

Training onSwitch V7

MANAGING THE PBX EXTENSIONS & PBX DEPARTMENTS

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INTRODUCTION & MOTIVATION

This training covers the topics:

- ▶ Creation and configuration of a PBX Department
- ▶ Creation and configuration of a PBX Extension

After this training, the trainee is enabled:

- ▶ To understand the different purposes of an PBX Extension (personal / service)
- ▶ To create and configure a PBX Department and PBX Extension



*IT'S NOT
MAGIC
IT'S "KNOW
HOW"*

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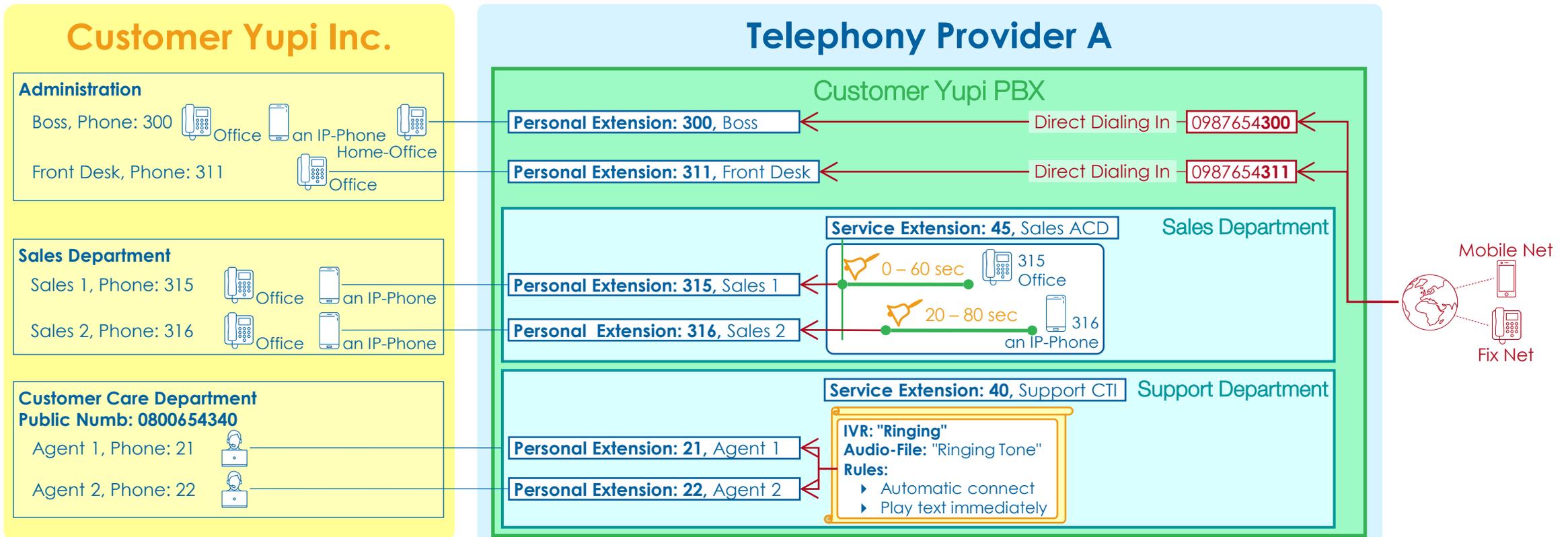
1 OVERVIEW OF THE PBX EXTENSION & DEPARTMENT

OVERVIEW OF THE PBX EXTENSION & DEPARTMENT

- ▶ With the creation of extensions and departments, we enable the PBX:
 - ▶ To manage PBX extension related features for the user
 - ▶ Connect and provision of Aarenet system phones and 3rd party SIP phones
 - ▶ Associate with a UCC client of anConnect/anMeet and/or MS Teams
 - ▶ Call forwarding & rejecting
 - ▶ Voice Mail Box
 - ▶ Member of the PBX auto-attendant
 - ▶ The phone can be member of a call-pick-up group
 - ▶ To manage PBX extension related features for the PBX
 - ▶ By assigning a specific distribution mode the extension serves as call distribution for incoming calls:
 - ▶ Advanced Call Distribution ACD with different algorithms, queues, time-based routing, etc.
 - ▶ Interactive Voice Response IVR with user interaction
 - ▶ Paging/Intercom groups with manual or automatic answering
 - ▶ Fax server for receiving incoming fax transmissions.
 - ▶ To organize PBX extensions in departments:
 - ▶ Departments can be seen as "virtual PBX" within the PBX with an own department administrator.
 - ▶ The department allows different feature configurations as the parent PBX
 - ▶ A department can have a different incoming call routing as the parent PBX

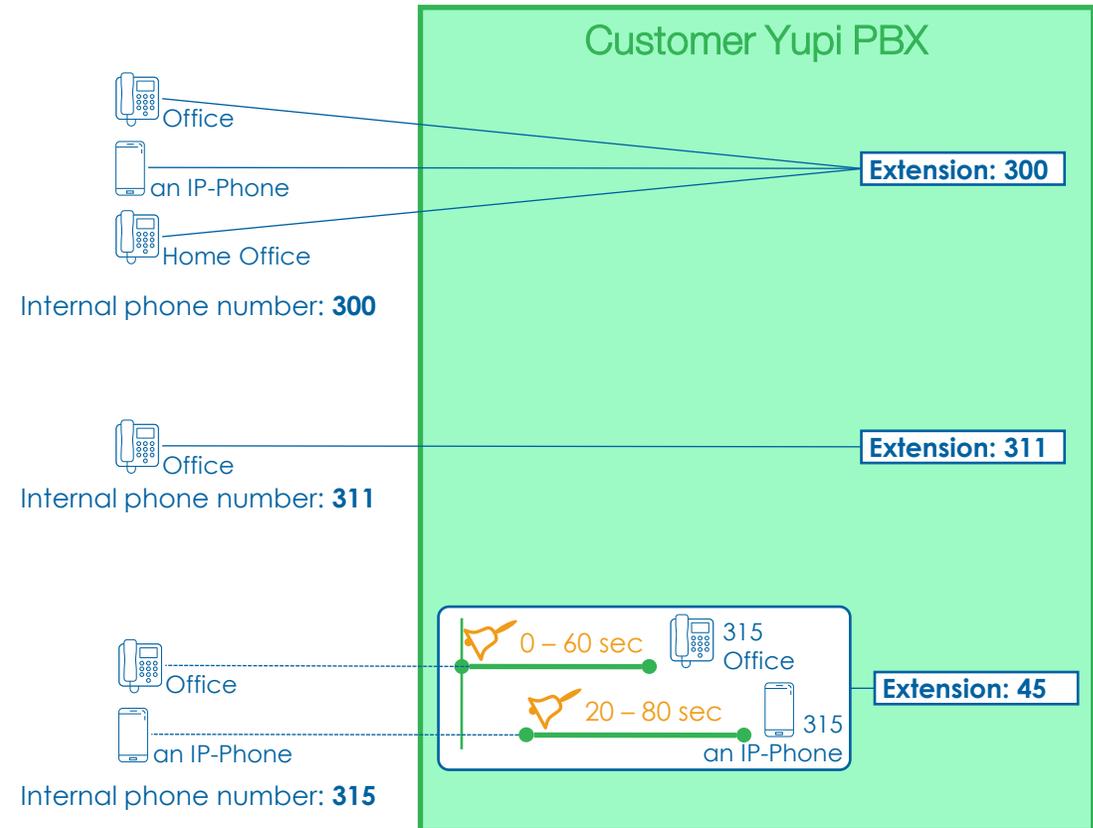
OVERVIEW OF THE PBX EXTENSION & DEPARTMENT OF THE EXAMPLE PBX

- ▶ Setting up the example PBX with PBX Extensions and departments
 - Note:
 - ▶ With the creation of a PBX Extension matching numbers create automatically a Direct Dialing In DDI association.



OVERVIEW PBX EXTENSION

- ▶ A PBX Extension has a unique internal phone number.
- ▶ The PBX Extension can be called by its internal number.
- ▶ As soon as SIP phones are registered, they can start calls to other internal numbers of this PBX or outgoing calls to the PSTN.



