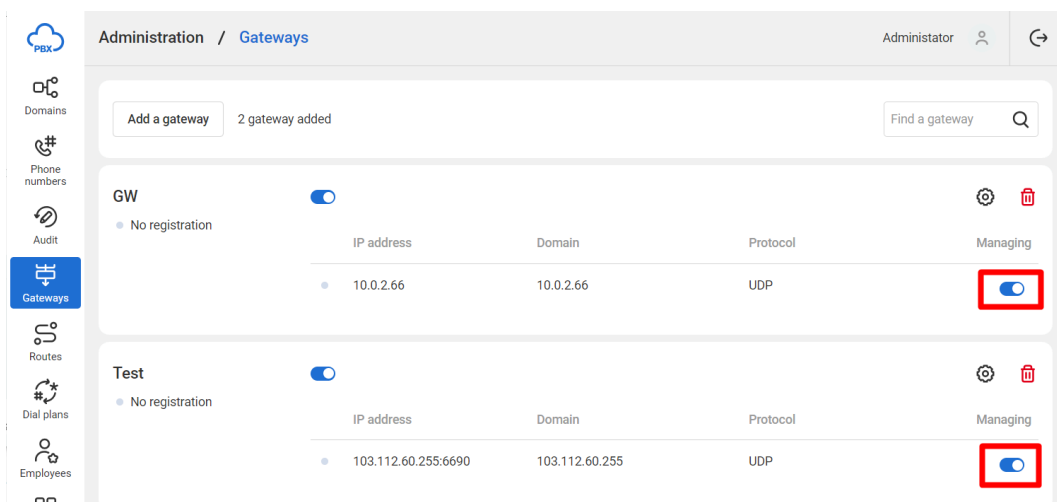


Figure 16: Access

### 9.1.4. Deleting a Gateway

1. Click the bin icon on the right side of the screen in the card of the desired gateway.

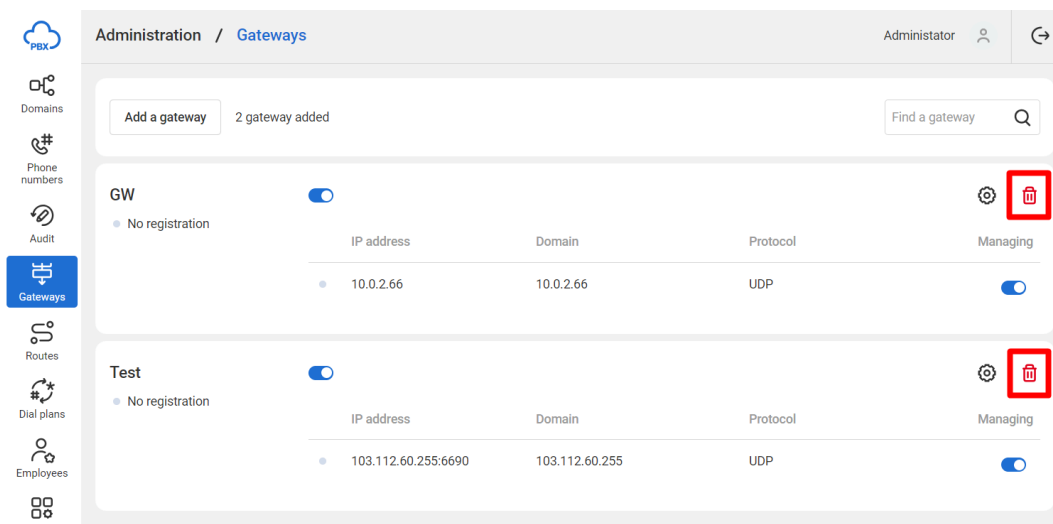


Figure 17: Bin icon

2. In the pop-up window, click **Delete**.

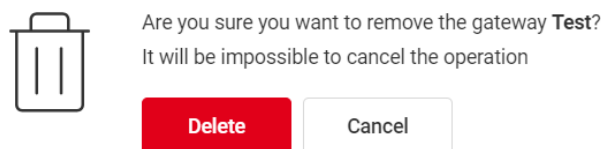


Figure 18: Delete

## 9.2. Dial Plans

The “Dial Plans” section of the interface contains a list of dial plans.

Dial plans translate the sequence of numbers dialed by employees in the CPBX into the +E.164 format. They work similarly to direct translation rules but on the client side. When an employee makes an outgoing external call, the dialed number is translated into the +E.164 format for further processing.

For example, a dial plan is used when an employee calls another city to determine the area code and direct the call to the right destination. This does not apply when an employee makes an internal call using a short number.

One dial plan can be used for any number of domains.

### 9.2.1. Creating a Dial Plan

1. Go to the “Dial Plans” section.

By default, there is already a pre-configured dial plan called “default” in the list. If it is suitable for the created PBX, you do not need to create a new dial plan; proceed directly to creating a route. If you need to create a new dial plan, follow the next steps.

2. Click the “Add dial plan” button.

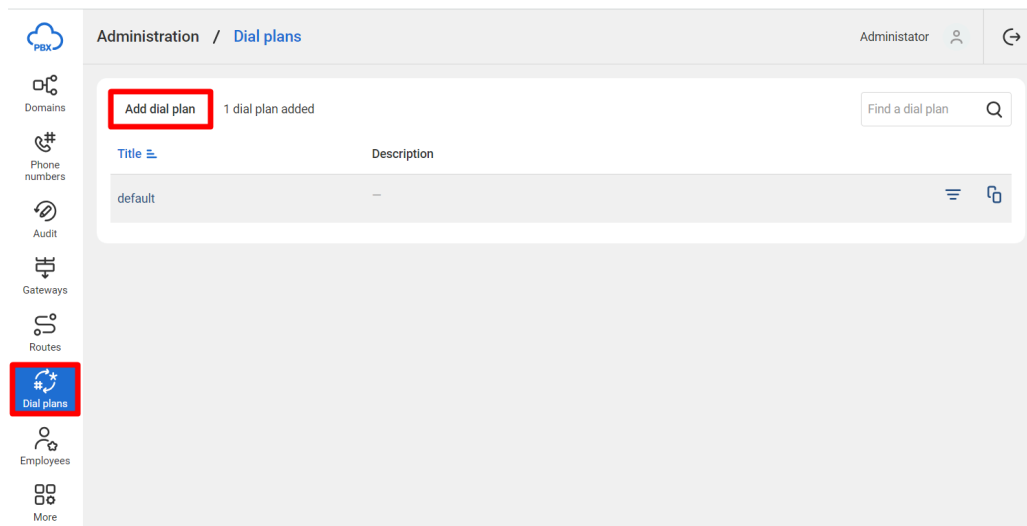


Figure 19: Dial plans

3. The dial plan creation window will open. Enter a title.
4. Set up direct number translation rules (see similar settings for direct number translation rules for gateways).

### Number translation rules

Inside the PBX, the international E.164 format is used for all numbers:

**+[country code][city code][phone number]**

For example: **3743741904198**

If your customers dial numbers in a different format, set up the translation.

☒ The number is dialed in E.164, no translation is required

☐ Translation from dialing format to E.164

SaveCancel

Figure 20: Dial plans

5. Click the “Save” button to add the dial plan.

### 9.2.2. Other Actions with Dial Plans

For each dial plan in the table, the following information is provided:

- Title
- Description.

You can search for dial plans, copy the settings of an existing dial plan, and filter domains by dial plan.

#### 9.2.2.1. Finding a Dial Plan

To find a specific dial plan in the general list, enter the title or part of the dial plan title in the search bar. Press Enter. Only dial plans with the searched fragment in their titles will be displayed in the list.

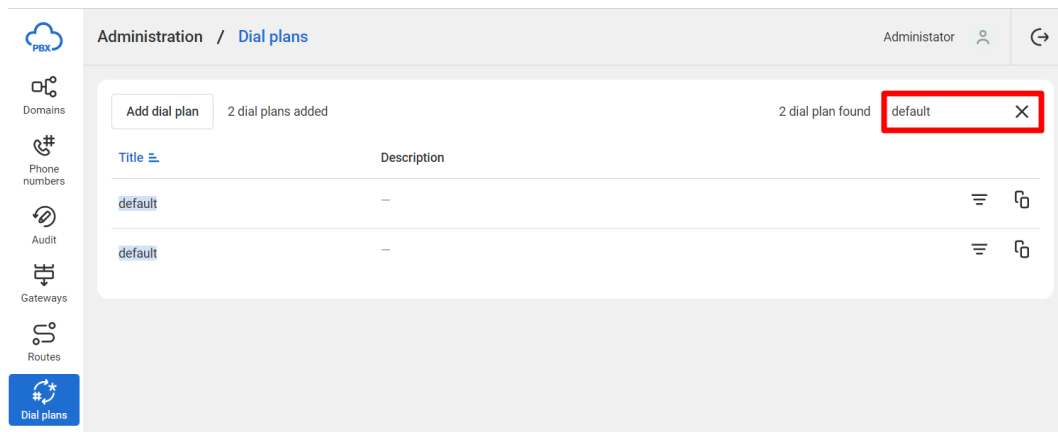


Figure 21: Finding

To return to the full list of dial plans, click the 'x' in the search bar.

#### 9.2.2.2. Copying a Dial Plan

1. To quickly create a new dial plan based on an existing one, click the icon to the right of the desired dial plan.

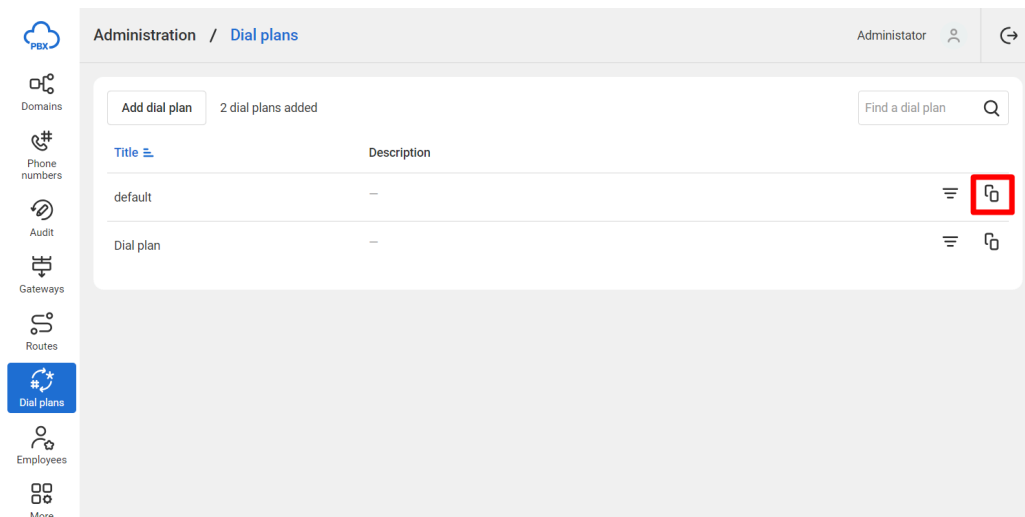


Figure 22: Copy

2. The dial plan creation form will open. All form fields will be filled with values from the copied dial plan. A postfix (copy) will be added to the title in the Title field.

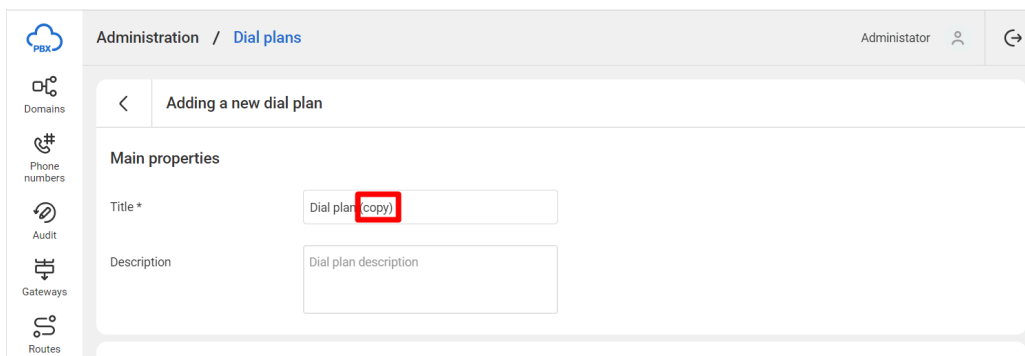


Figure 23: Copy

3. Make necessary changes. Click the "Save" button — the dial plan will be created, and you will be redirected to the list of dial plans.

