Grandstream Networks, Inc.

UCM6xxx Series
Interactive Voice Response Guide

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INTRODUCTION

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

When accessing 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 department 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 digital receptionist with no need of a receptionist. IVR can be also used in conjunction with an office receptionist.

This document introduces the configuration of the IVR on UCM6xxx series with examples illustrating the use of its features.

Note: UCM6XXX series include UCM620x, UCM630x, UCM630xA and UCM6510 series.

IVR CONFIGURATION

Using UCM6xxx series, administrators can create up to 500 IVR systems. UCM6xxx series support IVR with up to 5 layers.

Please refer to following paragraphs in order to configure the IVR on the UCM6xxx Series:

IVR Creation (Basic Settings)

IVR features menu is accessible on the UCM6xxx series under Web GUI → **Call Features** → **IVR**.

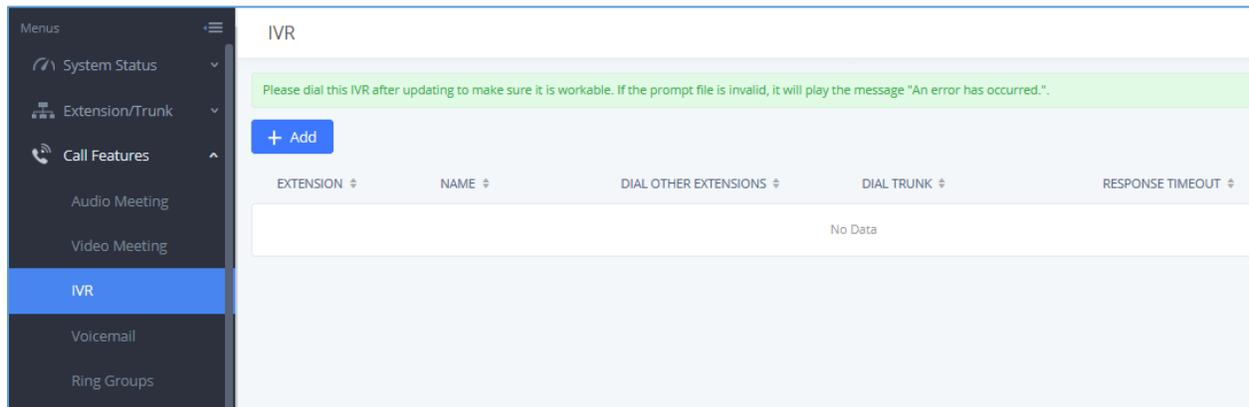First press "**Create New IVR**" to create a new IVR system.

Figure 1: Create a New IVR

Note: Users could create, edit, view and delete an IVR from "Manage IVR" menu.

- Click on "Create New IVR" to add a new IVR.

- Click on ☐ to edit the IVR configuration (if available).

- Click on 🗑 to delete the IVR (if available).

Once [+ Add] is pressed, you will be redirected to IVR configuration interface as displayed on the following screenshot.

Figure 2: IVR Basic Configuration

The following table describes the basic configuration options available for IVR features:

Table 1: Basic Configuration Options for IVR Features

IVR → Create New IVR → Basic Settings	
Name	Configures the name of the IVR. Letters, digits, _ and - are allowed.

