



Configuration Guide

Configuring Call Queuing on the NetVanta 7000 Series

This configuration guide describes how to configure the Call Queuing feature available on NetVanta 7000 Series products. This guide provides a basic overview of the Call Queuing feature, as well as procedures for configuring the feature in both the ADTRAN Operating System (AOS) web-based graphical user interface (GUI) and the command line interface (CLI).

This guide contains the following sections:

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Call Queuing Overview

Call queuing is an automated call distribution method that routes incoming calls into a preconfigured queue that can be answered by members of the queue. The AOS Call Queuing feature can be configured to play hold music and customized greetings. In addition, the Park and Auto Page feature can be enabled to automatically page (either overhead or through the handset) to inform users that calls are waiting to be picked up from the queue.

This configuration guide explains how to configure the Call Queuing feature on the NetVanta 7000 Series using both the GUI and the CLI. Not all features can be enabled using both methods. This limitation will be noted where applicable.



*Call queuing bypasses the call coverage settings that are defined on the **User Accounts** menu for members logged into the call queue. For information on configuring user accounts, refer to [Configuring User Accounts on the NetVanta 7000 Series](#) available from the ADTRAN Support Community (<https://supportforums.adtran.com>).*

Hardware and Software Requirements and Limitations

The Call Queuing feature is available only on NetVanta 7000 Series voice products running AOS firmware version A4.01 or later. The Park and Auto Page feature is available with AOS version R10.10.0 or later. For a complete list of supported platforms, refer to the [AOS Feature Matrix](#) available from the ADTRAN Support Community (<https://supportforums.adtran.com>).



Beginning with AOS version R10.10.0, the system supports up to 6 call queues with a maximum of 16 calls across all queues at any time.

Configuring Call Queuing Using the GUI

Call Queuing can be configured using either the GUI or the CLI. To configure Call Queuing using the GUI, complete the following tasks:

1. Access the GUI. (Refer to [Accessing the GUI on page 3](#).)
2. Create a call queue. (Refer to [Creating a Call Queue on page 3](#).)
3. Configure the call queue basic settings. (Refer to [Configuring Basic Settings on page 4](#).)
4. Add members to the call queue. (Refer to [Adding Members on page 6](#).)
5. Configure the greetings for the call queue. (Refer to [Configuring Greetings on page 8](#).)
6. (Optional) Configure the Park and Auto Page settings. (Refer to [Configuring Park and Auto Page on page 11](#).)



Prior to configuring the Call Queuing feature, Music on Hold (MoH) should be configured. If MoH is not configured, callers in the queue will hear only silence between greetings. For more information on configuring external MoH, refer to [Configuring Greetings on page 8](#). For more information on configuring internal MoH, refer to [Configuring Basic Settings on page 4](#) or [Configuring Music on Hold on the NetVanta 7000 Series](#) available from the ADTRAN Support Community (<https://supportforums.adtran.com>).

Accessing the GUI

1. Connect to the NetVanta 7000 Series GUI by opening a new page in your Internet browser and entering the unit's IP address in the address field in the following form: **http://<ip address>/admin**, for example:



2. At the prompt, enter your user name and password and select **OK**.



The default user name is **admin**, and the default password is **password**.

Creating a Call Queue

1. From the main GUI menu, navigate to **Voice > Applications > Call Queuing**.



2. To create a call queue, select **New** and enter the extension, name, and description of the queue. The **Extension** specifies the extension dialed by callers to reach the queue. The **Name** (optional) specifies the name of the queue, which displays on the caller's phone if the caller is a local Session Initiation Protocol (SIP) user on the system. The **Description** (optional) provides a description of the queue.

Extension	Description	Distribution	# of Members	# of Calls	Locked	Enabled



Once the maximum six queues have been created, the **New** option disables until one or more queues are deleted.

3. Select **Add** to create the call queue.
4. Repeat Steps 2 and 3 for each call queue to create.

Configuring Basic Settings

1. To configure a call queue, select the check box beside the queue and then select **Edit**.

Call Queuing							Refresh
<input checked="" type="checkbox"/>	Extension	Description	Distribution	# of Members	# of Calls	Locked	Enabled
<input checked="" type="checkbox"/>	6407	Tech Support	Ring All	0	0		<input checked="" type="checkbox"/>
<input type="checkbox"/>							<input type="checkbox"/>
<input type="checkbox"/>							<input type="checkbox"/>

The **Call Queuing** menu has tabs that display menus for configuring **Basic Settings**, **Members**, and **Greetings**. In addition, the **Status** tab enables you to monitor the current and 24-hour status of a queue.

Call Queuing

Extension: 6407

Name: TSQueue

Description: Tech Support Call Queue

Lock (Allow/Reject new incoming calls)

Disable (Enable/Disable - Disabling an active queue clears all calls immediately)

Basic Settings Members Greetings Status

2. (Optional) Selecting the **Lock** check box prevents new calls from entering the queue without deleting the current calls in the queue. If an overflow extension is defined on the **Basic Settings** tab, calls bound for a locked queue will be forwarded to the overflow extension.
3. (Optional) Selecting the **Disable** check box clears all currently waiting calls from an active queue and prevents new calls from entering the queue. If an overflow extension is defined on the **Basic Settings** tab, calls bound for a disabled queue will forward to the overflow extension.



To allow calls currently in the queue to be serviced before disabling a queue, lock the queue first, and then disable it after the currently waiting calls have been serviced.

4. From the **Basic Settings** tab, customize the queue by defining the appropriate options. Each commonly used setting is listed below along with a description of its function.

Call Distribution specifies the method for calling the members of the queue. The options are **Ring All**, **Linear**, and **Most Idle**. **Ring All** rings all member extensions simultaneously. **Linear** performs a progressive hunt through all member extensions beginning with the first logged-in member. **Most Idle** rings the queue member who has not answered a queue call in the longest period of time.

(Optional) **Dequeue Extension** specifies the extension used to manually retrieve calls from the queue. Queue members can dial into this extension to take queued calls during their rest period. Users who are not members of the queue can dial into this extension to accept calls from the queue. Only SIP stations can dequeue calls.



The pickup greeting does not play for users who dequeue a call.

Maximum Queued Calls specifies the maximum number of calls that can be waiting in the queue at any given time. This value can be set from **1** to **16**. The system supports up to a total of 16 calls across all queues at any time. If the queue reaches the maximum number of queued calls, additional calls will be forwarded to the overflow extension if one is defined.