#### 9.2.2.3. Filtering Domains by Dial Plan

1. To filter domains by dial plans, click the following icon in the dial plan row for which you want to apply filtering.

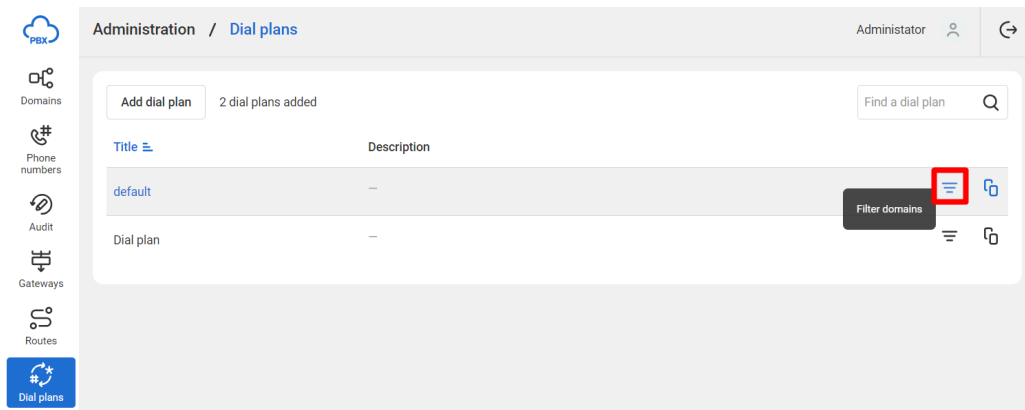


Figure 24: Filtering

2. The Domains section will open, displaying domains associated with the selected dial plan.

#### 9.2.2.4. Deleting a Dial Plan

1. To delete a dial plan, click on the dial plan title, and in the settings window, click the “Delete dial plan” button.

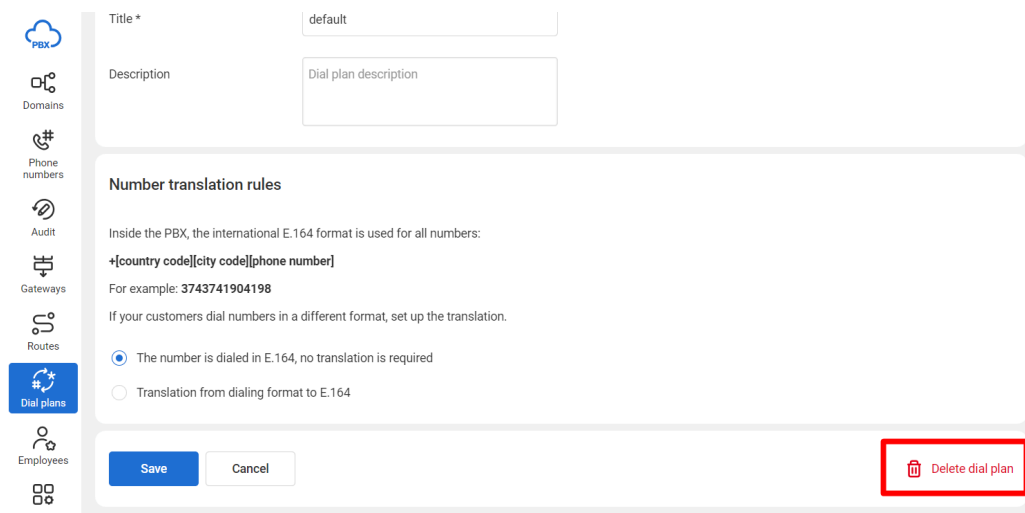


Figure 25: Deletion

2. In the dial plan deletion message, click the “Delete” button to confirm the action.

### 9.3. Routes

The “Routes” section contains a list of call routes. Routing rules establish which gateway will be used for making outgoing external calls in the specified direction. The direction refers to the operator’s network or region to or from which the call is made. The direction is determined by the phone prefix (prefix \* code, part of the code, or part of the number with the code).

A single route can be assigned to multiple domains. To avoid confusion, don’t create multiple identical routes for different domains.

#### 9.3.1. Creating a Route

1. Click the “Add a route” button.

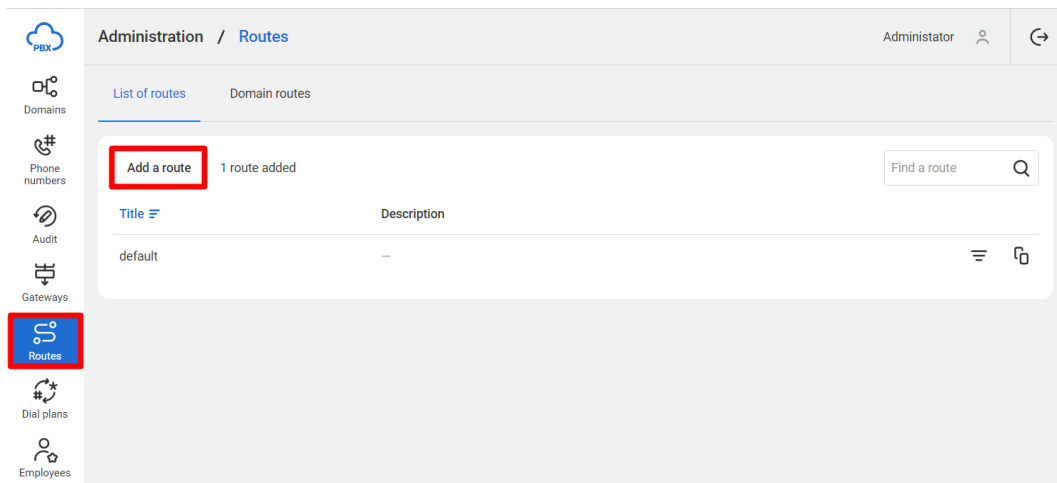


Figure 26: Finding

The route creation window will open.

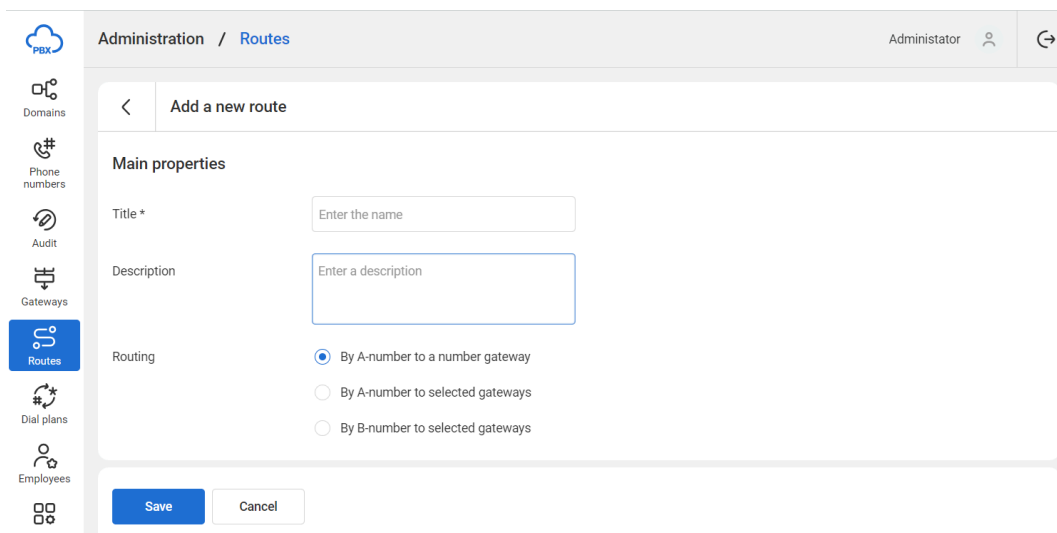


Figure 27: Finding

## 2. Fill in the fields:

- **Title:** Route title.
- **Description:** Route description.
- **Routing:** Type of routing. The type cannot be changed after creating the route.
  - *By A-number to a number gateway:* Uses the gateway associated with the number from which an outgoing external call from the CPBX is made.
  - *By A-number to selected gateways:* The gateway is selected based on the routing rules relative to the number from which the call is made.
  - *By B-number to selected gateways:* The gateway is selected based on the routing rules relative to the number being called.

If *By A-number to selected gateways* or *By B-number to selected gateways* is chosen, a table for configuring routing rules will open.

Routing rules

Add transformation

Prefix	Gateways
The others	Calls prohibited

Routing test:

3743741904198 → Result

Save Cancel

Figure 28: Finding

By default, the table contains a row with the prefix “Other.” It means that calls from numbers that do not meet other rules (or if other rules are absent) will use this rule. It cannot be deleted; only gateway configuration is possible.

To create a new rule, click the “Add Rule” button. A pop-up window will appear, and you need to specify the following:

- **Prefix:** The initial fragment of the phone number (code, part of the code, or part of the number with the code) indicating the call direction.
- **Gateways:** The list of gateways through which the call will go for the specified directions. Check the necessary gateways in the dropdown list and click “Add.” If multiple gateways are added, their priority can be changed using arrows. If no gateways are added, calls from or to numbers with the specified prefixes will be prohibited.

## Add transformation

### 1 Prefix

Add

### 2 Gateways

Choose ▼

Add

Save

Cancel

Figure 29: Finding

Click **Save** in the pop-up window and then on the route creation page to create the route.

**Note:** You can also link a domain to a route when creating or configuring the domain.

### 9.3.2. Other Actions with Routes

The “Routes” interface section has two tabs:

- **List of routes:** The first column shows the routes and the second column shows their descriptions.

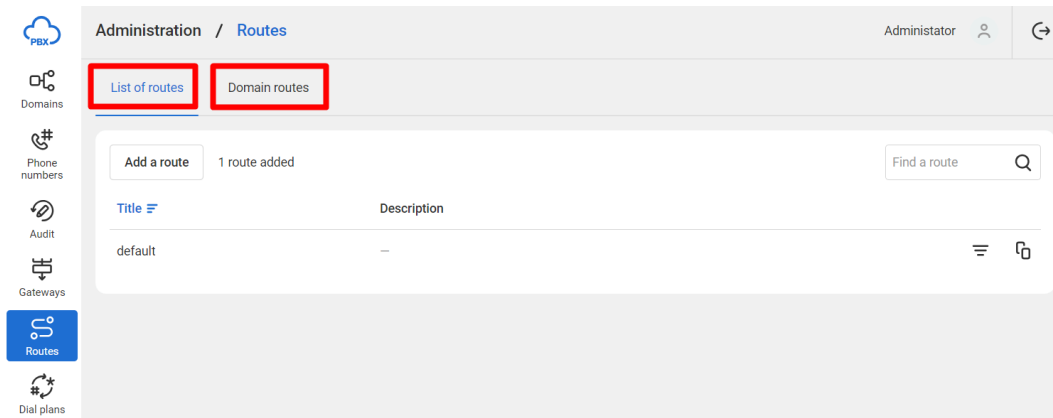


Figure 30: Routes

- **Domain routes:** The first column shows the domains and the second column shows the routes associated with them.

Let's delve into the capabilities of each tab.

#### 9.3.2.1. Linking a Domain to a Route

1. On the “Domain Routes” tab, click the “Add” button.

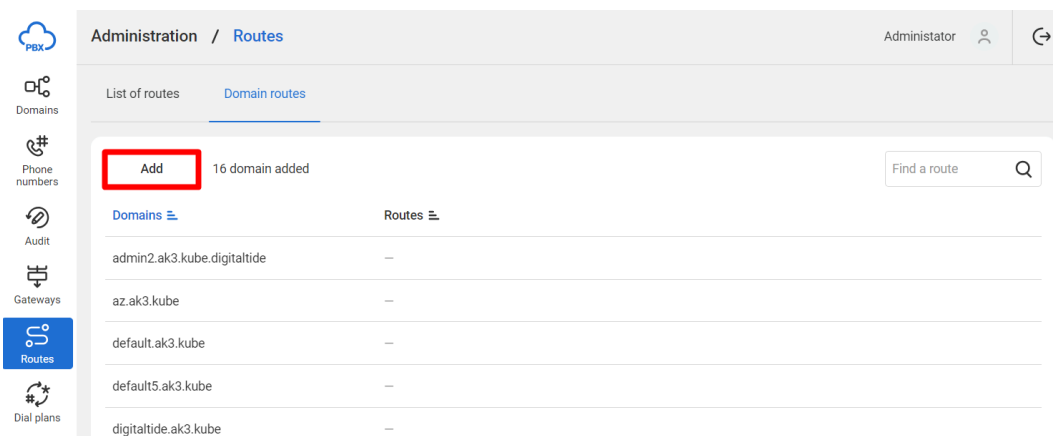


Figure 31: Routes

2. In the domain route editing form, enter the domain title and select the routes.

## Editing domain routes

Domain:

Routes:

Save

Cancel

Figure 32: Routes

3. Click “Save” to save the domain-link to the route.

**Note:** You can also link a domain to a route when creating or configuring the domain.

### 9.3.2.2. Finding a Route

On the “List of routes” tab, in the search bar, enter part of the route title or description. Press Enter. Only routes with the searched fragment in their titles or descriptions will be displayed in the list.

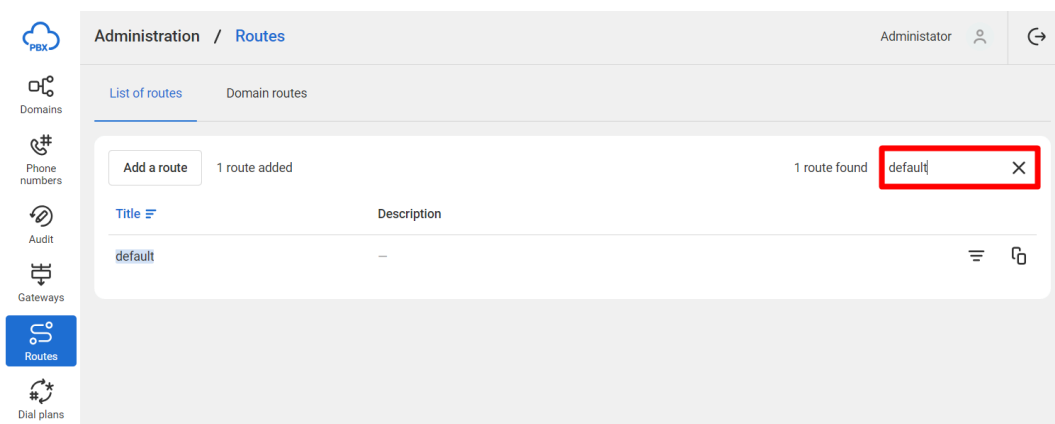


Figure 33: Routes

To return to the full list of routes, click the ‘x’ in the search bar.

In the “Domain Routes” tab, you can also search for routes by the name of the associated domains.