DIFFERENTIATION PERSONAL EXTENSION - SERVICE EXTENSION

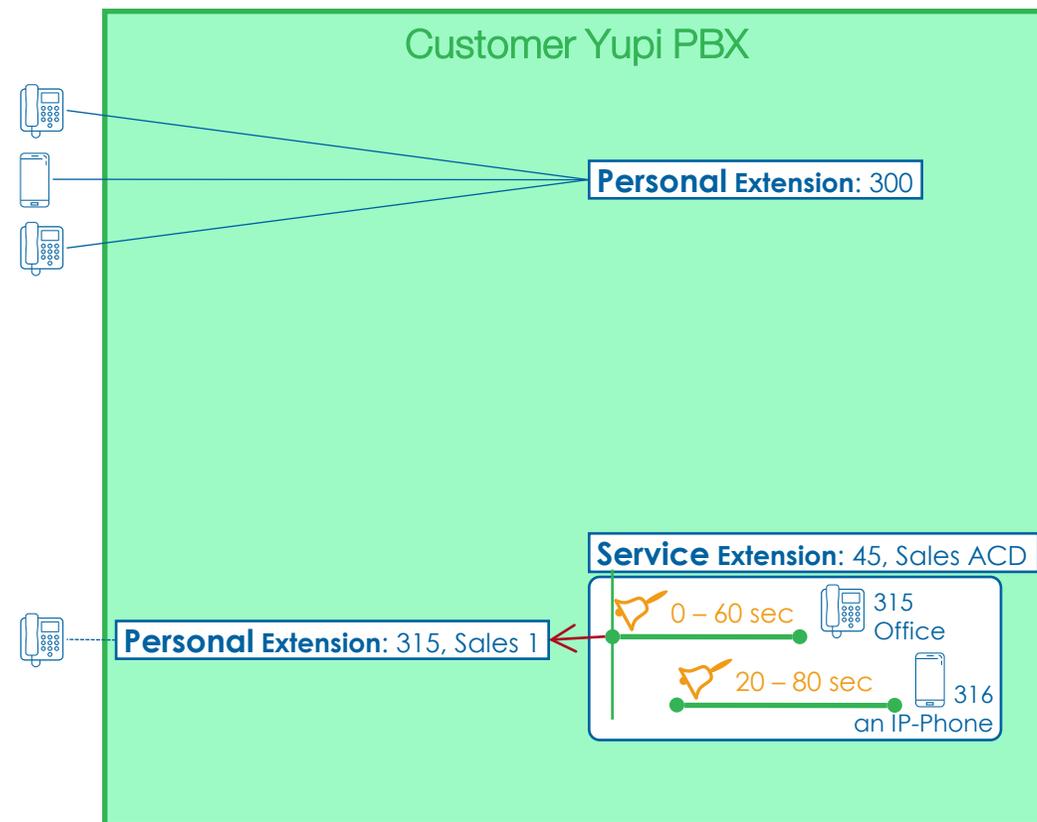
→ There exists two types of PBX Extensions:

▶ Personal Extension

- ▶ Belongs to a PBX Member which can assign and connect any number of phones to this extension.
- ▶ The distribution mode is by default:
 - ▶ All Phones

▶ Service Extension

- ▶ Belongs to the PBX or department and is used for call distributions (group calls) of incoming calls.
- ▶ The distribution modes are:
 - ▶ Call Distribution ACD
 - ▶ Interactive Voice Response IVR



Note

- ▶ As long no phone is added to the extension it is counted as Service Extension.
- ▶ The differentiation between "Service" and "Personal" is purely a license reason:
 - Service Extensions are cheaper than Personal Extensions.

DECLARATION OF PERSONAL EXTENSION & SERVICE EXTENSION

- ▶ The maximum numbers of Personal Extension and Service Extension are defined in the PBX settings.

> Menu: PBX Administrator
> Sub-Menu: PBX Settings

PBX Settings PA-PBX-0AX89001

Save

PBX	Public numbers	Properties
Name PA-PBX-0AX89001	Number range 0449980105,0550-9,0650-9,0800654310,0800654340,0987654340	Extensions 10
Description Yup Inc., Honolulu, 0987654300 - 49, 0800654310, 0800654340	Valid from 20.04.2021 06:00	Service Extensions 10
Member of Provider A	Valid until	External channels 20
Teams Domain		Public Prefix
		Time Zone Europe/Zurich
		Date Format dd.MM.yyyy
		Time Format 24 Hours
		Time mode Timetable

- ▶ When the max. number of extensions are created then the extension creation buttons are greyed-out.

> Menu: PBX Administrator
> Sub-Menu: Extensions

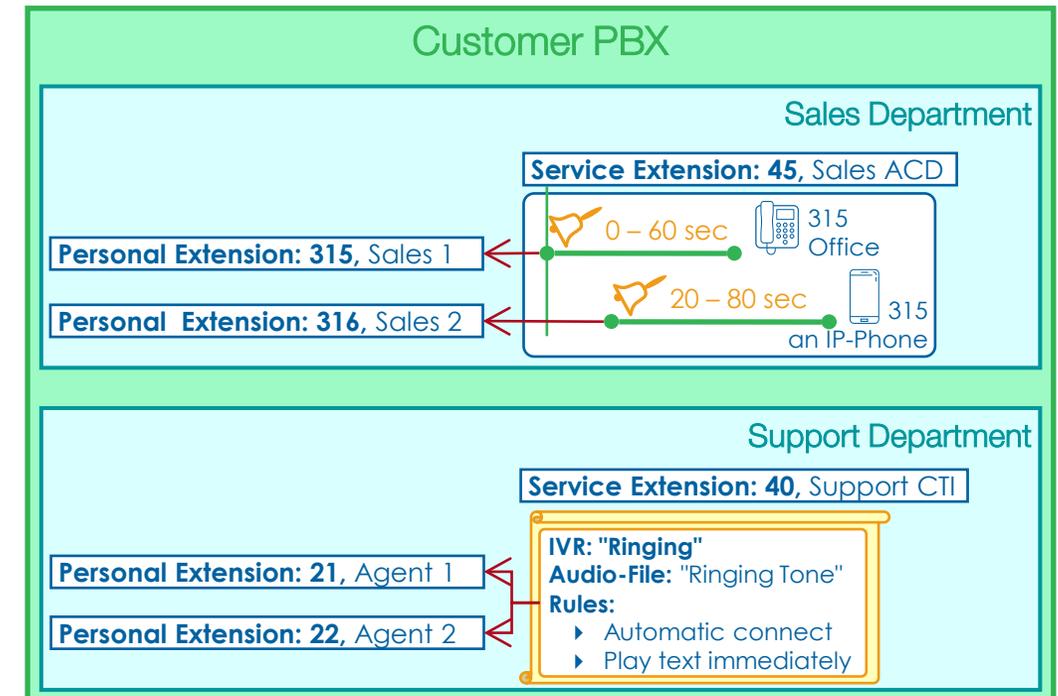
Extensions

PBX Dashboard

Extension	Displayed Name	Department	Call Distribution Mode	PBX User	Dial In Number of	Displayed Public Number	Registration Status
21	Agent 1	Support Department	All Phones				●
22	Agent 2	Support Department	All Phones		0800654310	0800654310	●
40	Support IVR		Interactive Voice Response				●
41	Support ACD - English & German Agents	Support Department	Call Distribution				●
42	Support ACD - French & English Agents	Support Department	Call Distribution				●
45	Sales ACD	Sales Department	Call Distribution		0987654345	0800654310	●
72	Access Conference Portal		Interactive Voice Response		0987654310		●

OVERVIEW PBX DEPARTMENT

- ▶ A PBX Department can be used as an administrative grouping of PBX extensions with an optional Department Administrator.
- ▶ A PBX Department inherits all configurations of its parent PBX but can have its own configuration for:
 - ▶ Hold Music
 - ▶ Channel Limitation
 - ▶ Department Administrator & user management
 - ▶ Timetable and holidays
 - ▶ Contact list
 - ▶ Blacklist of blocked numbers
 - ▶ Call list reduced to the scope of the department



2 CREATE & MANAGE A PBX DEPARTMENT

PREPARE THE DEPARTMENT CONFIGURATION VALUES

▶ Department settings:

Topic	Example	Value	Description
Department			
Name	Sales Department	.....
Description	Sales Department	.....