(Optional) **Overflow Extension** specifies the extension to which calls are forwarded when the queue has reached its maximum queued calls limit or a call has been waiting in the queue past the maximum hold time. The queue will also forward new calls to the overflow extension if the queue has been locked or shut down. If no overflow extension is specified, new calls delivered to the queue will be rejected if the queue is unable to accept them.



The overflow extension can be a user extension, an auto attendant, another call queue, or a virtual user with a mailbox.

Music-on-hold Player specifies which MoH player to use for queued callers. The system **default** player can be used, or customized playlists can be created using the MoH feature. For more information on configuring an MoH player, refer to [Configuring Music on Hold on the NetVanta 7000 Series](#) (available from the ADTRAN Support Community (<https://supportforums.adtran.com>)).



The Call Queuing feature can specify a different default player than the one specified by the Music on Hold feature. However, if no player is specified in the Call Queuing feature, the default player defined in the Music on Hold feature will be used.



*Settings on the **Greetings** tab can override this setting. If **External Music-on-hold** is configured, the **Music-on-hold Player** setting will be ignored. Selecting the **Provide Ringback Only** setting disables hold music for the call queue.*

Maximum Hold Time specifies the maximum number of seconds that a queued caller will remain in the queue before being referred to the overflow extension. If an overflow extension is not set, the caller will continue to remain on hold. This value can be set from **30** to **6400** seconds; the default is **3600** seconds.

(Optional) **Digit Press Extension** specifies the extension to which queued callers will be forwarded if they press any digit on their phones while waiting in the queue.

When enabled with the check box, the **CID Prefix** specifies the characters that are pre-pended to calls coming into the queue. The prefix displays along with the calling number in the call queue member's caller ID. By default, AOS pre-pends **CQ_** to all calls entering the call queue; therefore, if 256-963-8000 dials into the queue, the members will see **CQ_2569638000** on the caller ID.

5. Select **Apply** to save and apply the settings to the call queue.

Adding Members

1. To add members to the call queue and configure member settings, select the **Members** tab on the **Call Queuing** menu.

2. In the **Time to ring queue members** field, enter the number of seconds that calls from the call queue are allowed to ring logged-in members. The ring time can be set from **0** (unlimited) to **60** seconds.

- In the **Queue member rest time** field, set the rest period for a call queue. The rest period is the number of seconds the queue will wait after a member extension hangs up before attempting to send another call to that extension. The rest period can be set from **0** to **600** seconds.
- Select **Add Members** to reveal a list of all users on the unit.
- Select the check boxes next to the users to add to the call queue and then select **Add**. Members can belong to multiple call queues. The new members will appear in the **Members** list.

The screenshot shows the 'Add Members' dialog box. At the top, there are tabs for 'Basic Settings', 'Members', 'Greetings', and 'Status'. Below the tabs, there are two input fields: 'Time to ring queue members (sec):' with a value of 30 and '(0-60) ?' next to it, and 'Queue member rest time (sec):' with a value of 120 and '(0-600) ?' next to it. Below these fields, there are two buttons: 'Add Members' and 'Delete'. The main part of the dialog is a table with the following data:

<input type="checkbox"/>	Last Name	First Name	Extension
<input checked="" type="checkbox"/>	Starkalous	Marc	2003
<input checked="" type="checkbox"/>	Taylor	John	2004
<input type="checkbox"/>	Williams	Sarah	2006
<input type="checkbox"/>	Lever	Drew	2007
<input type="checkbox"/>	Wilson	Mark	2012
<input checked="" type="checkbox"/>	Wales	Patrick	2013
<input type="checkbox"/>	Jones	oliver	4545
<input type="checkbox"/>			4956
<input type="checkbox"/>			6000

At the bottom of the table, there are two buttons: 'Add' and 'Cancel'.

NOTE *A call queue extension cannot be a member of another call queue.*

- To log a member into the call queue, select the appropriate check box under **Logged In**. De-select the check box to log a member out of the call queue.

The screenshot shows the 'Members' dialog box. At the top, there are tabs for 'Basic Settings', 'Members', 'Greetings', and 'Status'. Below the tabs, there are two input fields: 'Time to ring queue members (sec):' with a value of 30 and '(0-60) ?' next to it, and 'Queue member rest time (sec):' with a value of 120 and '(0-600) ?' next to it. Below these fields, there are two buttons: 'Add Members' and 'Delete'. The main part of the dialog is a table with the following data:

<input type="checkbox"/>	Last Name	First Name	Extension	Force Deliver	Logged In
<input type="checkbox"/>	Wales	Patrick	2013	<input type="checkbox"/> ?	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Taylor	John	2004	<input type="checkbox"/> ?	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Starkalous	Marc	2003	<input type="checkbox"/> ?	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Thomas	Jessica	1012	<input type="checkbox"/> ?	<input checked="" type="checkbox"/>

At the bottom of the table, there are two buttons: 'Cancel' and 'Apply'.

NOTE *Members can log in and out of the queue from their phones using the appropriate special prefix (SPRE) codes. Use *74XXXX* to log in to the queue and *76XXXX* to log out of the queue (XXXX is the queue extension). These privileges can be controlled with the class of service assigned to the member's extension.*

7. (Optional) To have the queue send calls to a member extension even if that member is already on a call, select the appropriate check box under **Force Deliver**. The phone must support multiple calls for this setting to have an effect.
8. Select **Apply**.
9. On the main **Call Queuing** menu, check that the members have been added by verifying that the correct number of members appears in the **# of Members** column.

Call Queuing							
New	Edit	Delete					Refresh
<input checked="" type="checkbox"/>	Extension	Description	Distribution	# of Members	# of Calls	Locked	Enabled
<input checked="" type="checkbox"/>	6407	Tech Support	Ring All	4	0		<input checked="" type="checkbox"/>

Configuring Greetings

AOS supplies default greetings for the welcome greeting (defaultCQWelcome.wav), the pickup greeting (defaultCQPickup.wav), and one periodic greeting (defaultCQPeriodic.wav). The default greetings are enabled by default, and the system will use these greetings if no new greetings are specified. The steps in this section show how to configure other previously created greetings. To create new greetings, refer to [Creating New Greetings on page 9](#).

1. Select the **Greetings** tab from the main **Call Queuing** menu. Each setting is listed below along with a description of its function.