### 9.3.2.3. Copying a Route

Copying allows you to quickly create new routes based on existing ones and then make minor changes. To copy a route, click on the icon to the right of the desired route.

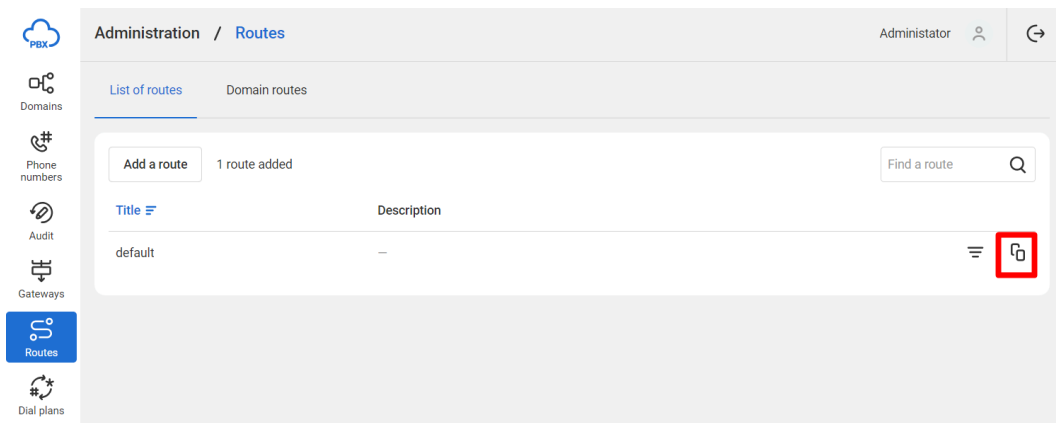


Figure 34: Routes

The route creation window will open. All form fields will be filled with values from the copied route. A postfix (copy) will be added to the title in the “Title” field.

Make necessary changes. Click “Save” to create the route.

#### 9.3.2.4. Filtering Domains by Route

1. To filter domains by route, go to the “List of Routes” tab. In the route row where you want to apply filtering, click on the icon.

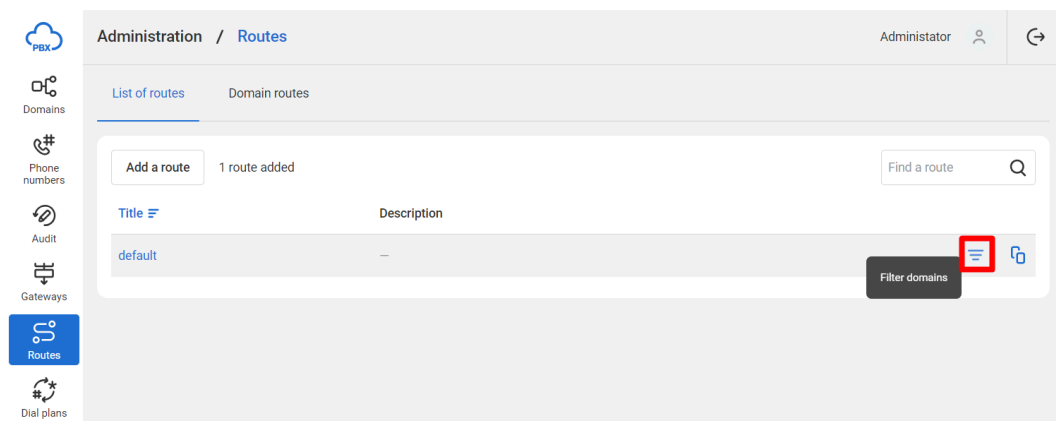


Figure 35: Routes

2. The Domains section will open, displaying domains associated with the selected route.

#### 9.3.2.5. Deleting a Route

1. To delete a route, click on its title. In the route settings, click “Delete the route” in the bottom right corner of the page.

Routing rules

Add transformation

Prefix	Gateways
The others	GW

Routing test:

3743741904198 → Result

Save Cancel Delete the route

Figure 36: Routes

2. In the route deletion message, click the “Delete” button to confirm the action.

If the route is in use, attempting to delete it will display a warning that the route cannot be deleted. The route can be deleted only after detaching it from the domains in the domain route settings.

## 9.4. Phone Numbers

The “Phone numbers” section contains a list of all CPBX numbers.

### 9.4.1. Adding a Number

1. Click the “Add a number” button.

Administration / Phone numbers

Add a number

Number	Gateway	Domain
+53 (24) 76-43-13-42	-	-

Find a number

Figure 37: Numbers

A window for entering the number will appear in the numbers list. Enter the number in the format +E.164.

2. Choose one or more gateways.

## Adding a number

Number *	<input type="text" value="+374 (56) 24-56-24"/>
Gateway	<input type="text" value="Unselected"/>
Domain	<input type="text" value="Unselected"/>
FMC number	<input type="checkbox"/>

Figure 38: Numbers

3. Click the “Add” button.

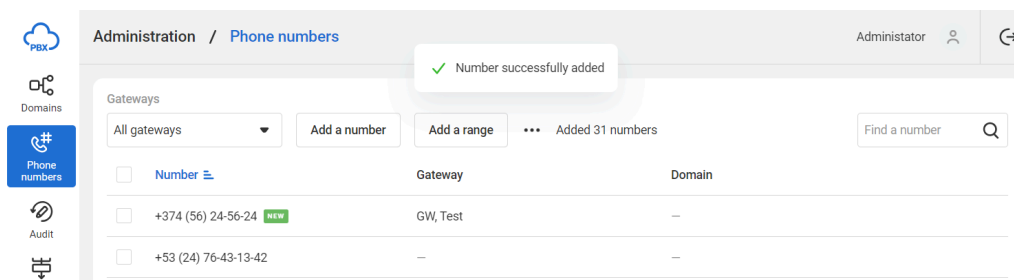


Figure 39: Numbers

After creating a domain, you need to assign the phone number to that domain.

### 9.4.2. Adding a Number Range

1. To add a range of numbers, click the “Add a range” button. The number range addition form will open.

## Adding a number range

Number *	<input type="text" value="+37452546345"/>
Total numbers *	<input type="text" value="10"/>
Gateway	<input type="text" value="Unselected"/>
Domain	<input type="text" value="Unselected"/>
FMC number	<input type="checkbox"/>

Figure 40: Numbers

2. Fill in the form fields:

- **Number:** The first number in the range. Other numbers will be added sequentially. For example, the first number is +37495120035, and the next in sequence is +37495120036.

3. Save the settings.

### 9.4.3. Other Actions with Numbers

#### 9.4.3.1. Finding a Number

In the search bar, enter a part of the number or the domain name to which the number is linked. Press Enter. Only numbers with the searched fragment in their names or descriptions will be displayed in the list.

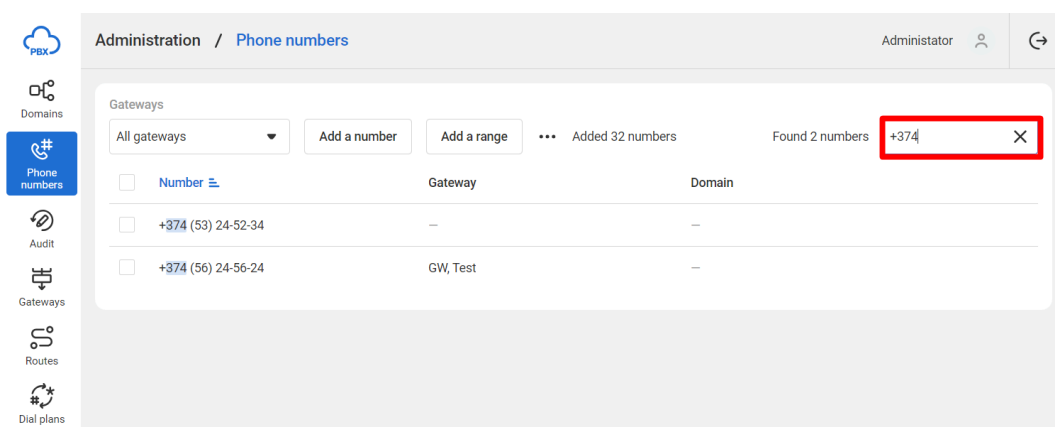


Figure 41: Numbers

To return to the full list of numbers, click the 'x' in the search bar.

#### 9.4.3.2. Editing Numbers

1. Select the numbers you want to edit by checking the box on the left.

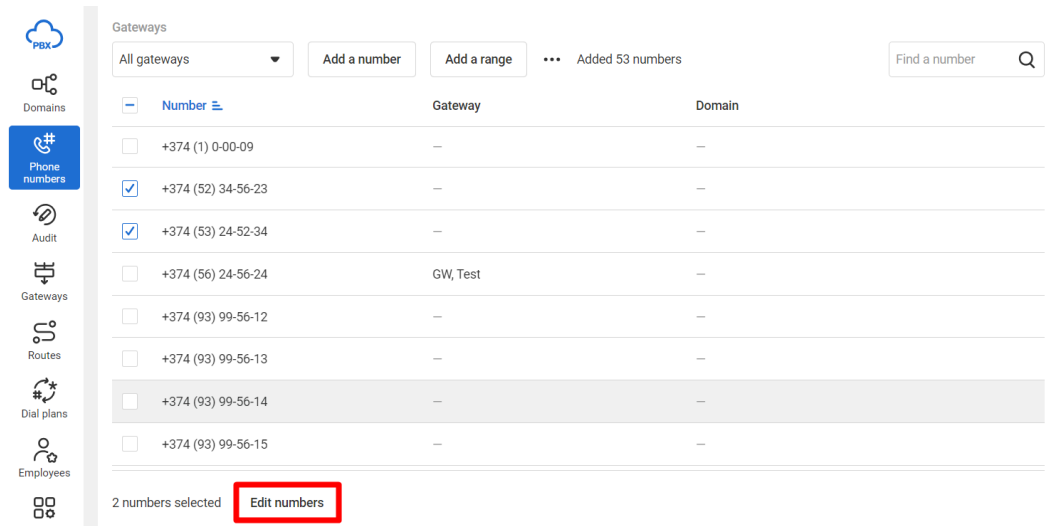


Figure 42: Numbers

2. Click the “Edit Numbers” button that appears at the bottom of the page.
3. The Number Settings window will open. Make changes and save the settings.

#### 9.4.3.3. Deleting Numbers

In the Number Settings window (see above), click “Delete numbers.”

### Setting up numbers

Number

+374 (52) 34-56-23 and 1

Gateway

Unselected

Domain

Unselected

FMC number

☐

Save

Cancel

Delete numbers

Figure 43: Numbers

#### 9.4.3.4. Obtaining a Report on Numbers

1. Click the three dots next to the “Add a range” button.

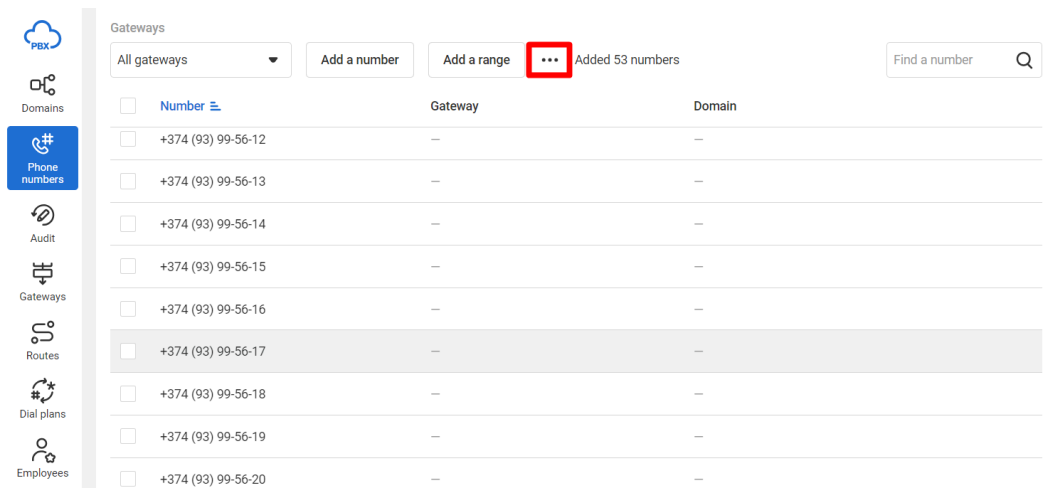


Figure 44: Numbers

2. Click the “Generate a report” button that appears below.

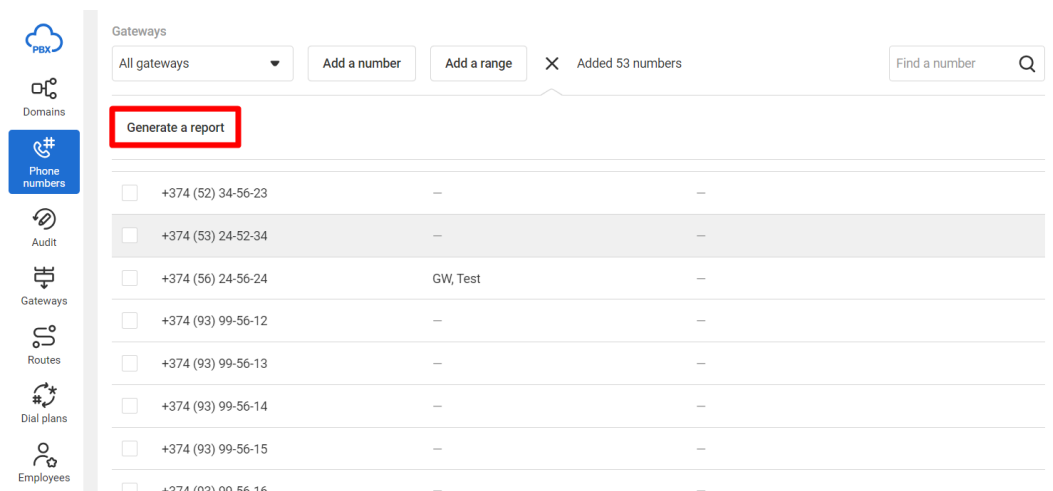


Figure 45: Numbers

3. Specify the CSV file name and click the “Save” button. The file download will begin.
4. In the number report, you can see where each number is assigned - to a department, a specific employee, or nowhere. It also includes the names of departments and domains to which they are linked.

