OCM Monitor – an application for creation, control and monitoring of queues

Table of contents

1. OCM Monitor

OCM Monitor is the application for queue creation, control and monitoring, as well as for scenario creation and editing.
For queue control and monitoring, OCM monitor should be connected to Carmona OCM Server.

Starting to describe OCM Monitor, we need to take a look at system file synchronization.
As described in “4. Queue-compose and run” chapter, the queues use scenarios for the called persons notifying. Some scenarios can use sound files for notifying the called persons, others can use text-to-speech engines.
Carmona OCM server stores all required files in its own Scenarios/Sounds folders.
Each OCM Monitor stores the copies of server files in its own folders.
OCM Monitor can add or edit scenarios and sound files. Each time when scenario is added or edited, OCM Monitor starts file synchronization in order to update files on server and on other OCM Monitors connected to system.

If OCM Monitor is not connected to Carmona OCM Server at the moment when scenario or sound files are created or edited, those created or edited files will be stored and synchronization will start at next connection.

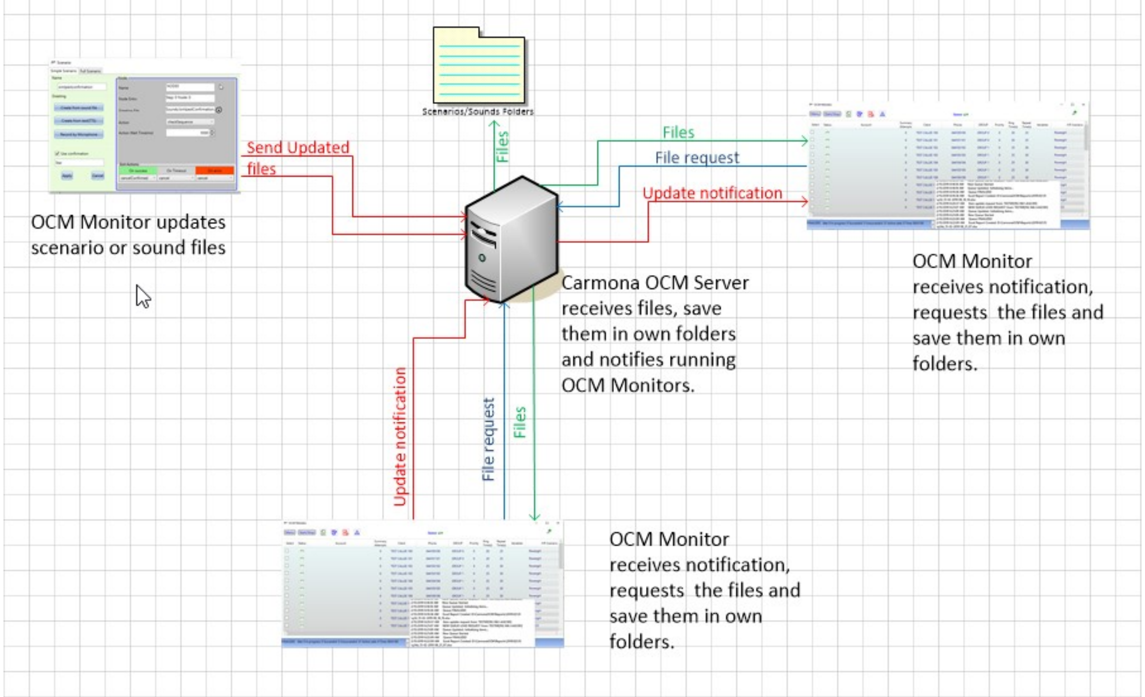

Scenarios/Sounds Folders
Send Updated files
Files
Files
File request
Update notification
OCM Monitor updates scenario or sound files
Carmona OCM Server receives files, save them in own folders and notifies running OCM Monitors.
OCM Monitor receives notification, requests the files and save them in own folders.
Update notification
File request
Files
OCM Monitor receives notification, requests the files and save them in own folders.

Fig. 1.1. In system file synchronization.

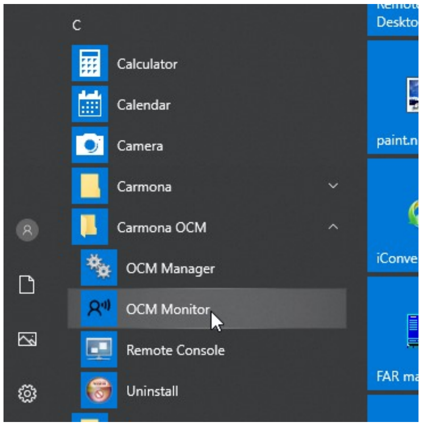
After scenario or sounds files changes are applied, all changes applied to current running queue items for the next call, if the items use these scenarios/sound files.

So, file synchronization allows you to prepare the scenarios and queues without connecting to the server.

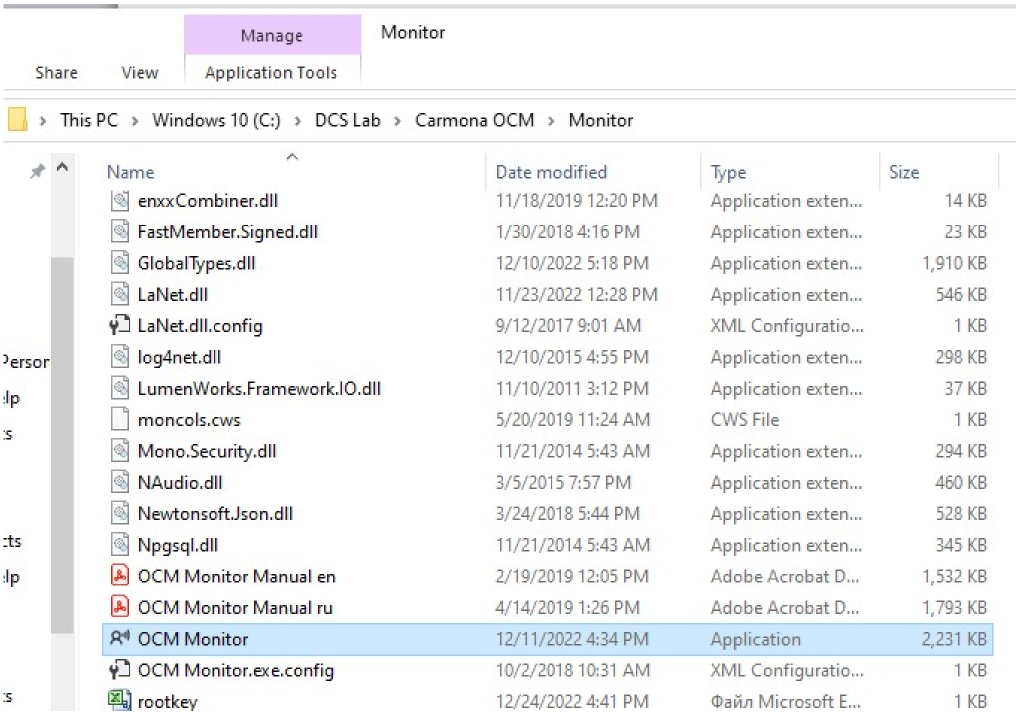
1.1. OCM Monitor usage

To open OCM Monitor, double-click on the shortcut on the desktop

or start it from Program Menu.

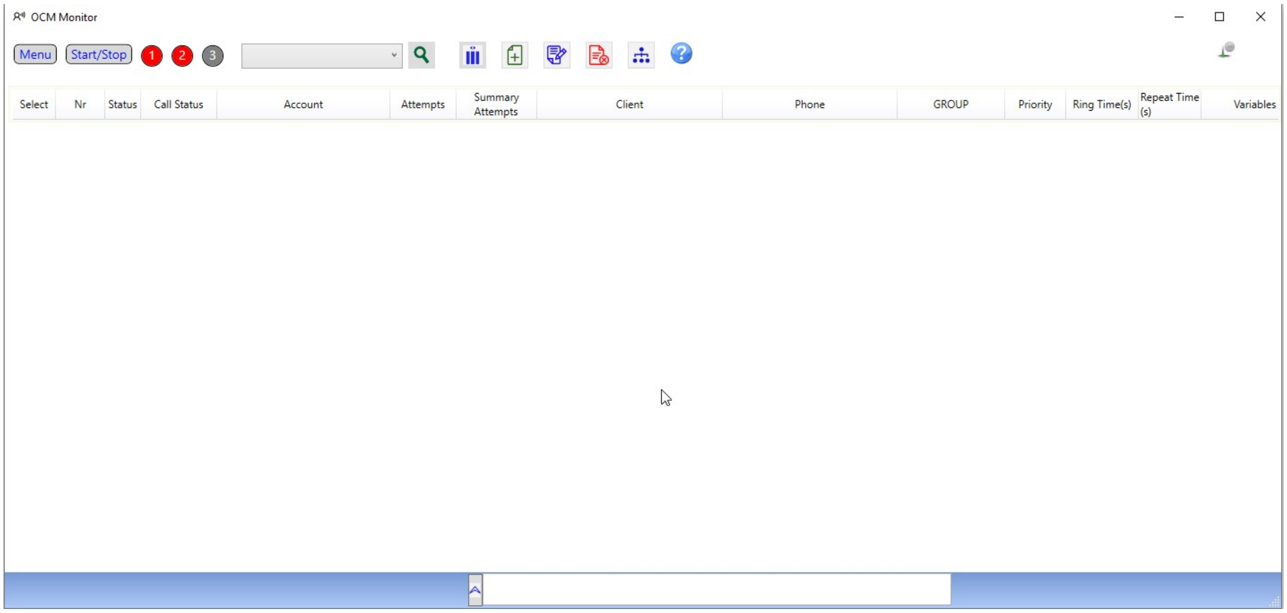


or start application from folder directly:



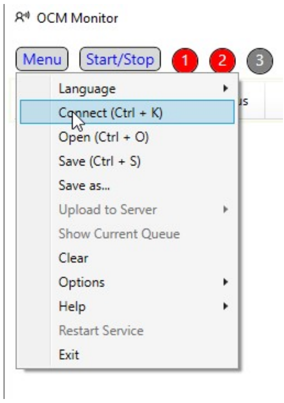
Name	Date modified	Type	Size
enxxCombiner.dll	11/18/2019 12:20 PM	Application exten...	14 KB
FastMember.Signed.dll	1/30/2018 4:16 PM	Application exten...	23 KB
GlobalTypes.dll	12/10/2022 5:18 PM	Application exten...	1,910 KB
LaNet.dll	11/23/2022 12:28 PM	Application exten...	546 KB
LaNet.dll.config	9/12/2017 9:01 AM	XML Configuratio...	1 KB
log4net.dll	12/10/2015 4:55 PM	Application exten...	298 KB
LumenWorks.Framework.IO.dll	11/10/2011 3:12 PM	Application exten...	37 KB
moncols.cws	5/20/2019 11:24 AM	CWS File	1 KB
Mono.Security.dll	11/21/2014 5:43 AM	Application exten...	294 KB
NAudio.dll	3/5/2015 7:57 PM	Application exten...	460 KB
Newtonsoft.Json.dll	3/24/2018 5:44 PM	Application exten...	528 KB
Npgsql.dll	11/21/2014 5:43 AM	Application exten...	345 KB
OCM Monitor Manual en	2/19/2019 12:05 PM	Adobe Acrobat D...	1,532 KB
OCM Monitor Manual ru	4/14/2019 1:26 PM	Adobe Acrobat D...	1,793 KB
OCM Monitor	12/11/2022 4:34 PM	Application	2,231 KB
OCM Monitor.exe.config	10/2/2018 10:31 AM	XML Configuratio...	1 KB
rootkey	12/24/2022 4:41 PM	Файл Microsoft E...	1 KB

OCM Monitor opens with following interface:

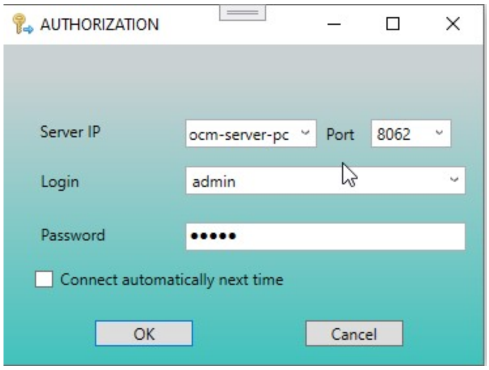


1.1.1. Connecting to Carmona OCM Server

In order to connect to Carmona OCM Server, press **[Menu]** button, then select *Connect* (or press Ctrl + K).