Call Queuing

Extension: 3456

Name: Sales

Description: Sales Queue

Lock (Allow/Reject new incoming calls)

Disable (Enable/Disable - Disabling an active queue clears all calls immediately)

Basic Settings | **Members** | **Greetings** | **Status**

Provide Ringback Only

External Music-on-hold

Welcome: System Default

Enable Periodic Greetings

Periodic: System Default Time (sec):

Periodic: None Time (sec):

Periodic: None Time (sec):

Park and Auto Page Greeting: System Default

Interval (sec): 27 (30-60) Immediate

Paging Extension:

Pickup: System Default

Cancel Apply

When enabled, the **Provide Ringback Only** option disables hold music as well as Welcome and Periodic greetings played back to the caller. It does not disable the Pickup and Park and Auto Page greetings played for users being called.

When enabled, the **External Music-on-hold** option plays music for callers on hold from an external source. This setting overrides the Music on Hold **Player** setting. If **Provide Ringback Only** is enabled, this setting is ignored.

When enabled, the **Welcome** greeting plays when a caller enters the queue. Select the greeting to play from the drop-down menu.

Checking the **Enable Periodic Greetings** option causes the system to play periodic greetings at user specified intervals. Select the greeting to play from the **Periodic** drop-down menu and enter the **Time** interval. The time specified is the number of seconds the system waits to play the periodic greeting after the last greeting has played. For example, if the first periodic greeting is defined with a **Time** of **30** seconds, the greeting will play 30 seconds after the caller hears the Welcome greeting (if enabled). Up to three periodic greetings can be configured. As long as the caller remains in the queue, the system will wait the specified time after the last periodic greeting and begin again with the first periodic greeting.

Checking the **Park and Auto Page Greeting** option enables the Park and Auto Page feature for queued calls. When this feature is enabled, the system pages the paging group with a prerecorded message announcing the call in the queue. The called user can pick up the call from any extension that is a member of the call queue. For more information on configuring this feature, refer to [Configuring Park and Auto Page on page 11](#).

When enabled, the **Pickup** greeting plays when a member of a queue answers a queued call. Select the greeting to play from the drop-down menu.

2. After defining the appropriate options, select **Apply**.

Creating New Greetings

1. To create a new greeting, navigate to **Voice > Applications > Audio Prompts**.



The Audio Prompts feature can be configured only in the GUI.

- From the **Audio Prompts** menu, select the **Call Queue** tab. From here, you can record a new greeting or upload a previously recorded greeting.

The screenshot shows the 'Audio Prompts' configuration page. At the top, there are two tabs: 'Auto Attendant' and 'Call Queue'. The 'Call Queue' tab is selected and circled in red. Below the tabs, there are three main sections: 'Add CQ New Audio Prompt' with a 'New CQ Audio Prompt ...' button; 'Upload CQ Audio Prompt' with an 'Upload CQ Prompt:' field, a 'Browse...' button, and 'Cancel' and 'Upload' buttons; and 'Preview and Delete Audio Prompts' which contains a table of existing prompts.

Prompt	Description	Play	Delete
sample_1.wav		Play	Delete
sample_2.wav		Play	Delete



The Call Queuing audio prompt files are located in the coder/decoder (CODEC) sub-folders of the CQ / Prompts folder in CompactFlash (CFLASH). If you add new files to these folders, make sure to include them when you back up the system.

Recording a Greeting

- From the **Call Queue** tab of the **Audio Prompts** menu, select the **New CQ Audio Prompt** button.
- On the **Add New Audio Prompt** menu, enter the **Phone Number To Call**. This number specifies the phone number the system should dial to play/record the prompt audio. Delay is added for the calls to avoid truncated audio.

The screenshot shows the 'Add New Audio Prompt' dialog box. It contains the following fields and controls:

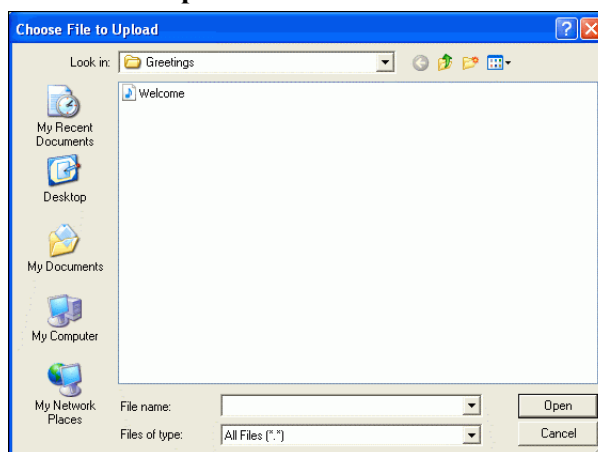
- Phone Number To Call:** A text input field with a help icon.
- File Name:** A text input field containing 'prompt001' and a '.wav' extension, with a help icon.
- Application:** A dropdown menu set to 'CQ'.
- Description:** A text input field with a help icon.
- Prompt Text:** A large text area with a help icon.
- At the bottom, there are 'Cancel' and 'Save and Record' buttons.

- In the **File Name** field, enter the file name to use for the saved audio once the recording is completed. Using a descriptive name (35 characters maximum) makes it easier to recall the content of the recording.
- (Optional) In the **Description** field, enter descriptive information about this prompt audio.

- (Optional) In the **Prompt Text** field, enter the text of the audio. You can type the text of the prompt to record here and then read it when recording. Additionally, this text can serve as a good description of the prompt file itself.
- Select the **Save and Record** button. The system calls the number specified in the **Phone Number To Call** field. After answering the call, you can use the **Prompt Text** as a script.

Uploading a Greeting

- From the **Call Queue** tab of the **Audio Prompts** menu, select the **Browse** button under **Upload CQ Audio Prompt**.
- Navigate to the appropriate file and select **Open**. The path to the selected file displays in the **Upload CQ Prompt** field on the **Audio Prompt** menu.



- Select the **Upload** button. The new file shows in the list of available prompts.



The NetVanta Audio Converter can convert MP3 files for use as call queue greetings. For more information about installing and using the Audio Converter, refer to [Installing the NetVanta Audio Converter](#) and [Using the NetVanta Audio Converter for Music on Hold and Audio Prompts](#) available from the ADTRAN Support Community (<https://supportforums.adtran.com>).

Configuring Park and Auto Page

The Park and Auto Page feature causes the system to page a paging group with a prerecorded message announcing the queued call followed by a system generated message that lets the user know how many calls are in the queue. Pages can be sent to either a handset or an overhead paging system. The called user can pick up the call from any extension that is a member of the call queue.