Topic	Example	Value	Description
Department			
External channels	5	.....	Define the maximum number of external connections to and from the Department. 0 : No connections to and from the PBX are possible.
Time mode	Timetable	.....	Time bound incoming call routing mode, see description PBX creation.

▶ **Optional** user account for the Department Administrator:

Topic	Example	Value	Description
Department Administrator			
E-Mail	chief-supp@yupi.com	.....	The e-mail is the username of this user account.
First Name	Chief	.....
Last Name	Support	.....
Language	English	.....	Select the language for the Web Portal UI, In-Band messages and VoiceMail announcements

START THE CREATION OF A PBX DEPARTMENT

1. Access the Portal with sufficient rights, usually: PBX Administrator

- > Menu: PBX Administrator
- > Sub-Menu: Departments
- > Click button: + New



2. In the wizard configure the department parameters and finalize.

- > Click button: Save

Department Settings

< back > next

Department

Name
Support Department

Description
Support Department

Member of
PA-PBX-0AX89001

Properties

External channels
5

Time mode
Timetable

Department Settings

Save < back > next

Department Administrator

E-Mail
chief-sales@yupi.com

First Name
Chief

Last Name
Sales

Language
English

MANAGING A PBX DEPARTMENT

1. After the initial PBX department creation or for managing, check and modify the parameters as needed.

- > Menu: PBX Administrator
- > Sub-Menu: Departments
- > Click the row of the desired department

Access variant as Department Administrator:

- > Menu: Department Administrator
- > Sub-Menu: Department Settings

Department List

[PBX Dashboard](#)

[+ New](#) [X Delete](#)

<input type="checkbox"/>	Name ↕	Description ↕	Member of ↕	E-Mail ↕
<input type="checkbox"/>	Sales Department	Sales Department	PA-PBX-0AX89001	chief-supp@yupi.com
<input type="checkbox"/>	Support Department	Support Department	PA-PBX-0AX89001	chief-sales@yupi.com

Department Settings - Support Department

[PBX Dashboard](#) [Department List](#)

[Save](#)

Department	Properties	On Hold Music
<p>Name</p> <p>Support Department</p> <p>Description</p> <p>Support Department</p> <p>Member of</p> <p>PA-PBX-0AX89001</p>	<p>External channels</p> <p>5 ↕</p> <p>Time mode</p> <p>Timetable</p>	<p>Upload</p> <p>▶ 0:00 / 0:00 ◀ 🔊 ⋮</p>

DELETE A PBX DEPARTMENT

- ▶ Delete a PBX Department:
Access the Portal with sufficient rights,
usually: PBX Administrator

- > Menu: PBX Administrator
 - > Sub-Menu: Departments
 - > Select the department which shall be deleted
 - > Click the button: Delete



Department List

Expert-Mode

john.deer@yupi.com

Department List

PBX Dashboard

	Name	Description	Member of	E-Mail
<input type="checkbox"/>	Sales Department	Sales Department	PA-PBX-0AX89001	chief-supply@yupi.com
<input checked="" type="checkbox"/>	Support Department	Support Department	PA-PBX-0AX89001	chief-sales@yupi.com

Warning The deleting of a PBX Department is final!

Note The PBX Extensions of a department are not deleted!
The PBX Extensions are assigned to the PBX.

Note A Department Administrator cannot delete its own PBX Department.

3 CREATE & MANAGE A PBX EXTENSION

PREPARE THE NEEDED PBX EXTENSION CONFIGURATION VALUES

► Extension number values

Topic	Example	Value	Description
Number Related			
Name to Display	Boss	.....	Any string
Member of	PA-PBX-0AX89001	.....	Default is the PBX name. As alternative a PBX department can be selected
Internal Number	300	.....	Configure the internal phone number of this extension. The max. size of an internal number is: 10 digits Depending on the localization certain numbers are not possible e.g., national emergency numbers.
Dial In Number of	0987654300	.....	Optional: Select from the public numbers of the PBX the associated Direct Dialing In DDI number.
Displayed Public Number	0987654300	.....	Optional: Select from the public numbers of the PBX the number that shall be displayed at the called side.

PREPARE THE NEEDED PBX EXTENSION CONFIGURATION VALUES

► Public call permission rule settings:

Topic	Example	Value	Description
Public Call Permissions			
PIN	1234	.....	PIN
International	PIN required	.....	Select whether blocking rules for these destination numbers shall be applied. → What 'National', 'International' and 'National VAS' phone numbers are defined by the customer pricelist which is assigned to the PBX!
National	Allowed	.....
National VAS	Blocked	.....

► Optional user account for the PBX Member:

Topic	Example	Value	Description
PBX User			<div style="background-color: #fff9c4; padding: 5px;"> <p>Note To avoid problems when activating anConnect for the PBX extension, it is recommended to configure the user account during the extension wizard process or later in the Extension Setup configuration page.</p> </div>
E-Mail	boss@yupi.com	.....	The e-mail is the username of this user account.
First Name	The	.....
Last Name	Boss	.....
Language	English	.....	Select the language for the Web Portal UI, In-Band messages and VoiceMail announcements

CREATION OF THE PBX EXTENSION

1. Access the Portal with sufficient rights, usually: PBX Administrator

- > Menu: PBX Administrator
- > Sub-Menu: Extensions
- > Click button: + New

Extensions								
PBX Dashboard								
+ New + Generate × Delete								
	Extension	Displayed Name	Department	Call Distribution Mode	PBX User	Dial In Number of	Displayed Public Number	Registration Status
<input type="checkbox"/>	21	Agent 1		All Phones				●
<input type="checkbox"/>	22	Agent 2		All Phones		0800654310	0800654310	●

2. In the wizard configure the PBX Extension parameters and finalize.

- > Click button: Save

3. Inform the user about the creation of his extension by sending message to the configured e-mail address.

- > Click button: Send

Extension Setup ×

< back > next

Number

Name to Display
Support Chief

Member of
Support Department

Internal Number
20

Dial In Number of
0987654320

Displayed Public Number
0987654320

Extension Setup ×

< back > next

Public Call Permissions

PIN
••••

International
PIN required

National
Apply PBX permissions

National VAS
Blocked

Extension Setup ×

Save Send < back > next

User

E-Mail
chief-supp@yupi.com

First Name
Chief

Last Name
Support

Language
English

MANAGING A PBX EXTENSION

1. After the initial PBX Extension creation, or for managing check and modify the parameters as needed.

- > Menu: PBX Administrator
 - > Sub-Menu: Extensions
 - > Click the row of the desired extension
 - > Click on link: Extension Setup

Extensions

☰ PBX Dashboard

⌵

+ New + Generate × Delete

<input type="checkbox"/>	Extension	Displayed Name	Department	Call Distribution Mode	PBX User	Dial In Number of	Displayed Public Number	Registration Status
<input type="checkbox"/>	20	Support Chief	Support Department	All Phones	Chief Support	0987654320	0987654320	●
<input type="checkbox"/>	21	Agent 1		All Phones				●
<input type="checkbox"/>	22	Agent 2		All Phones		0800654310	0800654310	●

Extension Setup

☰ Extension Related Features ☰ Extensions

📄 Save 📤 Send

Number	Public Call Permissions	User
Name to Display Support Chief	PIN ●●●●	E-Mail chief-supp@yupi.com
Member of Support Department	International PIN required	First Name Chief
Internal Number 20	National Apply PBX permissions	Last Name Support
Dial In Number of 0987654320	National VAS Blocked	Language English
Displayed Public Number 0987654320		

Note The PBX Member has no access to the settings of its extension settings.

Note As long no phone is added to the extension it is counted as Service Extension.

DELETE A PBX EXTENSION

- ▶ Delete a PBX Extension:
Access the Portal with sufficient rights,
usually: Operator

- > Menu: PBX Administrator
 - > Sub-Menu: Extensions
 - > Select the extension which shall be deleted
 - > Click the button: Delete



The screenshot shows the 'Extensions' management page in the PBX Administrator. At the top right, there is a red bar with 'Expert-Mode' checked, a star icon, a gear icon, and a user profile for 'john.deer@yupi.com'. Below this is a breadcrumb trail: 'PBX Dashboard' > 'Extensions'. A toolbar contains '+ New', '+ Generate', and 'X Delete' buttons. The 'Delete' button is highlighted with a yellow box. Below the toolbar is a table of extensions with columns: Extension, Displayed Name, Department, Call Distribution Mode, PBX User, Dial In Number of, Displayed Public Number, and Registration Status. The first row (Extension 20) is selected, and its checkbox is checked. A yellow arrow points from the 'Delete' button to the checked checkbox.