The AUTHORIZATION window will be opened.



Server IP: ocm-server-pc Port: 8062

Login: admin

Password: •••••

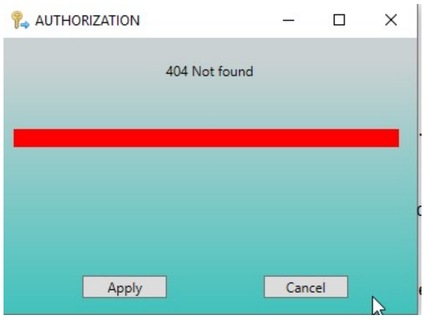
☐ Connect automatically next time

Enter server IP or host name, port number (default 8022), login and password. Enable option *Connect automatically next time*, if you prefer to skip the authorization next time.

If authorization succeeded, connection parameters will be stored and can be use next time, except the password.

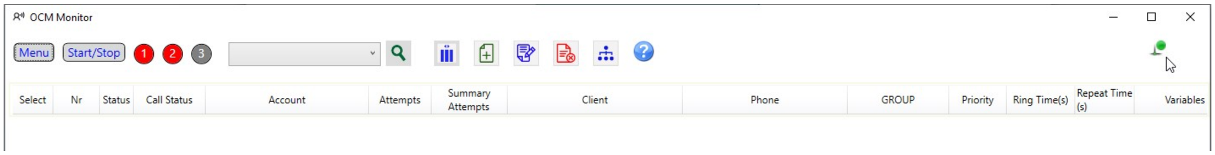
If option *Connect automatically next time* is enabled, next time you will be connected without this window showing.

If connection attempt failed you will be informed about the reason of failure:



404 Not found

Connection state is indicated by green connection state icon in the right upper corner of interface. Connection events are logged in the log frame in the central lower part of the screen.

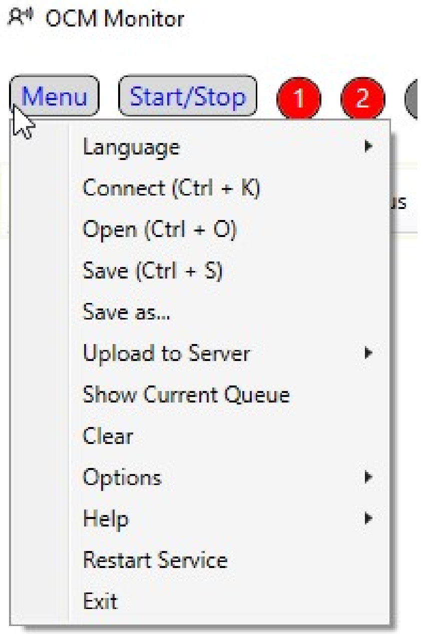


Select	Nr	Status	Call Status	Account	Attempts	Summary Attempts	Client	Phone	GROUP	Priority	Ring Time(s)	Repeat Time (s)	Variables

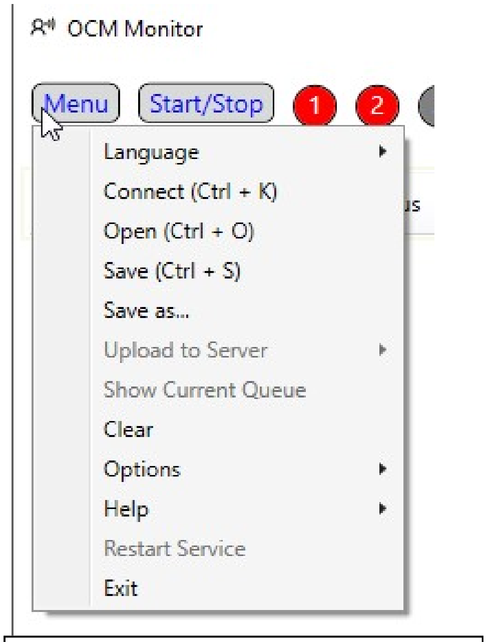
WARNING! In current version the only one user can be connected at time.

1.1.2. Menu items

After you pressed **[Menu]** button, the following items are available:



When you are connected to server



When you are not connected to server

Items description:

Language – allows you to select the interface language(English, Russian and Romanian are available at the moment).

Connect – closes current connection and opens AUTHORIZATION window.

Open – runs “Open file” dialog and creates the queue from the selected Excel or csv file.

Save – saves opened file.

Save as – allows you to save opened file with another name or path.

Upload to server – allows you to upload the queue from selected in “Open file” dialog file to server. The queue items can replace current queue running on server, or be appended to it, and updated queue will start immediately.

Show current queue – displays running queue items on the screen. If queue is already finalized, snapshot of the last queue will be displayed.

Clear – if queue is not running, you can clear displayed queue items.

Options – set the required option value here.

- Insert leading '0' – fixes the problem when Excel casts text field with phone number with leading zero to numeric field without leading zero. If option is set, leading zero will be inserted to phone numbers, if they not start with zero.
- Use ffmpeg convert to wav – allows you to use sound files with formats different from wav, PCM-mono, 16 bit, 8000. The ffmpeg library will convert those files to required format online. Available formats: "wav", "wma", "mp3", "ogg", "oga", "mogg", "aac", "aif", "cda", "m4a", "m4b", "opus", "gsm", "flac", "weba", "sln".
- Strategy – allows you to define how the queue will pass through the items.

  Maximum reach – all items will pass through down to the last element, and only then repeat timers will be checked.

  the *Priority of repeat timer* – the queue will return to upper item and start the next attempt when item's repeat timer expired.

  Maximum reach (reset repeat timer) - all items will pass through down to the last element, and when it will reached, the queue returns to upper item and start the next attempt immediately, even the repeat timer not expired yet.

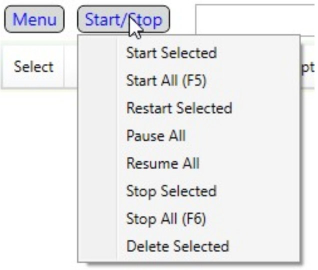
Help - allows you to view user manual, information about the program and visit the website of the company-developer.

Restart service – force restart of service. This option is disabled if user has no permission for this action.

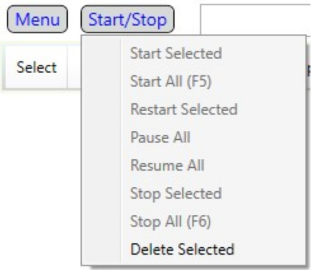
Exit – closes the OCM Monitor.

1.1.3. Start/Stop Operations

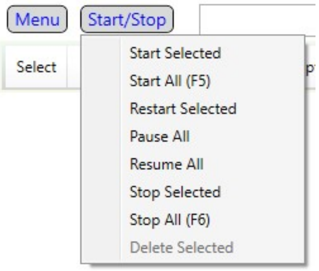
After you pressed **[Start/Stop]** button, the following items are available:



When you are connected and have all permissions



When you are not connected or you have no permission for Start/Stop operations



When you are connected but you have no permission to change the items

Items description:

Start Selected – allows you to start only selected items. If items have been already stopped, they will be started with current attempt counters. If queue is not created yet, the new one will be created for selected items only.

Start all – allows you to start all items. The new queue will be created and run.

Restart selected – allows you to restart selected items even when the queue is already finalized or selected items are stopped. Attempt counters will be set to initial values.

Pause all – allows you to put the queue on hold. Running calls will continue, and will be paused only after they completed.

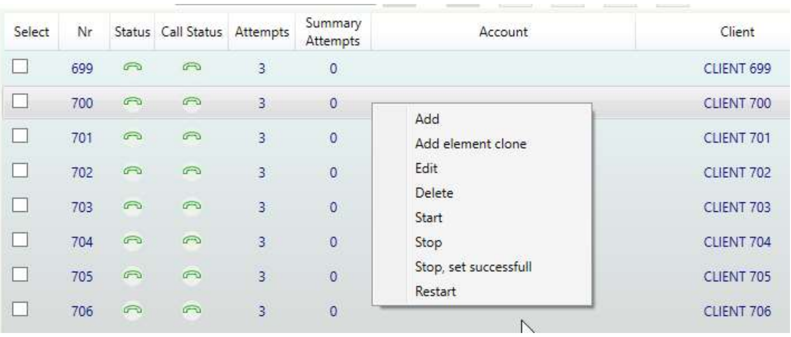
Resume all – allows you to continue paused queue.

Stop selected – allows you to stop selected items. Items will be stopped and removed from the queue, but you can start them later keeping the current attempt counters without restarting the whole queue until queue is not completely finalized.

Stop all – allows you to stop the queue. The queue will be finalized and the snapshot of it will be shown on the screen.

Delete selected – allows you to delete selected items. If queue is running, items will be stopped and removed from queue immediately.

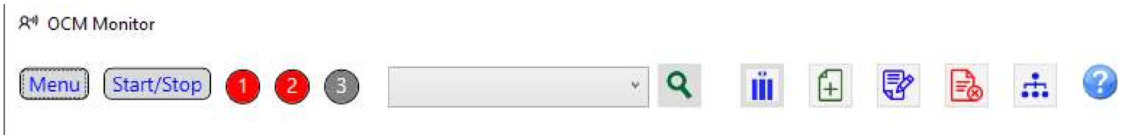
Start, Stop and Restart operations for selected item also are available in item context menu (right-click on selected item).



Select	Nr	Status	Call Status	Attempts	Summary Attempts	Account	Client
☐	699	☎	☎	3	0		CLIENT 699
☐	700	☎	☎	3	0		CLIENT 700
☐	701	☎	☎	3	0		CLIENT 701
☐	702	☎	☎	3	0		CLIENT 702
☐	703	☎	☎	3	0		CLIENT 703
☐	704	☎	☎	3	0		CLIENT 704
☐	705	☎	☎	3	0		CLIENT 705
☐	706	☎	☎	3	0		CLIENT 706

1.1.4. Icons

The following icons are located in the upper part of interface:



- Search… - allows you to filter items by phone number, client name, or by item statuses.

- Columns Visibility – select columns to show/hide.

- Add item – allows you to add an item. If queue is running, the item will be appended to the end of queue.

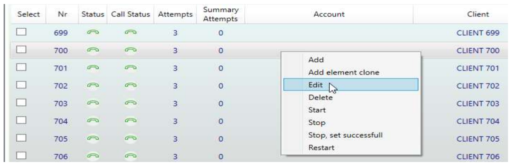
- Edit item – allows you to edit selected item.

- Delete item – allows you do delete selected item(s).