1. Select the **Greetings** tab from the main **Call Queuing** menu.

The screenshot shows the 'Call Queuing' configuration window with the 'Greetings' tab selected. The 'Park and Auto Page Greeting' checkbox is checked. The 'Welcome' dropdown menu is set to 'System Default'. The 'Enable Periodic Greetings' checkbox is checked. There are three 'Periodic' settings, each with a dropdown menu and a 'Time (sec)' input field. The first 'Periodic' dropdown is set to 'System Default', and the second and third are set to 'None'. The 'Park and Auto Page Greeting' dropdown is set to 'System Default'. The 'Interval (sec)' is set to 27, and the 'Immediate' checkbox is checked. The 'Paging Extension' field is empty. The 'Pickup' dropdown is set to 'System Default'. The 'Cancel' and 'Apply' buttons are at the bottom.

2. Select the **Park and Auto Page Greeting** check box.
3. Use the drop-down menu to select the greeting to play over the paging system. If **System Default** is specified, the page begins by announcing the call queue extension. The greeting will be followed by a system generated message saying *You have XX call(s) on YYYY*, where XX is the number of parked callers waiting in the queue and YYYY is the configured dequeue extension for this queue, or queue extension if the dequeue extension is not configured.
4. Enter the **Interval** in seconds to wait to page after initiating the previous page. Select the **Immediate** option to begin paging immediately instead of waiting for the specified interval to send the first page. In both cases, the system will continue to page the called user at the specified interval until all calls are retrieved from the queue.
5. Enter the **Paging Extension** to specify the paging group extension to which outgoing pages will be placed. If no extension is specified, the page will originate from the overhead paging port.



The audio prompts support only G.711u, G.711a, and G.729 file formats; therefore, the paging extension must be configured to use one of these formats for paging to the handset to work.

6. After defining the appropriate options, select **Apply**.

Configuring Call Queuing Using the CLI

Call Queuing can be configured using either the GUI or the CLI. To configure Call Queuing using the CLI, complete the following tasks:

1. Access the CLI. (Refer to [Accessing the CLI on page 13.](#))
2. Create a call queue. (Refer to [Creating a Call Queue on page 14.](#))
3. Configure the call queue basic settings. (Refer to [Configuring Basic Settings on page 14.](#))
4. Add members to the call queue. (Refer to [Adding Members on page 17.](#))
5. Configure the greetings for the call queue. (Refer to [Configuring Greetings in the CLI on page 18.](#))
6. (Optional) Configure the Park and Auto Page settings. (Refer to [Configuring Park and Auto Page on page 19.](#))



Prior to configuring the Call Queuing feature, Music on Hold (MoH) should be configured. If MoH is not configured, callers in the queue will hear only silence between greetings. For more information on configuring external MoH, refer to [Configuring Greetings on page 8.](#) For more information on configuring internal MoH, refer to [Configuring Music on Hold on the NetVanta 7000 Series](#) available from the ADTRAN Support Community (<https://supportforums.adtran.com>).

Accessing the CLI

To access the CLI and configure the Call Queuing feature, follow these steps:

1. Boot up the unit.
2. Telnet to the unit (**telnet** <ip address>), for example:

```
telnet 10.10.10.1
```



If during the unit's setup process you have changed the default IP address (10.10.10.1), use the configured IP address.

3. Enter your user name and password at the prompt.



*The default user name is **admin** and the default password is **password**. If your system no longer has the default user name and password, contact your system administrator for the appropriate user name and password.*

4. Enter the Enable mode by entering **enable** at the prompt as follows:
>enable
5. Enter your Enable mode password at the prompt.
6. Enter the Global Configuration mode using the **configure terminal** command:

```
#configure terminal  
(config)#
```

Creating a Call Queue

1. To create a call queue and enter the Voice Call Queuing Configuration mode, enter the **voice queue** *<extension>* command at the Global Configuration mode prompt. The *<extension>* parameter specifies the extension callers must dial to enter the queue. For example, the following creates a call queue for extension **6407**:

```
(config)#voice queue 6407
(config-6407)#
```



*The system supports a maximum of six call queues. If you try to create more than six queues, the system displays the **No more call-queues allowed** message. Use the **no voice queue** *<extension>* command to delete a queue.*

2. (Optional) Specify a name for the call queue using the **name** *<queue>* command. The *<queue>* parameter specifies the name of the call queue. The queue name displays on the caller's phone if the caller is a local SIP user on the system. The following example specifies **TSQUEUE** as the name of the call queue:

```
(config-6407)#name TSQUEUE
```

3. (Optional) Provide a description for the call queue using the **description** *<text>* command. The *<text>* parameter specifies the call queue description. For example, the following example sets the call queue's description to **Tech Support Queue**:

```
(config-6407)#description Tech Support Queue
```



*All of the examples in the following sections will use the call queue for extension **6407** as shown in this section. When you create/modify your own queue, the (config-extension)# prompt will display the extension of your queue as entered in the **voice queue** *<extension>* command.*

Configuring Basic Settings

Several commands are available in the Voice Call Queue Configuration mode to customize the call queue. Enter the Voice Call Queue Configuration mode with the **voice queue** *<extension>* command at the Global Configuration mode prompt. Each commonly used setting is listed below along with a description of its function and its corresponding CLI command.

Call Distribution

To specify the method for calling the members of the queue, use the **call-distribution** command. The options for this command are **linear-hunt**, **ring-all**, and **most-idle-agent**. **Linear-hunt** performs a progressive hunt through all member extensions beginning with the first logged-in member. **Ring-all** rings all member extensions simultaneously. **Most-idle-agent** rings the queue member who has not answered a call in the longest period of time. Enter the command as follows:

```
(config-6407)#call-distribution <linear-hunt | ring-all | most-idle-agent>
```

The **no** version of this command restores the system to the default setting (**ring-all**).

Dequeue Extension (Optional)

To manually retrieve calls from the queue, use the **dequeue-extension** *<extension>* command. Queue members can dial into the specified extension to take queued calls during their rest period. Users who are not members of the queue can dial into this extension to accept calls from the queue. Only SIP stations can dequeue calls from the queue. Enter the command as follows:

```
(config-6407)#dequeue-extension <extension>
```

The **no** version of this command removes the dequeue extension.



The pickup greeting does not play for users who dequeue a call.

Maximum Queued Calls

To specify the maximum number of calls that can be waiting in the queue at any given time, use the **max-number-calls** *<number>* command. The *<number>* value can be set from **1** to **16**. By default the number is set to **16**. The system supports up to a total of 16 calls across all queues at any time. If the queue reaches the maximum number of queued calls, additional calls will be forwarded to the overflow extension if one is defined. Enter the command as follows:

```
(config-6407)#max-number-calls <number>
```

The **no** version of this command returns the system to the default setting.

