

# Queues Module User Guide

THIS WIKI HAS BEEN UPDATED FOR VERSION 13 OF YOUR PBX GUI

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# Introduction

Automatic Call Distribution (ACD) or call queuing provides a way for a PBX to queue incoming calls. A queue is a “stack” or “line” of calls that need to be answered. When a call is directed into the queue, by default, the calls are answered in a first-in, first-out order. Call queues are useful when you have more callers than people available to answer calls. Callers placed into a queue will hear music or advertising until someone is available to answer their call. The Queues module allows you to create and design queues that allow callers to speak with agents as quickly and painlessly as possible.

## Queues Consist of:

- **Callers** - Incoming calls placed in the queue
- **Agents** - Members who answer the queue calls (extensions or users that log in as agents)
  - **Static** - The agent is always a part of the queue and cannot log out.
  - **Dynamic** - The agent can log into or log out of a queue.
- **Ring Strategy** - A strategy for how to handle the queue and divide calls between queue members
- **MoH** - Music or advertisements played for callers while waiting in the queue
- **Announcements** - Played for callers and members

### Agent Login

#### Queue Agent Login Toggle (All Queues)

- \*45 is the default queue login toggle feature code. Agents can log into **all** queues in which they are a dynamic member by dialing \*45. They can log out by dialing \*45 again. The system will give voice prompts to the caller to indicate status of their queue login.

#### Queue Agent Login Toggle (Single Queue)

- Dynamic agents can log into or out of a specific queue by dialing \*45xxxx where **xxxx** is the queue number. The system will give voice prompts to the caller to indicate status of their queue login.

#### Queue Agent Login Toggle (All Queues with Hint)

- Agents can log into **all** queues in which they are a dynamic member by dialing \*45yyyy where **yyyy** is the user's extension number. They can log out by dialing \*45yyyy again. The system will give voice prompts to the caller to indicate status of their queue login and will track a hint indicating login status making it suitable for a phone BLF button.

#### Queue Agent Login Toggle (Single Queue with Hint)

- Dynamic agents can log into or out of a specific queue by dialing \*45yyyy\*xxxx where **xxxx** is the queue number and **yyyy** is the user's extension. The system will give voice prompts to the caller to indicate status of their queue login. This dial string has an associated hint that will track the users login status of the queue, making it suitable for a phone BLF button.

# Logging in

- In the top menu click **Applications**
- In the drop down click **Queues**

# Adding a Queue

Click the **Add Queue** button.

## Queues

+ Add Queue

Queue	Description	Actions
No matching records found		

# General Settings

General Settings Queue Agents Timing & Agent Options Capacity Options >

Queue Number ?

Queue Name ?

Queue Password ?

Generate Device Hints ?

Call Confirm ?

Call Confirm Announce ?

CID Name Prefix ?

Wait Time Prefix ?

Alert Info ?

Restrict Dynamic Agents ?

Agent Restrictions ?

Ring Strategy ?

Autofill ?

Skip Busy Agents ?

Queue Weight ?

Music on Hold Class ?

Join Announcement ?

Call Recording ?

Mark calls answered elsewhere ?

Fail Over Destination ?

## Queue Number

Use this number to dial into the queue or transfer callers to this number to put them into the queue. This number can also be used in conjunction with feature codes related to agent login/logoff and BLF monitoring.

## Queue Name

Give the queue a brief name to help you identify it.

## Queue Password

*Optional:* You can require agents to enter a password before they can login to this queue. The password is only used when logging in with the legacy queue \* code. When using the toggle codes, you must use the "Restrict Dynamic Agents" option in conjunction with the dynamic members list to control access.

## Generate Device Hints

This option has been removed. It is **ALWAYS** enabled

Individual hints and dialplan are generated for each SIP/PJSIP/IAX2 device that could be part of this queue. These hints are used in conjunction with programmable BLF phone buttons to log into and out of a queue and generate BLF status as to the current state. The format of the hints is **\*45ddd\*qqq** where \*45 is the currently defined toggle feature code, ddd is the device number (typically the same as the extension number) and qqq is this queue's number.

## Call Confirm

If set to **yes**, queue calls to external phone numbers are forced into call confirmation mode. This includes queue calls to agents who are using external numbers, as well as to internal extensions whose call forwarding or follow-me settings are causing calls to route to external numbers. If call confirmation is enabled, the member must accept the call before it is answered and delivered.

