

Grandstream Networks, Inc.

IVR Guide



IVR (Interactive Voice Response) is a telephony technology in the telecom industry allowing customers to interact with the host system in real-time through a configurable voice menu using the caller's DTMF tones.

When accessing the IVR system, customers are usually prompted with a welcome message and provided with different destinations where they can be redirected by pressing appropriate digit(s).

IVR systems are used in many industries where customers need to interact with the system to access appropriate service or departments without passing by a receptionist, such as in banks, call centers, customer services companies, hotels, insurance companies, hospitals, and more.

In other words, IVR can be considered as a digital receptionist with no need for a receptionist. IVR can be also used in conjunction with an office receptionist.

This document introduces the configuration of the IVR on the Grandstream IP-PBX series with examples illustrating the use of its features.

Grandstream IP-PBX series include UCM630x, UCM630xA, CloudUCM, SoftwareUCM and GCC PBX series.

IVR CONFIGURATION

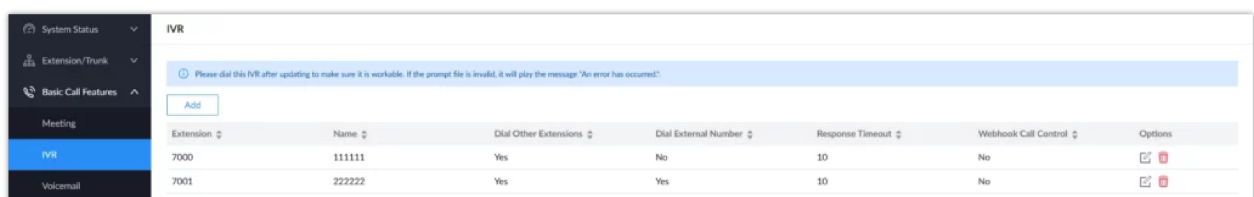
Using the Grandstream IP-PBX series, administrators can create up to 500 IVR instances, with each IVR supporting up to 64 menu levels (layers).

Please refer to the following paragraphs in order to configure the IVR on the Grandstream IP-PBXs:

Configuring Basic Settings

IVR features menu is accessible under **Web GUI→Basic Call Features→IVR**. On this page users can:

- Click on the *pencil icon* to **edit** the IVR configuration (if available).
- Click on the *trash icon* to **delete** the IVR (if available).
- Click on the *Add button* to **add** an IVR.

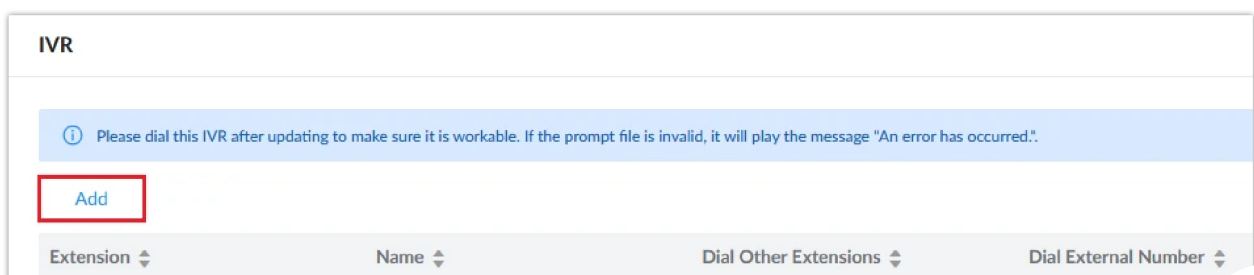


Extension ↕	Name ↕	Dial Other Extensions ↕	Dial External Number ↕	Response Timeout ↕	Webhook Call Control ↕	Options
7000	111111	Yes	No	10	No	 
7001	222222	Yes	Yes	10	No	 

IVR Page

To configure an IVR, please refer to the steps below:

1. Press the “Add” button to create a new IVR, or the “Edit” icon to configure an existing IVR.



Extension ↕	Name ↕	Dial Other Extensions ↕	Dial External Number ↕
-------------	--------	-------------------------	------------------------

Add New IVR

2. You will be redirected to IVR configuration interface as displayed on the following screenshot.

IVR > Create New IVR

Basic Settings

Key Pressing Events

General

* Name ⓘ

IVR_Test

* Extension ⓘ

7002

Auto Record ⓘ

Prompt Language ⓘ

Default

* Prompt ⓘ

welcome

Add Audio

Add

IVR Webhook

IVR Webhook ⓘ

Learn more about IVR Webhook with the [Configuration Manual](#)