## 9.5. CPBX Domains

The “CPBX Domains” section contains a list of all client CPBXs.

### 9.5.1. Creating a Domain

1. Go to the “Domains” section.
2. Click the “Create a domain” button.

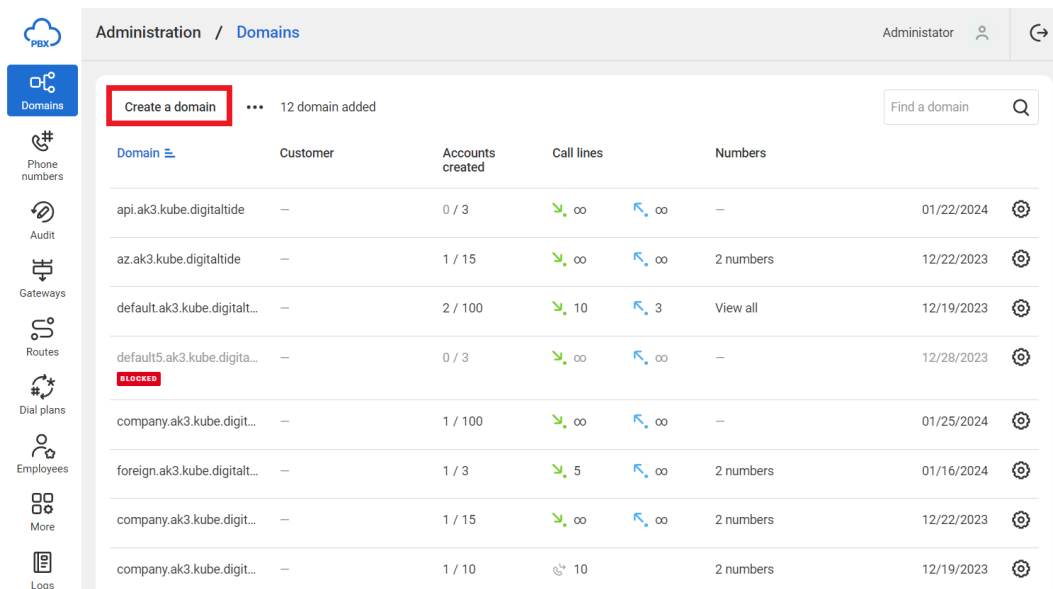


Figure 46: Domains

The domain creation form will open.

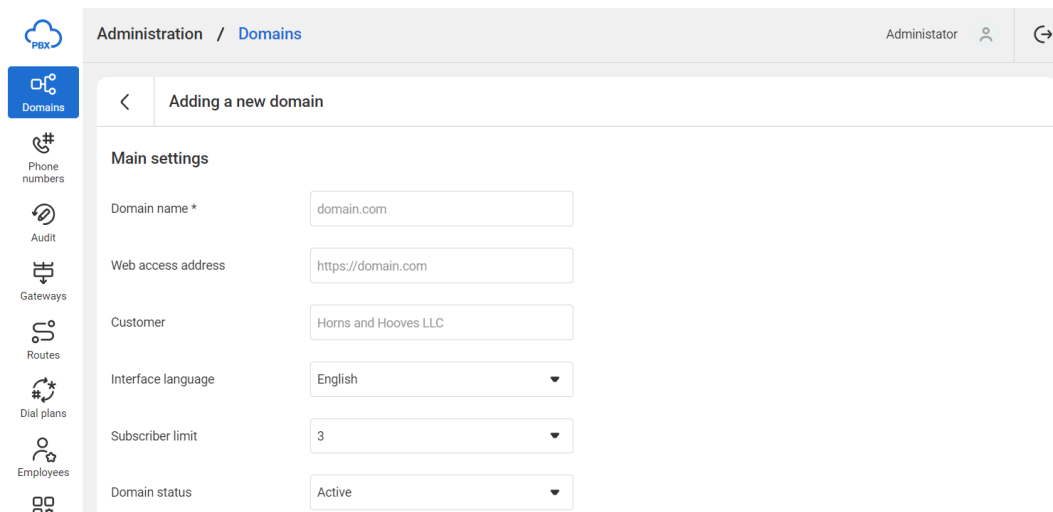


Figure 47: Domains

3. Fill in the form fields. Mandatory fields are marked with an asterisk.

### General Settings:

- **Domain Name:** Full domain name, including the unique client name and operator's domain. For example: client.pbx.operator.com, where "client" is the client's name, and "pbx.operator.com" is the operator's domain. The unique client name must comply with FQDN (Fully Qualified Domain Name) rules and rules set by the operator. After creating the domain, its name cannot be changed.
- **Web Access Address:** Alias of the domain (alternative address), if applicable.
- **Customer:** The client's company name, contract number, or any other information.
- **Interface Language:** Language for the CPBX client interface. Language selection is possible if interface localizations are available.
- **Subscriber Limit:** The maximum number of employees the client can create in the CPBX. Choose an appropriate value from the list or enter it manually. "Unlimited" removes restrictions on the number of employees.

- **Domain Status:** Active or blocked.

### Telephony:

- **Allow to skip caller number in case of forwarding:** Check to allow skipping the caller's number in case of redirection.
- **Route:** Specifies through which gateways outgoing external calls from this PBX will be made. Outgoing calls will not be possible without specifying a route.
  - Note: Only one route can be assigned to a CPBX, and it must be created beforehand.
- **Dial plan:** The dial plan used in the CPBX. Translates dialed CPBX numbers into the internal format of the platform (+E.164 format). The dial plan must be created beforehand.
- **Number of SIP devices:** The maximum number of SIP devices or SIP clients that can be installed on each employee's smartphone, laptop/PC. Choose an appropriate value from the list or enter it manually. "Unlimited" removes restrictions on the number of connected devices.
- **Limiting calling lines:** The maximum number of simultaneous external calls (no limitations for calls to short numbers within the PBX). You can limit the total number of calls or the number of incoming/outgoing calls. Choose an appropriate value from the list or enter it manually.
- **Extension number length:** The length of short internal numbers for employees. After creating the CPBX, the length of the short number can only be increased. To reduce it, contact Digital Tide support.
- **Use emergency numbers as internal numbers:** Specifies whether the CPBX can contain internal numbers that overlap with emergency service numbers (911, 112, etc.).

**Telephony**

Allow to skip caller number in case of forwarding ☐

Route

Dial plan

Number of SIP devices

Limiting calling lines **Unlimited** Total number of lines By directions

Extension number length  digits

Use emergency numbers as internal numbers ☒ Employees will be able to call emergency services using internal emergency numbers, even when a domain is blocked

Figure 48: Telephony

## 9.5.2. Managing the “From” Header Value for Internal Calls

### 9.5.2.1. URI:

- **ext:** Internal number of the employee making the call.

- **login:** Login of the employee making the call.
- **caller\_id:** Outgoing number (caller ID), available to the employee making the call (according to the rules of outgoing number configuration in the CPBX).

#### 9.5.2.2. RealName:

- **name:** Name of the employee making the call.
- **ext:** Internal number of the employee making the call.
- **login:** Login of the employee making the call.
- **caller\_id:** Outgoing number (ANI), available to the employee making the call (according to the rules of outgoing number configuration in the PBX).
- **as\_is:** Value of the “RealName” field received from the SIP client of the employee making the call.

#### 9.5.3. Services

The “Services” tab allows configuring the list of services available to the client according to the service provision agreement.

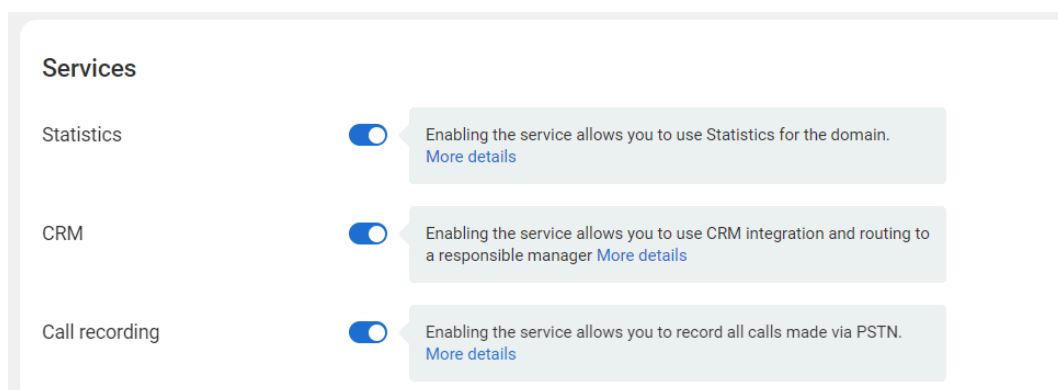
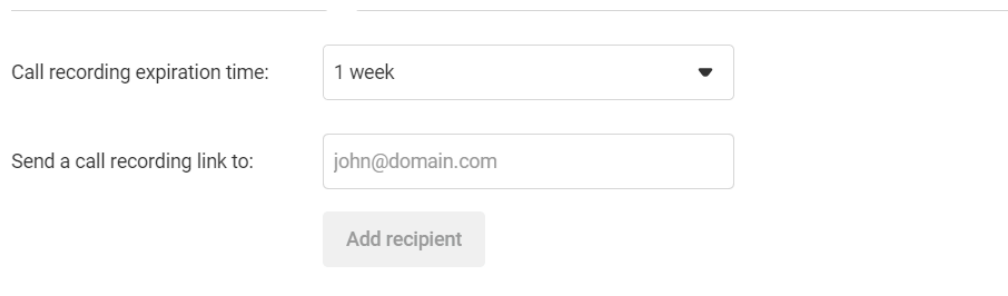


Figure 49: Services

To enable/disable a service, toggle the switch accordingly. If the service is disabled, the corresponding functionality will be unavailable in the client interface.

#### Service Configuration:

1. **Statistics:** View call statistics and history.
2. **CRM:** Connect the client's PBX to CRM systems.
3. **Call recording:** Record external and internal calls. Additional fields are available when the service is enabled:
  - **Call recording expiration time::** Specifies the time after which call recordings will be deleted. “Unlimited” allows permanent storage.
  - **Send a call recording link to::** Enter the email address of the client-side employee to receive links to call recordings (recordings are stored on Digital Tide servers).



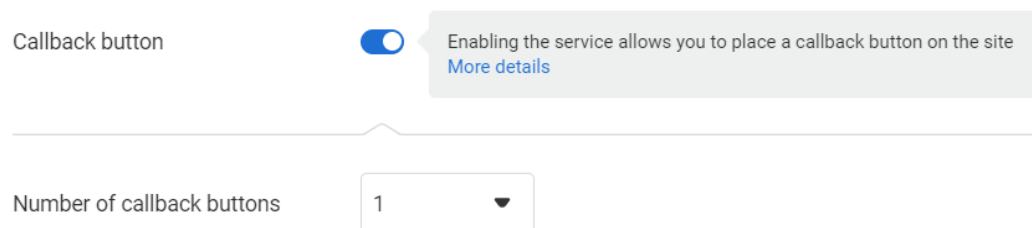
Call recording expiration time: 1 week

Send a call recording link to: john@domain.com

Add recipient

Figure 50: Services

4. **Speech analytics:** Analyze employee conversations.
5. **Missed call notifications:** Allow users to set up missed call notifications.
6. **SMS Business Card:** Send SMS cards and notifications.
7. **Callback button:** Place a widget on the website for callbacks. The “Number of Callback Buttons” field is available when the service is enabled, specifying the number of entry points (visitor button clicks) and corresponding call-back processing routes within the CPBX.



Callback button ☒ Enabling the service allows you to place a callback button on the site [More details](#)

Number of callback buttons 1

Figure 51: Services

- Choose an appropriate value from the list or enter it manually.
8. **Service quality assessment:** Rate the quality of service during a conversation with company employees.
  9. **Queue callback request:** Configure callback orders from the queue.
  10. **Number in a queue:** Inform the caller about the queue number while waiting for a call answer.
  11. **Prompting:** Listen to and monitor active calls.
  12. **Call distribution in the department evenly:** Configure equal call distribution within the department.
  13. **Call distribution in the department all at once:** Configure call distribution to all department employees at once.
  14. **External numbers:** Connect numbers from other operators. Additional fields are available when the service is enabled:
    - **Allow outgoing calls from external numbers:** Allow making calls from numbers of other operators.
    - **Number of allowed external numbers:** The maximum number of connected numbers from other operators. Choose an appropriate value from the list or enter it manually.

External numbers ☒ Enabling the service allows you to connect numbers from other operators [More details](#)

Allow outgoing calls from external numbers ☐ External numbers for incoming calls only

Number of allowed external numbers:

Figure 52: Services

15. **Branches:** Connect other compatible CPBXs or unite several CPBXs within one partner (operator). Disable the service only if there are no active services of this type in the domain.
16. **Conference rooms:** Create conference rooms for solving common issues with company employees and clients.
17. **Automated Voice Messaging (AVM):** Automatic calls to inform about new promotions, offers, and other important news.
18. **Fax:** Forward fax messages to the specified employees' email.
19. **Forwarding to SIP-PBX:** Connect forwarding from the Company's general number to SIP-PBX.
20. **Forwarding to PSTN:** Connect forwarding from the Company's general number to PSTN.
21. **SMS:** Allow users to send SMS.