Overflow Extension (Optional)

To specify an overflow extension, use the **overflow-extension** *<extension>* command. The **no** version of this command removes the overflow extension. An overflow extension is the extension to which calls are forwarded when the queue has reached its maximum queued calls limit or when a call has been waiting in the queue past the maximum hold time. The queue will also forward new calls to the overflow extension if the queue has been locked or shut down. If no overflow extension is specified, new calls delivered to the queue will be rejected if the queue is unable to accept them. Enter the command as follows:

```
(config-6407)#overflow-extension <extension>
```



The overflow extension can be the extension of a user, an auto attendant, another call queue, or a virtual user with a mailbox.

Music-on-Hold Player

To specify which MoH player to use for queued callers, use the **moh-player** *<name>* command. The *<name>* parameter specifies the name of the MoH player. Enter the command as follows:

```
(config-6407)#moh-player <name>
```

The **no** version of this command returns to the default setting. The system **default** player can be used, or customized playlists can be created using the MoH feature. For more information on configuring an MoH player, refer to *Configuring Music on Hold on the NetVanta 7000 Series* available from the ADTRAN Support Community (<https://supportforums.adtran.com>).



The Call Queuing feature can specify a different default player than the one specified by the Music on Hold feature. However, if no player is specified in the Call Queuing feature, the default player defined in the Music on Hold feature will be used.



*If **moh-external** is configured, the **moh-player** setting will be ignored. When enabled, **ringback-only** overrides the **moh-player** setting.*

Maximum Hold Time

To specify the maximum number of seconds that queued callers will remain in the queue before being referred to the overflow extension, use the **max-wait-time** *<seconds>* command. If an overflow extension is not set, then callers will continue to remain on hold. This value can be set from **30** to **6400** seconds. By default, the maximum hold time is set to **3600** seconds. Enter the command as follows:

```
(config-6407)#max-wait-time <seconds>
```

The **no** version of this command restores the default value.

Digit Press Extension (Optional)

To define the extension to which queued callers will be forwarded if they press any digit on their phones while waiting in the queue, use the **digit-action dial-extension** *<extension>* command. Enter the command as follows:

```
(config-6407)#digit-action dial-extension <extension>
```

The **no** version of this command disables this feature.

Caller ID Prefix

To define the characters that are pre-pended to calls coming into the queue, use the **prefix** *<characters>* command. The prefix displays along with the calling number in the call queue member's caller ID. By default, the system pre-pends **CQ_** to all calls entering the call queue; therefore, if 256-963-8000 dials into the queue, the members will see **CQ_2569638000** on the caller ID. Enter the command as follows:

```
(config-6407)#prefix <characters>
```

The **no** version of this command restores the default setting.

Locking a Queue

To prevent new calls from entering the call queue without deleting the current calls in the queue, use the **lock** command. If an overflow extension is defined, calls bound for a locked queue will be forwarded to the overflow extension. Enter the command as follows:

```
(config-6407)#lock
```

The **no** version of this command unlocks the call queue.

Disabling a Queue

To clear all currently waiting calls from the queue and prevent new calls from entering the queue, use the **shutdown** command. If an overflow extension is defined, calls bound for a disabled queue will forward to the overflow extension. Enter the command as follows:

```
(config-6407)#shutdown
```

Use the **no** form of this command to enable a queue that has been disabled.



To allow calls currently in the queue to be serviced before disabling a queue, lock the queue first, and then disable it after the currently waiting calls have been serviced.

Time to Ring Queue Members

To define the number of seconds that calls from the call queue are allowed to ring logged-in members, use the **ring-time** *<seconds>* command. The ring time can be set from **0** (unlimited) to **60** seconds. Enter the command as follows:

```
(config-6407)#ring-time <seconds>
```

The **no** version of this command restores the ring time value to the system default (**30** seconds).

Queue Member Rest Time

To set the rest period for a call queue, use the **rest-period** *<seconds>* command. The rest period is the number of seconds the queue will wait after a member extension hangs up before attempting to send another call to that extension. The rest period can be set from **0** to **600** seconds. Enter the command as follows:

```
(config-6407)#rest-period <seconds>
```

The **no** version of this command restores the rest period to the system default (**120** seconds).

Deliver Member

To have the queue send calls to a member extension even if that member is already on a call, use the **deliver-member** *<extension>* command. By default, this option is disabled. The phone must support multiple calls for this setting to have an effect. Enter the command as follows:

```
(config-6407)#deliver-member <extension>
```

Use the **no** version of this command to disable this feature.

Adding Members

1. Add members to the call queue using the **member** *<extension>* command in the Voice Call Queuing Configuration mode. The *<extension>* parameter specifies the extension of the member to add. Members can belong to multiple queues. The following example adds extension **2013** to the call queue:

```
(config-6407)#member 2013
```

Use the **no** version of this command to remove a member from the call queue.



A call queue extension cannot be a member of another call queue.

- To log members into the call queue, use the **login-member** *<extension>* command. The *<extension>* parameter specifies the extension of the member to log in. For example, the following logs member extension **2013** into the queue:

```
(config-6407)#login-member 2013
```

Use the **no** version of this command to log a member out of the call queue.



*Members can log in and out of the queue from their phones using the appropriate special prefix (SPRE) codes. Use *74XXXX* to log in to the queue and *76XXXX* to log out of the queue (XXXX is the queue extension). These privileges can be controlled with the class of service assigned to the member's extension.*

Configuring Greetings in the CLI

Existing audio greetings can be selected and configured for a call queue using the CLI. Each setting is listed below along with a description of its function and corresponding CLI command. AOS supplies default greetings for the welcome greeting (defaultCQWelcome.wav), the pickup greeting (defaultCQPickup.wav), and one periodic greeting (defaultCQperiodic.wav). The supplied greetings are enabled by default, and the system will use these greetings if no new greetings are specified. The steps in this section show how to configure other previously created greetings.



*New greetings can be created or uploaded only through the GUI. Refer to [Creating New Greetings on page 9](#) to learn how to access the **GUI Audio Prompts** menu.*

Welcome Greeting

The welcome greeting plays when a caller enters the queue. Use the **greeting welcome** *<file>* command to specify a welcome greeting. The *<file>* parameter specifies the file name of the greeting to use. Enter the command as follows:

```
(config-6407)#greeting welcome <file>
```

The **no** version of this command restores the system defaults.