Extension	Displayed Name	Department	Call Distribution Mode	PBX User	Dial In Number of	Displayed Public Number	Registration Status	
<input checked="" type="checkbox"/>	20	Support Chief	Support Department	All Phones	Chief Support	0987654320	0987654320	●
<input type="checkbox"/>	21	Agent 1		All Phones				●
<input type="checkbox"/>	22	Agent 2		All Phones		0800654310	0800654310	●
<input type="checkbox"/>	40	Support IVR		Interactive Voice Response				●

Warning

The deleting of a PBX Extension is final!

- ➔ ALL data and configurations of the PBX extension, its phones, VoiceMail Boxes and messages are deleted.
- ➔ Not deleted are the Call Detail Records CDR.

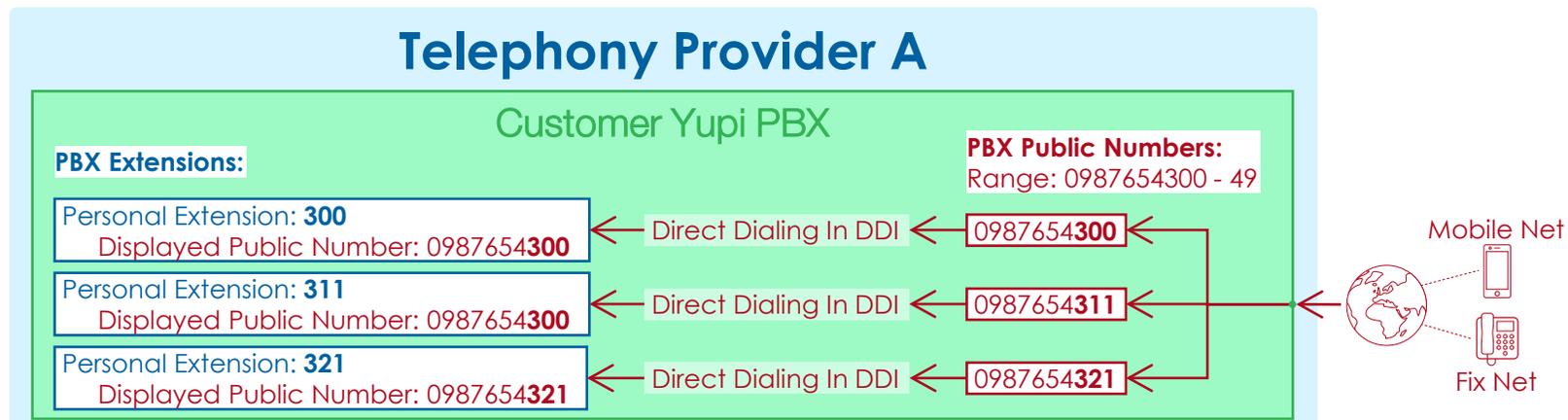
Note

A PBX Member cannot delete its own PBX Extension.

4 PBX EXTENSION RANGE GENERATOR

OVERVIEW GENERATE A RANGE OF PBX EXTENSION

- ▶ Ranges of PBX Extensions can be created in one step.
- ▶ A Direct Dialing In DDI association between the new PBX Extension and the PSTN public number can be done on demand.
- ▶ When DDIs are assigned to the new PBX Extensions then the displayed public number on the called side can be assigned too.
- ▶ On demand the new extensions can be associated with a Department of the PBX.



CREATE A NEW PBX EXTENSION RANGE

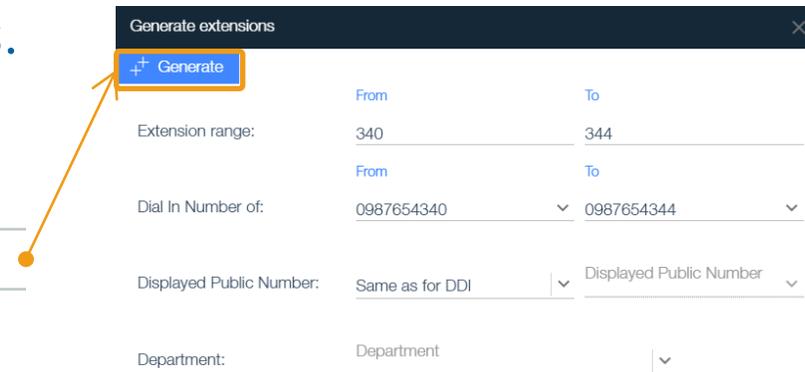
1. Access the Portal with sufficient rights, usually: PBX Administrator

- > Menu: PBX Administrator
- > Sub-Menu: Extensions
- > Click button: Generate



2. The dialog "Generate Extensions" opens.

- ▶ Configure the parameters.
 - Examples, see next pages
- ▶ Finalize the generation
 - > In the dialog click button: Generate



Note

With this extension generation, no user accounts for the PBX Member are created.

GENERATE AN EXTENSION RANGE WITH NO DDI

- ▶ Configure a new range without DDI:
 - ▶ Define the new Extension range, e.g.: 301 – 305
 - ▶ No DDI range a displayed public number
 - ▶ For displayed public number select: Non
 - ▶ Assign an optional Department

▶ Possible error conditions:

- ▶ If the new range contains numbers of extensions that already exists, then the range will not be created and is stopped with an error message:

Failed
Extensions could not be generated.
Internal numbers are not unique.

- ▶ If the new range is too big, then it is not possible to create the range.

Problem indication:

- ▶ Greyed out generation button and/or error message:

Generate extensions

Extension range:

Maximum number of extension reached

Generate extensions

Extension range:

Dial In Number of:

Displayed Public Number:

Department:

▶ Result of the range generation:

- ▶ 5 new extensions without DDI

<input type="checkbox"/>	Extension	Displayed Name	Department	Call Distribution Mode	PBX User	Dial In Number of	Displayed Public Number	Registration Status
<input type="checkbox"/>	300	Boss		All Phones	The Boss	0987654300	0987654300	●
<input type="checkbox"/>	301			All Phones				●
<input type="checkbox"/>	302			All Phones				●
<input type="checkbox"/>	303			All Phones				●
<input type="checkbox"/>	304			All Phones				●
<input type="checkbox"/>	305			All Phones				●
<input type="checkbox"/>	311	Front Desk		All Phones	Front Desk	0449980105	0449980105	●
<input type="checkbox"/>	315	Sales 1	Sales Department	All Phones		0987654315	0987654315	●
<input type="checkbox"/>	316	Sales 2	Sales Department	All Phones		0987654316	0987654316	●
<input type="checkbox"/>	330	Warehouse 1		All Phones		0987654330	0987654330	●
<input type="checkbox"/>	331	Warehouse 2		All Phones				●

GENERATE AN EXTENSION RANGE WITH DDI & EQUAL DISPLAY

- ▶ Configure a new range with DDI and matching displayed public number:
 - ▶ The new Extension range, e.g.: 301 – 305
 - ▶ The DDI number range: 0987654301 – 0987654303
- Note:
- ▶ If the DDI range is too small, then the last of new extensions don't get a DDI.
 - ▶ If the DDI range is too big, then remaining DDI numbers are not used.
- ▶ Define that the displayed public number shall match the same as for DDI, select: DDI

Generate extensions

+ Generate

Extension range: From 301 To 305

Dial In Number of: From 0987654301 To 0987654303

Displayed Public Number: DDI

Department: Department

- ▶ Result of the range generation:
 - ▶ 3 new extensions with DDI
 - ▶ 2 new extension with no DDI

- ▶ Possible error conditions:
 - ▶ If the DDI range contains used DDI numbers, then a dialog pops up which offers the possibilities:

DDI Number Problem

One or more of the DDI numbers are already in use.

What you want to do?

Cancel Skip Replace

- ▶ Cancel: The generation is canceled.
- ▶ Skip: Skip the already used DDI, the new extension doesn't get a DDI.
- ▶ Replace: The DDI is taken away from the current extension and assigned to the new extension.