Dialed Number

Dial Other Extensions ⓘ

All

☒

Extension

☐

External Number

☐

Meeting

☐

Call Queue

Ring Group

☐

Paging/Intercom Groups

☐

Voicemail Groups

Fax Extension

☐

Dial By Name

Dial Block/Allowlist ⓘ

Disable

Timeout/Invalid Settings

* Digit Timeout (s) ⓘ

3

IVR Basic Settings Tab

3. Configure the basic IVR settings described in the following table:

General	
Name	Configures the name of the IVR. Letters, digits, _ and – are allowed.
Extension	Specifies the extension number for users to access the IVR.
Auto Record	If enabled, calls to this IVR will automatically be recorded.
Prompt Language	Select the voice prompt language for this extension. If set to “Default”, the system-wide Voice Prompt language will be used. This setting applies only to system prompts and does not affect the language of custom prompts.
Prompt	Selects the audio file to be played as the IVR welcome prompt. Up to 5 welcome prompts can be configured per IVR. Click “Upload Audio File” to upload a prompt from your device. You may also choose a previously uploaded prompt from Web GUI→PBX Settings→Voice Prompt→Custom Prompt (Please refer to Create Custom Prompt).
IVR Webhook	
IVR Webhook	If enabled, call event notification and call control can be achieved via URL. Using webhooks, the user can send requests to a specific server to perform actions through DTMF.
Target URL	Target URL address for receiving notification commands as well as sending operation commands. It needs to be the full URL of the web server, static parameters and pages can be included.

Username	Enter the username used to connect to the target URL.
Password	Enter the password used to connect to the target URL.
Call Event	Select the call events to notify the IVR about. The options are: • All • Notify IVR of Incoming Calls • Notify IVR of Answer • Notify IVR of DTMF Events • Notify IVR of End
Call Control	If enabled, the predefined IVR flow for the destination URL will be followed. Configurations related to the original IVR flow such as dialed numbers, key events, etc. will be disabled.
Timeout Time (s)	Configure the timeout time for receiving call control, default 2 seconds, the system tries up to three times after the timeout.
<i>Dialed Number</i>	
Dial Other Extensions	Controls the destination that can be reached by the external caller via the inbound route. In other words, if enabled, callers can dial an extension number when accessing IVR and the call will be redirected to entered extension destination. The available destinations are: • All • Extension • External Number • Meeting • Call Queue • Ring Group • Paging/Intercom Groups • Voicemail Groups • Fax Extension • Dial By Name
Dial Block/Allowlist	Controls whether external numbers dialed from the IVR are restricted. The options are: • Disable: All dialed numbers are allowed. • Blocklist: Calls to numbers in the blocklist are denied. • Allowlist: Only numbers in the allowlist can be dialed.
Internal Block/Allowlist	Used to select specific internal destinations (extensions only) that are allowed or blocked when <i>Dial Block/Allowlist</i> is set to “Allowlist” or “Blocklist”. Up to 500 extensions are allowed on the blocklist/allowlist.
<i>Timeout/Invalid Settings</i>	
Digit Timeout (s)	After the user enters a digit, the user needs to enter the next digit within the timeout. If no digit is detected within the timeout, the PBX will consider the entries complete. The default timeout is 3 seconds.
Response Timeout (s)	Timeout occurs when no DTMF entry is detected for the configured number of seconds after the IVR finishes playing the prompts.
Response Timeout Prompt	Play the selected prompt if response timeout occurs. Click “ <i>Upload Audio File</i> ” to upload a prompt from your device. You may also choose a previously uploaded prompt from Web GUI→PBX Settings→Voice Prompt→Custom Prompt (Please refer to Create Custom Prompt).
Response Timeout Prompt Repeats	Number of times to repeat the prompt. After the final repeat, calls will be redirected to the Timeout destination (if configured) or dropped.
Invalid Input Prompt	Play the selected prompt if an invalid extension is entered. Click “ <i>Upload Audio File</i> ” to upload a prompt from your device. You may also choose a previously uploaded prompt from Web GUI→PBX Settings→Voice Prompt→Custom Prompt (Please refer to Create Custom Prompt).