Periodic Greeting

The periodic greeting plays for a caller on hold at specified intervals. Up to three periodic greetings can be configured. Use the **greeting periodic** *<number>* *<file>* [**time** *<seconds>*] command to specify periodic greetings. Enter the command as follows:

```
(config-6407)#greeting periodic <number> <file> [time <seconds>]
```

The *<number>* parameter specifies the order of the greeting. For example, **1** indicates the first periodic greeting, and **2** indicates the second periodic greeting.

The *<file>* parameter specifies the file name of the greeting to use.

The optional **time** *<seconds>* parameter specifies the number of seconds between periodic greetings. The valid range is **0** to **3600** seconds. If no time is specified, the system uses the default (**30** seconds).

The **no** version of this command restores the system defaults.

Pickup Greeting

The pickup greeting plays when a member of the queue answers a queued call. Use the **greeting pickup** *<file>* command to specify a welcome greeting. The *<file>* parameter specifies the file name of the greeting to use. Enter the command as follows:

```
(config-6407)#greeting pickup <file>
```

The **no** version of this command restores the system defaults.

Ring Back Only

To disable greetings and hold music for the call queue, use the **ringback-only** command. With this option enabled, queued calls will hear only ringback instead of hold music and greetings, conserving system resources. Enter the command as follows:

```
(config-6407)#ringback-only
```

Configuring Park and Auto Page

The Park and Auto Page feature causes the system to page a paging group with a prerecorded message announcing the queued call followed by a system generated message that lets the user know how many calls are in the queue. Pages can be sent to either a handset or an overhead paging system. The called user can pick up the call from any extension that is a member of the call queue.

Use the **greeting auto-page** command to configure the Park and Auto Page option. Enter the command as follows:

```
(config-6407)#greeting auto-page [<file> | extension <extension> | immediate | interval <seconds>]
```

The optional *<file>* parameter specifies a custom G.729/G.711u/G.711a CODEC wav file that was previously uploaded to the system by the system administrator using the Audio Prompts menu. During a page, this greeting will be followed by a system generated message saying *You have XX call(s) on YYYY*, where *XX* is the number of callers parked waiting in the queue and *YYYY* is the configured dequeue extension for this queue, or queue extension if the dequeue extension is not configured. If the *<file>* parameter is not specified, the system precedes the system generated message with the call queue extension.

The optional **extension** <extension> parameter specifies a paging group extension to which to place the outgoing page. If no extension is specified, the message goes out over the overhead paging port.



The audio prompts support only G.711u, G.711a, and G.729 file formats; therefore, the paging extension must be configured to use one of these formats for paging to the handset to work.

The optional **immediate** parameter specifies to begin paging immediately instead of waiting for the specified interval to send the first page. **Immediate** is the default setting for auto paging.

The optional **interval** <seconds> parameter specifies the number of seconds to wait to page after initiating the prior page. The system will continue to page the called user at the specified interval until all calls are retrieved from the queue. The valid range is **10** to **60** seconds. If no interval is specified, the system uses a default value of **27** seconds.

The **no** version of this command restores the system defaults.

Sample Configuration

The following is a sample configuration for the Call Queuing portion of the configuration. In this example, two calling queues are configured. The **Sales** queue (extension **3456**) has **auto-page** enabled and uses an external MoH player. The **Support** queue (extension **6407**) has **ringback-only** enabled.

```
!  
voice queue 3456  
  name Sales  
  description "Sales Queue"  
  greeting welcome greeting_1.wav  
  greeting auto-page  
  greeting periodic 1 defaultCQPeriodic.wav time 10  
  greeting periodic 2 greeting_2.wav time 20  
  moh-external  
!  
!  
voice queue 6407  
  name Support  
  description "Tech Support Queue"  
  ringback-only  
!
```

Monitoring the Call Queue

Administrators have several ways of monitoring a call queue. In the GUI, the **Status** tab on the **Call Queuing** menu displays both current information about the call queue as well as information from the past 24 hours. (Refer to [Displaying the Queue Status on page 21](#) for more information.) The Call Queue Statistics Monitoring feature gathers statistics for all call queues. (Refer to [Monitoring Queue Statistics on page 22](#).)



*Enabling the **Call Queue Reporting Status** on the **Current Settings** tab of the **User Accounts** menu allows voice users to monitor call queue statistics on their **Personal Phone Manager**. For more information about this option, refer to [Configuring User Accounts on the NetVanta 7000 Series](#) and [Configuring the NetVanta 7000 Series Personal Phone Manager](#) available from the ADTRAN Support Community (<https://supportforums.adtran.com>).*



The call queue can also be monitored in a status group. For more information about configuring status groups, refer to [Configuring Status Groups on the NetVanta 7000 Series](#) available from the ADTRAN Support Community (<https://supportforums.adtran.com>).

Displaying the Queue Status

The **Status** tab of the **Call Queuing** menu displays the status of the call queue statistics in real time (**Current**) and the statistics over the past 24 hours (**24 Hour Stats**). The **24 Hour Stats** clear each day at midnight. See [Table 1](#) and [Table 2](#) for descriptions of the information displayed.

Current	24 Hour Stats
Calls: 4	Calls: 10
Longest wait(sec): 30	Abandoned: 6
Operation: enabled	Overflowed: 0
State: unlocked	Longest wait(sec): 297
	Average wait(sec): 86

Table 1. Current Status

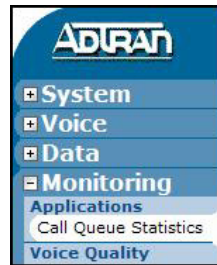
Status	Description
Calls	The number of calls currently waiting in the queue
Longest Wait	The number of seconds the oldest call in the queue has been waiting
Operation	Whether the queue is enabled (can receive calls) or disabled (will not accept calls)
State	Whether the queue is unlocked (can receive calls) or locked (no more inbound calls allowed in the queue)

Table 2. 24-Hour Statistics

Status	Description
Calls	The number of calls that entered the queue in the last 24 hours
Abandoned	The number of calls that hung up or exited with a digit-action before being serviced in the last 24 hours
Overflowed	The number of calls that forwarded to the overflow extension in the past 24 hours
Longest Wait	The number of seconds the oldest caller in the queue had to wait in the past 24 hours
Average Wait	The average number of seconds a caller had to wait in the queue in the past 24 hours

Monitoring Queue Statistics

The Call Queue Statistics Monitoring feature gathers real time statistics for the configured call queues. To access the feature, navigate to **Monitoring > Applications > Call Queue Statistics** from the main GUI.