Click the "Save" button to create the domain. The button is available only if all mandatory fields are filled.

Click the "Cancel" button to cancel domain creation.

#### 9.5.4. Other Domain Actions

For each domain in the list, the following information is provided:

- Domain address.
- Domain lock indicator \* "Blocked" label (if the label is absent, it means it's an active domain).
- Client description \* the name of the client's company, contract number, or any other information.
- The number of created employees (accounts) in the CPBX out of the maximum possible.
- Restrictions on the number of incoming and outgoing telephone lines.
- Number or quantity of phone numbers assigned to the domain (if more than one, clicking "View All" will display these numbers).

#### 9.5.5. Finding a Domain

1. In the search bar, enter a part of the domain name, phone, or text in the Customer field and press Enter.

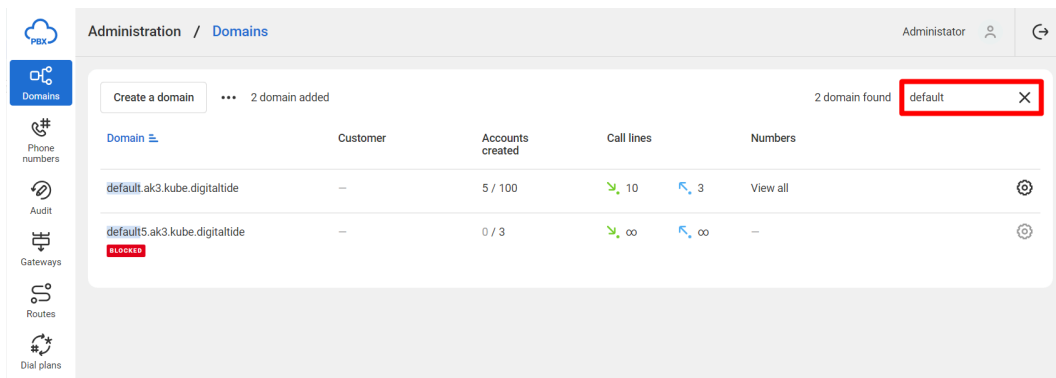


Figure 53: Domains

2. The list will display only those domains whose names contain the searched fragment.
3. To return to the full list of domains, click “x” on the search bar.

### 9.5.6. Filtering Domains by Routes and Dial Plans

1. Click on the three dots to see hidden filters.

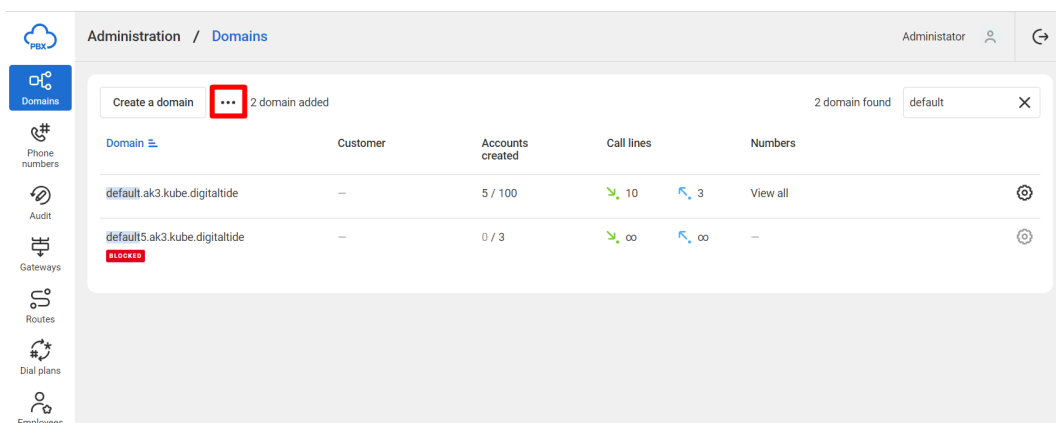


Figure 54: Domains

2. In the Routes and Dial plans filters, choose the desired values from the dropdown list.

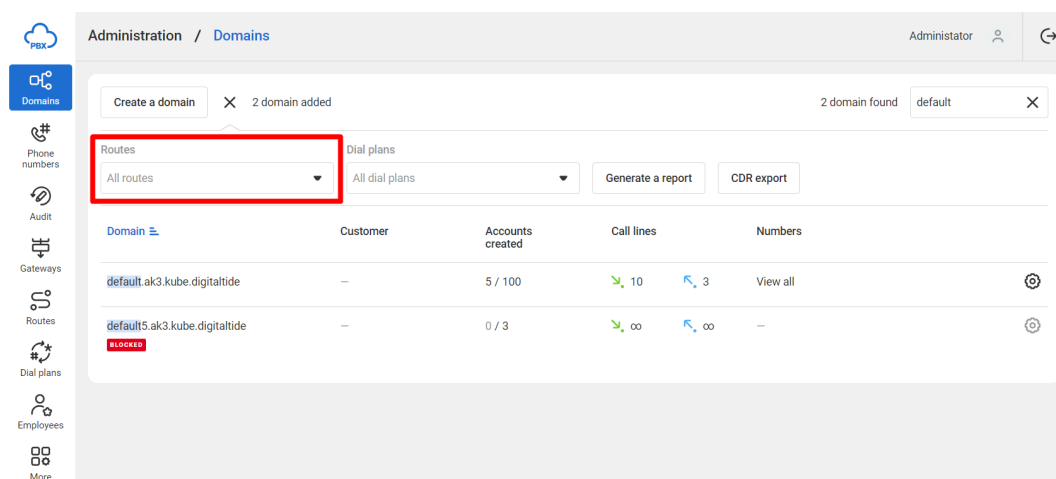


Figure 55: Domains

3. The list will display only domains associated with the selected routes and dial plans.
4. To return to the full list of domains, choose “All Routes” and “All Dial Plans” from the dropdown lists.

### 9.5.7. Changing Domain Settings

1. Find the domain that needs adjustment.

2. Click the gear icon.

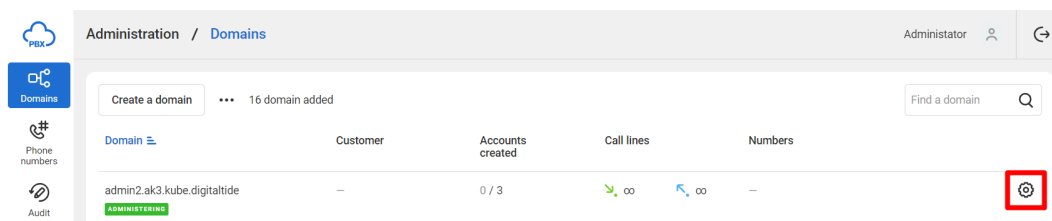


Figure 56: Domains

3. The domain settings window will open, containing the same tabs as when creating a domain.

4. Make edits and save the settings.

### 9.5.8. Restricting Domain Access by IP

The “IP Restrictions” tab allows setting IP addresses for accessing the client interface and making calls.

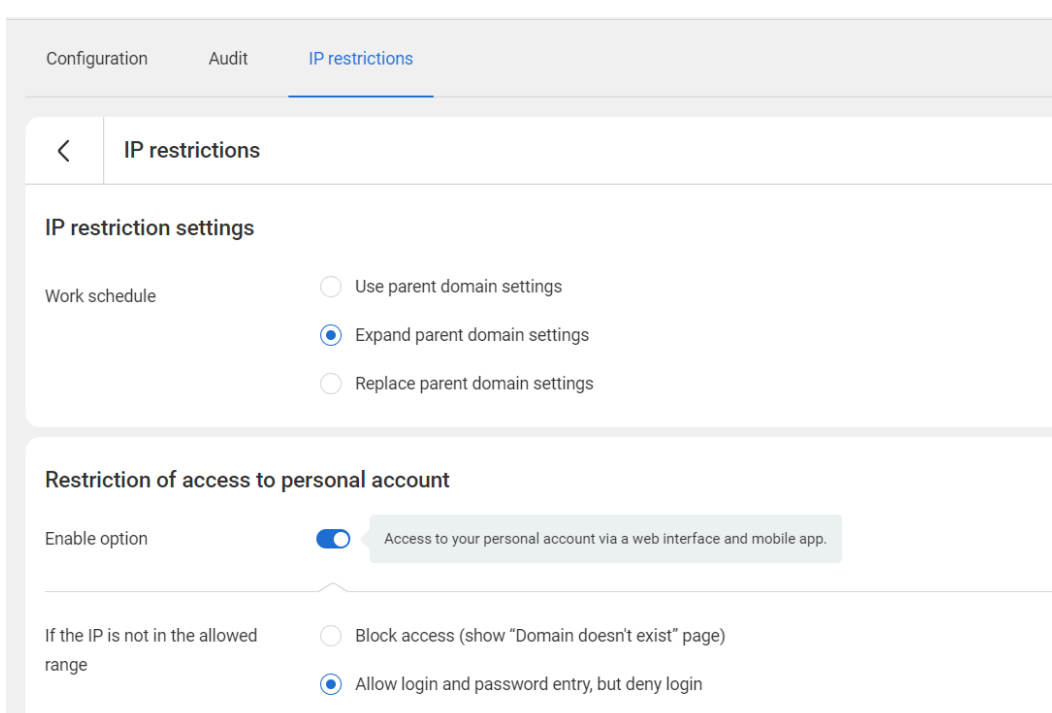


Figure 57: Domains

There are three restriction modes:

1. Use parent domain settings: Apply permissions set at the operator's domain level.
2. Expand parent domain settings: In addition to parent domain settings, customize access to the personal account (web and mobile access).

#### Restriction of access to personal account.

To enable access, toggle the switch to “On” and configure settings:

- If the IP is not in the allowed range: Action if login is attempted from a restricted IP address. Options: “Block access” or “Allow login and password entry, but deny login.”
- Allowed IP: List of IP addresses allowed access. The symbol \* allows access from all IP addresses.
- Allowed lists of IP addresses: Choose addresses from a ready-made list created in the “IP Lists” section under “More.”
- Restricted IP: List of IP addresses with blocked access.

- **Restricted lists of IP addresses:** Choose addresses from a ready-made list created in the “IP Lists” section under “More.”

Figure 58: Domains

### Call restriction.

To enable access, turn the switch to On and select where to get the IP Lists from:

- **Use access lists to personal account:** the same lists of IP addresses are used that are set for the Access Restriction parameter to your account.
- **Use custom lists —** opens additional options for creating your own access lists:
  - **Allowed IP:** a list of IP addresses from which access is allowed. The \* symbol allows access from all IP addresses.
  - **Allowed lists of IP addresses:** select addresses from a ready-made list created in the IP Address Lists section in the More section.
  - **Restricted IP:** a list of IP addresses from which access is prohibited.
  - **Restricted lists of IP addresses:** select addresses from a ready-made list created in the IP Address Lists section in the More section.

To disable access, turn the switch to the Off position.

### Call restriction

Enable option

---

Access lists

☐ Use access lists to personal account
   
☒ Use custom lists

Allowed IP

Allowed lists of IP addresses

No list of IP addresses now.

Restricted IP

Restricted lists of IP addresses

No list of IP addresses now.

Figure 59: Domains

3. Replace parent domain settings: Fully replaces parent domain settings.

### 9.5.9. Accessing Client Settings of CPBX

1. Click on the domain name to access the CPBX client interface.
2. The client interface for CPBX settings will open.

History
   
  
Statistics
   
  
Settings

Kanal / Virtual PBX / Settings

Employees

Departments

Numbers

More

Add employee

Added 5 employees out of 15 possible

Employee	Job title
<div>Jessica</div> <div>jess</div>	<div>Head</div> <div>ADMINISTRATOR</div>
<div>John</div> <div>john</div>	<div>Manager</div> <div>ADMINISTRATOR</div>

Figure 60: Domains

### 9.5.10. Blocking a Domain

1. Click the gear icon.
2. In the “Domain status” dropdown, choose “Blocked.”

**Main settings**

Domain name \*

Web access address

Customer

Interface language

Subscriber limit 

☒ Active
   
☐ Blocked

Domain status

Figure 61: Domains

3. Click “Save.”

### 9.5.11. Exporting Domain List to CSV

1. Click on the three dots in the top left corner to reveal additional domain list filters.

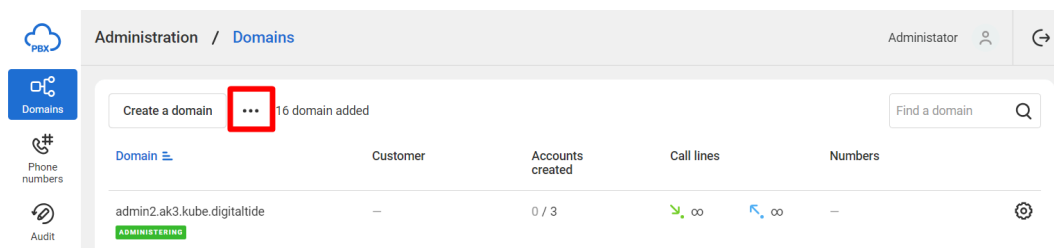


Figure 62: Domains

2. Select desired routes and dial plans.

3. Click “Generate a report.” A file-saving window will open.

4. In the report, view information about each domain, including its status, number of accounts, limitations on lines, connected routes and dial plans, enabled services, domain expiration period (in days), and more.