Invalid Input Prompt Repeats	Number of times to repeat the prompt. After the final repeat, calls will be redirected to the Invalid destination (if configured) or dropped.
<i>PMS Wake-Up Call Service Mode</i>	
PMS Wake-Up Call Service Mode	If enabled, this IVR can be used with Wakeup Service to send notifications to specified destinations based on caller key presses. If enabled, key events will only be supported in standard mode. Time conditions will not be supported.
<i>Other Settings</i>	
Replace Display Name	If enabled, the PBX will replace the caller display name with the IVR name the caller know whether the call is incoming from a direct extension or an IVR.
Return to IVR Menu	If enabled and if a call to an extension fails, the caller will be redirected to the IVR menu.
Alert-Info	When present in an INVITE request, the alert-Info header field specifies an alternative ring tone to the UAS.

Configuring Key Pressing Events

This section describes how to configure IVR key pressing events to control call routing based on caller input and time conditions.

The IP-PBX allows administrators to define actions for both **standard** and **custom** key events, ensuring that calls are directed to the appropriate destinations according to business hours, holidays, or specific schedules.

The screenshot shows the 'IVR > Create New IVR' configuration page. The 'Key Pressing Events' tab is active. Under 'Key Event Type', 'Standard' is selected. A table below lists key events. The first event is for key '0', with a 'Destination' dropdown set to 'Select an Option' and a 'Time Condition' set to 'All Time'. A green plus icon is visible at the bottom right of the table area.

Key Event Type Configuration

Standard Key Event

Standard Key Events define the default IVR actions triggered when a caller presses a single DTMF key (for example, 0–9 or *). Each standard key can be mapped to a destination and evaluated against time conditions, allowing the same key to route calls differently depending on the current system time.

To manage IVR key events, navigate to the **Key Pressing Events** tab, as shown below. From this page, administrators can configure destinations for each key, define time conditions, and control how calls are handled based on the active schedule.

This screenshot shows the same 'IVR > Create New IVR' page, but now two key events are listed. The first event is for key '0' and the second is for key '1'. Both have their 'Destination' set to 'Select an Option' and their 'Time Condition' set to 'All Time'. Each event row has a green plus icon at the bottom right, indicating they can be edited or deleted.

IVR Standard Key Events Configuration

The following table describes available options that can be assigned for Standard Key Pressing Events:

Key Event Type	Select Standard to configure single-key DTMF events (0–9, *). This mode supports time-based routing per key.
Key (0–9, *)	Each section corresponds to a specific DTMF key (for example, Key 0, Key 2). Configuration under a key defines how calls are routed when that key is pressed.
Destination	Select the destination type and target for the key event. Supported destinations include: • Extension • Meeting • Voicemail • Voicemail Group • IVR (<i>Maximum 64 nested IVRs</i>) • Ring Group • Queues • Paging/Intercom Group • Fax • Custom Prompt • Hang-up • DISA • Dial By Name • External Number • Callback • Announcement
Time Condition	Assign a time condition to each destination entry. The IVR evaluates the time conditions in order and routes the call to the first matching rule. Common options include <i>All Time</i>, <i>Office Time</i>, <i>Out of Office Time</i>, <i>Holiday</i>, and <i>Specific Time</i>. Note: A single key can contain multiple destination entries with different time conditions (up to five). Users can click the (+) icon to add another destination with a different time condition for the same key, or the (–) icon to remove an existing rule.
Timeout	Configures the destination when the Timeout Repeat Loop is done. Note: A single key can contain multiple destination entries with different time conditions (up to five). Users can click the (+) icon to add another destination with a different time condition for this option, or the (–) icon to remove an existing rule.
Invalid	Configures the destination when the Invalid Repeat loop is done. Note: A single key can contain multiple destination entries with different time conditions (up to five). Users can click the (+) icon to add another destination with a different time condition for this option, or the (–) icon to remove an existing rule.

Custom Key Event

Custom Key Events allow administrators to define advanced IVR key combinations beyond single-digit DTMF input, providing greater flexibility in call routing and IVR design.

To configure custom key events, navigate to the **Key Pressing Events** tab and select **Custom** as the **Key Event Type**. From this page, administrators can define custom key combinations, assign destinations, and apply time conditions to control call behavior based on schedules.