Extension	Specifies the extension number for users to access the IVR.
Dial Trunk	If enabled, all callers to the IVR are allowed to use trunk. The permission must be configured for the users to use the trunk first. Default setting is "No".
Permission	Assign permission level for outbound calls if "**Dial Trunk**" is enabled. The available permissions are "Internal", "Local", "National" and "International" from the lowest level to the highest level. The default setting is "Internal". If the user tries to dial outbound calls after dialing into the IVR, the UCM6xxx will compare the IVR's permission level with the outbound route's privilege level. If the IVR's permission level is higher than (or equal to) the outbound route's privilege level, the call will be allowed to go through.
Auto Record (*UCM630x/UCM630xA only*)	If enabled, calls to this IVR will automatically be recorded.
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: • Extension • Conference • Call Queue • Ring Group • Paging/Intercom Groups • Voicemail Groups • Fax Extension • Dial By Name • All
IVR Black/Whitelist	Allows users to restrict the extensions that can be reached from IVR. • If the user selects "Blacklist Enable" and adds extension in the list, the extensions in the list will not be allowed to be reached via IVR. • If the user selects "Whitelist Enable" and adds extension in the list, only the extensions in the list can be allowed to be reached via IVR.
Internal Black/Whitelist	Lists the available / selected extension numbers.
External Blacklist/Whitelist	Used only when Dial Trunk is enabled. External numbers will be added as follows: number1, number2, number3 …
Replace Display Name	If enabled, the UCM 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.
Prompt	Selects an audio file to play as the welcome prompt for the IVR, users can use up to 5 IVR welcome prompts. Click "Record New Custom Prompt" to add audio file(s) under web GUI→**PBX Settings**→ **Voice Prompt**→ **Custom Prompt**. (Please refer to Create Custom Prompt)
Digit Timeout	Configures the timeout between digit entries. 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 UCM6xxx will consider entered digits as complete. The default timeout is 3 seconds.
Response Timeout	After playing the prompt in the IVR, the UCM6xxx will wait for the DTMF entry within the timeout (in seconds). If no DTMF entry is detected within the timeout, a timeout prompt will be played. The default setting is 10 seconds.
Response Timeout Prompt	Selects the prompt message to be played when timeout occurs. (Please refer to Create Voice Prompt)
Invalid Prompt	Selects the prompt message to be played when an invalid extension is pressed. (Please refer to Create Voice Prompt)
Response Timeout Repeat Loops	Configures the number of times to repeat the prompt if no DTMF input is detected. When the loop ends, it will go to the timeout destination if configured, or hang up. The default setting is 3.
Invalid Repeat Loops	Configures the number of times to repeat the prompt if the DTMF input is invalid. When the loop ends, it will go to the invalid destination if configured, or hang up. The default setting is 3.
Language	Selects the voice prompt language to be used for this IVR. The default setting is "Default" which is the selected voice prompt language under web GUI→**PBX Settings**→ **Voice Prompt**→ **Language Settings**. The dropdown list shows all the current available voice prompt languages on the UCM6xxx. To add more languages in the list, please download voice prompt package by selecting "Check Prompt List" under web GUI→**PBX Settings**→ **Voice Prompt**→ **Language Settings**.

IVR Managing (Key Pressing Events)

After creating IVR system, administrator needs to configure "Key Pressing Events" by assigning a key press to a specific action or destination.

To manage IVR events, access "Key Pressing Events" tab as shown in below screenshot and assign digits to use with appropriate destination or action.

Figure 3: IVR Advanced Configuration

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

Table 2: Key Pressing Events for IVR Features

Key Pressing Events	
Key Press Event: **Press 0** **Press 1** **Press 2** **Press 3** **Press 4** **Press 5** **Press 6** **Press 7** **Press 8**	Select the event for each key pressing from 0-9, *, Timeout and Invalid. The event options are: • Extension • Voicemail • Conference Rooms • Voicemail Group • IVR • Ring Group • Queues • Page Group

Press 9 Press *	• Fax • Custom Prompt • Hangup • DISA • Dial By Name • External Number • Callback
Timeout	Configures the destination when the Timeout Repeat Loop is done.
Invalid	Configures the destination when the Invalid Repeat loop is done.

Create Voice Prompt

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

Click on "Prompt" option as shown on the following figure to be redirected to "Voice Prompt" page, or go to Web GUI→**PBX Settings**→ **Voice Prompt**→ **Custom Prompt** page directly.

Figure 4: Create IVR Prompt

Once the IVR prompt file (created/uploaded) is successfully added to the UCM6xxx, it will be shown in the prompt list options to select in different IVR scenarios.