- IVR Scenario – allows you to create the new or edit existing scenario (see Scenario chapter).

- Information – displays some useful information: connection status, license status, last used SIP accounts.

Add, edit and delete operations also available in item context menu (right-click on selected item).



Select	Nr	Status	Call Status	Attempts	Summary Attempts	Account	Client
☐	699	☎	☎	3	0		CLIENT 699
☐	700	☎	☎	3	0		CLIENT 700
☐	701	☎	☎	3	0		CLIENT 701
☐	702	☎	☎	3	0		CLIENT 702
☐	703	☎	☎	3	0		CLIENT 703
☐	704	☎	☎	3	0		CLIENT 704
☐	705	☎	☎	3	0		CLIENT 705
☐	706	☎	☎	3	0		CLIENT 706

1.1.5. Queue state and events online information

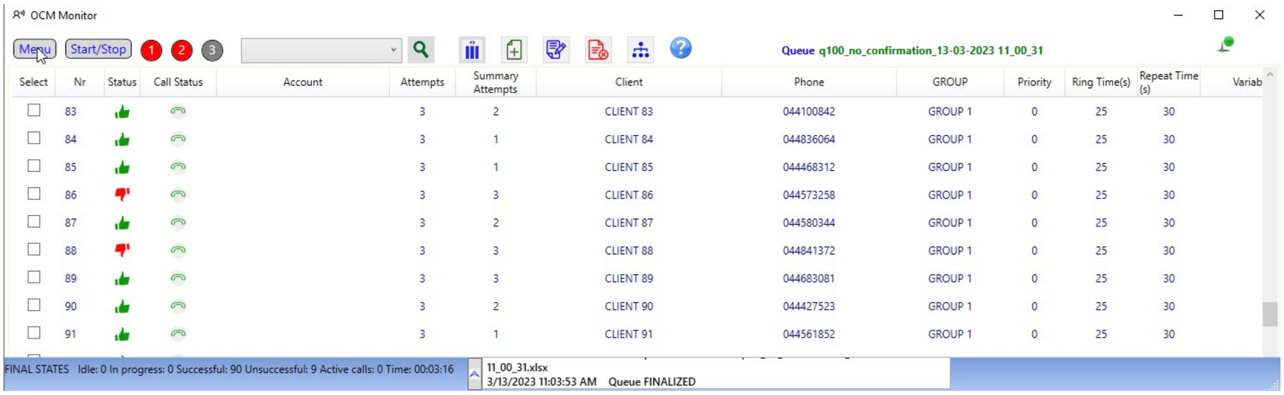
OCM Monitor interface has some info elements.

The queue name info is located in the upper central part of interface.

Connection status indicator is located in the upper right part of interface.

Info panel for current queue state and item result counters is located in the lower left part of interface.

The log frame is located in the lower central part of interface.



Queue q100_no_confirmation_13-03-2023 11_00_31

Select	Nr	Status	Call Status	Account	Attempts	Summary Attempts	Client	Phone	GROUP	Priority	Ring Time(s)	Repeat Time (s)	Variab
□	83	👍	☎		3	2	CLIENT 83	044100842	GROUP 1	0	25	30	
□	84	👍	☎		3	1	CLIENT 84	044836064	GROUP 1	0	25	30	
□	85	👍	☎		3	1	CLIENT 85	044468312	GROUP 1	0	25	30	
□	86	👎	☎		3	3	CLIENT 86	044573258	GROUP 1	0	25	30	
□	87	👍	☎		3	2	CLIENT 87	044580344	GROUP 1	0	25	30	
□	88	👎	☎		3	3	CLIENT 88	044841372	GROUP 1	0	25	30	
□	89	👍	☎		3	3	CLIENT 89	044683081	GROUP 1	0	25	30	
□	90	👍	☎		3	2	CLIENT 90	044427523	GROUP 1	0	25	30	
□	91	👍	☎		3	1	CLIENT 91	044561852	GROUP 1	0	25	30	

FINAL STATES Idle: 0 In progress: 0 Successful: 90 Unsuccessful: 9 Active calls: 0 Time: 00:03:16

```
11_00_31.xlsx
3/13/2023 11:03:53 AM    Queue FINALIZED
```

Lower left info panel presents the following information:

Queue state – current state of queue: IDLE, IN_PROGRESS, PAUSED, FINAL STATES.

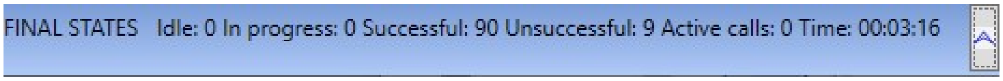
Idle items counter – number of not started items.

In progress items counter – number of items in progress.

Successful items counter – number of items with successful notification result.

Unsuccessful items counter - number of items with unsuccessful notification result

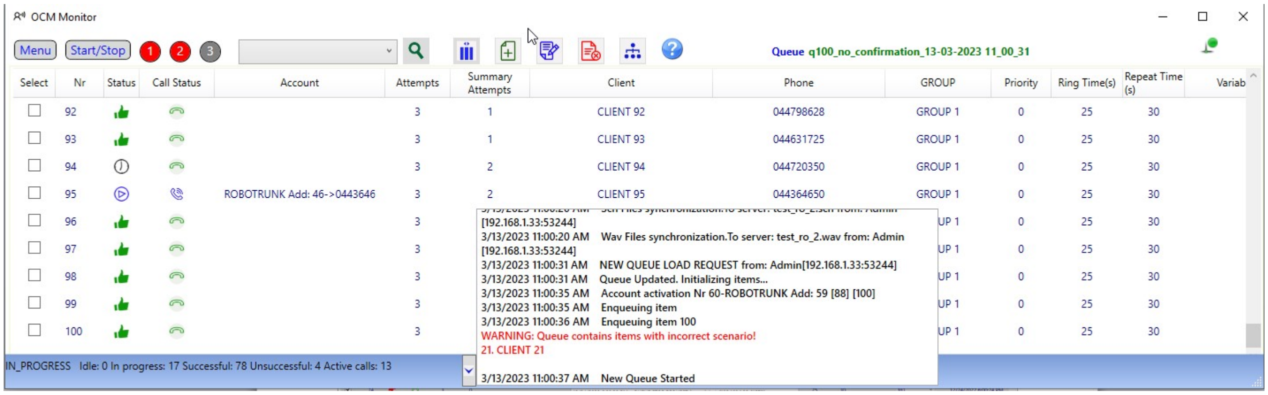
Finalized queue execution time – time of queue execution. It appears only after the queue is finalized.



FINAL STATES Idle: 0 In progress: 0 Successful: 90 Unsuccessful: 9 Active calls: 0 Time: 00:03:16

Each user action related to the queue or scenario/sound files is shown in the log frame as well as system events.

The log frame can be expanded or collapsed using the arrow button.



Queue q100_no_confirmation_13-03-2023 11_00_31

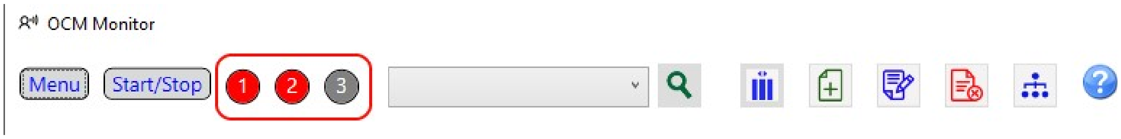
Select	Nr	Status	Call Status	Account	Attempts	Summary Attempts	Client	Phone	GROUP	Priority	Ring Time(s)	Repeat Time (s)	Variab
□	92	👍	☎		3	1	CLIENT 92	044798628	GROUP 1	0	25	30	
□	93	👍	☎		3	1	CLIENT 93	044631725	GROUP 1	0	25	30	
□	94	◷	☎		3	2	CLIENT 94	044720350	GROUP 1	0	25	30	
□	95	▷	☎	ROBOTRUNK Add: 46->0443646	3	2	CLIENT 95	044364650	GROUP 1	0	25	30	
□	96	👍	☎		3				UP 1	0	25	30	
□	97	👍	☎		3				UP 1	0	25	30	
□	98	👍	☎		3				UP 1	0	25	30	
□	99	👍	☎		3				UP 1	0	25	30	
□	100	👍	☎		3				UP 1	0	25	30	

IN_PROGRESS Idle: 0 In progress: 17 Successful: 78 Unsuccessful: 4 Active calls: 13

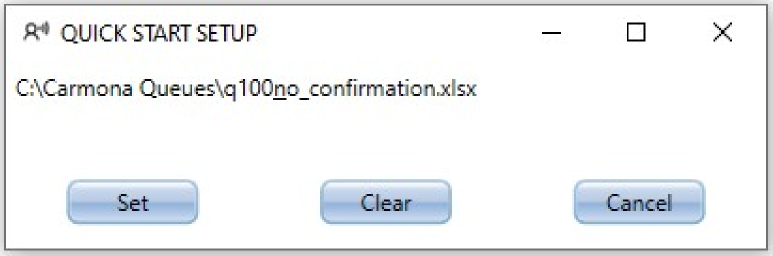
```
3/13/2023 11:00:20 AM   Scn Files synchronization.To server: test_ro_2.scn from: Admin
[192.168.1.33:53244]
3/13/2023 11:00:20 AM   Wav Files synchronization.To server: test_ro_2.wav from: Admin
[192.168.1.33:53244]
3/13/2023 11:00:31 AM   NEW QUEUE LOAD REQUEST from: Admin[192.168.1.33:53244]
3/13/2023 11:00:31 AM   Queue Updated. Initializing items...
3/13/2023 11:00:35 AM   Account activation Nr 60-ROBOTRUNK Add: 59 [88] [100]
3/13/2023 11:00:35 AM   Enqueuing item
3/13/2023 11:00:36 AM   Enqueuing item 100
WARNING: Queue contains items with incorrect scenario!
21. CLIENT 21

3/13/2023 11:00:37 AM   New Queue Started
```

1.1.6. Quick start

You can define three queue files for quick start. In the top part of interface three buttons located for this:



To set the queue file for button or clear button setting, point the cursor on button and press right mouse button.



C:\Carmona Queues\q100no_confirmation.xlsx

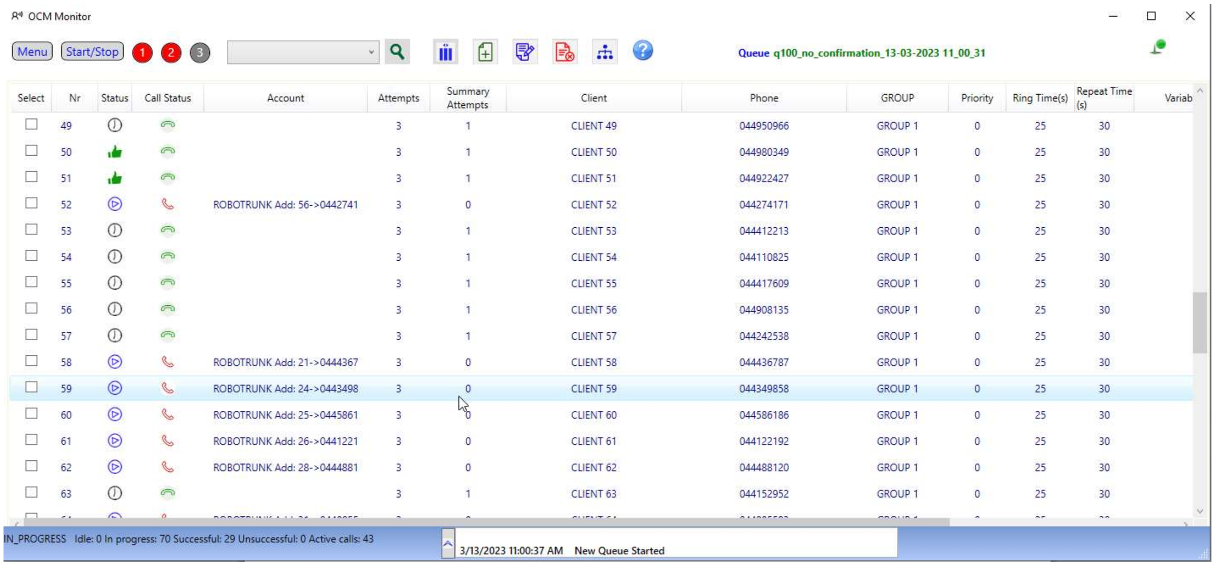
If button is set the file path will show, and the button color is red. Not set buttons are grey.