<input type="checkbox"/>	Extension	Displayed Name	Department	Call Distribution Mode	PBX User	Dial In Number of	Displayed Public Number	Registration Status
<input type="checkbox"/>	300	Boss		All Phones	The Boss	0987654300	0987654300	●
<input type="checkbox"/>	301			All Phones		0987654301	0987654301	●
<input type="checkbox"/>	302			All Phones		0987654302	0987654302	●
<input type="checkbox"/>	303			All Phones		0987654303	0987654303	●
<input type="checkbox"/>	304			All Phones				●
<input type="checkbox"/>	305			All Phones				●
<input type="checkbox"/>	311	Front Desk		All Phones	Front Desk	0449980105	0449980105	●
<input type="checkbox"/>	315	Sales 1	Sales Department	All Phones		0987654315	0987654315	●
<input type="checkbox"/>	316	Sales 2	Sales Department	All Phones		0987654316	0987654316	●
<input type="checkbox"/>	330	Warehouse 1		All Phones		0987654330	0987654330	●
<input type="checkbox"/>	331	Warehouse 2		All Phones				●

GENERATE AN EXTENSION RANGE WITH DDI & FIX DISPLAY

- ▶ Configure a new range with DDI and fix displayed public number:
 - ▶ The new Extension range, e.g.: 301 – 305
 - ▶ The DDI number range: 0987654301 – 0987654305
 - ▶ Define the displayed public number to be the same for all new extensions: Fix

Generate extensions ✕

+ Generate

Extension range: From To

301 305

Dial In Number of: From To

0987654301 0987654305

Displayed Public Number: Displayed Public Number

Fix 0987654311

Department: Department

▶ Result of the range generation:

- ▶ 5 new extensions with different DDI but all have the same displayed public number.

+ New	+ Generate	✕ Delete	Extension	Displayed Name	Department	Call Distribution Mode	PBX User	Dial In Number of	Displayed Public Number	Registration Status
<input type="checkbox"/>			300	Boss		All Phones	The Boss	0987654300	0987654300	●
<input type="checkbox"/>			301			All Phones		0987654301	0987654311	●
<input type="checkbox"/>			302			All Phones		0987654302	0987654311	●
<input type="checkbox"/>			303			All Phones		0987654303	0987654311	●
<input type="checkbox"/>			304			All Phones		0987654304	0987654311	●
<input type="checkbox"/>			305			All Phones		0987654305	0987654311	●
<input type="checkbox"/>			311	Front Desk		All Phones	Front Desk	0449980105	0449980105	●
<input type="checkbox"/>			315	Sales 1	Sales Department	All Phones		0987654315	0987654315	●
<input type="checkbox"/>			316	Sales 2	Sales Department	All Phones		0987654316	0987654316	●
<input type="checkbox"/>			330	Warehouse 1		All Phones		0987654330	0987654330	●
<input type="checkbox"/>			331	Warehouse 2		All Phones				●

5 PBX EXTENSION BASED USER FEATURES

OVERVIEW PBX EXTENSION FEATURES

1. After the PBX Extension is generated, the PBX Member can use the available telephony service features.

Access as PBX Member:

- > Menu: PBX Member
- > Sub-Menu: Features

Access as PBX Administrator or Department Administrator:

- > Menu: PBX or Department Administrator
- > Sub-Menu: Extension
- > Click the row of the desired extension

▶ The offered features can be managed via:

- ▶ The Portal UI from a PC or smartphone
- ▶ *#-codes from the phone keypad

The screenshot displays the 'Extension Related Features' configuration page for extension 300. It is divided into several sections:

- Call Forwarding:** Includes settings for Unconditional, On Busy, No Reply, Call Failed, and Call Forking, each with a 'VoiceMail' option and a toggle switch.
- Account:** Features 'Do Not Disturb', 'Forward call to 'On Busy'', 'Suppress own Number', 'Reject Anonymous Calls', and 'Call waiting' with toggle switches. The 'Distribution Mode' is set to 'All Phones'.
- Assigned Phones:** A table listing assigned devices:

Phone Name	Registrat Status
Boss-an IP-Phone	Red dot
Boss Office - GRANDSTREAM GRP2613	Green dot
Boss - anDesktop	Red dot
- VoiceMail Box:** Shows 'Storage Status' at 20%, 'Set PIN' (masked), and various settings like 'PIN bypass for extension', 'Call back allowed', 'Send message by e-mail', 'Email attachment format' (wav), 'Send email if no message was left', and 'Delete VM after sending email'.
- VoiceMail Messages -:** A table of messages:

Time	Number	Name	Duration	State	Audio Message
13.03.2023 11:09	330	Warehouse 1	10.4 s	Listened	Play icon
13.03.2023 11:11	0449980101	0449980101	15.58 s	Listened	Play icon
- Dial By Name:** Includes 'Auto-Attendant Name' set to 'Boss'.

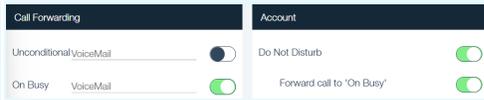
CALL FORWARD CF

► Call forwarding CF features

Call Forward Type	Description	*#-Codes	Portal UI
Call Forward Unconditional CFU	The call forwarding is executed in any case.	Activation: *21<NUMBER> Deactivation: #21 Status: *#21	Portal UI parameter: "Unconditional"
Call Forward Fallback CFF	The call forward is executed if no valid SIP device registration is active for the extension.	Activation: *22<NUMBER> Deactivation: #22 Status: *#22	Portal UI parameter: "Call Failed"
Call Forward if No Reply CFNR	The call forwarding is executed when the call is not answered by the user with in 14sec.	Activation: *61<NUMBER> Deactivation: #61 Status: *#61	Portal UI parameter: "No Reply"
Call Forward if Busy CFB	The call forwarding is executed if the user is busy with another call.	Activation: *67<NUMBER> Deactivation: #67 Status: *#67	Portal UI parameter: "On Busy"
Call forking CFO	The call is forwarded concurrently to the additional number.	Activation: *481<NUMBER> Deactivation: #481 Status: *#481	Portal UI parameter: "Call Forking"
Delete all active Call Forwards CF	Activates the deletion of all active Call Forwards CF.	Activation: *00 Status: *#00	

MANAGE CALL REJECTION

► Call rejection features

Feature	Description	*#-Codes	Portal UI
Do Not Disturb DND	All incoming calls are rejected.	Activation: *26 Deactivation: #26 Status: *#26	Portal UI parameter: "Do Not Disturb"
Forward call to 'On Busy'	Optional for Do Not Disturb DND to forward the call to the "On Busy" destination. Note: "On Busy" must be activated for being effective.		Portal UI parameter: "Forward call to 'On Busy'" 
Anonymous Call Reject ACR	Anonymous incoming calls are rejected.	Activation: *99 Deactivation: #99 Status: *#99	Portal UI parameter: "Reject Anonymous Calls"

MANAGE CONNECTION RELATED FEATURES

▶ Connection-oriented features

Feature	Description	*#-Codes	Portal UI
Make an anonymous call once	Don't show my identity on the called side for this call.	Dial: *31Number	
Make permanent anonymous calls (CLIR)	Never show my identity on the called side.	Activation: *32 Deactivation: #32 Status: *#32	Portal UI parameter: "Suppress own Number"
Call Waiting CW	Indicate waiting incoming calls.	none	Portal UI parameter: "Call waiting"
Call Pick Up	Pick up an incoming call to an internal number with any internal phone.	Dial: *76<NUMBER>	
Flip Phone	Take over an active connection of your extension to another phone of the extension.	Dial: *78	

CONFERENCE & DIAL BY NAME FEATURE

► Conference feature

Feature	Description	*#-Codes	Remark
Join an Audio Conference	Connect to the conference portal and join a conference with room number and PIN.	Dial: *72	<p>A conference must be configured via the Portal UI menu "Conference Rooms"</p> <p>For details see the documentation: "Audio Conference" (Doc-ID: training_as7_405_audio_conference_e)</p>

► Dial by Name feature

Feature	Description	*#-Codes	Remark
Dial by Name	The PBX Extension can be selected as a destination by a caller by typing the auto-attendant name on the keyboard of his phone .	Dial: *82	<p>Dial by Name must be activated in the PBX Extension.</p> <p>For details see the documentation: "Auto-Attendant Portal – Dial By Name" (Doc-ID: training_as7_408_auto_attendant_e)</p>

PBX CALL ROUTING MANAGE WITH *#-CODE

► PBX incoming call routing features:

Feature	Description	*#-Codes	Remark	
Suspend from Advanced Call Distribution ACD	Suspend this phone or number from Advanced Call Distribution ACD	All ACDs	Activation/Toggle: *29	A user may use this feature for suspending its phone/number from ACD in case of absence.
		Only ACD with number	Activation/Toggle: *29<NUMBER>	
		All ACDs	Deactivation: #29	
		Only ACD with number	Deactivation: #29<NUMBER>	
			Status: *#29	
Incoming routing according for PBX or Department :				
Timetable	The incoming routing is according the assigned timetable.	Dial: *980	This the default for the incoming PBX call routing	
Night	The day/time of the assigned timetable is overridden from the activation point of time	By this day at 24:00 and automatically reset at next day at 00:00.	Dial: *981	
Night Permanent		By this day at 24:00 until reset manually.	Dial: *982	
Weekend		By next Sunday at 24:00 and automatically reset next Monday at 00:00.	Dial: *983	
Weekend Permanent		By next Sunday at 24:00 until reset manually.	Dial: *984	

MAINTENANCE *#-CODE

- ▶ Maintenance features for the user and phone installer:

Feature	Description	*#-Codes	Remark
Tell my Number	The caller will be told the number of this PBX Extension.	Dial: *14	

VOICEMAIL BOX VM OVERVIEW

- ▶ The personal VoiceMail Box can answer incoming calls automatically and a caller can leave a message.

- ▶ The personal VoiceMail Box is activated when a PBX Member is assigned to the PBX Extension
- ▶ For receiving messages, the user must configure a call forward toward to the VoiceMail Box.

▶ Received messages

- ▶ Listen to the received messages:
 - ▶ Connect to the VoiceMail Box of the extension dial from a phone of the extension: *86
 - ▶ Send it as audio file attachment to the email address of the user of this extension.
 - ▶ In the user's Portal UI account.
 - ▶ Download it from the user's Portal UI account
- ▶ A message can be forwarded manually to another PBX member's internal number.
 - ▶ Dial from a phone of the extension *86 and select the forwarding menu for entering the internal number.
- ▶ An in-band notification is issued when the maximum number of allowed messages is reached.

The screenshot displays the PBX management interface with several sections:

- Base Settings:** Shows the E-Mail address (frontdesk@yupi.com) highlighted with an orange box.
- Settings:** Shows the Owner (PA-PBX-0AX89001) and Password fields.
- Roles:** Shows a table with columns for Role, Access to, and Parent C. A role named 'PBX Member' is listed with 'Front Desk' access and 'PA-PBX-0AX8900' as the parent.
- Call Forwarding:** Shows various forwarding options. The 'On Busy' VoiceMail option is highlighted with an orange box and has its toggle switch turned on.
- VoiceMail Box:** Shows the Storage Status (20%), Set PIN, PIN bypass for extension, Call back allowed, Send message by e-mail, Email attachment format (wav), Send email if no message was left, and Delete VM after sending email (all toggles are on).
- VoiceMail Messages -:** Shows a table of received messages with columns for Time, Number, Name, Duration, State, and Audio Message. Two messages are listed: one from 13.03.2023 11:09 (330, Warehouse 1, 10.4 s, Listened) and another from 13.03.2023 11:11 (0449980101, 0449980101, 15.58 s, Listened).

Note

Only the PBX Member can see and listen to the private VoiceMail Box messages.

VOICEMAIL BOX VM LIMITS

▶ The VoiceMail Box VM limits:

Feature	Description	*#-Codes	Remark
"Connect to VoiceMail Box"	Connect to the VoiceMail Box of the extension.	Dial: *86	
Welcome recording	<ul style="list-style-type: none"> ▶ Max. 2min per personal welcome 		
Message recording	<ul style="list-style-type: none"> ▶ Max. 5min per message ▶ Max. 20 messages 		
Login attempts and blocking time out	<ul style="list-style-type: none"> ▶ 3 login attempts before the VoiceMail Box is blocked ▶ 1min blocking time 		
Personal welcome notification audio file	A personal welcome audio file can be: <ul style="list-style-type: none"> ▶ Uploaded ▶ Recorded directly during a connection with the VM ▶ 2 min maximal recording time 		Notes about the audio file creation see next page.

VOICEMAIL BOX VM CONFIGURATION PARAMETERS

▶ The VoiceMail Box VM (answering machine) feature:

Parameter	Example	Value	Description
Storage Status	20%	Value in %	<p>Display of the message storage usage, e.g.: max. 10 messages → 20% display → 2 messages stored</p> <p>The VoiceMail Box plays an in-band notification when the maximum number of allowed messages is reached. The notification is played:</p> <ul style="list-style-type: none"> ▶ To a caller that no message can be left. ▶ To the owner of the VoiceMail Box upon entering the VoiceMail Box.
Set PIN	1234567890	Digits Default: - (empty)	Add a security PIN for accessing the VoiceMail Box → Recommended!
PIN bypass for extension	Enable	[Enable | Disable] Default: Enable	If enabled, the PIN must not be entered when dialing *86 from a phone of the extension. Else the PIN has always to be entered.
Call back allowed	Disable	[Enable | Disable] Default: Disable	Enables In the audio menu of the VoiceMail Box the option to call back the number of the caller who left the message.
Send message by e-mail		[Enable | Disable] Default: Disable	The message is sent to the e-mail address of the user which is associated with the extension.
Email attachment format	mp3	[mp3 | wav] Default: mp3	Select the format of the attached audio file.
Send email if no message was left		[Enable | Disable] Default: Disable	If enabled, a message will be created and sent to the e-mail address even if the caller has not recorded a message.
Delete VM after sending email		[Enable | Disable] Default: Enable	<p>If enabled, the message will be automatically deleted when option "Send message by e-mail" is activated too.</p> <p>→ "Limitless VoiceMail Box"</p>

VOICEMAIL BOX GREETING AND MESSAGE UP-/DOWNLOAD

▶ Upload a personal greeting

1. Prepare the audio file for the personal greeting in advance.

▶ The following audio formats and limits are allowed for audio files:

- ▶ WAV (PCM coded)
- ▶ MP3
- ▶ Max. duration is limited to 2 minutes

2. Upload the audio file:

- > Click button: Upload
- > Select the audio file via the offered selection dialog
- > Click button: Save

Note

Be careful with the recording volume. Old analogue phones tend to clip when the volume is too high. This could make the notification unintelligible.

Time	Number	Name	Duration	State	Audio Message
13.03.2023 11:09	330	Warehouse 1	10.4 s	New	
13.03.2023 11:11	0449980101	0449980101	15.58 s	New	

▶ Download the audio file of a message

- > Click the play back icon
- > Click the option icon
- > Click the download button

ASSIGN AARENET SYSTEM AND 3RD PARTY SIP PHONES

- ▶ The user or PBX Administrator can associate and configure Aarenet system phone and 3rd party SIP phone to the PBX extension
 - ▶ Numerous 3rd party SIP phones can be provisioned and configured directly out of the Portal UI.

- ▶ For details see the documents:
 - ▶ "Connecting & Managing Phones & SIP Devices"
(Doc-ID: training_as7_701_phone_configuration_e)
 - ▶ "anDesktop PC Client"
(Doc-ID: training_as7_805_andesktop_e)
 - ▶ "Click-To-Call"
(Doc-ID: training_as7_806_click_to_call_e)
 - ▶ "Managing Phone Types & Phone Templates"
(Doc-ID: training_as7_702_part_1_phone_type_managing_e)
 - ▶ "Phone Type Toolkit"
(Doc-ID: training_as7_702_part_2_phone_type_managing_e)

Extension Related Features: 300

Extensions Save

Call Forwarding

Unconditional VoiceMail

On Busy VoiceMail

No Reply VoiceMail Delay 15

Call Failed VoiceMail

Account

Do Not Disturb

Suppress own Number

Reject Anonymous Calls

Call waiting

Distribution Mode All Phones

Assigned Phones

+ New Phone + Add Phone × Delete

<input type="checkbox"/>	Phone Name	Registration Status
<input type="checkbox"/>	Boss-an IP-Phone	●
<input type="checkbox"/>	Boss Office -GRANDSTREAM GRP2613	●
<input type="checkbox"/>	Boss-Yealink T53W	●