The table at the top of the menu displays the current statistics for all queues. See [Table 3](#) for descriptions of the information displayed.

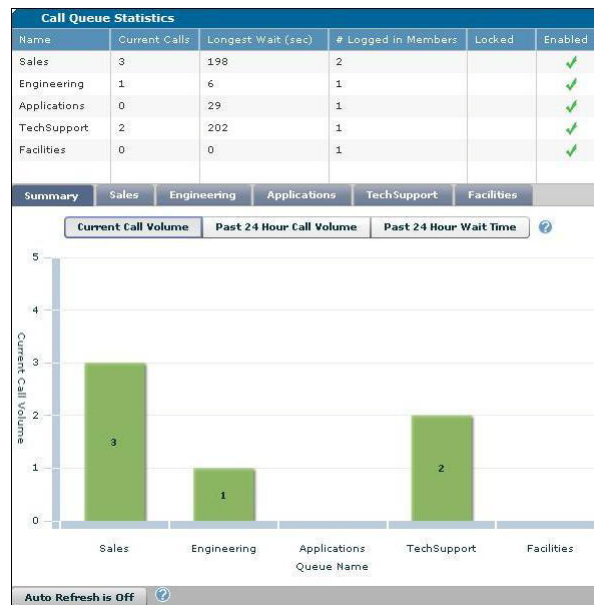


Table 3. Call Queue Statistics Overview

Status	Description
Name	Call queue name if one was specified when the queue was created
Current Calls	The number of calls currently waiting in the queue
Longest Wait	The number of seconds the oldest call in the queue has been waiting
# Logged in Members	The number of members currently logged into the queue
Locked	Whether the queue is locked (no more inbound calls allowed in the queue) or unlocked (can receive calls)
Enabled	Whether the queue is enabled (can receive calls) or disabled (will not accept calls)

The tabs at the bottom of the menu contain the names of each configured queue. Select the appropriate tab to display the past 24 hour call volume and wait time details for the selected queue. Selecting the **Current Call Volume**, **Past 24 Hour Call Volume**, or **Past 24 Hour Wait Time** buttons displays graphs of the specified statistics. Hovering the cursor over the bars in the graph provide more detailed information as shown on the following graphic and in [Table 4](#).

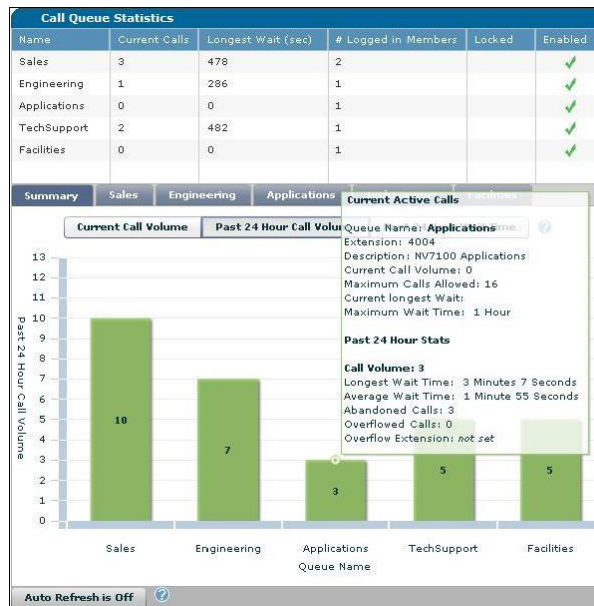


Table 4. Individual Call Queue Statistics

Current Active Calls	
Queue Name	The name of the call queue
Extension	The extension of the call queue
Description	The description of the call queue
Current Call Volume	The number of calls currently waiting in the queue
Maximum Calls Allowed	The maximum number of calls that can be waiting in the queue at any given time
Current Longest Wait	The number of seconds the oldest call in the queue has been waiting
Maximum Wait Time	The maximum amount of time that a queued caller will stay on hold before being referred to the overflow extension
Past 24 Hour Stats	
Call Volume	The number of calls that entered the queue in the last 24 hours
Longest Wait Time	The number of seconds the oldest caller in the queue had to wait in the past 24 hours
Average Wait Time	The average number of seconds a caller had to wait in the queue in the past 24 hours
Abandoned Calls	The number of calls that hung up or exited with a digit-action before being serviced in the last 24 hours
Overflowed Calls	The number of calls that forwarded to the overflow extension in the past 24 hours
Overflow Extension	The designated overflow extension

Exporting Call Queues Using the Generic Mail Agent

The generic mail agent enables you to export configuration or **show** commands from the CLI to a user's email. This feature is an administrative operation *available only* from the CLI. Automated exporting eliminates the need for an administrator to access the device for call queue statistics, allowing instead for an automated report that can be distributed to any user the administrator designates. The process to export and email call queue statistics involves the following steps:

1. Access the CLI. (Refer to [Accessing the CLI on page 13](#).)
2. Create a schedule to export the call queue statistics.
3. Configure the email message.
4. Export the call queue statistics.
5. Save changes made to the configuration file.

Creating a Schedule

1. To create a new schedule and enter the Schedule Configuration mode, use the **schedule** *<name>* command from the Global Configuration mode. For example, the following creates a new schedule named **SUPPORT_QUEUE**:

```
(config)#schedule SUPPORT_QUEUE
(config-schedule-SUPPORT_QUEUE)#
```


- To schedule the export to run daily using a specific start and end time, use the **periodic daily** *<time>* **to** *<time>* command. The *<time>* input is specified in military time format (i.e., HH:MM). Any start time can be used, but the end time should be one minute past the start time. For example, the following schedules the action to run daily at 8:00 am and then exits the Schedule Configuration mode:

```
(config-schedule-SUPPORT_QUEUE)#periodic daily 08:00 to 08:01
(config-schedule-SUPPORT_QUEUE)#exit
```



*Exporting call queues more than once daily is unsupported by ADTRAN. For more available options when scheduling the export, refer to the **schedule** command in the [AOS Command Reference Guide](https://supportforums.adtran.com) available from the ADTRAN Support Community (<https://supportforums.adtran.com>).*

- To create a network monitoring track and enter the Network Monitoring Track Configuration mode, use the **track** *<name>* command from the Global Configuration mode. For example, the following creates a track named **QUEUEMAIL**:

```
(config)#track QUEUEMAIL
(config-track-QUEUEMAIL)#
```

- To test the schedule you created, use the **test if schedule** *<name>* command. For example, the following tests the previously created **SUPPORT_QUEUE** schedule and then exits the Network Track Monitoring Track command set:

```
(config-track-QUEUEMAIL)#test if schedule SUPPORT_QUEUE
(config-track-QUEUEMAIL)#exit
```

Configuring the Email Message



If the commands in Steps 1 and 2 have already been set in the GUI, you do not have to perform these steps. Entering these commands will overwrite the information stored for these fields in the GUI.