Record New Custom Prompt

In the UCM6xxx Web GUI→**PBX Settings**→ **Voice Prompt**→ **Custom Prompt**, click on "Record New Custom Prompt" and follow the steps below to record new IVR prompt.
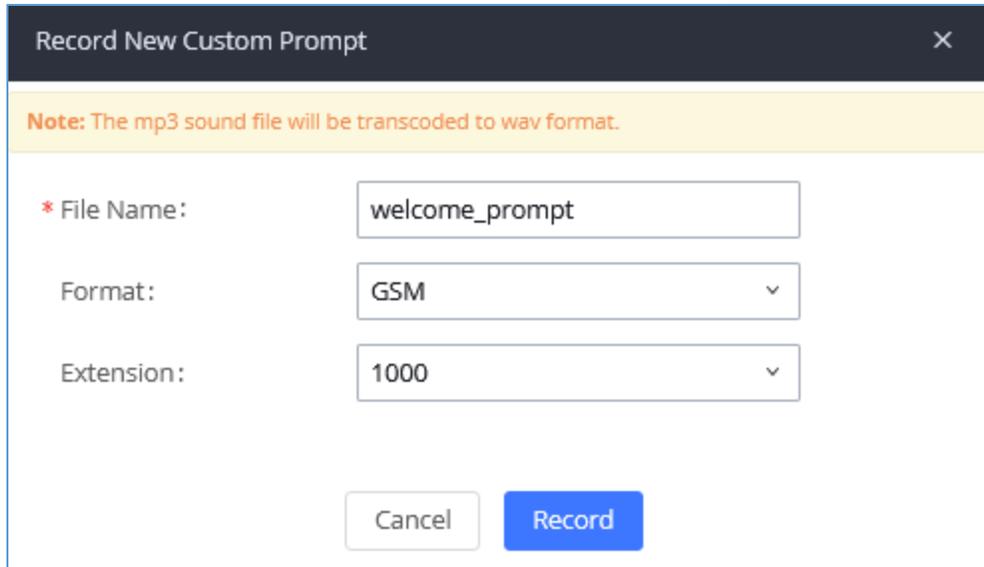
Figure 5: Record New Custom Prompt

1. Specify the custom prompt file name.

2. Select the format (GSM or WAV) for the IVR prompt file to be recorded.

3. Select the "Extension" to receive the call from the UCM6xxx to record the IVR prompt.

4. Click the "Record" button. A call will be initiated to the selected extension.

5. Pick up the call and start the recording following voice prompts.

6. The recorded file will be listed in the IVR Prompt web page (see figure 6). Users could select to re-record, play, download or delete the recordings.

Figure 6: Custom Prompt List

Upload Custom Prompt

If the user has a pre-recorded IVR prompt file, click on "Upload Custom Prompt" in Web GUI under **PBX Settings → Voice Prompt → Custom Prompt** page to upload the file to the UCM6xxx.

Following are IVR prompt requirements to be accepted by UCM6xxx series:

- PCM encoded.
- 16 bits.
- 8000Hz mono.
- In .mp3 or .wav format; or raw/ulaw/alaw/gsm file with .ulaw or .alaw suffix.
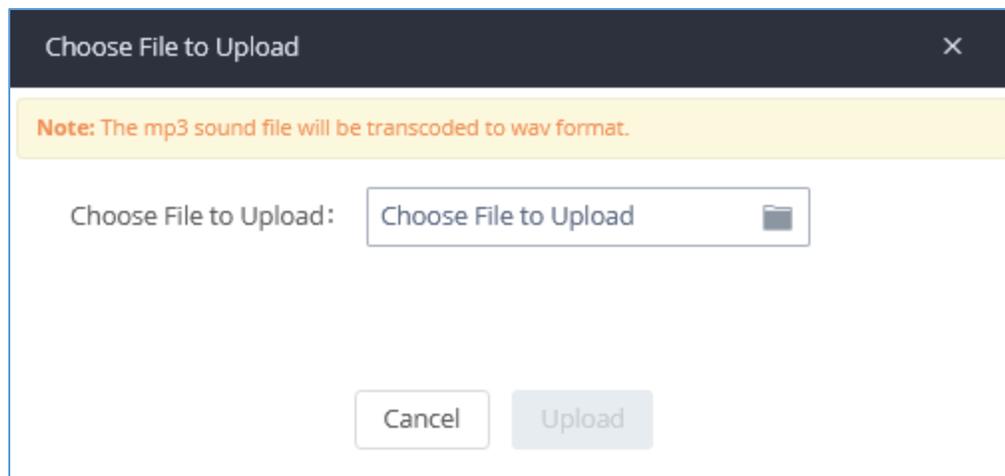- File size under 5M.

Figure 7: Upload Custom Prompt

Click on "Choose File to Upload" to select audio file from local PC and start uploading it. Once uploaded, the file will appear in the "Custom Prompt" web page.