You can quick start by pressing the button or pressing Ctrl + F1, F2 or F3 correspondingly.

The queue will start immediately if there is no running queue, or you get the question whether to stop the running queue.

2. Queue monitoring

You can monitor the running queue item states in the central part of the interface.



Queue q100_no_confirmation_13-03-2023 11_00_31

Select	Nr	Status	Call Status	Account	Attempts	Summary Attempts	Client	Phone	GROUP	Priority	Ring Time(s)	Repeat Time (s)	Variab
□	49	🕒	☎		3	1	CLIENT 49	044950966	GROUP 1	0	25	30	
□	50	👍	☎		3	1	CLIENT 50	044980349	GROUP 1	0	25	30	
□	51	👍	☎		3	1	CLIENT 51	044922427	GROUP 1	0	25	30	
□	52	▷	📞	ROBOTRUNK Add: 56->0442741	3	0	CLIENT 52	044274171	GROUP 1	0	25	30	
□	53	🕒	☎		3	1	CLIENT 53	044412213	GROUP 1	0	25	30	
□	54	🕒	☎		3	1	CLIENT 54	044110825	GROUP 1	0	25	30	
□	55	🕒	☎		3	1	CLIENT 55	044417609	GROUP 1	0	25	30	
□	56	🕒	☎		3	1	CLIENT 56	044908135	GROUP 1	0	25	30	
□	57	🕒	☎		3	1	CLIENT 57	044242538	GROUP 1	0	25	30	
□	58	▷	📞	ROBOTRUNK Add: 21->0444367	3	0	CLIENT 58	044436787	GROUP 1	0	25	30	
□	59	▷	📞	ROBOTRUNK Add: 24->0443498	3	0	CLIENT 59	044349858	GROUP 1	0	25	30	
□	60	▷	📞	ROBOTRUNK Add: 25->0445861	3	0	CLIENT 60	044586186	GROUP 1	0	25	30	
□	61	▷	📞	ROBOTRUNK Add: 26->0441221	3	0	CLIENT 61	044122192	GROUP 1	0	25	30	
□	62	▷	📞	ROBOTRUNK Add: 28->0444881	3	0	CLIENT 62	044488120	GROUP 1	0	25	30	
□	63	🕒	☎		3	1	CLIENT 63	044152952	GROUP 1	0	25	30	

IN_PROGRESS Idle: 0 In progress: 70 Successful: 29 Unsuccessful: 0 Active calls: 43

3/13/2023 11:00:37 AM New Queue Started

Item state is described in the columns:

Select - shows the selected items. Click on column header will inverse the selection. Click with right mouse button will reset selection.

Status - item status, graphically presented by following icons:

☎ - IDLE, item not started.

▷ - IN PROGRESS, item person is currently being called.

🕒 - PAUSED, item is waiting for the next attempt.

🏁 - READY, item is ready to make next attempt, but it’s waiting for free SIP account.

👍 - SUCCESSFUL, item person has been notified.

👎 - UNSUCCESSFUL, item person has not been notified after all attempts.

❗ - Scenario cannot be executed due to some errors with sound or scenario file(file not found or file format is incorrect, etc).

Account – shows used SIP account when call is being executed.

Summary attempts – shows summary attempts for all item phone numbers.

Client – shows the name of called person.

Phone – shows the item phone number(s).

GROUP – shows the item group name.

Priority – shows the item priority.

Ring Time – shows the maximum duration during which the called person has not yet answered the call.

Repeat Time - shows the time between attempts.

Variables – shows the variables that should be used in the scenario.

IVR Scenario – shows the name of scenario for the item.

Date/Time – shows the time when the item was started.

Attempts – shows how much attempts is left before item will be stopped.

Call Status – item call status, graphically presented by following icons:

☎ - idle, no calls are being executed

☎ - called person is being alerting

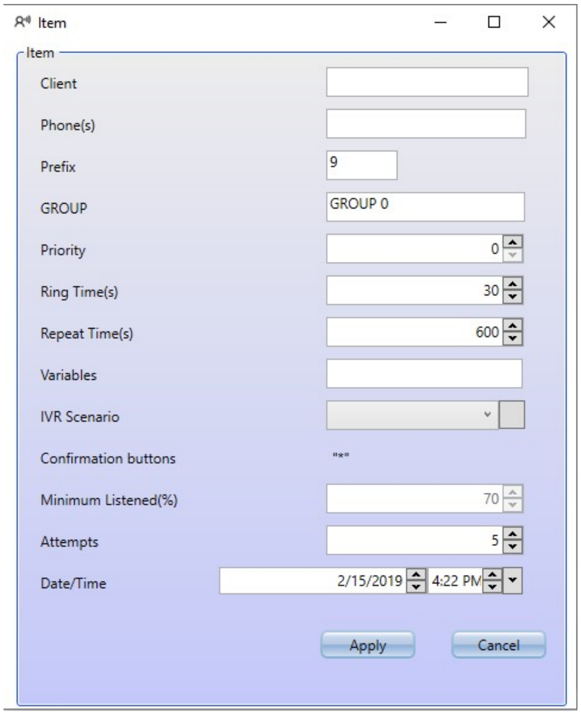
☎- called person has answered, and listens the message now

Items updates each time when changes in item or call statuses occurred.

3. Create and Edit Items

You can create a new item clicking on Add icon or selecting *Add* item from the item context menu.

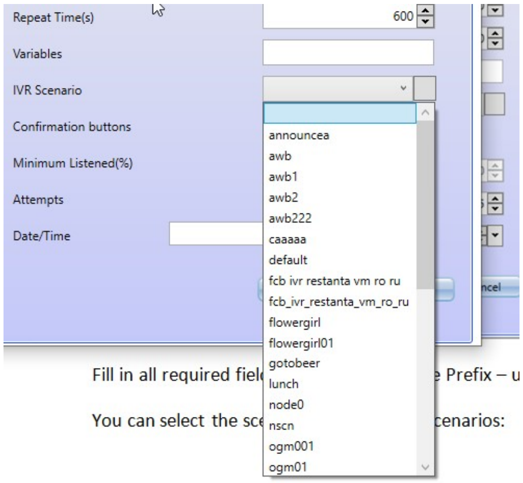
After you perform one of these operations the following interface will appears:



Client	
Phone(s)	
Prefix	9
GROUP	GROUP 0
Priority	0
Ring Time(s)	30
Repeat Time(s)	600
Variables	
IVR Scenario	
Confirmation buttons	"*"
Minimum Listened(%)	70
Attempts	5
Date/Time	2/15/2019 4:22 PM

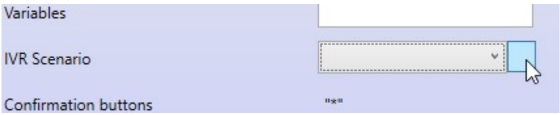
Fill in all required fields. Be careful with the Prefix – use it only if it's actually needed.

You can select the scenario from existing scenarios:



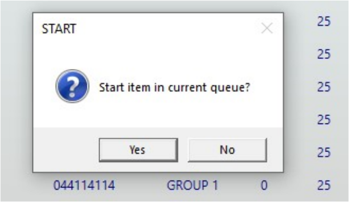
If the scenario uses confirmation, the *Minimum Listened(%)* option becomes unavailable, and, of course, will not be used by the scenario.

You can go to **Scenario** interface clicking the scenario button:



Variables	
IVR Scenario	
Confirmation buttons	"*"

After all fields are filled in, press **[Apply]** button. You will be prompted to save changes to the file.
If queue is running, you will be prompted to start new item in the running queue:

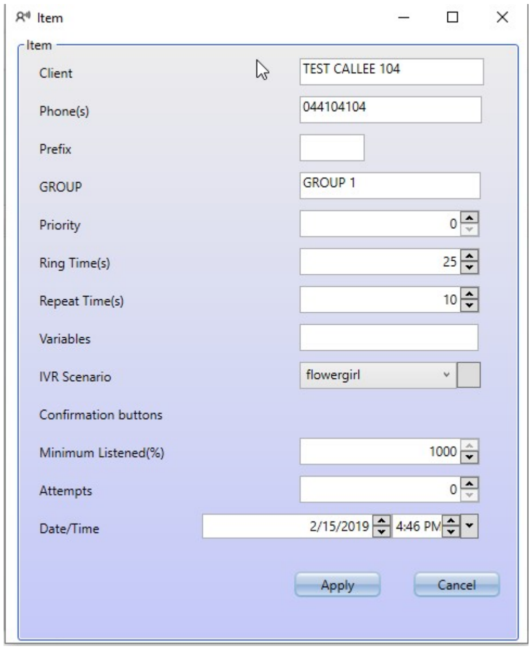


START

Start item in current queue?

If you will select **[Yes]**, the created item will be appended to the running queue.

Similarly, you can edit the selected item. The difference is that Item Interface will be opened with selected item data:



Item

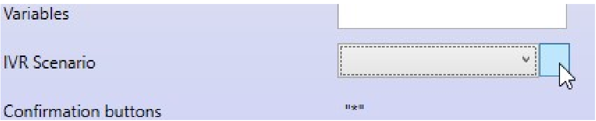
Client	TEST CALLEE 104
Phone(s)	044104104
Prefix	
GROUP	GROUP 1
Priority	0
Ring Time(s)	25
Repeat Time(s)	10
Variables	
IVR Scenario	flowergirl
Confirmation buttons	
Minimum Listened(%)	1000
Attempts	0
Date/Time	2/15/2019 4:46 PM

After **[Apply]** button is pressed, you will be prompted to save changes to the file. If queue is running, the changes will be applied when current call is completed.

4. Create and edit scenario

Scenario interface can be opened by clicking on IVR Scenario icon or from Item interface using scenario edit button.