5. To export call detail records (CDR) to a CSV file, click “CDR Export.”

### 9.5.12. Deleting a Domain

1. Click the gear icon next to the domain name in the general list.

2. Domain settings will open. In the bottom right corner, click “Delete domain.”

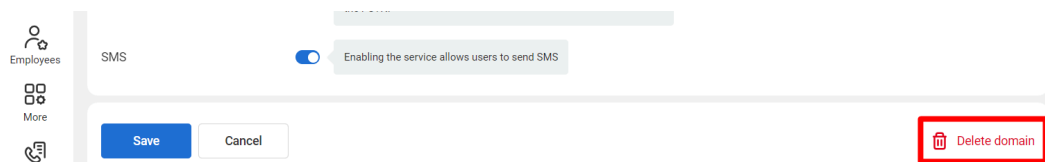


Figure 63: Domains

3. In the confirmation message, click “Delete” to confirm the action.

## 9.6. Audit

The audit feature allows you to view the history of actions on domains. In the list, the following information is displayed:

- Date and time of the action.

- User login making the changes.
- Action description.
- User's IP address.

Audit is displayed in two sections:

1. **Domain settings:** In the domain settings, there is an “Audit” tab where you can view the action history for a specific domain.

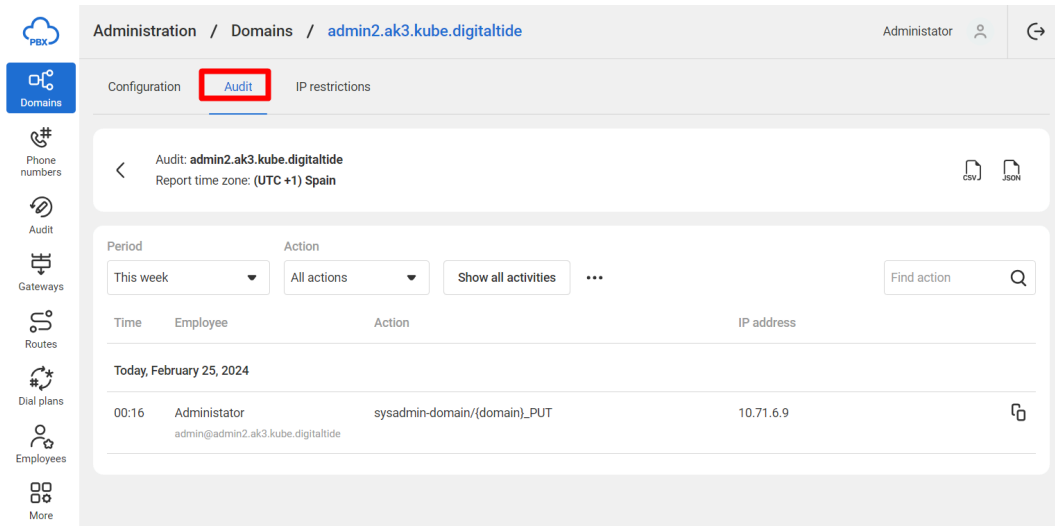


Figure 64: Audit

2. **Audit section:** This section displays the action history for all domains, including the operator's. You can filter the action history for a specific domain using the “Domain” filter.

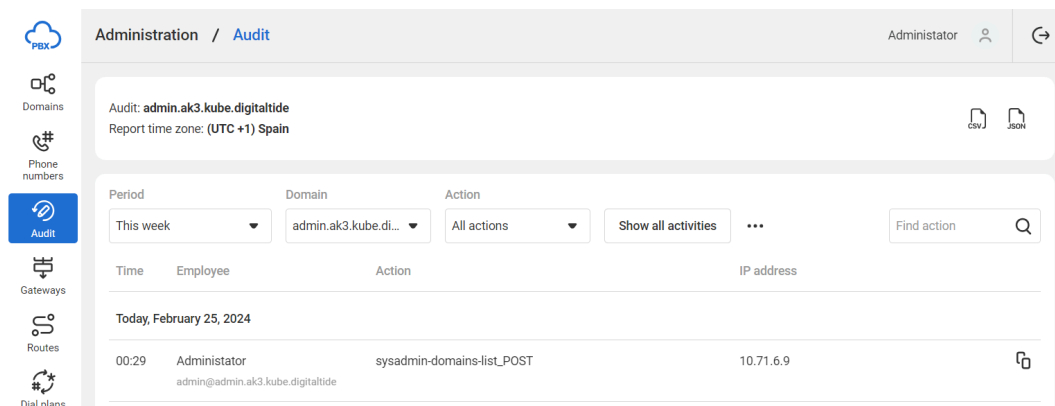


Figure 65: Audit

Let's explore the audit capabilities using the Audit section as an example.

### 9.6.1. Viewing Action Details

- To view detailed technical information about an action, click on the corresponding action row. This expands the row with detailed information.

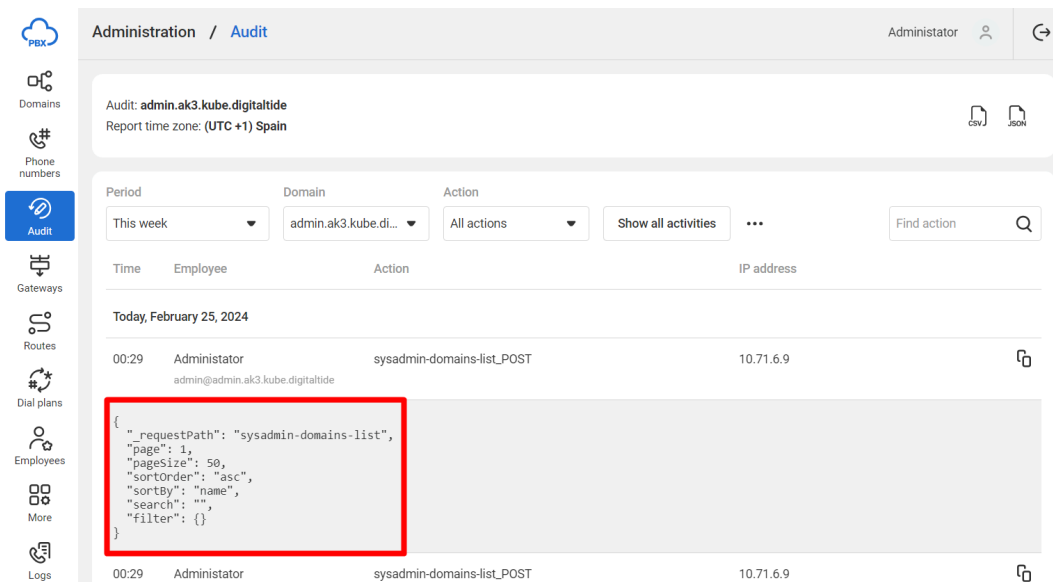


Figure 66: Audit

- To view details for all actions at once, click the “Show All Actions” button. Clicking the button again hides details for all actions.

### 9.6.2. Filtering Action History

#### 1. Period:

- Click on the “Period” filter. You can quickly filter actions for today, yesterday, the current or previous week, and the current or previous month. You can also choose a custom period, opening a calendar for the last three months.

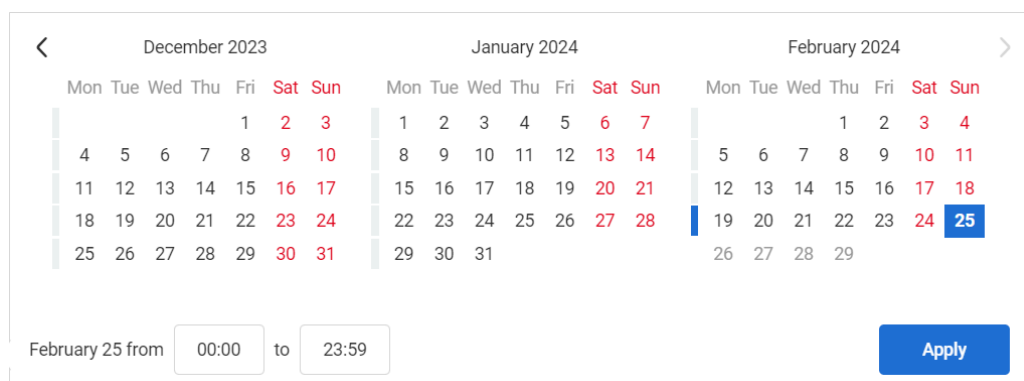


Figure 67: Audit

- Blue cells mark dates from the creation of the domain to the current day. You can navigate the calendar left/right if needed.
- Select start and end dates from the blue cell range. The selected range cells turn blue, and the period description appears below the calendar.
- Click “Apply” to display actions for the selected period.

#### 2. Domain:

- In this filter, select any domain you created or the operator interface itself.

#### 3. Action:

- This filter displays only the action categories performed on the domains you created and in the operator interface.

- To avoid scrolling through the entire list of actions, enter keywords related to the actions you are interested in. You can also search for specific actions by method name.

#### 4. User Role:

- Here, you can filter actions separately for employees and domain users.

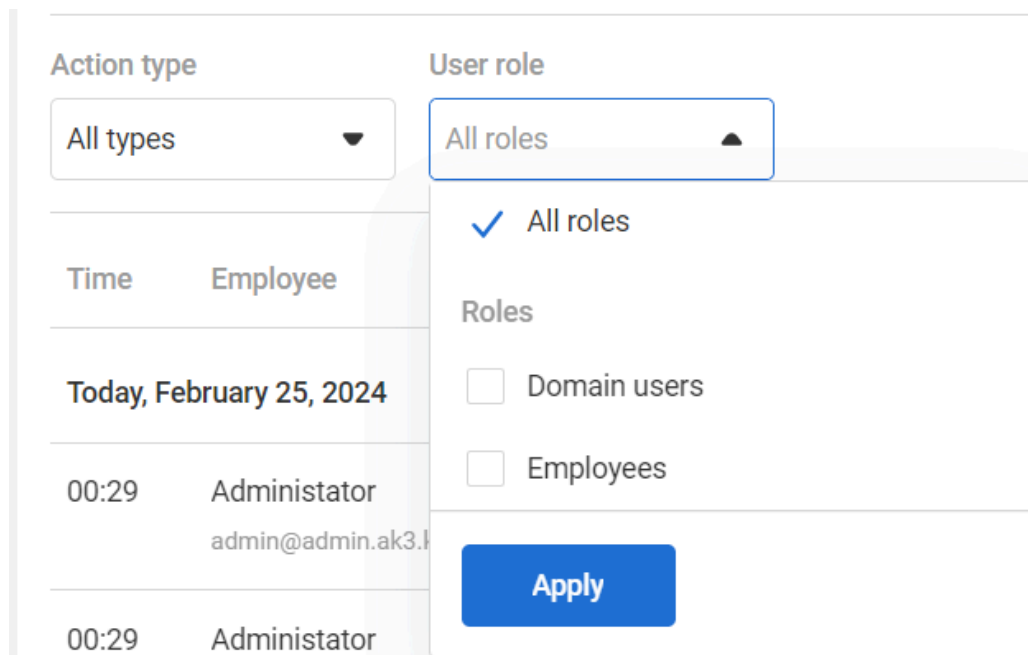


Figure 68: Audit

#### 9.6.3. Exporting Action List to JSON or CSV

- In the top right corner, click one of the two buttons:
  - To download a file in the JSON format.
  - To download a file in the CSV format.

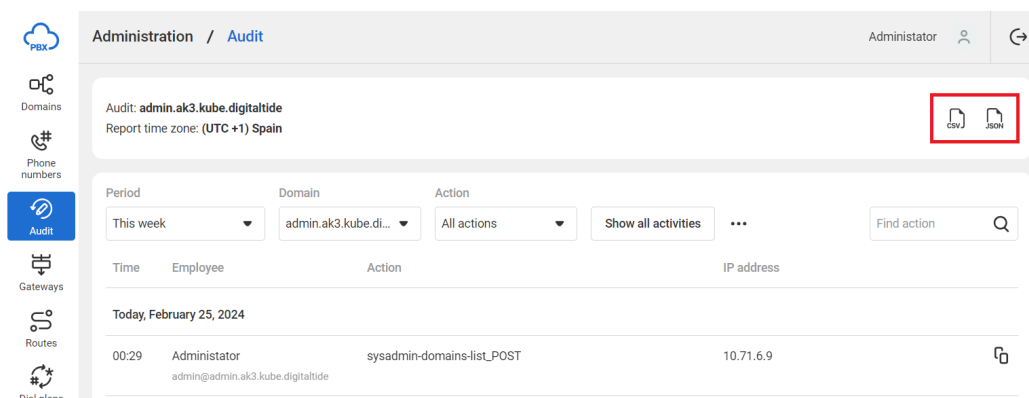


Figure 69: Audit

- A file-saving window will open. Specify the filename and click “Save” to initiate the download.
- Note: If the browser settings don't prompt for the download folder, the file download starts immediately after clicking the button.

#### 9.6.4. Searching for Actions

- To filter all actions for a specific IP address, click the desired value in the IP Address column.