Accessing IVR Menu

To access 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 following steps:

1. Access the web GUI of the UCM6xxx.

2. Navigate to **Extension/Trunk → Inbound routes**.

3. Under default mode section, configure "**Default destination**" to the IVR configured as displayed on following figure.
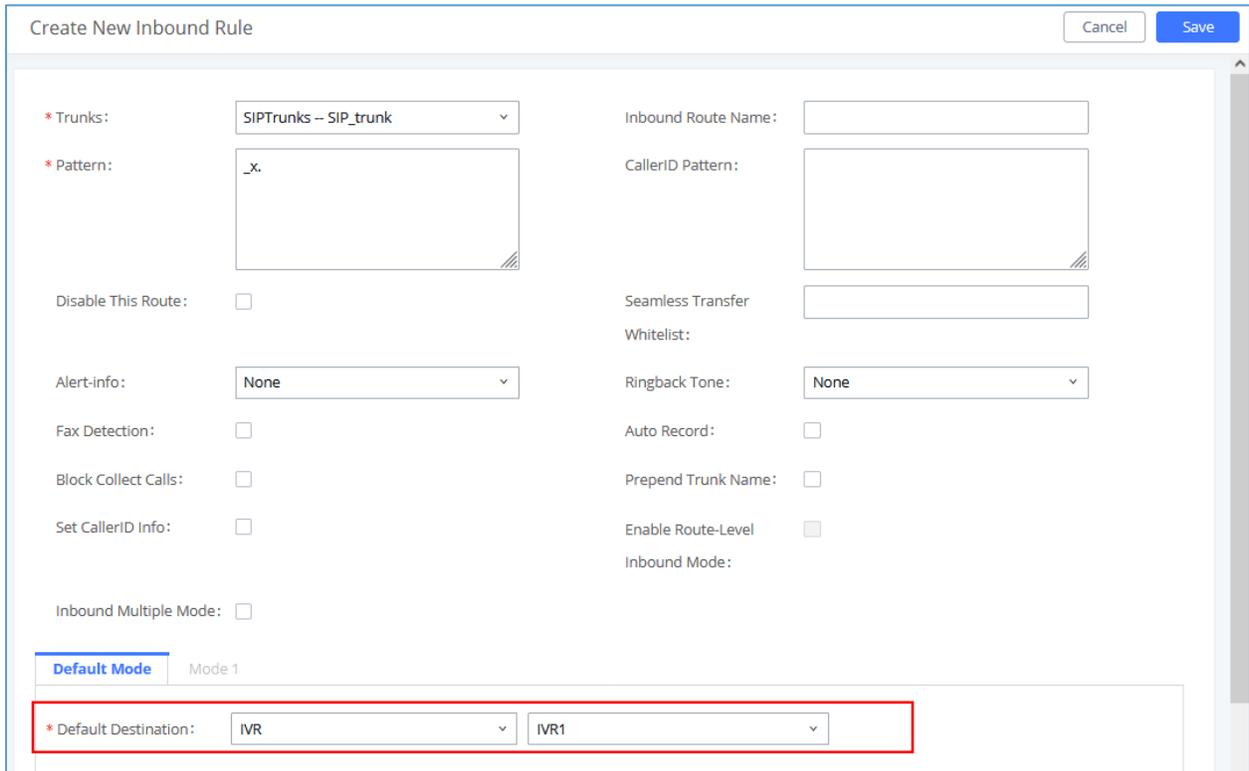
Figure 8: UCM6xxx Inbound Routes Configuration

Note: For more details about how to manage the inbound route, please refer to following guide:
https://www.grandstream.com/sites/default/files/Resources/How_to_manage_inbound_outbound_route_on_UCM.pdf

IVR APPLICATION EXAMPLES

This chapter illustrates IVR application examples in different scenarios.

The following examples show how IVR can be used 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:

Figure 9: IVR-SC1 Basic Configuration

Note: "Dial Other Extensions" option has been disabled to restrict users from calling UCM6xxx extensions directly, in this case, only configured destinations in "Key Pressing Events" are authorized.