From item interface:

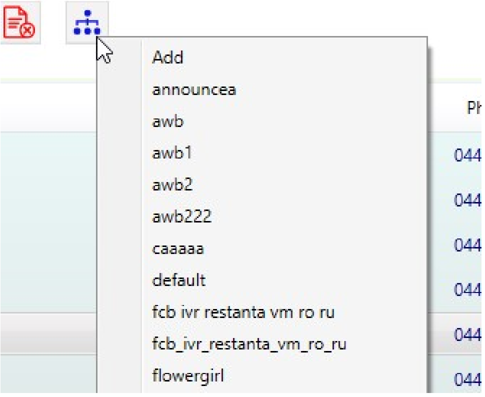


Variables

IVR Scenario

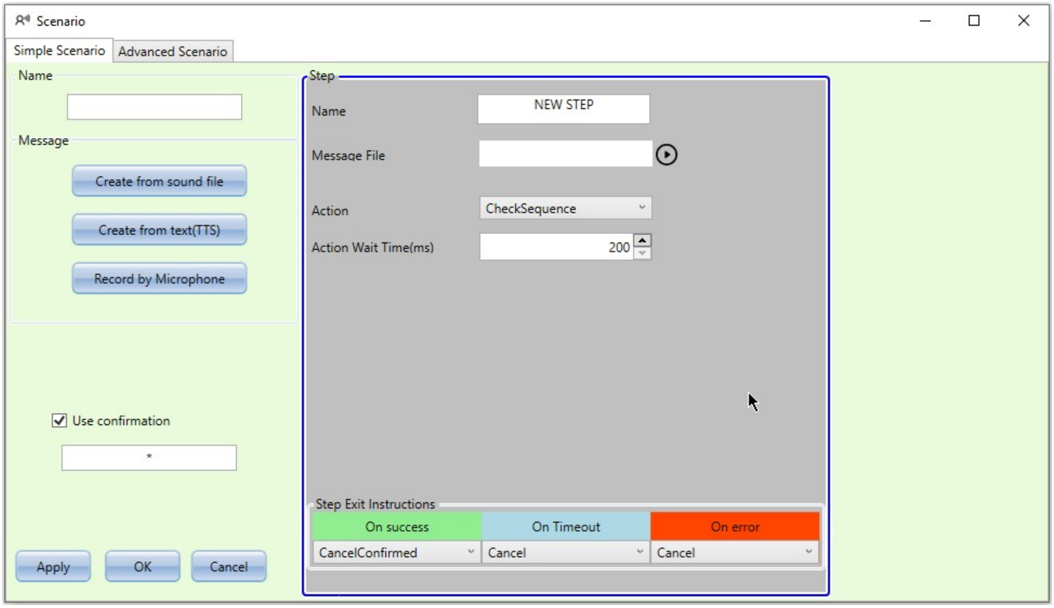
Confirmation buttons "*"

From IVR Scenario icon:



You can select *Add* to create new scenario or edit an existing one.

The **Scenario** interface will be opened:



Name

Message

☑ Use confirmation

*

Step

Name: NEW STEP

Message File

Action: CheckSequence

Action Wait Time(ms): 200

Step Exit Instructions

On success	On Timeout	On error
CancelConfirmed	Cancel	Cancel

If you select to edit an existing scenario, all the fields will be filled in with the scenario data.

4.1. Simple scenario

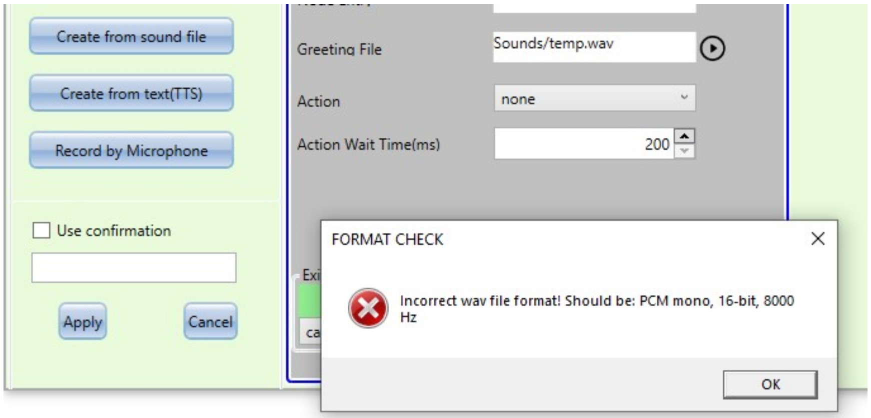
Use **Simple Scenario** tab to create or edit a scenario based on sound (wav) file. Simple scenario uses only one message and only one action, usually the confirmation action.

First you need to define the sound file. You can do it in the following ways:

- Select existing sound file
- Create sound file using text-to-speech engines
- Record sound from microphone

To select an existing file, press **[Create from sound file]** button. You will be prompted to select the file.

If file that you have selected has incorrect format, a warning message will appear:



Greeting File: Sounds/temp.wav

Action: none

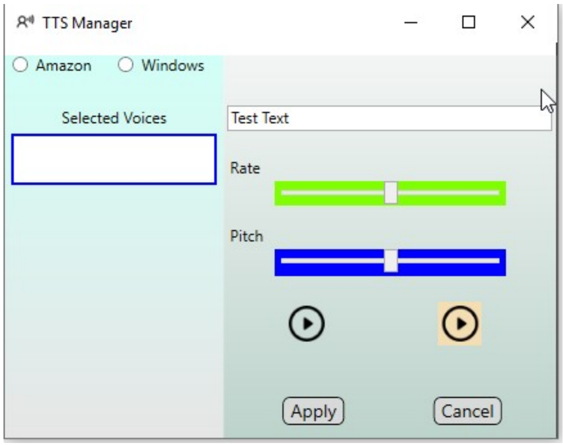
Action Wait Time(ms): 200

FORMAT CHECK

Incorrect wav file format! Should be: PCM mono, 16-bit, 8000 Hz

To create sound file using text-to-speech engines, press **[Create from text(TTS)]** button.

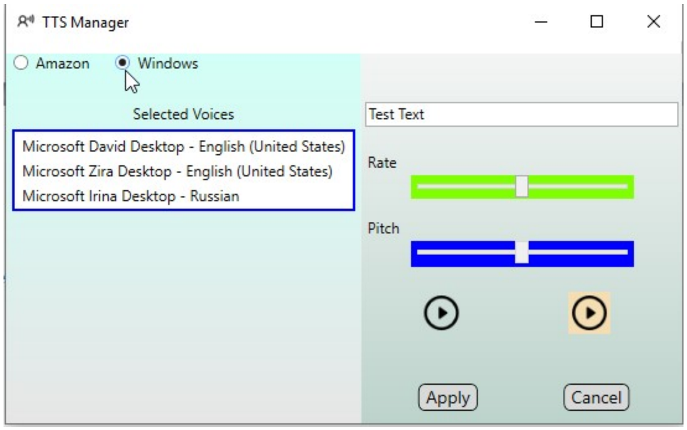
TTS Manager interface will be opened:



Test Text

Select engine that you going to use: Amazon Polly or Microsoft TTS engine.

The voice list will be published.

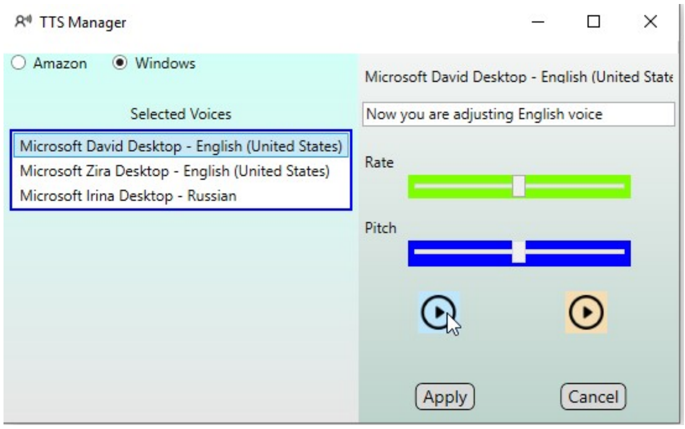


○ Amazon ● Windows

Microsoft David Desktop - English (United States)
Microsoft Zira Desktop - English (United States)
Microsoft Irina Desktop - Russian

Test Text

Select the voice and test it.



○ Amazon ● Windows

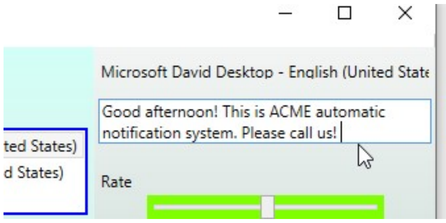
Microsoft David Desktop - English (United States)
Microsoft Zira Desktop - English (United States)
Microsoft Irina Desktop - Russian

Microsoft David Desktop - English (United State

Now you are adjusting English voice

If you use Windows (Microsoft) TTS, you can adjust the rate of the voice (not available for Amazon Polly).

Write the required phrase in text field:



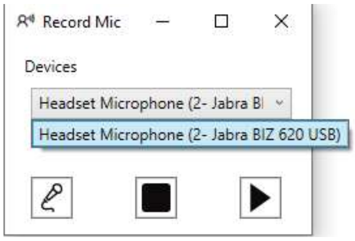
Microsoft David Desktop - English (United State

Good afternoon! This is ACME automatic notification system. Please call us!

After you have adjusted and tested the voice, press **[Apply]** button.

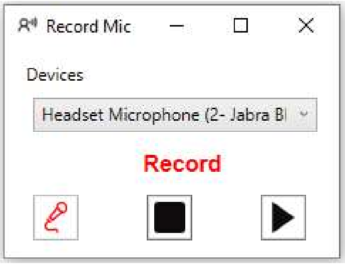
You will return to **Scenario** interface.

To record sound file using a microphone, press **[Record by Microphone]** button. The **Record Mic** interface will be opened. Select the microphone from the available device list.



Headset Microphone (2- Jabra Bl
Headset Microphone (2- Jabra BIZ 620 USB)

Then press 🎤 button. Three seconds countdown will be started, afterwards, say your phrase while “Record” is on the screen.



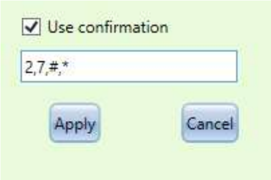
Headset Microphone (2- Jabra Bl

Stop the record by ■ button. Now you can play the record using ▶ button.

If the record is correct, close the window and return to **Scenario** interface.

Enter the scenario name in the *Name* field.

If it is required that the called person has to confirm that the notification is received, check the *Use confirmation* option and enter confirmation button or confirmation button sequence(separated by comma) in the field:



☑ Use confirmation

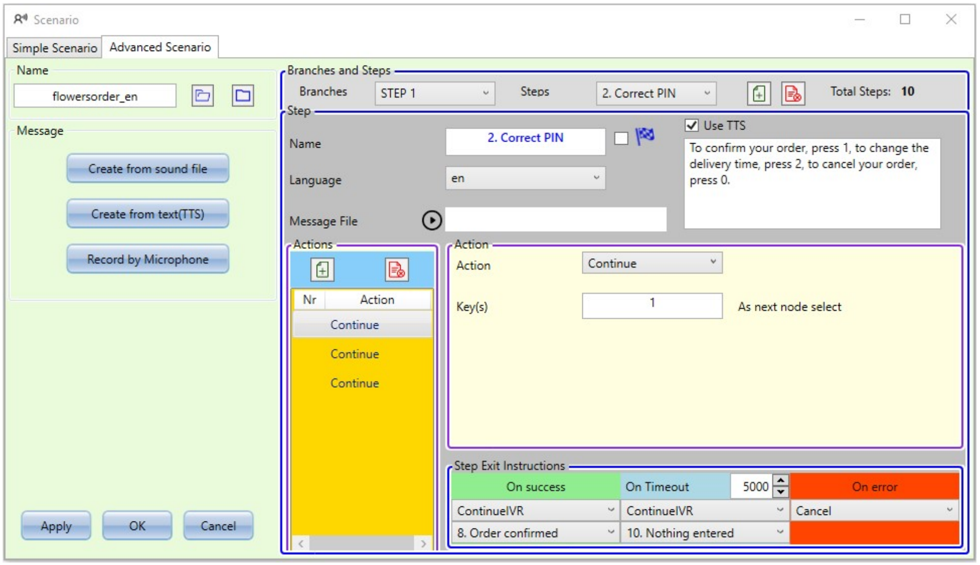
2,7,#,*

The *Action* will be changed from: “none to “checkSequense” automatically and *Action Wait Time* will be changed to 5 seconds(5000 ms). *Action Wait Time* determines the maximum time between the end of the message and the first confirmation button entered, as well as between buttons entered.