Note

- When using custom Key Pressing Events, the functionality **Dial Other Extensions** feature will be disabled.
- Please note that you can only configure a combination of up to 8 digits.
- 100 keys options

IVR Custom Key Events Configuration

The following options are available for Custom Key Pressing Events:

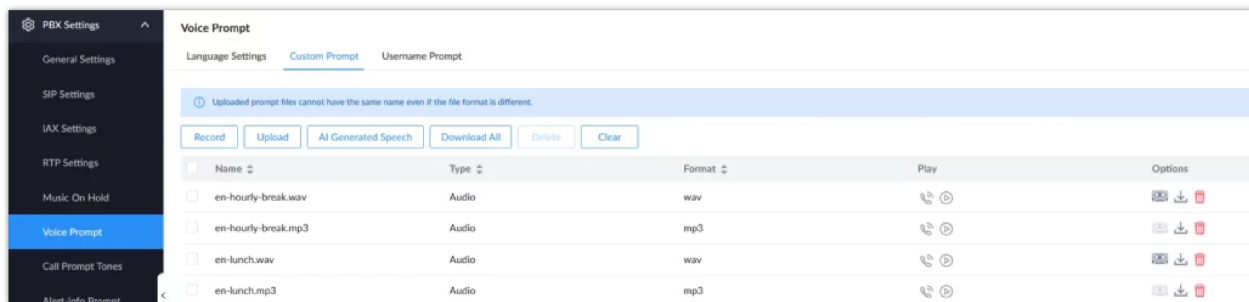
Key Event Type	Select “ <i>Custom</i> ” to configure multi-digit DTMF key combinations. This mode supports time-based routing and advanced IVR logic.
Key	Defines the DTMF key combination that triggers the event. Notes: • Each key combination can contain up to 8 characters • Supported characters: 0–9 and * • Up to 100 custom key events are supported per IVR
Destination	Select the destination type and target for the custom key event. Supported destinations include: • Extension • Meeting • Voicemail • Voicemail Group • IVR (<i>Maximum 64 nested IVRs</i>) • Ring Group • Queues • Paging/Intercom Group • Fax • Custom Prompt • Hang-up • DISA • Dial By Name • External Number • Callback • Announcement
Time Condition	Assign a time condition to each destination entry. The IVR evaluates the time conditions in order and routes the call to the first matching rule. Common options include <i>All Time</i>, <i>Office Time</i>, <i>Out of Office Time</i>, <i>Holiday</i>, and <i>Specific Time</i>. Note: A single key can contain multiple destination entries with different time conditions (up to five). Users can click the (+) icon to add another destination with a different time condition for the same key, or the (–) icon to remove an existing rule.

Timeout	Configures the destination when the Timeout Repeat Loop is done. Note: A single key can contain multiple destination entries with different time conditions (up to five). Users can click the (+) icon to add another destination with a different time condition for this option, or the (–) icon to remove an existing rule.
Invalid	Configures the destination when the Invalid Repeat loop is done. Note: A single key can contain multiple destination entries with different time conditions (up to five). Users can click the (+) icon to add another destination with a different time condition for this option, or the (–) icon to remove an existing rule.

Configuring IVR Voice Prompts

IVR voice prompts can be customized to match business requirements by **recording** new prompts or **uploading** audio files. Once added, custom prompts are stored on the IP-PBX and become available for selection across IVR configurations, including welcome prompts and key pressing events.

Voice prompts can be created or managed from **Web GUI→PBX Settings→Voice Prompt→Custom Prompt**, or directly from IVR configuration pages where a prompt parameter is available.



Custom Prompt Page

Prompts on IVR can be customized/personalized at the customer's convenience by either recording or uploading new prompts.

Recording Custom Prompts

Administrators can record a new voice prompt directly through the IPPBX by following the instructions below:

1. Navigate to Web GUI→**PBX Settings**→**Voice Prompt**→**Custom Prompt**.
2. Click the "Record" button.

Voice Prompt

Language Settings

Custom Prompt

Username Prompt

Uploaded prompt files cannot have the same name even if the file format is different.

Record

Upload

AI Generated Speech

Download All

Delete

Clear

☐	Name	Type	Format
☐	en-hourly-break.wav	Audio	wav
☐	en-hourly-break.mp3	Audio	mp3
☐	en-lunch.wav	Audio	wav
☐	en-lunch.mp3	Audio	mp3

Record Custom Prompt Button

- Specify a name for the prompt file.
- Select the recording format (*GSM* or *WAV*).
- Select the Extension that will receive the recording call.

Record Prompt

×

Note: The mp3 sound file will be converted to wav format.

* Name

Format

GSM

▼

* Extension ⓘ

▼

Cancel

Record

Record Prompt Window

- Click *"Record"*. The IP-PBX will place a call to the selected extension.
- Answer the call and follow the voice instructions to complete the recording.

Once completed, the recorded prompt will appear in the **Custom Prompt** list, where it can be played, re-recorded, downloaded, or deleted.