## Call Confirm Announce

Announcement played to the queue member announcing the queue call and requesting confirmation prior to answering. If set to default, the standard call confirmation default message will be played unless the member is reached through a Follow-Me that has an alternate message set. This message will override any other message specified. You can add additional recordings in the [System Recordings](#) module.

## CID Name Prefix

*Optional:* You can prefix the caller ID name of callers to the queue. ie: If you prefix with "Sales;," a call from John Doe would display as "Sales: John doe" on the extensions that ring.

## Wait Time Prefix

When set to **Yes**, the CID name will be prefixed with the total wait time in the queue so the answering agent is aware how long the caller has been waiting. It will be rounded to the nearest minute, in the form of "Mnn:" where "nn" is the number of minutes. If the call is subsequently transferred, the wait time will reflect the time since it first entered the queue or reset if the call is transferred to another queue with this feature set.

## Alert Info

*Optional:* This can be used for distinctive ring with SIP devices.

## Restrict Dynamic Agents

If set to **Yes**, only the dynamic members listed in the Queue Agents tab will be able to log in. No one else would be allowed to log in as a dynamic member.

## Agent Restrictions

- **Called as Dialed:** The queue will call an extension just as if the queue were another user. Any Follow-Me or call forward states active on the extension will result in the queue call following these call paths.
- **No Follow-Me or Call Forward:** Follow-Me and call forward settings on internal extensions will be ignored. Any other agent will be called as dialed. This behavior is similar to how extensions are dialed in ring groups.
- **Extensions Only:** Same as the no follow-me or call forward mode above, EXCEPT any other number entered for an agent that is NOT a valid extension will be ignored. No error checking is provided when entering a static agent or when logging in as a dynamic agent. The call will simply be blocked when the queue tries to call it. For dynamic agents, set the "Agents Regex Filter" in the Advanced Options tab to provide some validation.

## Ring Strategy

- **ringall:** Ring all available agents until someone answers (default). If using penalties, all agents will start with a penalty of 0 for the defined ring time as defined in the "Agent Timeout" setting below. Then all agents with a 1,2,3 and so forth.
- **leastrecent:** Ring agent who was least recently called by this queue.
- **fewestcalls:** Ring the agent with the fewest completed calls from this queue.
- **random:** Ring random agent.
- **rrmemory:** Round robin with memory (remember where we left off last ring pass).
- **rrordered:** Same as rrmemory, except the queue member order from config file is preserved.
- **linear:** Rings agents in the order specified (for dynamic agents in the order they logged in).
- **wrandom:** Random, using the member's penalty as a weighting factor.

## Autofill

If this is set to **Yes**, and multiple agents are available, the PBX will send one call to each waiting agent (depending on the ring strategy). Otherwise, it will hold all calls while it tries to find an agent for the top call in the queue, making the other callers wait.

## Skip Busy Agents

- **No:** The queue will call agents even if they are on an occupied phone.
- **Yes:** Agents who are on an occupied phone will be skipped as if the line were returning busy. This means that call waiting or multi-line phones will not be presented with the call. In various hunt-style ring strategies, the next agent will be attempted.
- **Yes + (ringinuse=no):** The queue configuration flag "ringinuse=no" is set for this queue in addition to the phone's device status being monitored. This results in the queue tracking remote agents (agents who are a remote PSTN phone, called through Follow-Me and other means) as well as PBX connected agents. So, the queue will not attempt to send another call if they are already on a call from any queue.
- **Queue calls only (ringinuse=no):** The queue configuration flag "ringinuse=no" is set for this queue, but the device status of locally connected agents is not monitored. The behavior is to limit an agent belonging to one or more queues to a single queue call. If they are occupied with other calls, such as outbound calls they initiated, the queue will consider them available and ring them, since the device state is not monitored with this option.

**WARNING:** When using a setting that sets the "ringinuse=no" flag, there is a NEGATIVE side effect. An agent who transfers a queue call will remain unavailable to any queue until that call is terminated, as the call still appears as "inuse" to the queue UNLESS "Agent Restrictions" is set to "Extensions Only."

## Queue Weight

Gives queues a "weight" (priority level). The higher the weight, the higher the priority. (Default = 0) If there are agents common to multiple queues, the queue with the highest priority will deliver its calls first.

## Music on Hold Class

The Music on Hold (MoH) played to the caller while they wait in line for an available agent. Select an option from the drop-down menu. Choose "inherit" if you want the MoH class to be what is currently selected, such as by the inbound route.