Press **[Apply button]**. File synchronization will start immediately.

4.2. Advanced scenario

Use **Advanced Scenario** tab to create or edit a more complicated scenarios. Advanced scenarios allow you to use various interaction schemes between system and called person.



Name: flowersorder_en

Branches: STEP 1 Steps: 2. Correct PIN Total Steps: 10

Name: 2. Correct PIN □

☑ Use TTS

To confirm your order, press 1, to change the delivery time, press 2, to cancel your order, press 0.

Language: en

Nr	Action
	Continue
	Continue
	Continue

Action: Continue

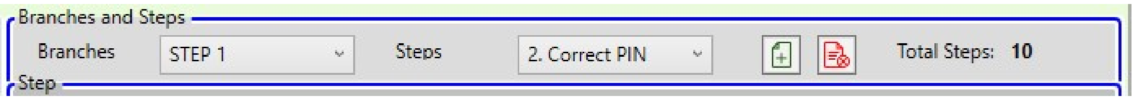
Key(s): 1 As next node select

Step Exit Instructions

On success	On Timeout 5000	On error
ContinueIVR	ContinueIVR	Cancel
8. Order confirmed	10. Nothing entered	

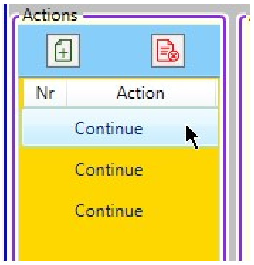
4.2.1. Branches and Steps

Advanced scenario consists of Branches [1], each of which consists of Steps.



Branches: STEP 1 Steps: 2. Correct PIN Total Steps: 10

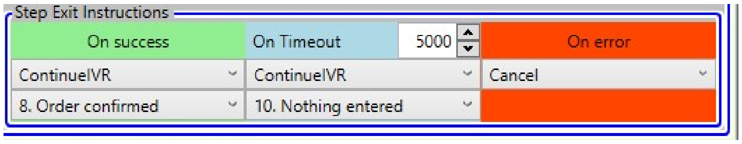
Each step can contain the **Actions**, which can process the pressed by called person buttons or play preset in the item variables to called person.



Nr	Action
	Continue
	Continue
	Continue

Each step can step over to another step or cancel scenario execution.

Each step can have three different exit points: **On Success, On Timer and On Error**.



Step Exit Instructions

On success	On Timeout 5000	On error
ContinueIVR	ContinueIVR	Cancel
8. Order confirmed	10. Nothing entered	

On Timer exit point exists in all cases, **On Success** and **On Error** exit points are available if **Actions** are used.

Exit point tells the system what to do when the current step is over. It consists of instruction and optionally next step.

If step doesn't contain action, you can use TTS message for greeting and define the sound file as well. The latter will play after greeting completed, restarting **OnExpired** timer.

4.2.2. Actions

Action is the function that processes the pressed buttons (or "keys"), or plays variable to called person, or makes another action.

There are defined different action types in the system depending of their functionality.

Actions **Continue**, **CheckSequence** verify are the pressed buttons matching to predefined in action sequence or not and puts the entered buttons into reports.

Action **CheckPIN** waits for the button defined as "*End of Entering*", then check if the entered button sequence is matching to predefined user PIN [2].

Action **CollectKeysTillEndKey** waits for the button dedicated as "*End of Entering*", then puts the collection into reports.

Action **CollectKeys** collects the predefined number of entered buttons and puts the collection into reports.

Action **PlayVariable** plays the predefined variable to called person and doesn't process any buttons.

Action **Transfer** transfers the call to the predefined extension at your sip server. Action will try to make the attended transfer during time, set for **OnExpired** exit point. If transfer target not answered, **OnExpired** exit point will be used for further behavior of scenario. If transfer target answered, the **OnSuccess** exit point will be used. If transfer target is busy the **OnError** exit point will be used.

Action **Record** allows to record customer message. Record will placed in the directory of installation to folder '\CustomerMessages' on server. Assume that this action is the final action of scenario, so set for all exit pointers the CancelConfirmed instruction to avoid call repeating.

If action processed entered buttons successfully (button sequence matches to sequence predefined in action or number of entered buttons reaches the limit in **CollectKeys** action or entered buttons matches to predefined user PIN in **CheckPIN** action), the **On Success** exit point should be used to define the further behavior of scenario.

If action processed entered buttons unsuccessfully (button sequence doesn't match to predefined in action sequence or number of entered buttons is over the limit in **CollectKeysTillEndKey** or **CheckPIN** actions or entered buttons doesn't match to predefined user PIN in **CheckPIN** action), the **On Error** exit point should be used to define the further behavior of scenario.

If buttons are not completely entered during predefined in **On Timer** exit point wait time, the **On Timer** exit point should be used to define next step or scenario canceling.

You can use several **Continue** or **CheckSequence** actions in each step in order to process different customer choices. The **On Success** exit point will be defined for each action in step.

The only one **CollectKeys**, **CollectKeysTillEndKey**, **CheckPIN** and **PlayVariable** action can be used in each step.

4.2.3. Step exit points

Step exit points define further scenario behavior when the step is completed.

Each exit point has the instruction and, depending of it, can have the next destination (another step).

The following instructions are available:

Cancel – cancels scenario execution.
CancelConfirmed – cancels scenario execution and informs the system that item for which scenario has been executed can be considered as successful.
CancelCollected – cancels scenario execution and informs the system that some keys have been collected.
ContinueIVR – informs the system that scenario has to be continued. You must define the next step of scenario in this case. The step selection combo box is available when this instruction is selected.

If you don't use text-to-speech engine in the steps, you can define the message sound file for each step in the same way as in the **Simple Scenario** section.

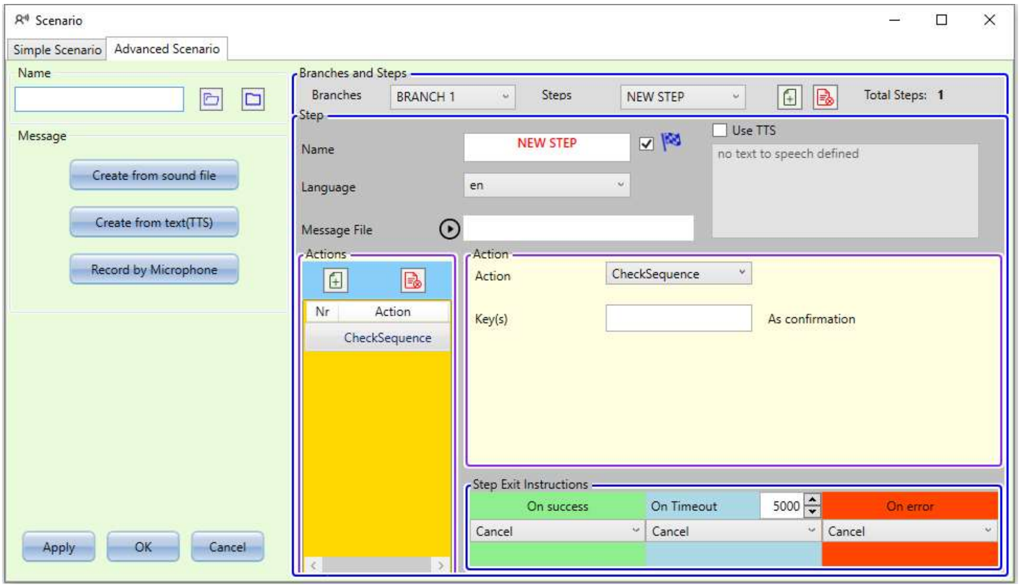
If you use text-to-speech engine in the steps, you can define the language of message for each step. Remember that voices for each language should be defined in the system settings (use **OCM Manager** Application).

[1] - only one Branch can be used in current version

[2] – PIN can be defined in "customerKeys.txt" file or in "ocm_userkeys" database table. System tries to validate entered PIN in both ways, checking database first. See descriptions of "ocm_userkeys" database table and "customerKeys.txt" file in the Appendix 4 of "Carmona OCM General en.pdf".

4.2.4. Create or edit the Advanced Scenario

When you select **Advanced Scenario** tab, the following interface will appear:



Branches: BRANCH 1

Steps: NEW STEP

Total Steps: 1

Name: NEW STEP ☑

☐ Use TTS

no text to speech defined

Language: en

Message File

Nr	Action
	CheckSequence

Action: CheckSequence

Key(s): As confirmation

On success	On Timeout 5000	On error
Cancel	Cancel	Cancel

The scenario name field, the **[Open]** 🗁 and **[New]** 🗀 buttons are located in the upper left part of interface. If you are came to the scenario window with selected scenario, all the fields will be filled with data of selected scenario. You can open another scenario using **[Open]** 🗁 button or create new scenario using **[New]** 🗀 button.

You can select the scenario branches and steps in the upper part of *Branches and Steps* parameters group.

You can add the new step using **[Add]** button or delete the new step using **[Delete]** button. Any step but only one can be marked as start step by flag 🏁 check.

You can define the step name in the Name field, select the language for text-to-speech engine, play the message sound file (if text-to-speech is not used), and define the text-to-speech usage and message text in the *Step parameters* group.

You can add or delete the action in the *Actions* parameter group, using the **[Add]** or **[Delete]** buttons correspondingly.

You can define action parameters in the *Actions* parameters group.

There are the different parameters for the action types.

For the **CheckSequence** and **Continue** action types you can define the key or key sequence, which called person should enter to complete the action. If key sequence is used, enter the keys separated by comma in the Key(s) field.

For the **CheckPIN** and **CollectKeysTillEndKey** action types you can define the key, which should be used as the end of keys entering.

For the **CheckPIN**, **CollectKeys** and **CollectKeysTillEndKey** action types you can define the maximum number of entered keys.