Uploading Custom Prompts

Users can also upload a pre-recorded audio file by following the instructions below:

- Navigate to **Web GUI→PBX Settings→Voice Prompt→Custom Prompt** and use the *"Upload"* button, or click **Upload Audio File** directly from an IVR prompt parameter.

Upload Custom Prompt Button

Supported audio formats and requirements:

- ## IVR Webhook

IVR Webhook can be used to integrate the IVR with third-party applications, CRM systems, workflow engines, or custom business logic platforms.

For detailed configuration steps, request/response formats, and supported command actions, refer to the following guide: [IVR Webhook User Guide](#).

The Wake-Up Call IVR feature is designed for hospitality environments and works in conjunction with the Local PMS (Property Management System) on the Grandstream IP-PBX series. It allows scheduled wake-up calls to interact with guests using IVR prompts and key presses.

- o Play customized wake-up prompts
- o Accept DTMF input from the guest
- o Trigger voicemail or email notifications based on guest responses
- o Route calls to specific IVR destinations

Only IVRs with PMS Wake-Up Call Service Mode enabled can be selected as Wake-Up Call IVR strategies in the PMS wake-up service configuration.

Notes:

- Only Standard Key Events are supported
- Time Conditions are not supported

For full configuration steps, wake-up scheduling, and notification options, refer to the following guide:[UCM63XX Local PMS Guide](#)

Accessing IVR Menu

To access the IVR menu, users can either call directly the IVR's extension or configure it as default destination for incoming calls via trunks using inbound routes.

To configure the default destination of the inbound routes, please refer to the following steps:

1. Access the web GUI of the IP-PBX.
2. Navigate to **Extension/Trunk**→**Inbound routes**.
3. Under default mode section, configure *"Default destination"* to the IVR configured as displayed on following figure.

Inbound Routes > Edit Inbound Rule

Call Setting

Ringback Tone ⓘ None

Alert-info ⓘ None

Auto Record ⓘ ☐

Fax Detection ⓘ ☐

Block Collect Calls ⓘ ☐

CallerID Setting

Prepend Trunk Name ⓘ ☐

Set CallerID Info ⓘ ☐

CallerID Name Lookup ⓘ ☐

Inbound Mode

Inbound Multi-Mode ⓘ ☒

Custom Inbound Mode ⓘ ☐

Default Mode Mode 1

* Default Destination ⓘ IVR 111111

Inbound Rule Default Destination IVR

Note

For more details about inbound routes please refer to the following guide explaining all the details of how to create inbound routes: <https://documentation.grandstream.com/knowledge-base/how-to-manage-inbound-outbound-routes/>

IVR Application Examples

This section illustrates IVR application examples in different scenarios.

Example 1: Basic IVR System

The company ABC needs to have an IVR allowing callers to be redirected to different departments (sales, marketing, support...).

In this scenario we will assume the following:

- Inbound route is configured to redirect all the incoming calls to IVR-SC1.
- Calls redirected to sales will be handled by sales agents. (**Sales_Ring_Group**).
- Calls redirected to marketing will be handled by a marketing agent. (**Marketing_Extension (2002)**).
- Calls redirected to support will be handled by a support engineer. (**Support_Call_Queue**).
- Calls redirected to customer services will be handled by customer service agents. (**Customers_Service_Ring_Group**).
- Calls redirected to after sales service will be handled by a sales agent. (**Sales_Call_Queue**).
- Calls redirected to manager's assistant will be handled by an assistant. (**Manager_Extension (2001)**).

We assume that all ring groups, call queues, extensions, inbound routes used in this example are previously configured.

In order to fulfill company ABC requirements, we need to create an IVR "IVR-SC1" and configure "Key Pressing Events".

The following screenshots show needed configuration on "IVR-SC1" including "Key Pressing Events" settings:

The screenshot displays the 'IVR > Create New IVR' configuration page. The 'Basic Settings' tab is active, showing the following fields:

- Name:** IVR-SC1
- Extension:** 7002
- Auto Record:** Disabled (toggle switch)
- Prompt Language:** Default (dropdown menu)
- Prompt:** welcome (dropdown menu) with an 'Add Audio' button.

An 'Add +' button is located at the bottom right of the configuration area.

IVR SC1 Basic Configuration

Note:

"Dial Other Extensions" option has been disabled to restrict users from calling IP-PBX extensions directly, in this case, only configured destinations in Key Pressing Events are authorized.