Below the drop-down menu, select one of these three options:

- **MoH Only:** Play music until the agent answers.
- **Agent Ringing:** Play MoH until an agent's phone is presented with the call, then play ringing. If the agent doesn't answer, MoH will return.
- **Ring Only:** Makes callers hear a ringing tone instead of MoH, ignoring any MoH class selected as well as any configured periodic announcements.

## Join Announcement

The announcement played to callers before they join the queue. This can be skipped if there are agents ready to answer a call (meaning they still may be wrapping up from a previous call) or when they are free to answer the call right now. You can add additional recordings in the [System Recordings](#) module.

- **Always:** Always play the announcement to callers.
- **When No Free Agents:** Play the announcement to callers when no agents are free to answer the call right now. A "free" agent is off the phone but might be completing their "wrap-up" time, so they might not be available to answer the call immediately.
- **When No Ready Agents:** Play the announcement to callers when there are no ready agents. A "ready" agent is someone who is both "free" (off the phone) *and* has completed their wrap-up time (if any is set) after a previous call, so they are theoretically available to answer the call immediately.

## Call Recording

**Force/Yes/Don't Care/No/Never:** Set whether to record incoming calls to this queue. See the [Call Recording Walk Through](#) in the Tips & Tricks section of our wiki for more information.

## Mark calls answered elsewhere

If set to **Yes**, all calls are marked as "answered elsewhere" when cancelled. The effect is that missed queue calls are \*not\* shown on the phone as missed calls (if the phone supports it).

## Fail Over Destination

Important: Set a failover destination here by choosing a valid destination from the drop-down menus. The caller would be sent to this destination if they exit the queue for reasons such as maximum wait time, queue capacity, or join empty/leave empty settings discussed later in this wiki.

## Queue Agents

The screenshot shows a configuration interface with four tabs: "General Settings", "Queue Agents", "Timing & Agent Options", and "Capacity Options". The "Queue Agents" tab is active. It contains two sections: "Static Agents" and "Dynamic Agents". Each section has a large text input area for listing agents and an "Agent Quick Select" dropdown menu. The "Dynamic Agents" section is highlighted with a light blue background.

## Static Agents

Static agents are extensions that are assumed to always be in the queue. Static agents do not need to “log in” to the queue, and cannot “log out” of the queue.

List extensions to ring, one per line. You can include an extension on a remote system or an external number (outbound routing must contain a valid route for external numbers). You can use the **Agent Quick Select** menu to quickly find and add extensions.

You can put a comma (,) after the agent followed by a penalty value to set an agent penalty. It will default to zero.

An advanced mode has been added which allows you to prefix an agent number with S, P, X, Z, D, or A. This will force the agent number to be dialed as an Asterisk device of type SIP, PJSIP, IAX2, ZAP, DAHDI, or Agent, respectively. This mode is for advanced users and can cause known issues in the PBX as you are bypassing the normal dialplan. If your “Agent Restrictions” are not set to “Extension Only,” you will have problems with subsequent transfers to voicemail. Other issues may also exist.

## Dynamic Agents

Dynamic agents are extensions or telephone numbers that can log in and out of the queue. Extensions included here will NOT automatically be logged in to the queue.

## Timing & Agent Options

General Settings	Queue Agents	Timing & Agent Options	Capacity Options	>
Max Wait Time ?	Unlimited			
Max Wait Time Mode ?	<input checked="" type="radio"/> Strict <input type="radio"/> Loose			
Agent Timeout ?	15 seconds			
Agent Timeout Restart ?	<input type="radio"/> Yes <input checked="" type="radio"/> No			
Retry ?	10 seconds			
Wrap-Up-Time ?	0 seconds			
Member Delay ?	0 seconds			
Agent Announcement ?	None			
Report Hold Time ?	<input type="radio"/> Yes <input checked="" type="radio"/> No			
Auto Pause ?	<input type="radio"/> Yes in this queue only <input type="radio"/> Yes in all queues <input checked="" type="radio"/> No			
Auto Pause on Busy ?	<input type="radio"/> Yes <input checked="" type="radio"/> No			
Auto Pause on Unavailable ?	<input type="radio"/> Yes <input checked="" type="radio"/> No			
Auto Pause Delay ?	0			

## Max Wait Time

Defines the maximum number of seconds a caller can wait in a queue before being pulled out. (Default = unlimited) Choose the max wait time from the drop down menu.

## Max Wait Time Mode

Set the PBX timeout priority.

- **Strict:** When the "Max Wait Time" of a caller is hit, they will be pulled out of the queue immediately.
- **Loose:** If a queue member is currently ringing with this call, then the PBX will wait until the ringing stops or the call is rejected before taking the caller out of the queue. This means that the "Max Wait Time" could be as long as "Max Wait Time" + "Agent Timeout" combined.

