

# Vocera Messaging Interface User Guide

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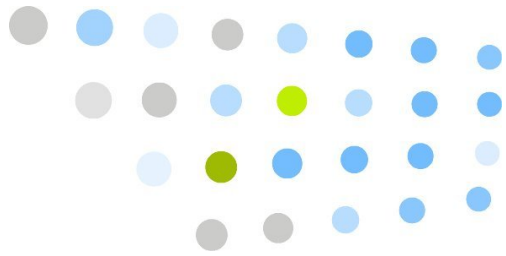
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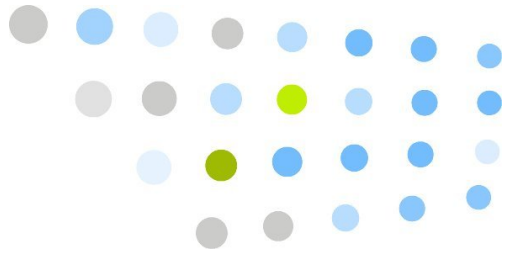
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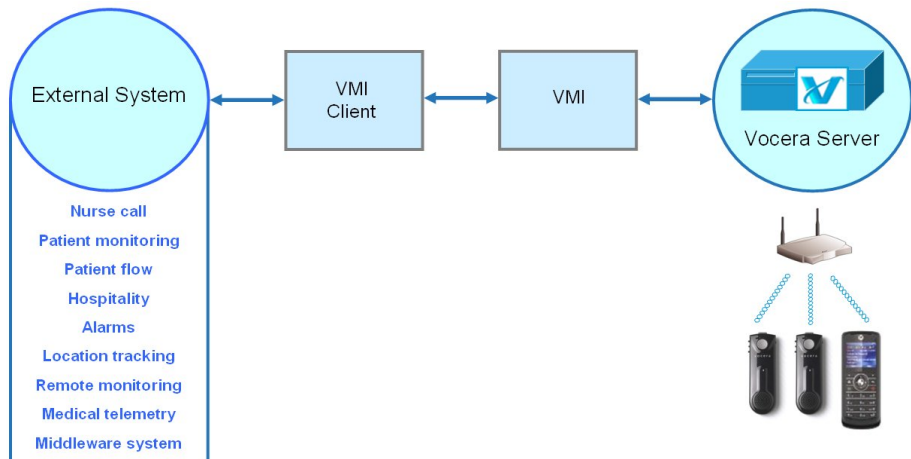


## Getting Started

The Vocera Messaging Interface (VMI) is an application programming interface (API) that enables text messaging between external systems and Vocera devices via the Vocera server. VMI allows a *client* (for example, a nurse call, patient monitoring, or middleware system) to send a text message to a Vocera user or group of users, and to receive acknowledgements that describe the delivery status of the message, along with optional responses from a *message recipient*. Vocera users can respond quickly to patient needs regardless of where they are located or what they are doing at the time.

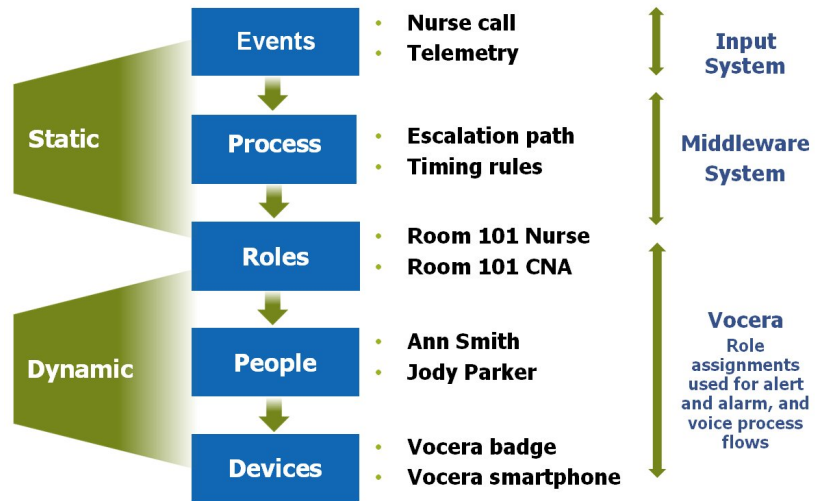
The following figure shows how you can use VMI to integrate several different types of systems and middleware with Vocera Server.

**Figure 1. Integrating external systems with Vocera using VMI**



The following figure illustrates the data flow from an external system to the Vocera system. As the illustration shows, the data stored in the external system is static, while the Vocera data (groups, users, and devices) is dynamic, changing when staff assignments are updated at shift changes.

**Figure 2. Data flow from external systems to Vocera with VMI**



This guide shows you how to use the features of VMI. Your site needs an authorized Vocera license key and custom configuration of the external system to take advantage of this optional module.

## Feature Overview

In addition to the hands-free communication you already have with the Vocera badge, VMI provides the following end user features:

- Text messages from clients are sent directly to a Vocera user or group.

The badge plays an alert and displays the message. Urgent messages are played immediately.

Depending on the configuration of your system, the call may also trigger a message for a group of Vocera users. In this situation, the device of each group member who is logged in plays an alert and displays a text message. Each member may acknowledge and respond independently.

- Recipients can play messages aloud.

Using button clicks or voice commands, badge users can play text messages aloud via text-to-speech or (optionally) as audio files.