VoiceMail Box

Storage Status 10% ●

Set PIN

PIN bypass for extension

Call back allowed

Send message by e-mail

Email attachment format wav

Send email if no message was left

Delete VM after sending email

0:00 / 0:07

Upload Delete

VoiceMail Messages -

× Delete

<input type="checkbox"/>	Time	Number	Name	Duration	State	Audio Message
<input type="checkbox"/>	13.03.2023 11:09	330	Warehouse 1	10.4 s	New	
<input type="checkbox"/>	13.03.2023 11:11	0449980101	0449980101	15.58 s	New	

Dial By Name

Auto-Attendant Name Boss

Upload

ASSOCIATE THE USER WITH THE ANCONNECT UCC CLIENT

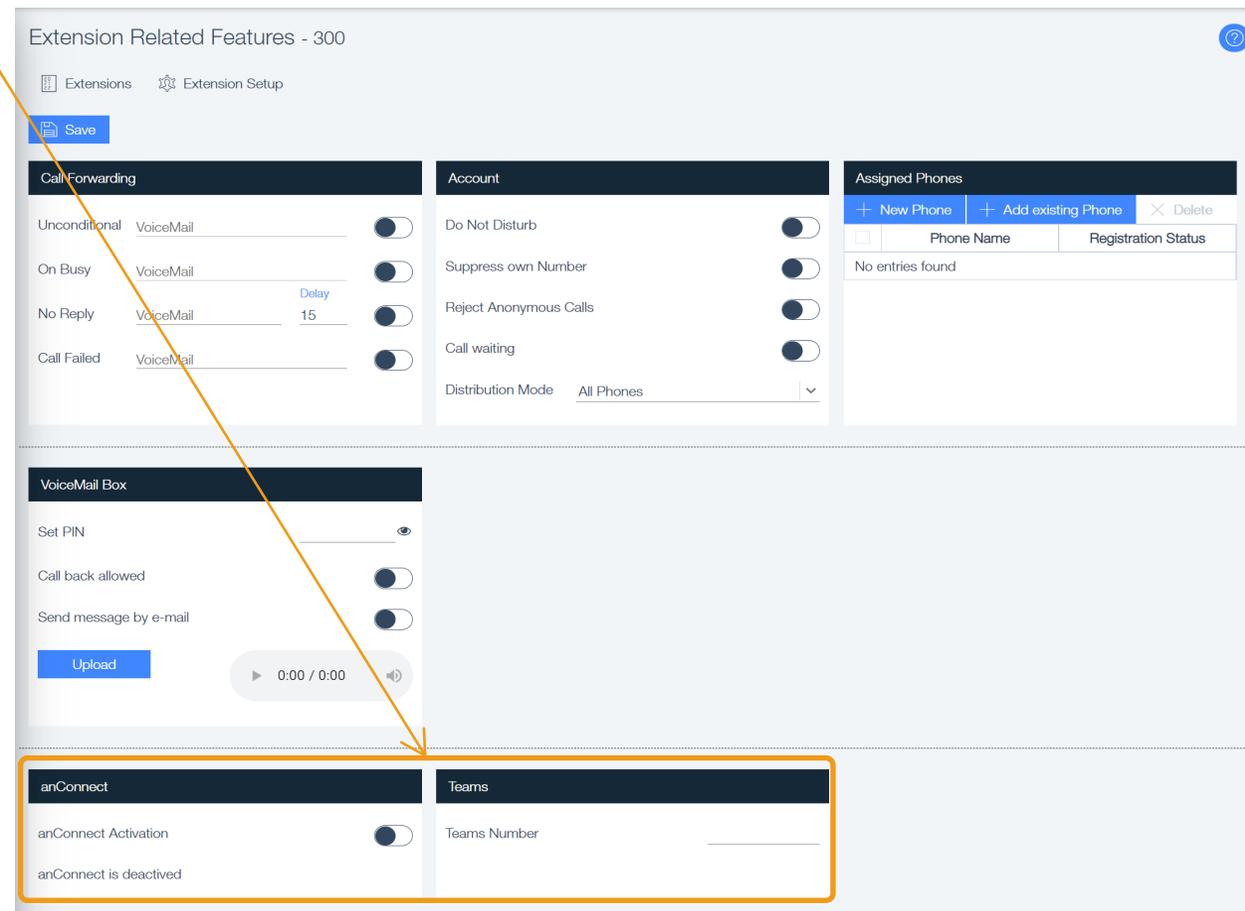
▶ Associate the PBX extension with a UCC client of anConnect and/or MS Teams.

- ▶ The user's UCC client registers like a SIP phone to the PBX extension.
- ▶ The UCC client can use all features of the PBX and PBX extension.
- ▶ The user's UCC client can start outgoing or receiving incoming calls from the PSTN.

▶ For details see the documents:

- ▶ Associate with anConnect of Aarenet
"anConnect & anMeet Features"
(Doc-ID: training_as7_801_anConnect_e)
- ▶ Associate with MS Teams
"anCall for MS Teams Client"
(Doc-ID: training_as7_804_ms_teams_e)

"MS Teams "Direct Routing" Integration"
(Doc-ID: training_as7_803_ancall_e)



Extension Related Features - 300

Extensions Extension Setup

Save

Call Forwarding

Unconditional	VoiceMail	<input type="checkbox"/>
On Busy	VoiceMail	<input type="checkbox"/>
No Reply	VoiceMail	Delay 15 <input type="checkbox"/>
Call Failed	VoiceMail	<input type="checkbox"/>

Account

Do Not Disturb	<input type="checkbox"/>
Suppress own Number	<input type="checkbox"/>
Reject Anonymous Calls	<input type="checkbox"/>
Call waiting	<input type="checkbox"/>
Distribution Mode	All Phones

Assigned Phones

+ New Phone + Add existing Phone X Delete

<input type="checkbox"/>	Phone Name	Registration Status
No entries found		

VoiceMail Box

Set PIN

Call back allowed

Send message by e-mail

Upload

anConnect

anConnect Activation

anConnect is deactivated

Teams

Teams Number

PBX AUTO-ATTENDANT / DIAL BY NAME

- ▶ The Auto-Attendant / Dial by Name feature offers:
 - ▶ To assign the PBX extension to the Auto-Attendant portal.
 - ▶ To forward incoming calls to the Auto-Attendant portal.
 - ▶ Once the caller is connected to the Auto-Attendant portal, the caller is prompted to enter a known name via his phone keypad.
 - ▶ Once the Auto-Attendant portal has found no more than 5 possible internal PBX destinations based on the letters entered, it offers them in an IVR menu. The caller can then select the desired destination.
- ▶ For details see document: "Auto-Attendant Portal – Dial By Name" (Doc-ID: training_as7_713_auto_attendant_e)

Extension Related Features: 300 

Extensions  Save 

Call Forwarding

Unconditional VoiceMail

On Busy VoiceMail Delay 15

No Reply VoiceMail

Call Failed VoiceMail

Account

Do Not Disturb

Suppress own Number

Reject Anonymous Calls

Call waiting

Distribution Mode All Phones

Assigned Phones

+ New Phone + Add Phone × Delete

<input type="checkbox"/>	Phone Name	Registration Status
<input type="checkbox"/>	Boss-an IP-Phone	●
<input type="checkbox"/>	Boss Office -GRANDSTREAM GRP2613	●
<input type="checkbox"/>	Boss-Yealink T53W	●

VoiceMail Box

Storage Status 10% ●

Set PIN

PIN bypass for extension

Call back allowed

Send message by e-mail

Email attachment format wav

Send email if no message was left

Delete VM after sending email

0:00 / 0:07

Upload Delete

VoiceMail Messages -

× Delete

<input type="checkbox"/>	Time	Number	Name	Duration	State	Audio Message
<input type="checkbox"/>	13.03.2023 11:09	330	Warehouse 1	10.4 s	New	
<input type="checkbox"/>	13.03.2023 11:11	0449980101	0449980101	15.58 s	New	

Dial By Name

Auto-Attendant Name Boss

Upload

6 PBX EXTENSION BASED PBX FEATURES

PBX CALL DISTRIBUTION MODES

▶ By assigning a specific distribution mode the PBX extension serves as call distribution for incoming calls:

- ▶ Advanced Call Distribution ACD with different algorithms, queues, time-based routing, etc.
- ▶ Interactive Voice Response IVR with user interaction
- ▶ Paging/Intercom groups with manual or automatic answering
- ▶ All phones registered to the PBX extension will ring

The screenshot displays the configuration page for extension 41, titled "Extension Related Features: 41". The page is divided into three main sections: "Call Forwarding", "Account", and "Assigned Phones".