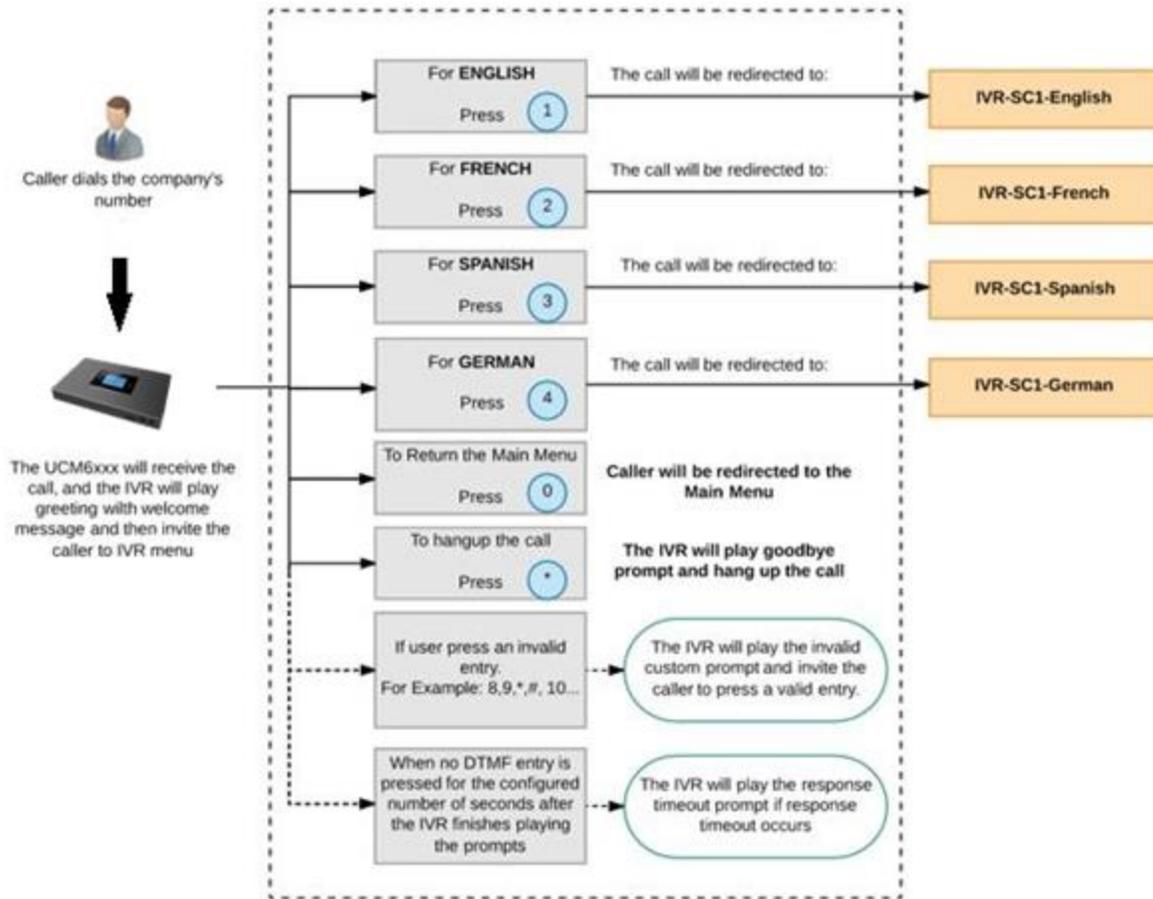**Figure 10: IVR-SC1 Key Pressing Events Configuration**

Figure 11: IVR-SC1 Diagram

Example 2: Multi-layer IVR System

The same company ABC (in scenario 1) wants to upgrade its IVR system allowing 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 UCM6xxx series (5 layers supported).

We will assume the following:

- The inbound routes on UCM6xxx series 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 previous example, with "Language" option set and voice prompts uploaded/recorded in 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 invite him to select the desired language, and then, the IVR will play a selectable menu items.

The following screenshot display the different IVRs created.

Extension ⇕	Name ⇕	Dial Other Extensions ⇕	Dial Trunk ⇕	Response Timeout ⇕	Options
7001	IVR-SC2	yes	yes	10	✎ 🗑
7002	IVR-SC1-English	yes	yes	10	✎ 🗑
7003	IVR-SC1-French	yes	yes	10	✎ 🗑
7004	IVR-SC1-Spanish	yes	yes	10	✎ 🗑
7005	IVR-SC1-German	yes	yes	10	✎ 🗑

Figure 12: IVRs Creation

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

Figure 13: IVR-SC2 Basic Configuration

The following screenshot shows "Key Pressing Events" settings on IVR-SC2 allowing redirection to other IVRs depending on customer's choice.