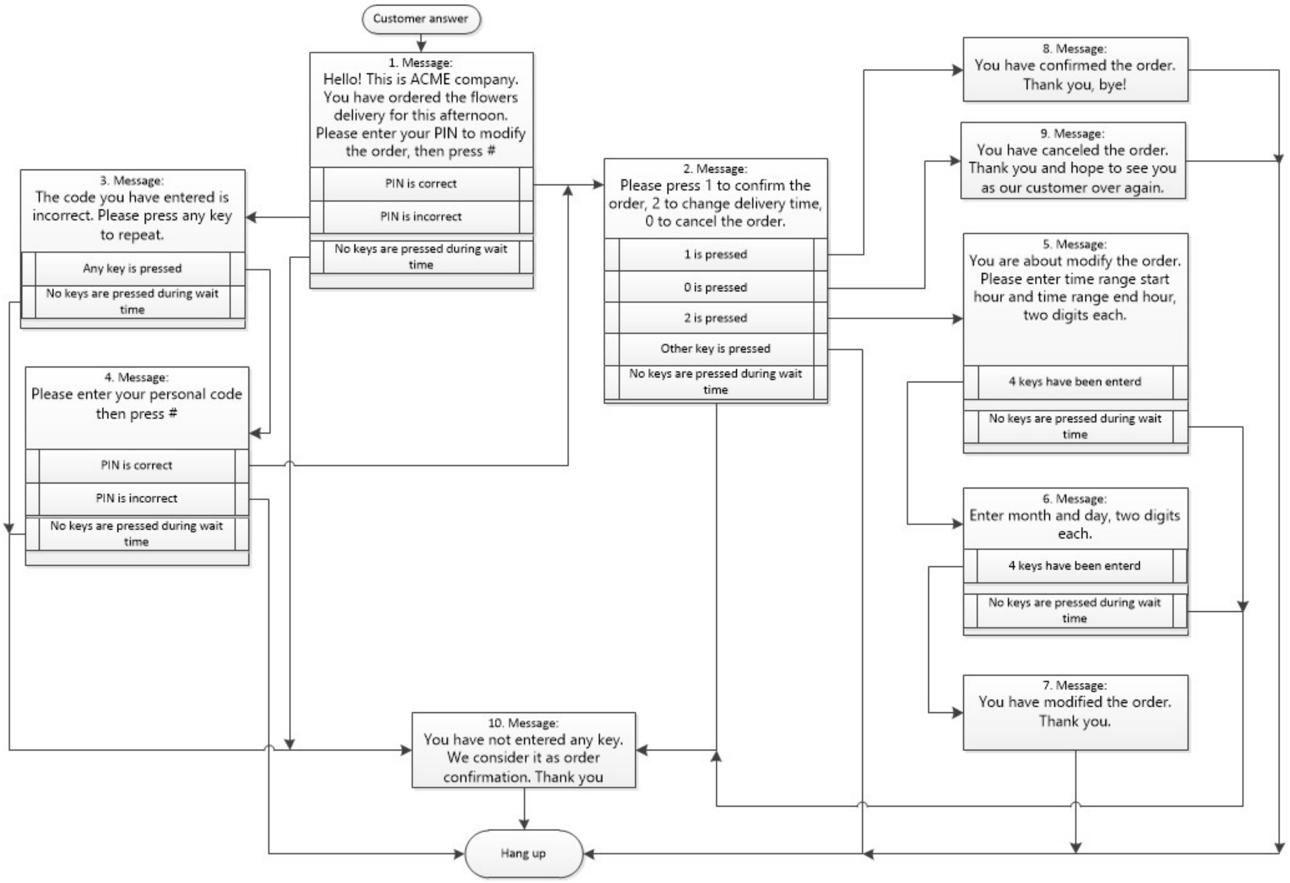
For the **PlayVariable** action types you can define the variable, which has to be played, the text-to-speech usage, and the sex (gender) of variable object (this parameter is important if non English language is used in the step). The variable values should be defined in the Variables field of item (you can set them in the Excel or csv file, in the database or in the **Item** window).

For the **Transfer** action type you can define the extension at your sip server as transfer target, the time to wait the answer, and the number of transfer attempts. When attempts exceeded the exit instruction for **OnExpired** exit point will be force set to Cancel and scenario will be canceled.

You can define the required exit instructions and the next step jumps in the *Step Exit Instructions* parameters group. Also you can define the timeout for waiting of button pressing.

4.2.5. The Advanced Scenario creation example

Suppose we need to remind to our customers, that they have ordered the flowers delivery. We need to know if they are still ready to receive the order, or they are intent to cancel the order, or they wish to change the delivery date and time. The algorithm of dialog will be the following:


Customer answer
1. Message:
Hello! This is ACME company. You have ordered the flowers delivery for this afternoon. Please enter your PIN to modify the order, then press #
PIN is correct
PIN is incorrect
No keys are pressed during wait time
2. Message:
Please press 1 to confirm the order, 2 to change delivery time, 0 to cancel the order.
1 is pressed
0 is pressed
2 is pressed
Other key is pressed
No keys are pressed during wait time
3. Message:
The code you have entered is incorrect. Please press any key to repeat.
Any key is pressed
No keys are pressed during wait time
4. Message:
Please enter your personal code then press #
PIN is correct
PIN is incorrect
No keys are pressed during wait time
5. Message:
You are about modify the order. Please enter time range start hour and time range end hour, two digits each.
4 keys have been enterd
No keys are pressed during wait time
6. Message:
Enter month and day, two digits each.
4 keys have been enterd
No keys are pressed during wait time
7. Message:
You have modified the order. Thank you.
8. Message:
You have confirmed the order. Thank you, bye!
9. Message:
You have canceled the order. Thank you and hope to see you as our customer over again.
10. Message:
You have not entered any key. We consider it as order confirmation. Thank you
Hang up

We have to create 10 steps. As we can see the steps No 7, 8, 9, 10 doesn’t provide key check, so we don’t need to use any actions in this steps.

The steps No 1 and 4 have to check PIN entry, so we need to use CheckPIN action in these steps.

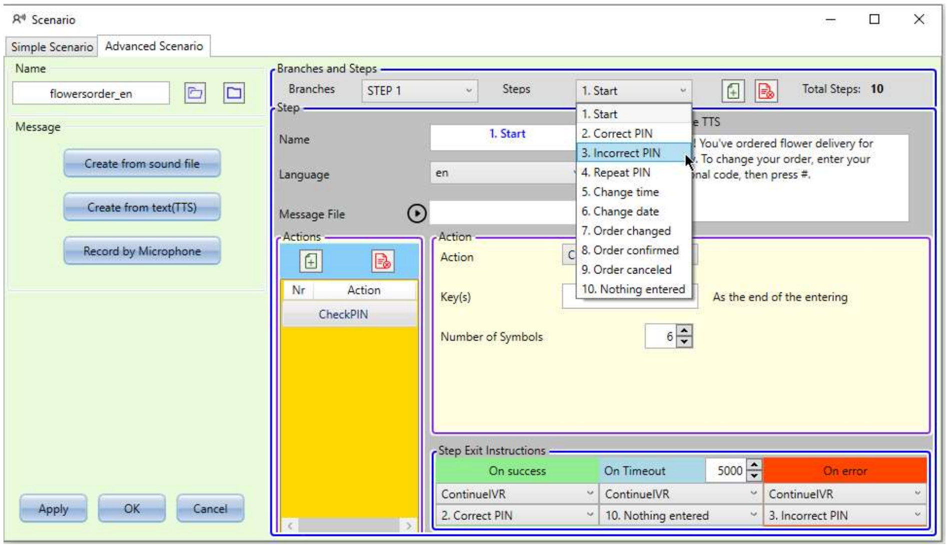
In the step No 2 we have to check three possible key entries, so we need to use three CheckSequenece (or Continue) actions with different parameter Key(s) in this step.

In the step No 3 we have to check any key entry, so we need to use one CheckSequenece (or Continue) action in this step.

In the step No 5 and 6 we have to collect four keys in each, so we need to use CollectKeys action in these steps.

We will use text-to-speech conversion for all steps.

Create 10 steps with friendly names using **[Add]** button.



Scenario

Simple Scenario | Advanced Scenario

Name: flowersorder_en

Branches and Steps — Branches: STEP 1 — Steps: 1. Start — Total Steps: 10

Steps list:
1. Start
2. Correct PIN
3. Incorrect PIN
4. Repeat PIN
5. Change time
6. Change date
7. Order changed
8. Order confirmed
9. Order canceled
10. Nothing entered

Step — Name: 1. Start — Language: en — Message File:

TTS: ! You've ordered flower delivery for … . To change your order, enter your …nal code, then press #.

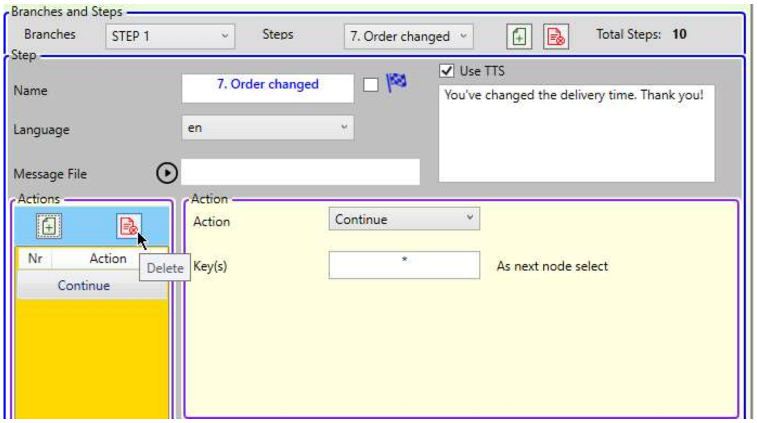
Actions: Nr | Action — CheckPIN

Action — Key(s): As the end of the entering — Number of Symbols: 6

Step Exit Instructions

On success	On Timeout 5000	On error
ContinueIVR	ContinueIVR	ContinueIVR
2. Correct PIN	10. Nothing entered	3. Incorrect PIN

For steps 7, 8, 9, 10 delete default provided actions, using **[Delete]** button.



Branches and Steps — Branches: STEP 1 — Steps: 7. Order changed — Total Steps: 10

Step — Name: 7. Order changed — Language: en — Message File:

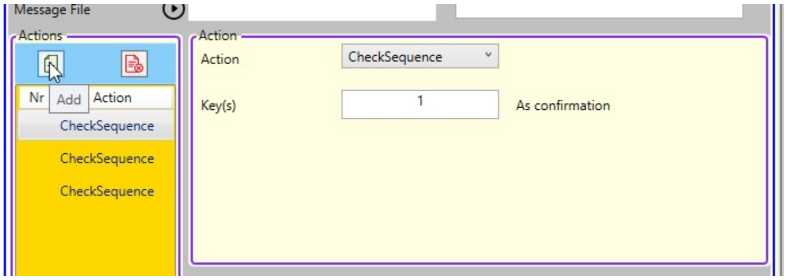
☑ Use TTS: You've changed the delivery time. Thank you!

Actions: Nr | Action — Continue

Action — Action: Continue — Key(s): * — As next node select

. . .

For step 2 add two actions in addition to the default provided one, using **[Add]** button, and configure them.



Message File

Actions

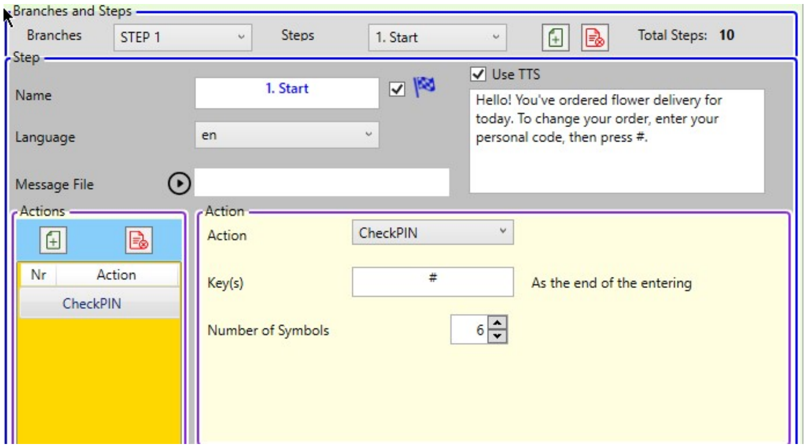
Nr	Action
	CheckSequence
	CheckSequence
	CheckSequence

Action

Action: CheckSequence

Key(s): 1 As confirmation

For steps 1, 3, 4, 5, 6 configure default provided actions.



Branches and Steps

Branches: STEP 1

Steps: 1. Start

Total Steps: 10

Step

Name: 1. Start ☑

Language: en

Message File

☑ Use TTS

Hello! You've ordered flower delivery for today. To change your order, enter your personal code, then press #.