## Agent Timeout

The number of seconds an agent's phone can ring before we consider it a timeout. **Unlimited** or other timeout values may still be limited by system ring time or individual extension defaults.

## Agent Timeout Restart

If set to **Yes**, then the timeout for an agent to answer is reset if a BUSY or CONGESTION is received. This can be useful if agents are able to cancel a call with reject or similar.

## Retry

The number of seconds to wait before trying all the phones again. Choosing **No Retry** will exit the queue and go to the failover destination as soon as the first attempted agent times-out. Additional agents will not be attempted.

## Wrap-Up-Time

This is how many seconds to wait after a successful call before sending another call to a potentially free agent (default is 0, or no delay). If using Asterisk 1.6+, you can also set the "Honor Wrapup Time" across queues on the Advanced Settings page so that this is honored across queues for members logged on to multiple queues.

## Member Delay

If you wish to have a delay before the member is connected to the caller, or before the member hears any announcement message), set this to the number of seconds to delay.

## Agent Announcement

Announcement played to the agent prior to bridging in the caller.

Examples: "The following call is from the Sales Queue" or "This call is from the Technical Support Queue."

To add additional recordings, please use the [System Recordings](#) module. Compound recordings composed of 2 or more sound files are not displayed as options since this feature cannot accept such recordings.

## Report Hold Time

If set to **Yes**, the caller's hold time will be reported to the agent before the caller is connected to the agent.

## Auto Pause

Whether to auto pause an agent in this queue (or all queues they are a member of) if they don't answer a call. Specific behavior can be modified by the Auto Pause Delay as well as Auto Pause Busy/Unavailable settings if supported on this version of Asterisk. Options are **Yes in this queue only**, **Yes in all queues**, and **No**.

## Auto Pause on Busy

If set to **Yes**, agents will be auto paused immediately (or after the auto pause delay set) if their devices report busy upon a queue call attempt.

## Auto Pause on Unavailable

If set to **Yes**, agents will be auto paused immediately (or after the auto pause delay set) if their devices report congestion upon a queue call attempt.

## Auto Pause Delay

This setting will delay the auto pause of an agent by a certain number of seconds after taking a call. For example, if this were set to 120 seconds, and a new call is presented to the agent 90 seconds after they last took a call, the agent will not be auto paused if they don't answer the call. If the agent is presented with a call 120 seconds or later after answering the last call, and they do not answer, they will then be auto paused. If they have taken no calls, this will have no effect.

## Capacity Options



General Settings	Queue Agents	Timing & Agent Options	Capacity Options	>
<b>Max Callers</b> ?	<input type="text" value="0"/>			
<b>Join Empty</b> ?	<input checked="" type="button" value="Yes"/> <input type="button" value="Strict"/> <input type="button" value="Ultra Strict"/> <input type="button" value="No"/> <input type="button" value="Loose"/>			
<b>Leave Empty</b> ?	<input type="button" value="Yes"/> <input type="button" value="Strict"/> <input type="button" value="Ultra Strict"/> <input checked="" type="button" value="No"/> <input type="button" value="Loose"/>			
<b>Penalty Members Limit</b> ?	<input type="text" value="Honor Penalties"/>			

## Max Callers

Define the maximum number of callers who can be waiting in the queue at the same time (0 for unlimited). If not set to 0, and the maximum capacity is reached, additional calls would be sent to the failover destination set in the General Settings tab.

## Join Empty

Determines if new callers will be admitted to the queue. If not, the fail over destination will be immediately pursued. The options include:

- **Yes:** Always allows the caller to join the queue.
- **Strict:** Same as "Yes," but more strict. Simply speaking, if no agent could answer the phone, then the caller will not enter the queue. If agents are in use or ringing someone else, the caller will still be admitted.
- **Ultra Strict:** Same as "Strict" plus a queue member must be able to answer the phone NOW. Simply speaking, available agents who could answer but are currently on the phone or ringing on behalf of another caller will be considered unavailable.
- **No:** Callers will not be admitted if all agents are paused, show an invalid state for their device or have penalty values less than "QUEUE\_MAX\_PENALTY" (not currently set in PBX dialplan).
- **Loose:** Same as "NO," except callers will be admitted if there are paused agents who could become available.