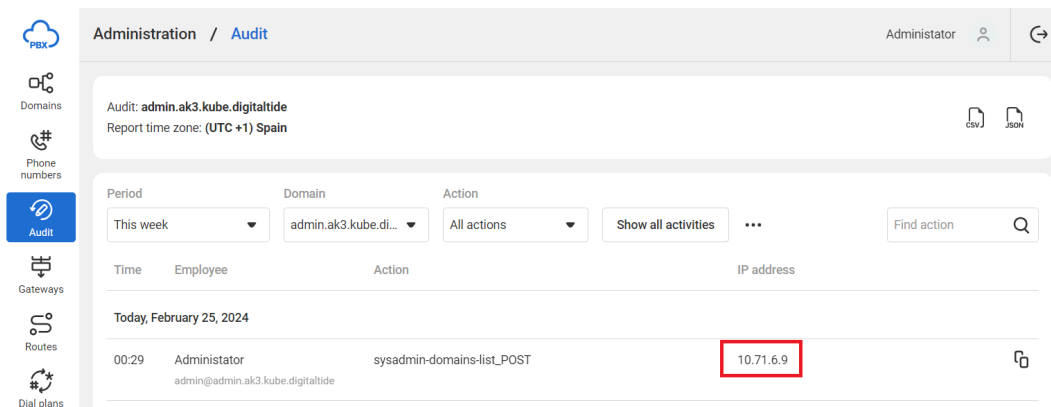


Figure 70: Audit

- To search for actions by a specific employee, click the desired value in the Employee column.

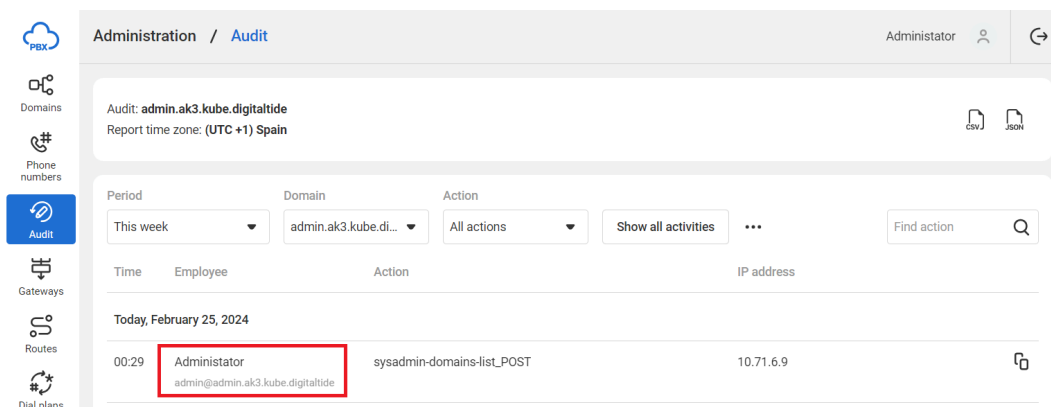


Figure 71: Audit

### 9.6.5. How to Copy Action Description

To copy the rows of the table, click the following icon on the right side of the domain you need.

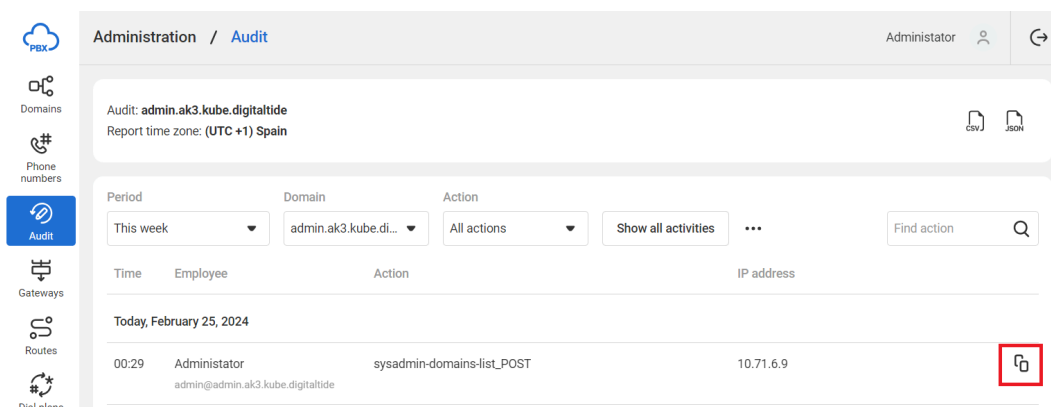


Figure 72: Audit

You can filter actions by employee name and detailed information for each action through the search bar in the Audit section.

## 9.7. Employees

The Employees section contains a list of employees with access to the operator interface. For each employee, the following information is provided:

- Name
- Login

- System rights

### 9.7.1. How to Create an Employee

1. Click on the “Add user” button. The limit for creating users is specified at the top of the page next to the button.

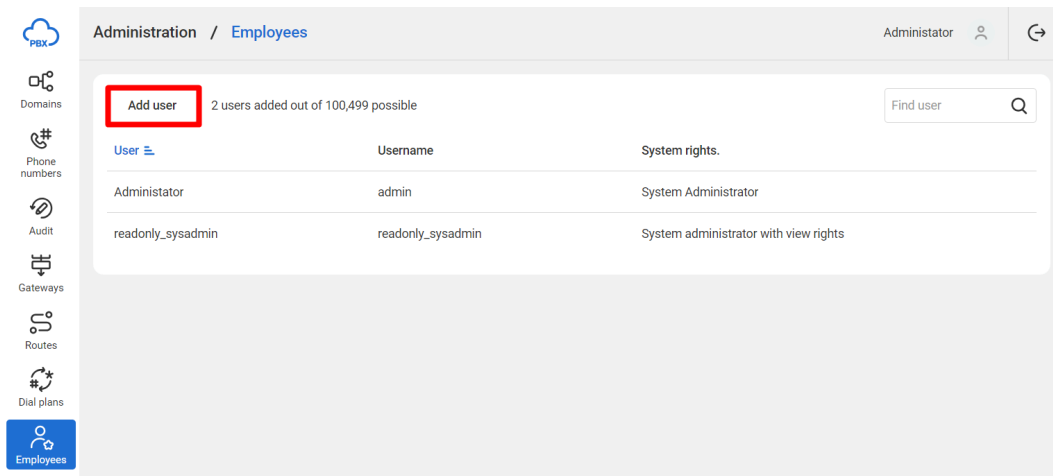


Figure 73: Employees

2. Fill in the form fields in the user creation window. Mandatory fields are marked with an asterisk.

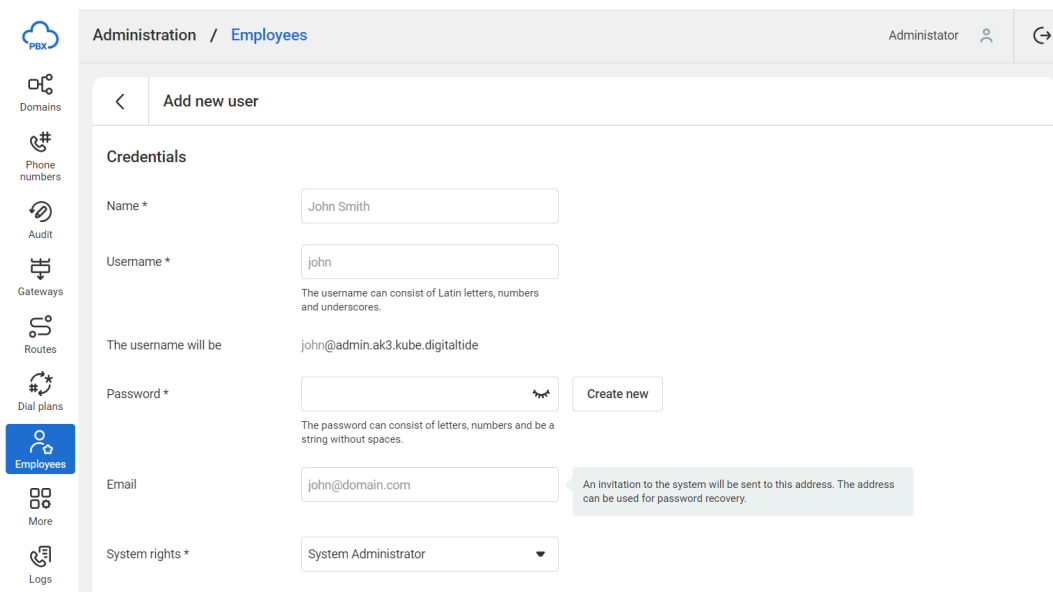


Figure 74: Employees

#### Main properties:

- Login: the login of the employee in Latin.
- Name: the full name of the employee.
- Password — the password for the employee. You can set the password yourself or generate it. To automatically generate a password, click the “Create New” button.
- Password requirements:
  - Length of at least 6 characters.
  - Should not be more than half composed of the login or domain.

- Should not contain more than three consecutive characters (alphabetically or on the keyboard layout).
- Should not be a dictionary word or a combination of a dictionary word and several digits.
- Should not contain a large number of identical characters.
- Email: required for password recovery.
- System rights: choose one of the three levels of rights.

**Creating Domains:** this option can only be changed for roles “System Administrator with View Rights” and “Administrator with View Rights.” The System Administrator can create default domains.

**Blocked:** indicates whether the employee is blocked.

**Additional information (fields are for information and are not used elsewhere):**

- Department: the department where the employee works.
  - Job title: the employee’s position in the company.
  - Additional contact: additional ways to contact the employee.
  - Note: additional information.
3. Click “Save” to create the user. Click the “Cancel” button to reset all entered data. Fields will take on their original values.

### 9.7.2. How to Block an Employee

1. Select an employee you want to block.
2. Click on the row with their login.

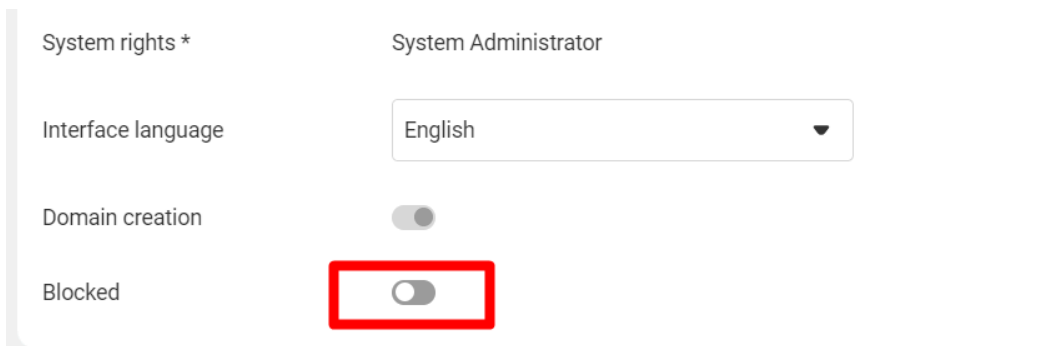
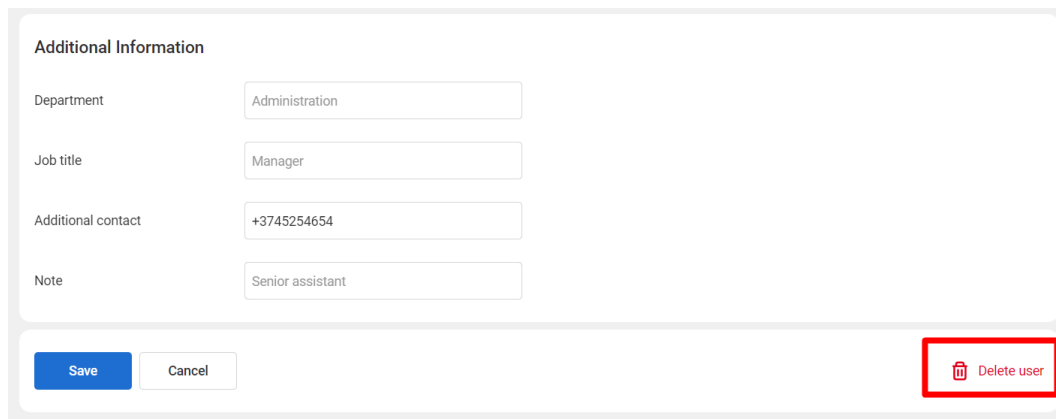
The image shows a portion of a web interface for managing employees. On the left is a sidebar with a list of settings: 'System rights \*', 'Interface language', 'Domain creation', and 'Blocked'. The main area on the right shows the configuration for the 'System Administrator' role. 'Interface language' is set to 'English' in a dropdown menu. 'Domain creation' has a toggle switch that is currently turned off. The 'Blocked' setting has a toggle switch that is currently turned on, and this entire row is highlighted with a red rectangular box.

Figure 75: Employees

3. The employee settings form will open with the same parameters as when creating an employee.
4. Click on the toggle switch next to “Blocked.” Save the changes.

### 9.7.3. How to Delete an Employee

1. Select the employee you want to delete and click on their login.



**Additional Information**

Department: Administration

Job title: Manager

Additional contact: +3745254654

Note: Senior assistant

Save Cancel Delete user

Figure 76: Employees

2. In the user settings at the bottom, click the “Delete user” button.

## 9.8. Safety

### 9.8.1. How to Install an SSL Certificate

An SSL certificate is necessary to establish a secure encrypted connection when accessing the CPBX. It is recommended to purchase a Wildcard certificate like \*.pbx.operator.com, which will work for all addresses in this zone.