IVR > Create New IVR

Basic SettingsKey Pressing Events

Key0

Destination

Select an Option

Key1

Destination

Ring GroupSales_Ring_Group

Key2

Destination

Extension1002 "Marketing Department"

Key3

Destination

QueuesSupport_Call_Queue

IVR SC1 Key Pressing Events Configuration 1

IVR > Create New IVR

Basic SettingsKey Pressing Events

Key4

Destination

Ring GroupCustomers_Service_Ring_Group

Key5

Destination

QueuesSales_Call_Queue

Key6

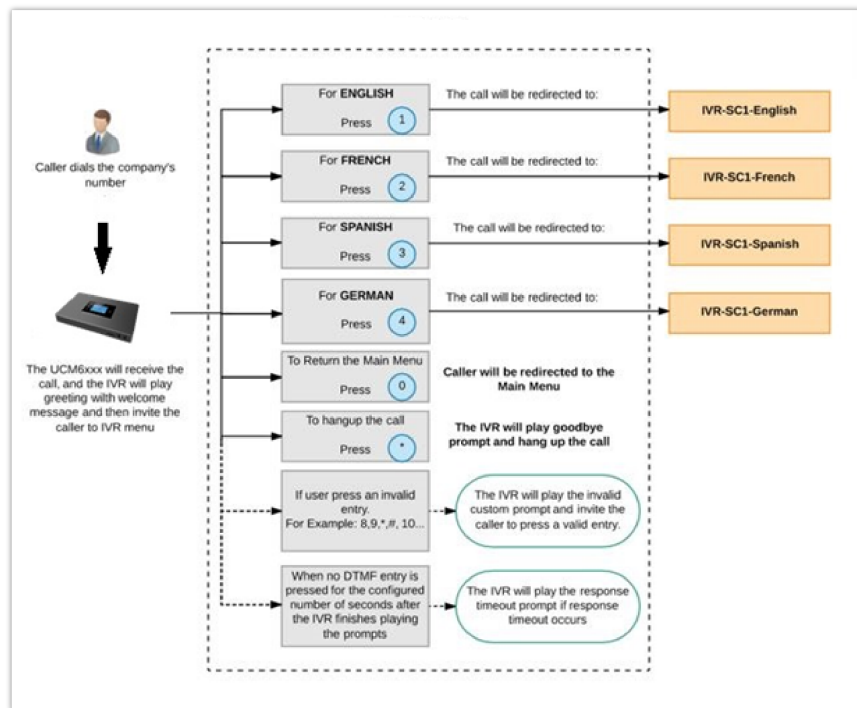
Destination

Extension2001 "Manager Extension"

Key7

Destination

Hang-up



IVR SC1 Diagram

Example 2: Multi-layer IVR System

The same company ABC (in scenario 1) wants to upgrade its IVR system allowing the support of multilanguage, so customers can select a specific language to be used when playing prompts.

To achieve this, company ABC needs to create different IVRs and use IVR layers supported on the Grandstream IP-PBXs (64 layers supported).

We will assume the following:

- The inbound routes are configured to redirect all the incoming calls to **IVR-SC2**.
- If user select English language, the call will be redirected to **IVR-SC1-English**.
- If user select French language, the call will be redirected to **IVR-SC1-French**.
- If user select Spanish language, the call will be redirected to **IVR-SC1-Spanish**.
- If user select German language, the call will be redirected to **IVR-SC1-German**.

First, we need to create different IVRs (in different languages) with the same configuration as shown in the previous example, with the "Language" option set and voice prompts uploaded/recorded in the appropriate language.

The IVRs created are IVR-SC1-English (7002), IVR-SC1-French (7003), IVR-SC1-Spanish (7004), and IVR-SC1-German (7005).

Then, we create "IVR-SC2" (7001) which will be the main IVR, and configure "Key Pressing Events" to connect to specific IVR depending on the language selected. IVR-SC2 will be using "Default" language.

Once the caller dials the company's number, the IVR plays a greeting message and invites him to select the desired language, and then, the IVR will play selectable menu items.

The following screenshot displays the different IVRs created.

IVR						
Please dial this IVR after updating to make sure it is workable. If the prompt file is invalid, it will play the message "An error has occurred".						
Add						
Extension	Name	Dial Other Extensions	Dial External Number	Response Timeout	Webhook Call Control	Options
7001	IVR-SC2	Yes	Yes	10	No	 
7002	IVR-SC1-English	Yes	Yes	10	No	 
7003	IVR-SC1-French	Yes	Yes	10	No	 
7004	IVR-SC1-Spanish	Yes	Yes	10	No	 
7005	IVR-SC1-German	Yes	Yes	10	No	 

Total: 5 10 / page: 5

Please refer to the following screenshot describing the basic configuration of **IVR-SC2**:

The screenshot shows the 'Edit IVR: IVR-SC2' configuration page. The 'Basic Settings' tab is active. The 'General' section contains the following fields:

- *Name**: IVR-SC2
- *Extension**: 7001
- Auto Record**: Toggle switch (off)
- Prompt Language**: Default
- *Prompt**: welcome

There is an 'Add Audio' button next to the prompt field and an 'Add' button at the bottom right.