Figure 14: IVR-SC2 Key Pressing Events Configuration

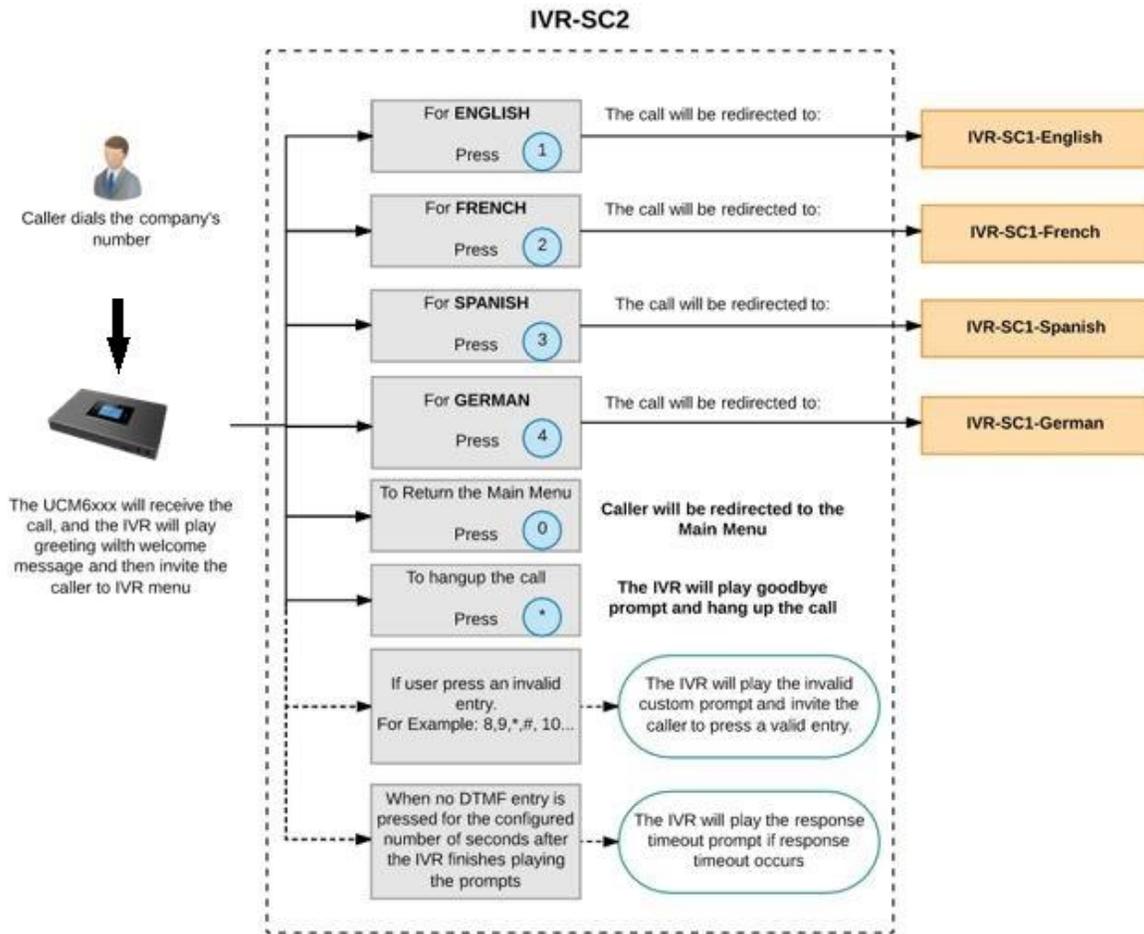Please refer to following diagram explaining the IVR application in details.

Figure 15: 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.

  Note:
  - For more details about how to manage the inbound route, please refer to following guide:
    https://www.grandstream.com/hubfs/Product_Documentation/how_to_manage_inbound_route_outbound_route_on_ucm6200_ucm6510.pdf?hsLang=en
  - For more details about how to configure the office time, please refer to following guide:
    https://www.grandstream.com/hubfs/Product_Documentation/office_time_and_holiday_on_ucm6xxx.pdf?hsLang=en

- 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:

Figure 16: IVR-SC3 Basic Configuration

Note: "Dial Other Extensions" option has been disabled to restrict users from calling UCM6xxx extensions directly, in this case, only configured destinations in "Key Pressing Events" are authorized.