## Leave Empty

Determines if callers should be exited prematurely from the queue in situations where it appears no one is currently available to take the call. The options include:

- **Yes:** Callers will exit if all agents are paused, show an invalid state for their device or have penalty values less than "QUE\_MAX\_PENALTY" (not currently set in PBX Dialplan).
- **Strict:** Same as "Yes," but more strict. Simply speaking, if no agent could answer the phone, then have them leave the queue. If agents are in use or ringing someone else, the caller will still be held.
- **Ultra Strict:** Same as "Strict" plus a queue member must be able to answer the phone NOW to let them remain. Simply speaking, any available agents that could answer but are currently on the phone or ringing on behalf of another caller will be considered unavailable.
- **Loose:** Same as "Yes," except callers will remain in the queue if there are paused agents who could become available.
- **No:** Never have a caller leave the queue until the "Max Wait Time" has expired.

## Penalty Members Limit

Asterisk: penaltymemberslimit. A limit can be set to disregard penalty settings, allowing all members to be tried, when the queue has too few members. No penalty will be weighed in if there are only X or fewer queue members.

## Caller Announcements

[← Capacity Options](#)
[Caller Announcements](#)
[Advanced Options](#)
[Reset Queue St: >](#)

**— Caller Position**

**Frequency** [?](#)

**Announce Position** [?](#)  Yes  No

**Announce Hold Time** [?](#)  Yes  No  Once

**— Periodic Announcements**

**IVR Break Out Menu** [?](#)

**Repeat Frequency** [?](#)

## Caller Position

### Frequency

Define how often to announce queue position and estimated holdtime (0 to disable announcements).

### Announce Position

If set to **Yes**, the system will announce the caller's position in the queue to the caller. For example, "You are number three..."

### Announce Hold Time

**Yes/No/Once:** Whether the system will include the estimated hold time in position announcements. Hold time will not be announced if less than one minute.

## Periodic Announcements

### IVR Break Out Menu

You can optionally present an existing IVR as a "Break Out" menu. This IVR must only contain single-digit "dialed options." The recording set for the IVR will be played at intervals specified in "Repeat Frequency" below. The announcement for the selected IVR must be system recording comprised of a single sound file. IVRs that have announcements composed of compound recording files will not be presented as selections for this field.

### Repeat Frequency

How often to announce a voice menu to the caller (0 to disable announcements).

## Advanced Options

[← Capacity Options](#)
[Caller Announcements](#)
[Advanced Options](#)
[Reset Queue St: >](#)

**Service Level** [?](#)

**Agent Regex Filter** [?](#)

## Service Level

Used for service level statistics (calls answered within service level time frame).

## Agent Regex Filter

WARNING: Make sure you understand what you are doing, or otherwise leave this blank!

Provides an optional regex expression that will be applied against the agent callback number. If the callback number does not pass the regex filter, it will be treated as invalid. This can be used to restrict agents to extensions within a range, to prevent callbacks from including keys like \*, or for any other use that may be appropriate.

Examples:

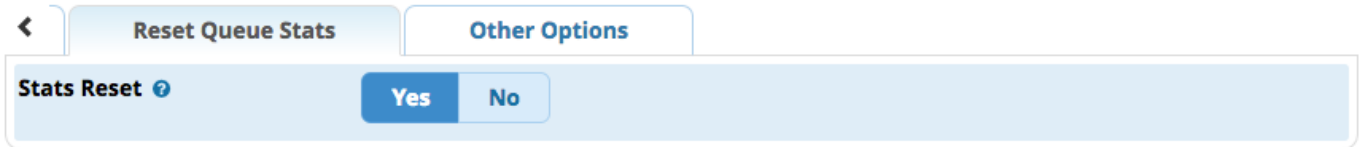
`^[2-4][0-9]{3}$`

This would restrict agents to extensions 2000-4999.

`^[0-9]+$`

This would allow any number of any length, but restrict the \* key.

## Reset Queue Stats



### Stats Reset

Whether to enable queue statistics reset.

## Queue Plus Options

If you have the commercial [VQ Plus](#) module, a Queue Plus Options tab will be available. Please see the [VQ Plus user guide](#) for information on these options.

## Other Options

### Add to iSymphony

Check this box in order to make this queue available in [iSymphony](#), which is a cross-platform solution for managing and using your phone system.

### Save

When finished, click the **Submit** button, then click the **Apply Config** button.

## Other Option Sections

Other Modules such as QXact Reports, Xactview or iSymphony may hook in to the queues module and have their own options. These modules will vary by install and use case and are covered under the umbrella of their own documentation.

## Editing and Deleting Queues

You may edit/delete queues by clicking the desired queue in the right side navigation menu.