IVR SC2 Basic Configuration

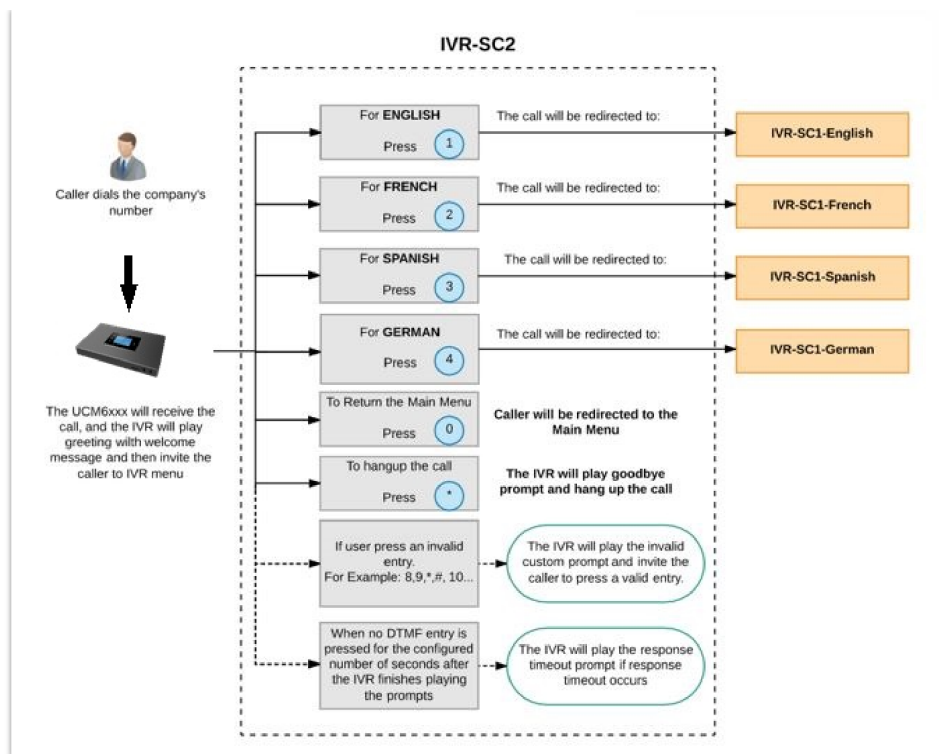
The following screenshot shows “Key Pressing Events” settings on IVR-SC2 allowing redirection to other IVRs depending on the customer’s choice.

The screenshot shows the 'Edit IVR: IVR-SC2' configuration page with the 'Key Pressing Events' tab active. It displays five rows of configuration for key presses:

Key	Destination
0	IVR-SC2
1	IVR-SC1-English
2	IVR-SC1-French
3	IVR-SC1-Spanish
4	IVR-SC1-German

IVR SC2 Key Pressing Events Configuration

Please refer to the following diagram explaining the IVR application in detail.



IVR SC2 Diagram

Example 3: IVR System based on Time

The same company ABC (in previous examples) wants to upgrade again its IVR system with one IVR accessible during office time, and another one accessible out of office time.

To achieve this, company ABC needs to create different IVR (IVR-SC3 for out office time).

We will assume the following:

- The "office time" has been previously set and inbound routes are configured to route incoming calls during office time to IVR-SC2, and to IVR-SC3 during out of office time.

Notes:

- For more details about how to manage the inbound route, please refer to following guide: <https://documentation.grandstream.com/knowledge-base/how-to-manage-inbound-outbound-routes/>
- For more details about how to configure the office time, please refer to following guide: <https://documentation.grandstream.com/knowledge-base/managing-office-time-holidays/>
- IVR-SC3 will play a welcome and greeting message and then inform the caller about out of office time using a specific prompt message named in our example as "Out of office message" and then it will play a selectable menu items.
- If users select first choice, the call will be redirected to the **Voice Mail**.
- If users select second choice, the call will be redirected to an **External Emergency Number (001122334455)**

The following screenshots show needed configuration on "IVR-SC3" including "Key Pressing Events" settings:

IVR > Create New IVR

Basic Settings

Key Pressing Events

General

* Name ⓘ

IVR-SC3

* Extension ⓘ

7002

Auto Record ⓘ

☐

Prompt Language ⓘ

Default

* Prompt ⓘ

welcome

Add Audio

Add

IVR SC3 Basic Configuration

Note:

“Dial Other Extensions” option has been disabled to restrict users from calling extensions directly, in this case, only configured destinations in “Key Pressing Events” are authorized.