Figure 17: IVR-SC3 Key Pressing Events Configuration
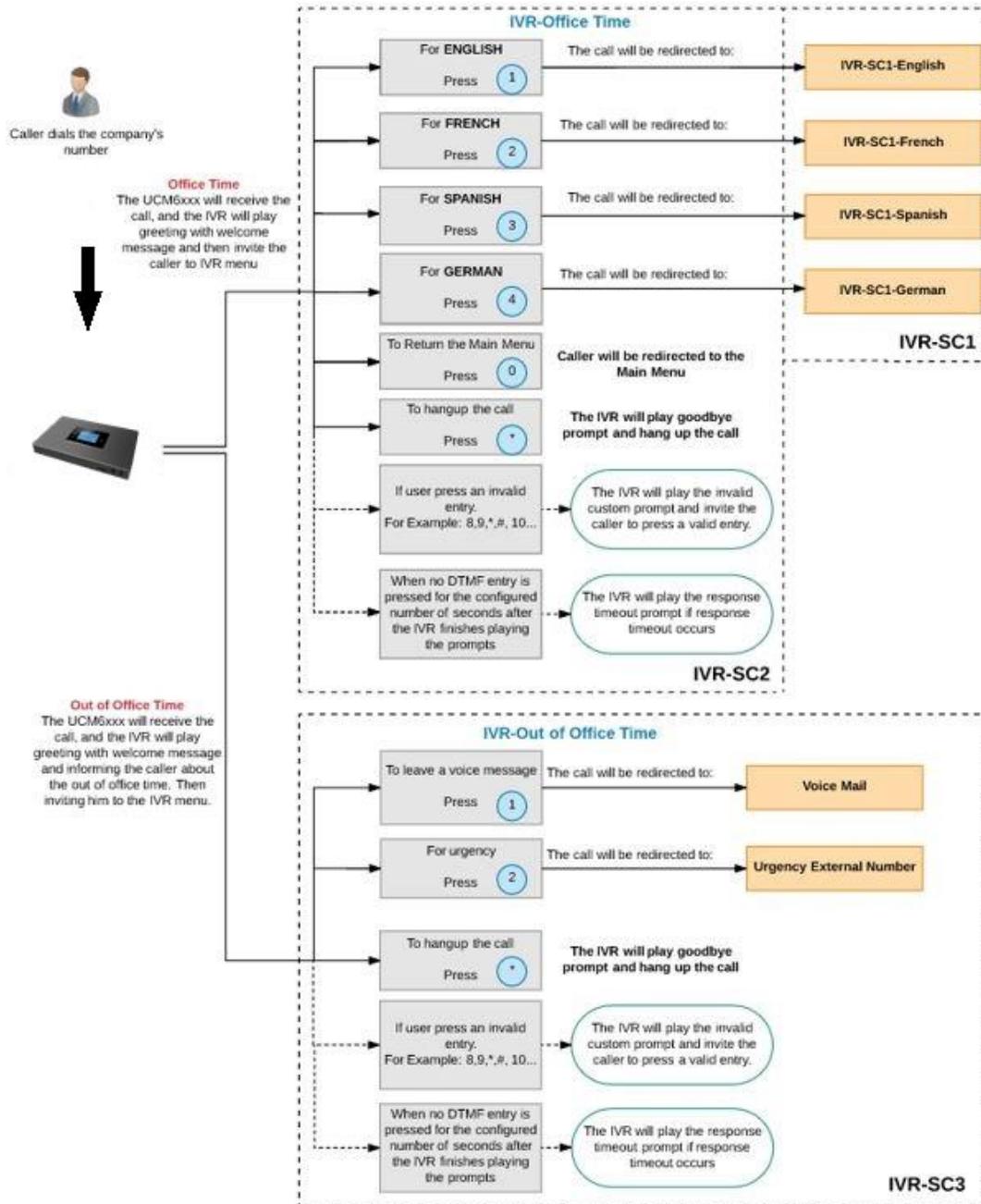
Please refer to following diagram explaining the IVR application in details.

Figure 18: IVR-SC3 Diagram