Actions

Nr	Action
	CheckPIN

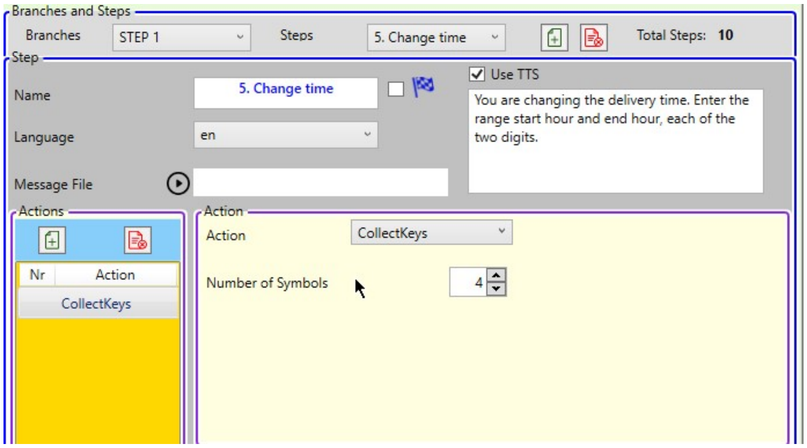
Action

Action: CheckPIN

Key(s): # As the end of the entering

Number of Symbols: 6

• • •



Branches and Steps

Branches: STEP 1

Steps: 5. Change time

Total Steps: 10

Step

Name: 5. Change time □

Language: en

Message File

☑ Use TTS

You are changing the delivery time. Enter the range start hour and end hour, each of the two digits.

Actions

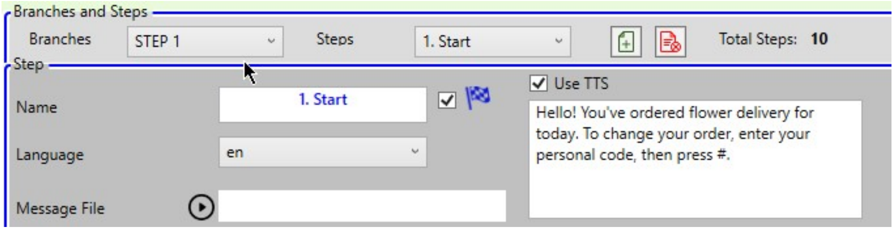
Nr	Action
	CollectKeys

Action

Action: CollectKeys

Number of Symbols: 4

Check *Use TTS*, select the language and type the required messages in *Use TTS* text field for each step.



Branches and Steps

Branches: STEP 1

Steps: 1. Start

Total Steps: 10

Step

Name: 1. Start ☑

Language: en

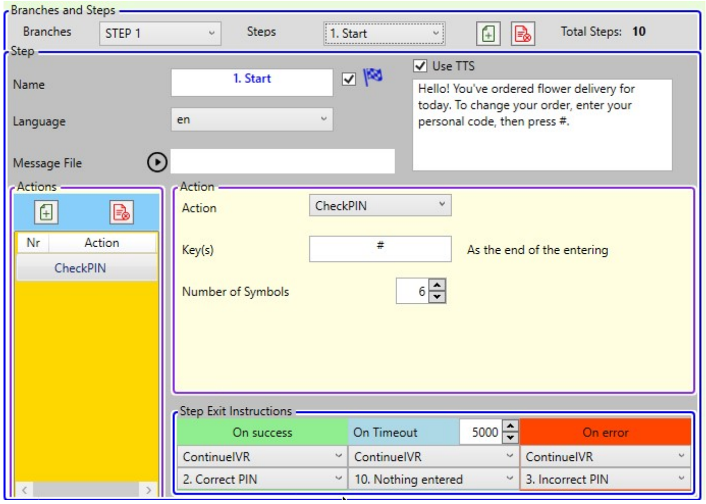
Message File

☑ Use TTS

Hello! You've ordered flower delivery for today. To change your order, enter your personal code, then press #.

If you need to make some delay before message playing use blanks before text.

Configure step jumps in the *Step Exit Instructions* parameters group and adjust wait time for each step. Use minimal value (200 ms) for the steps where key check is not required (no action used).



Branches and Steps

Branches: STEP 1

Steps: 1. Start

Total Steps: 10

Step

Name: 1. Start ☑

Language: en

Message File

☑ Use TTS

Hello! You've ordered flower delivery for today. To change your order, enter your personal code, then press #.

Actions

Nr	Action
	CheckPIN

Action

Action: CheckPIN

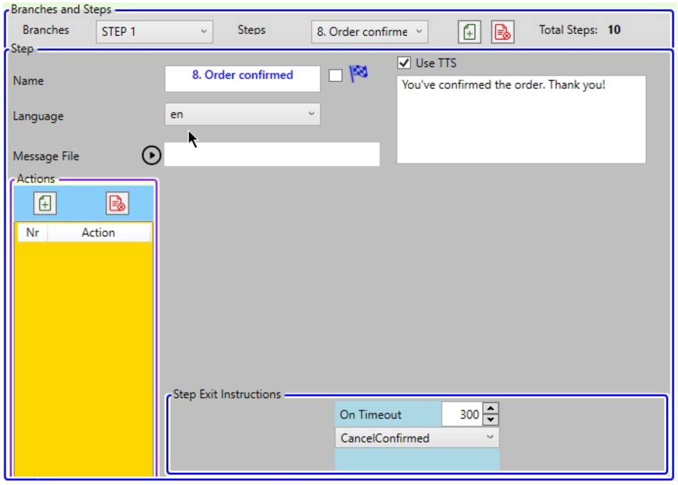
Key(s): # As the end of the entering

Number of Symbols: 6

Step Exit Instructions

On success	On Timeout 5000	On error
ContinueIVR	ContinueIVR	ContinueIVR
2. Correct PIN	10. Nothing entered	3. Incorrect PIN

. . .



Branches and Steps

Branches: STEP 1

Steps: 8. Order confirme

Total Steps: 10

Step

Name: 8. Order confirmed □

Language: en

Message File

☑ Use TTS

You've confirmed the order. Thank you!

Actions

Nr	Action

Step Exit Instructions

On Timeout 300
CancelConfirmed

4.2.6. Variables usage

Using variables allows you to convey to the called subscriber some personal data - amounts, dates, phrases.

Variables are set in the *Variables parameter* for each element of the queue.

Each variable should start with the % symbol, then follow it number (optional), followed by a letter meaning type of variable, then the value of the variable should follow.

The following types of variables are applicable:

N (numeric) - number

D (date) – date

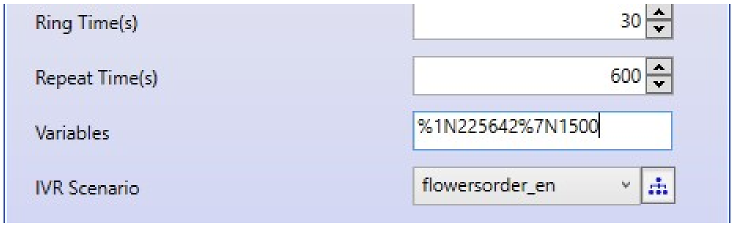
T (time) - time

S (string) – phrase

$ (monetary) - numeric monetary

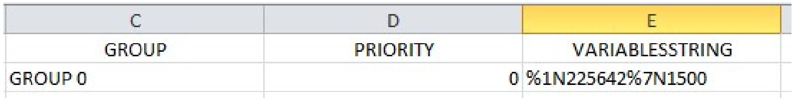
If the number of the variable is not specified, then the scenario will be search the variable in accordance with its order number of all variables of the queue item.

Example of variable parameter in a queue item: %1N225642%7N1500 in the Item window:



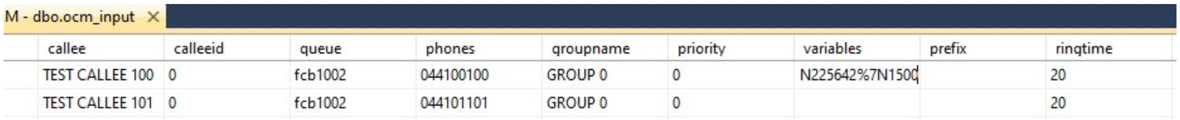
Ring Time(s)	30
Repeat Time(s)	600
Variables	%1N225642%7N1500
IVR Scenario	flowersorder_en

in the Excel file:



C	D	E
GROUP	PRIORITY	VARIABLESSTRING
GROUP 0	0	%1N225642%7N1500

in the database table:

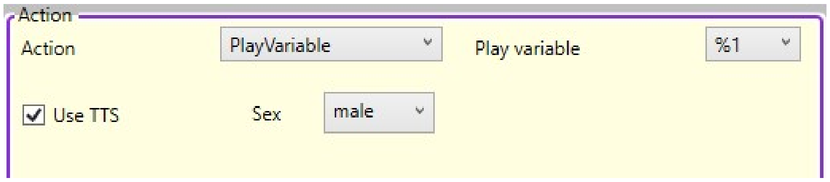


M - dbo.ocm_input

callee	calleeid	queue	phones	groupname	priority	variables	prefix	ringtime
TEST CALLEE 100	0	fcb1002	044100100	GROUP 0	0	N225642%7N1500		20
TEST CALLEE 101	0	fcb1002	044101101	GROUP 0	0			20

While executing the scenario in the step where the **PlayVariable** action is used, the specified variable number will be searched for in the *Variables parameter* of the queue element and, if found, the value of the variable will be played back.

1.



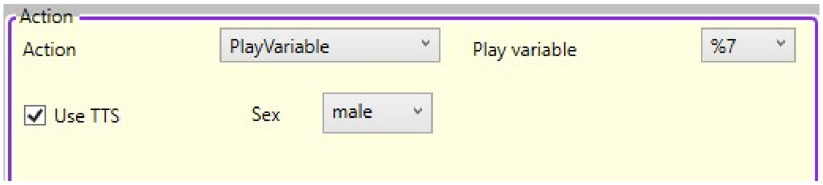
Action

Action: PlayVariable
Play variable: %1

☑ Use TTS
Sex: male

In this step, the number 225642 will be announced to the called party.

2.



Action

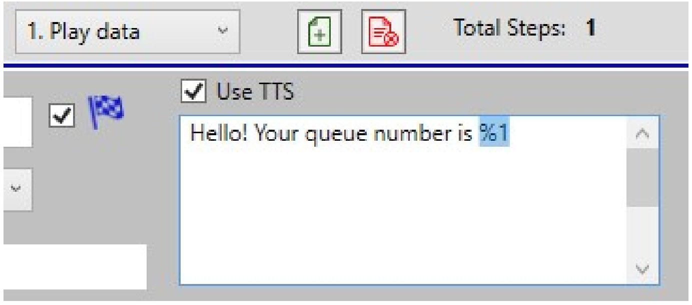
Action: PlayVariable
Play variable: %7

☑ Use TTS
Sex: male

In this step, the number 1500 will be announced to the called party.

If a record without a number is used: %N223564%N800, at step 1 there will be number 223564 announced, and at step 2 nothing will be announced, because the record contains only two variables (the seventh variable is absent).

Also, if text-to-speech conversion for step is used, you can put the variable directly in *UseTTS* text:



1. Play data
Total Steps: 1

☑ Use TTS

Hello! Your queue number is %1

In this case try to avoid symbols ‘%’ as part of message text.

It should be noted that the use of variables is very simple when text-to-speech conversion is used and is quite difficult if prepared sound fragments are used to combine the “number” sound file. In this case, you need to record audio fragments for all possible numbers, tens, hundreds, thousands, etc. in all applicable grammatical cases, genders and numbers.