IVR > Create New IVR

Basic Settings

Key Pressing Events

Key

0

Destination

Custom Prompt

Invalid_Prompt.wav

Key

1

Destination

Extension

2003 "Assistant Extension"

Key

2

Destination

External Number

001122334455

Key

3

Destination

Custom Prompt

Invalid_Prompt.wav

Key

4

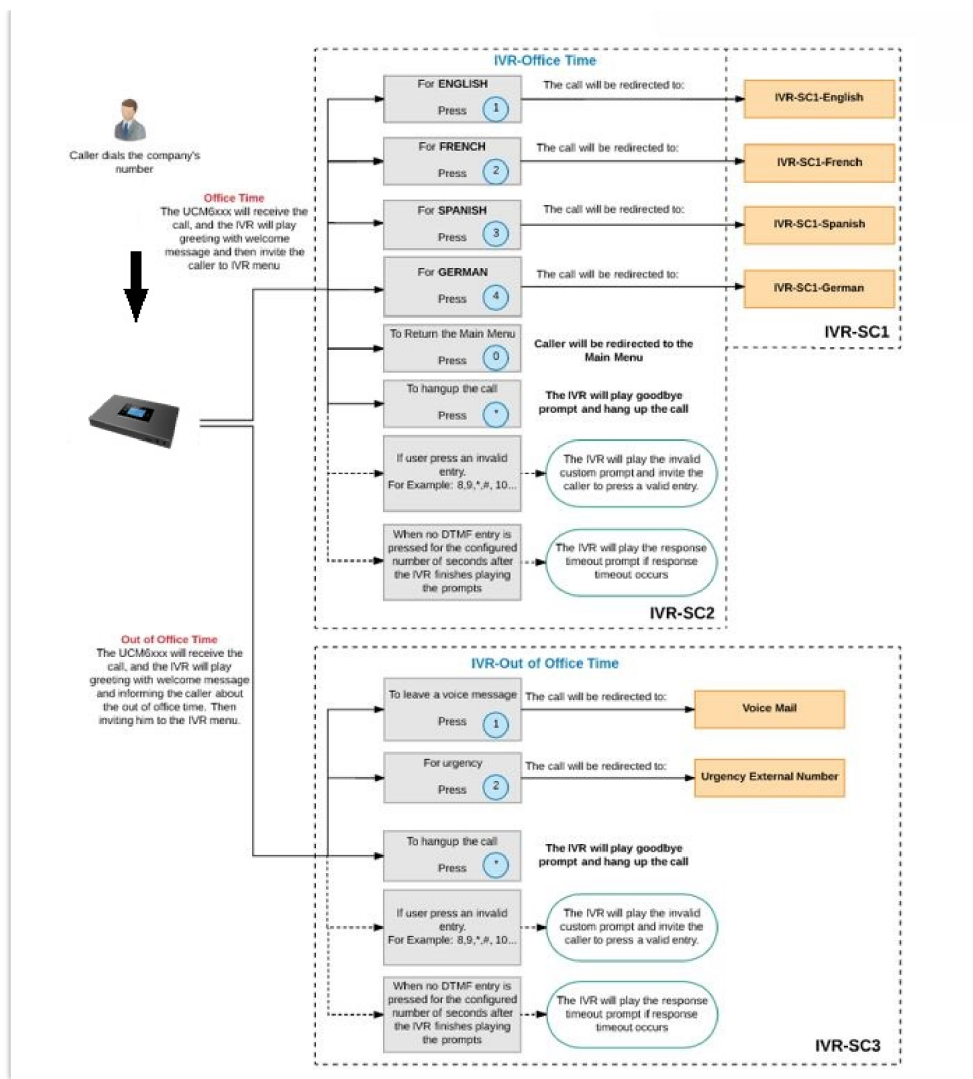
Destination

Custom Prompt

Invalid_Prompt.wav

IVR SC3 Key Pressing Events Configuration

Please refer to the following diagram explaining the IVR application in detail.



IVR SC3 Diagram