To install an SSL certificate, follow these steps:

1. Go to the “Safety” section and select “Installing an SSL certificate.”

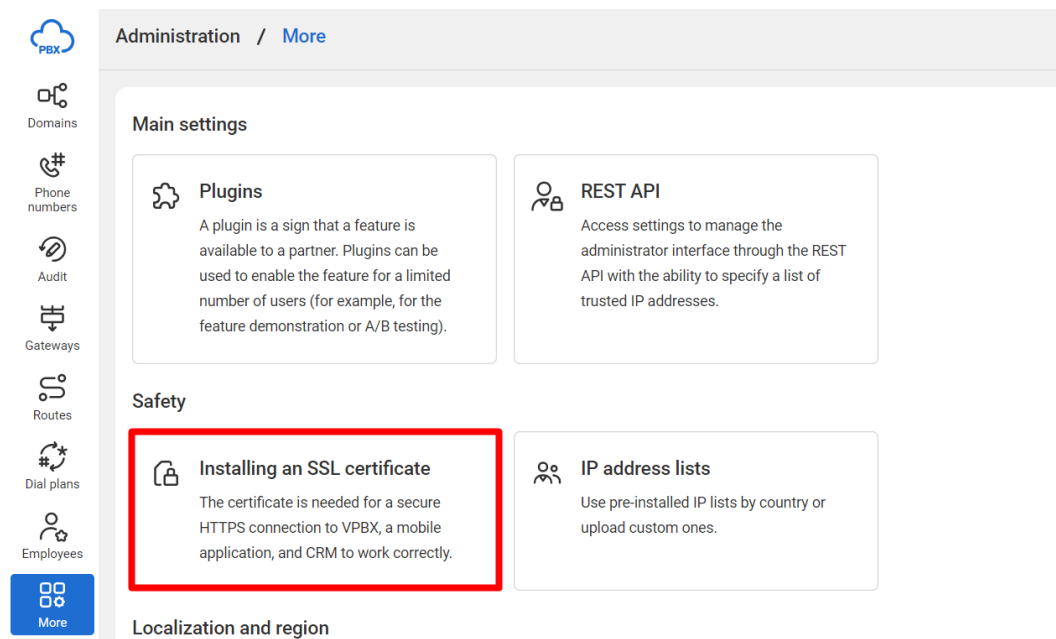


Figure 77: Safety

2. Click on “Choose a file” and upload the corresponding certificate from your computer.

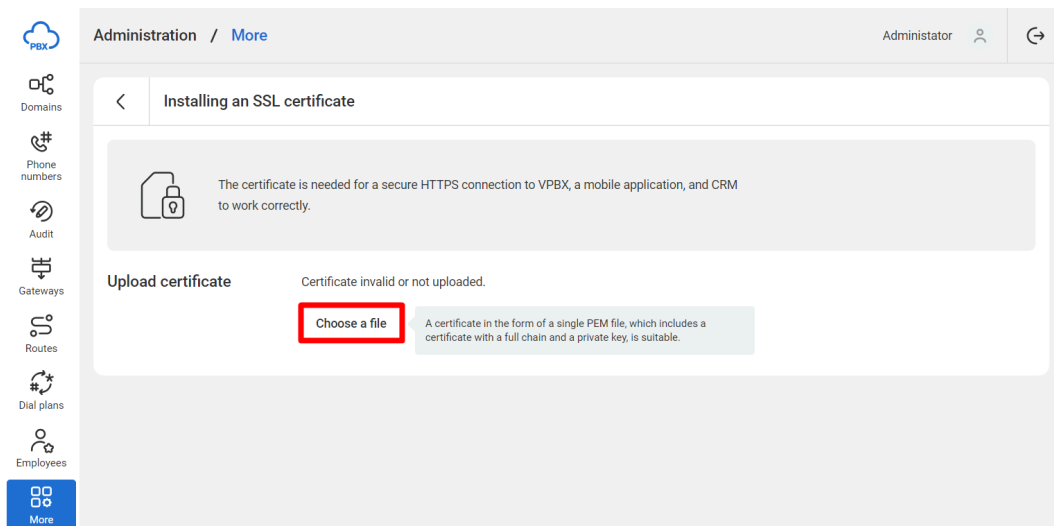


Figure 78: Safety

The SSL certificate should be in the form of a single file in the .pem format, including the full chain certificate and private key.

Upon uploading the certificate, you will immediately receive information about its validity and expiration dates.

### 9.8.2. How to Create an IP Address List

IP address lists can be used to configure access restrictions to the personal account and limitations on IP-based calls. By default, access to the client interface is restricted from IP addresses of other countries (the list is formed based on the RIPE database). If you need to remove these restrictions completely, contact Digital Tide technical support.

You can also adjust restrictions by uploading personal lists of IP addresses. In the domain settings, these lists can be specified as allowed or denied IP addresses.

To create an IP address list, follow these steps:

1. In the “Safety” section, choose “IP Address Lists.”

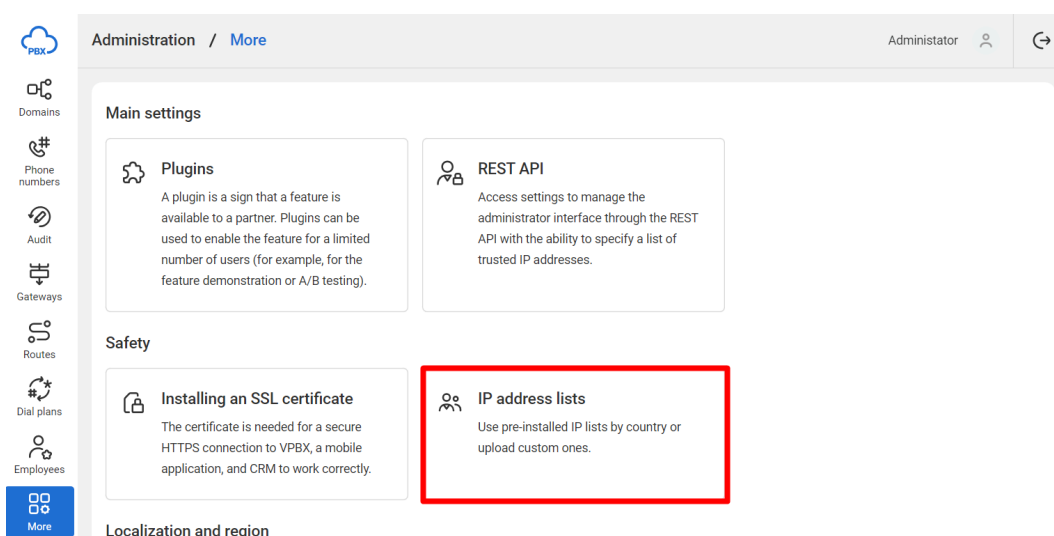


Figure 79: Safety

2. Click on the “Add IP address list” button.

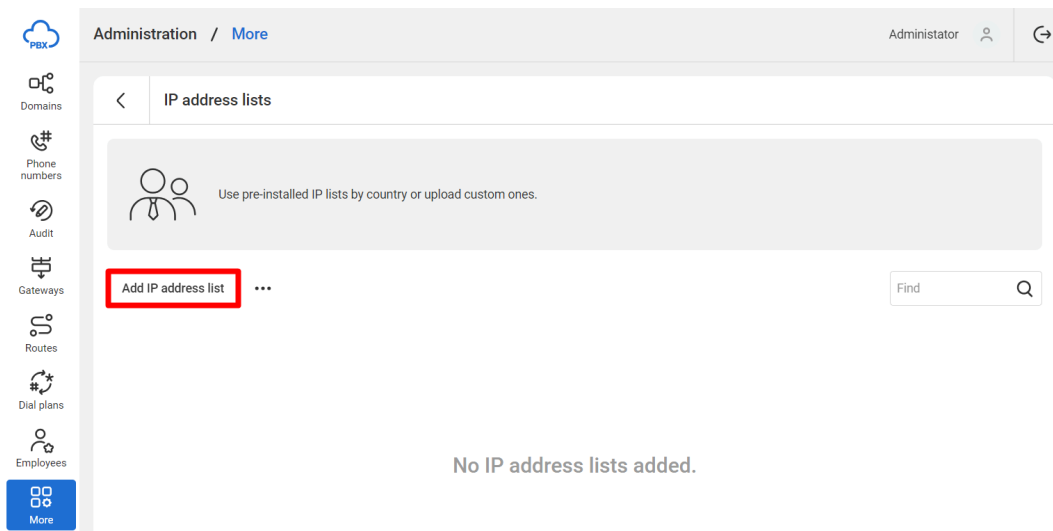


Figure 80: Safety

3. In the opened window, upload a file with the list of addresses, enter a name and description for the list, and click “Save.”

## Create an IP list

Name:

Description:

 Upload a file

Save

Cancel

Figure 81: Safety

### File requirements:

- Extension: .txt, .csv, or without an extension.
- List name and description: Latin, Cyrillic, numbers, symbols (``~!@#$$%^&*()_+-=|;':",./<>?£`), and spaces are allowed.
- Uploaded IP should be listed separately on each line (delimiter - newline) and contain a mask (e.g., 1.2.3.4/1).

### 9.8.3. Finding IP Address Lists

If you have added many lists, you can find the desired list not only by name and description in the search bar but also by IP addresses included in that list. To search for a list by IP, click on the three dots next to the “Add IP List” button.

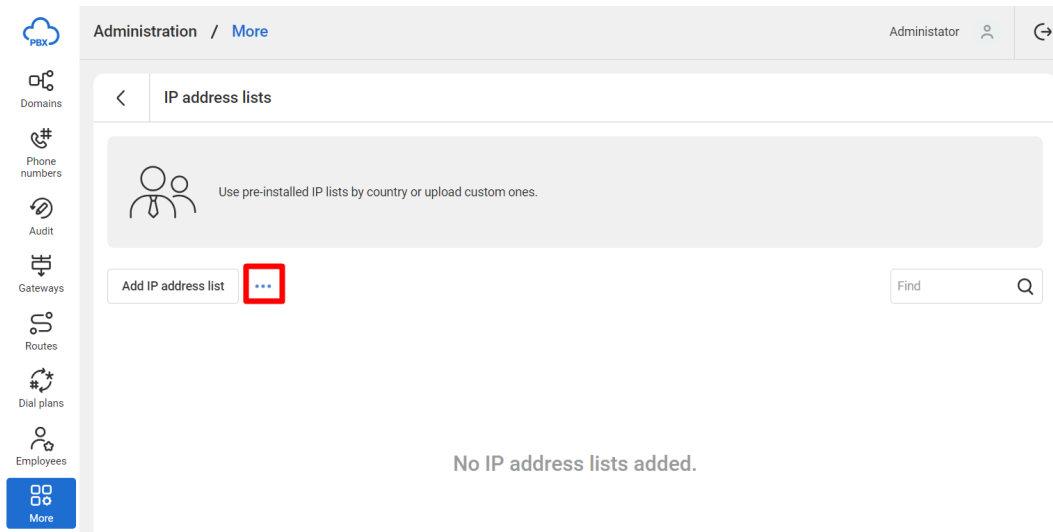


Figure 82: Safety

A window for searching by IP will open.

## 9.9. Logs

Access to logs is provided through the “Logs” section.

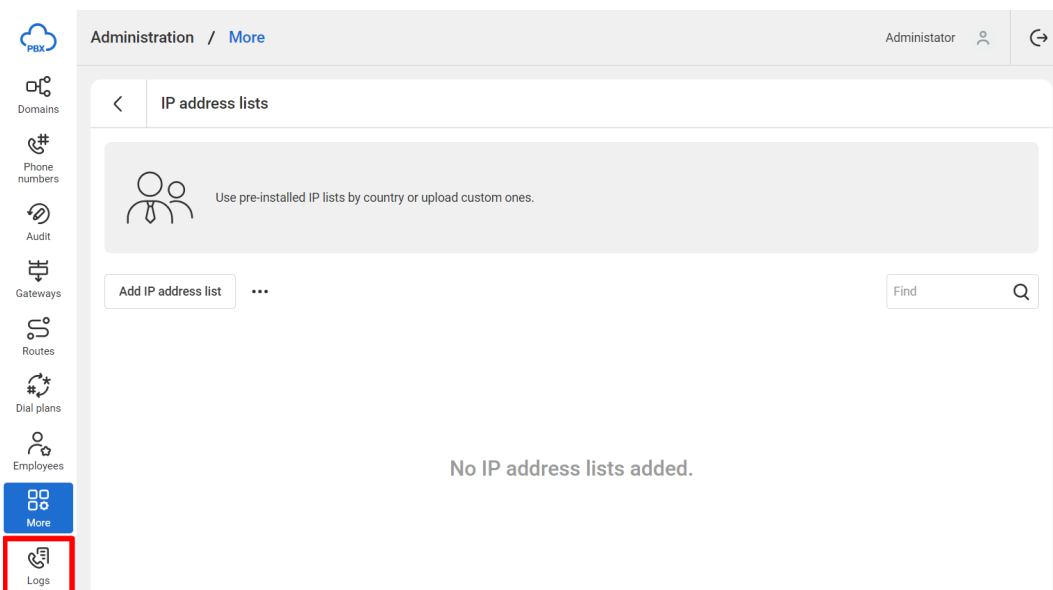


Figure 83: Safety

### 9.9.1. Saving and Updating Logs

Logs are saved 24/7 in online mode. There may be some delay in the appearance of the web interface, depending on the overall service load. The number of days logs are stored depends on the overall call intensity on the entire service and the amount of disk space allocated for storage. The storage period can range from a few days to several months.

To save a log, use the “Plain Text” link.

### 9.9.2. Searching in Logs

The search string can contain any value: phone number, domain name, Call-ID, account name, etc.

#### **Search Features:**

- Case-sensitive search.
- Enclose the last search phrase in quotes to display only the lines with the searched phrase.
- Call-ID is clickable, and clicking on it results in a search by Call-ID, displaying the entire call.
- Filters can be applied for SIPDATA-xxxxxx and PBXLEG-xxxxxx.

#### **Technical Limitations:**

- The search window depends on call intensity and can range from a few minutes to several hours within the specified search date.
- In case the end of the window is reached, clicking “Continue...” or shifting the start of the search allows continued search for the current filter.
- The “Search Regex” mode is used for regex-based searches, with syntax similar to the Unix grep utility.