- To specify the IP address or host name of the email server to use when sending the exported queue statistics, use the **logging email receiver-ip** *<ip address | hostname>* command from the Global Configuration mode:

```
(config)# logging email receiver-ip <ip address | hostname> [port <number>] [auth-username <username>] [auth-password <password>]
```

The *<ip address | hostname>* parameter specifies the IP address or host name of the email server to use when sending the logged messages.

The optional **port** *<number>* specifies the port number of the remote email server. The valid range is **1** to **65535**.

The optional **auth-username** *<username>* specifies the user name to use if your email server requires authentication.

The optional **auth-password** *<password>* specifies the password to use if your email server requires authentication.

- To specify the sender that appears in the From field of the outgoing email message, use the **logging email sender** command. For example, the following specifies **ADMIN@YOURCOMPANY.NET** as the sender:

```
(config)# logging email sender ADMIN@YOURCOMPANY.NET
```

- To create a general-purpose mail agent and enter the Mail Agent Configuration mode, use the **mail-client** *<agent name>* command. For example, the following creates the mail client **MYCLIENT**:

```
(config)#mail-client MYCLIENT
(config-mail-client-MYCLIENT)#
```

- To specify the To field in the email message, use the **address to** *<email address>* command. For example, the following addresses the email to **FIRST.LAST@YOURCOMPANY.NET**:

```
(config-mail-client-MYCLIENT)#address to FIRST.LAST@YOURCOMPANY.NET
```

To copy one or more recipients on the email, use the **address cc** *<email address(es)>* command, separating each address with a semicolon.

Exporting the Call Queue Statistics

- To specify the command output to capture and include in the body of the email, use the **capture commands** command from the Mail Agent Configuration mode:

```
(config-mail-client-MYCLIENT)#capture commands
```

- Enter the commands you wish to run, one line at a time from the Global Configuration mode. When finished, type **exit** on a new line to exit the Global Configuration mode.

```
(config)#do show voice queue detail <queue extension>
(config)#do show voice queue
(config)#exit
```

- To configure the trigger that causes the mail agent to capture the command output, use the **capture trigger track** *<name>* **pass** command from the Mail Agent Configuration mode. For example, the following specifies using the track **QUEUEMAIL** as the trigger to capture the command output:

```
(config-mail-client-MYCLIENT)#capture trigger track QUEUEMAIL pass
```

- To send the email message when the track changes to a pass state, use the **send trigger track** *<name>* **pass** command. For example, the following specifies sending the email when the track **QUEUEMAIL** changes to a fail state:

```
(config-mail-client-MYCLIENT)#send trigger track QUEUEMAIL pass
```

- To specify the text of the email's Subject field, use the **subject** *<text>* command. For example, the following specifies using the subject **DAILY SUPPORT QUEUE REPORT**:

```
(config-mail-client-MYCLIENT)#subject DAILY SUPPORT QUEUE REPORT
```

- To set the maximum buffer size (in bytes) for the body text of the email message, use the **body size** *<bytes>* command. By default, the buffer size is set to **4048** bytes. The valid range is **1** to **65535** bytes. The following example sets the body size to the maximum size:

```
(config-mail-client-MYCLIENT)#body size 65535
```

7. Enter the **no shutdown** command as follows:
(config-mail-client-MYCLIENT)#**no shutdown**
8. Exit the Mail Agent Configuration mode:
(config-mail-client-MYCLIENT)#**exit**
9. Exit the Global Configuration mode:
(config)#**exit**
10. To save changes made to the configuration file, use the **write** command:
#write

For more information about the Generic Mail Agent, refer to the configuration guide [Generic Mail Agent Configuration for AOS](#) available from the ADTRAN Support Community (<https://supportforums.adtran.com>).

Example Configuration

The following code can be edited then copied and pasted into the configuration terminal for an automatic setup. Please note that the logging commands will overwrite email logging information set in the GUI. Do not include the first section of code if the preferences for email logging have already been set.

```
!  
logging email receiver-ip <ip address | hostname> port <number> auth-username <username>  
auth-password <password>  
logging email sender <email address>  
!  
!  
schedule <name>  
  periodic daily <start time> to <1 minute after start time>  
!  
track <name>  
  test if schedule <name>  
  no shutdown  
!  
!  
mail-client <agent name>  
  address to <email address>  
  subject <text>  
  body size 65535  
  capture commands  
  do show voice queue detail <extension>  
  do show voice queue  
  exit  
  capture trigger track <name> pass  
  send trigger track <name> pass  
  no shutdown  
!
```

Example Email

The following is an example email that would be sent:

From:ADMIN@YOURCOMPANY.NET
 Sent: Tuesday, January 11, 2011 8:03 AM
 To: MORNING MANAGER
 Subject: DAILY SALES QUEUE REPORT

NV7100: ADTRAN, Inc. OS version A4.03.00.E
 Platform: NetVanta 7100, Part Number 1210306G5, Serial Number UNKNOWN

 Capture triggered on Mon Jan 03 2011 at 08:03:06 EST

do show voice queue detail 167

Call-queue: 167 Call distribution type: ring-all
 Name: SALESQ
 Description:

Max allowed number of queued calls: 16
 Operation: active
 State: unlocked

Current queue stats:
 calls: 0
 longest wait: 0

24 hour stats:
 calls queued: 0
 calls abandoned: 0 calls overflowed: 0
 longest wait time: 0 average wait time: 0

Members	Firstname	Lastname	Logged In
303	Demo	IP606	*
302	Demo1	IP203	*
300	Demo2	IP407	*

Status:

Hour of day	calls	abandoned	overflow	longest	average
0	0	0	0	0	0
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0

8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0

NV7100(config)#do show voice queue

Call-queue: 167 Call distribution type: ring-all
 Name: SALESQ
 Description:

Max allowed number of queued calls: 16
 Operation: active
 State: unlocked

Current queue stats:
 calls: 0
 longest wait: 0

24 hour stats:
 calls queued: 0
 calls abandoned: 0 calls overflowed: 0
 longest wait time: 0 average wait time: 0

Members	Firstname	Lastname	Logged In
303	Demo	IP606	*
302	Demo1	IP203	*
300	Demo2	IP407	*

NV7100(config)#