- Call Forwarding:** Includes a toggle for "Unconditional VoiceMail" which is currently turned off.
- Account:** Includes several settings with toggle switches: "Do Not Disturb" (off), "Suppress own Number" (off), "Reject Anonymous Calls" (on), and "Call waiting" (off).
- Assigned Phones:** A table with columns for "Phone Name" and "Registration Status". It shows "No entries found".

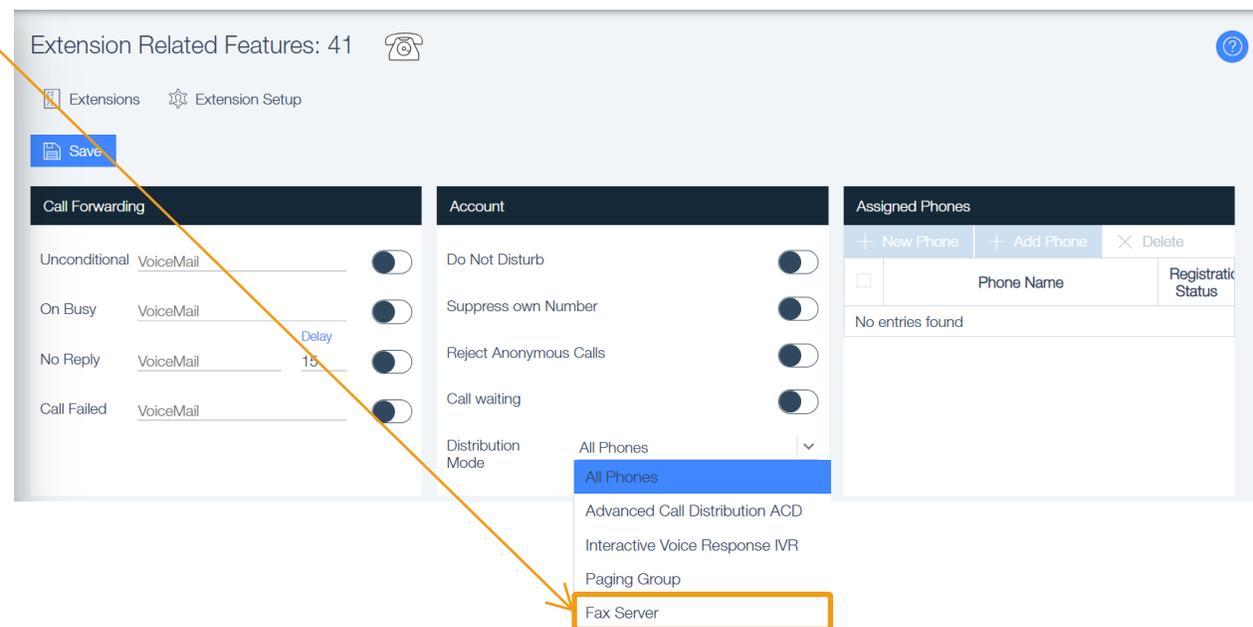
A dropdown menu for "Distribution Mode" is open, showing the following options: "Advanced Call Distribution ACD" (selected), "All Phones", "Interactive Voice Response IVR", "Paging Group", and "Fax Server". An orange arrow points from the text in the first bullet point to the "Advanced Call Distribution ACD" option in the dropdown menu.

▶ For details see the documents:

- ▶ "PBX Call Routing & Call Distribution"
(Doc-ID: training_as7_404_pbx_call_routing_e)
- ▶ "Paging – Intercom"
(Doc-ID: training_as7_711_paging_intercom_e)
- ▶ Special mode for fax receiving
"Fax Server"
(Doc-ID: training_as7_714_fax_server_e)

"FAX SERVER" VIA PBX EXTENSION

- ▶ Incoming fax transmission to a PBX extension can be forwarded to the integrated fax server:
 - ▶ Received fax are forwarded as a PDF attachment in an email.
 - ▶ The email address of the assigned user account of the PBX Extension is used.
 - ▶ A PBX can have several PBX Extensions for receiving fax and send them to different email addresses.
- ▶ For details see the documents:
 - ▶ "Fax Server"
(Doc-ID: training_as7_714_fax_server_e)



CALL PICK-UP GROUP

- ▶ The "Call Pick-Up Group" enables a user to pick up a ringing phone within a defined group of PBX Extensions:
 - ▶ The user doesn't need to know the exact number of the ringing phone.
 - ▶ The user just needs to know the "Call Pick-Up Group" group number e.g.: 35
 - ▶ The user picks up with the *-procedure: *76GROUP_NUMBER

- ▶ For details see document: "Call Pick-Up Group" (Doc-ID: training_as7_712_call_pick_up_group_e).

PBX Settings PA-PBX-0AX89001
 PBX Dashboard PBX List

PBX
 Name: PA-PBX-0AX89001
 Description: Yupi Inc., Honolulu, 0987654300 - 49, 0800654310 0800654340
 Member of: Provider A
 Teams Domain: c1.tms-provider.com:5070

Public numbers
 Number range: 0449980105,0550-9,0650-9,0800654310,0800654340,0987654300-49
 Valid from: 20.04.2021 06:00
 Valid until:

Properties
 Extensions: 20
 Service Extensions: 20
 External channels: 20
 Public Prefix:
 Time Zone: Europe/Zurich
 Date Format: dd.MM.yyyy
 Time Format: 24 Hours
 Time mode:
 Timetable:

On Hold Music
 Upload 0:00 / 3:24

Topstop
 Current value: 0.00 UNIT
 Reset Period: monthly
 Limits:

Type	Threshold	Currency	Active
Notification	1,493.20	UNIT	<input checked="" type="checkbox"/>
Block	1,493.25	UNIT	<input checked="" type="checkbox"/>
Block	1,493.25	UNIT	<input checked="" type="checkbox"/>

Pickup Groups
 + New X Delete

Name	Number	Members
Support Pickup	20	21, 22, 315
Open Plan Office, Level 3, Room 5	35	22, 315, 316

7 PBX FEATURE ANSWITCH V7 SYSTEM CONFIGURATION

MODIFY VOICEMAIL BOX VM SYSTEM PARAMETERS

► Modify VoiceMail Box VM Parameters on system level

1. Open the file

```
[root]# vi /etc/aaswitch/system.yaml
```

2. Add or modify the VM parameters (displayed are the default values)

```
1 feature:
2   voicemail:
3     maxRecordDuration:      300000
4     maxGreetingDuration:   120000
5     maxAuthAttempts:       3
6     maxMessages:           20
7     blockDuration:         60000
```

3. Reboot the anSwitch V7 server/host

MODIFY CALL FORWARD NO RESPONSE CFNR PARAMETERS

- ▶ Modify the Call Forward No Response CFNR default delay on system level

1. Open the file

```
[root]# vi /etc/aaswitch/system.yaml
```

2. Add or modify the CFNR parameters (displayed is the default value)

```
1 feature:
2   cfnr:
3     defaultDelay:      14000
```

3. Reboot the anSwitch V7 server/host

TIME TO EXERCISE

BASIC EXERCISE: PBX DEPARTMENT & EXTENSION CREATION

- ▶ Create the departments and extensions for the PBX according to your trainer's information.

- ▶ Goal:
 - ▶ Login as PBX administrator
 - ▶ Collect all department and extension configuration values
 - ▶ Initialize the PBX departments
 - ▶ Create the PBX extensions and associate them with their department if needed

 - ▶ Optional for the ones on the fast lane:
 - ▶ Associate phones to the personal extensions

- ▶ Duration: 45min

LAST PAGE

Date	Doc-ID	Description	Changes
13.3.2023	training_as7_403_pbx_department_extension_e13	V7.11	
7.7.2023	training_as7_403_pbx_department_extension_e14	V7.12: New phone type anDesktop	Chapter: 6; Pages: 6, 39, 41-45
18.9.2023	training_as7_403_pbx_department_extension_e15	V7.13: New user features CFO, DND fallback, VM full	Page: 30, 31, 32, 37, 39