- Various ways are provided to respond to VMI messages, including automatic call back and a list of pre-configured responses.

A VMI message can supply a list of responses and a callback number.

- Escalation of unanswered VMI messages.

The external system that integrates with Vocera can often be configured to automatically escalate unanswered VMI messages to the device of another Vocera user, a group of Vocera users, or a particular number, such as the nurse's station.

- Automatic logging of interactions resulting from a VMI message.

VMI notifies the client when a message is delivered, when it is acknowledged, and when the recipient responds.

The Vocera Report Server uses data from these logs to generate a report called the VMI Message Activity report, available with version 4.1 SP5 (or later). It shows when Vocera users received and responded to VMI text messages. For more information, see the *Vocera Report Server Guide*.

For example, if your Vocera system has been integrated with a nurse call system at a hospital, suppose a patient in bed 205A presses the call button on a bedside handset. If you are the nurse on duty for 205A, the call can trigger a message that appears on your badge while beeping to notify you. You can read the message or return the call from your badge to the patient's bedside speaker. If you do not acknowledge the call, your nurse call system may escalate by sending the message to all nurses on duty in a pre-defined group, who then have an opportunity to respond individually.

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## Designing Call Flows and Escalation Paths for Alerts and Alarms

When Vocera is integrated with nurse call, patient monitoring, or middleware systems, different types of alerts and alarms can trigger VMI text messages. The design of the call flows and escalation paths for such alerts and alarms is key to a successful Vocera implementation. Therefore, members of the staff that will receive and respond to VMI text messages (such as the nursing staff at a hospital) should be involved in design discussions to ensure that calls flows and escalation paths for alerts and alarms are sensible and efficient.

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## About Vocera Badges and Smartphones

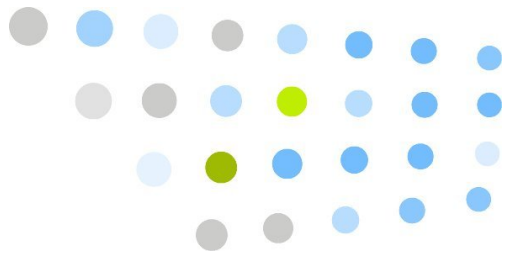
Remember that your Vocera device, whether a badge or smartphone, is a powerful communication device. It is not just a way to retrieve text messages from an external system, such as a nurse call system. While you are using features of VMI text messages, you continue to have access to all other features of your Vocera device.

The rest of this guide shows you how to use your Vocera device to work with VMI messages. If you already know how to use your Vocera device, you'll find that the VMI text messaging features are a natural extension of Vocera functionality on the badge or smartphone. See the *Vocera Badge User Guide* and the *Vocera Smartphone User Guide* for complete information about using the badge or smartphone.

**Figure 3. Vocera devices**







## Working with VMI Messages

VMI messages are sent to Vocera devices as text. You can read the text on the badge or smartphone or play it aloud via text-to-speech.

VMI messages have three levels of call priority:

- **normal**—the badge plays a “klunk” and displays the message text on screen.
- **high**—the badge plays two “klunks” and displays the message text on screen.
- **urgent**—the badge plays two “klunks” and then automatically plays the message aloud.

The following topics describe how users can work with VMI messages on a Vocera badge or smartphone:

- [Receiving VMI Messages](#) on page 9
- [Playing VMI Messages](#) on page 10
- [Reading VMI Messages](#) on page 11
- [Responding to VMI Messages](#) on page 13
- [Saving and Deleting VMI Messages](#) on page 15
- [Managing VMI Messages](#) on page 15

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### Receiving VMI Messages

When either your badge or smartphone receives a VMI message of normal or high priority, it plays an alert tone and displays the text of the message. (The alert tone is different for normal and high priority messages.) You can read the message or play it aloud using text-to-speech (or an audio file, if supplied with the message).

When your badge receives an urgent message, it plays an alert tone and then immediately plays the message. The alert tone for an urgent message is the same as for a high-priority message.

**Note:** If you are using the badge or smartphone to speak with someone when a normal or high priority message arrives, you cannot play the message until the call ends. However, the badge and smartphone both play urgent messages immediately, breaking into a conversation and putting the original caller on hold if necessary.

The client application specifies the priority of a message. For example, in a nurse call application, calls that originate from a bedside handset may be designated normal, and calls originating from a shower pull or a code blue call alert may be designated urgent.

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## Playing VMI Messages

When you play a VMI message, the VMI DLL sends a message-read acknowledgement to the client application, and the badge gives you an opportunity to respond. You can use voice commands, button clicks, and the message list to play VMI messages.

### *Using Voice Commands*

You can use voice commands to play VMI messages at any time. Use the same voice commands you use to play other text messages.

***To play unacknowledged VMI messages:***

1. Press the Call button.
2. Say, "Play text messages."
3. The badge plays unacknowledged messages and responses (if any), starting with the newest unacknowledged message.

***To play VMI messages you have already acknowledged:***

1. Press the Call button.
2. Say, "Play old text messages."
3. The badge plays acknowledged messages and responses (if any), starting with the newest acknowledged message.

### *Using Button Clicks on a Badge*

Your badge displays the most recent message you have received until you play it or read it or press the Call button.

***To play a new message using button clicks:***

1. Press the Select button twice. The badge plays the message.

2. After playing the message, the badge sends an acknowledgement to the client, plays response prompts (if any), and then displays the message list.

## *Using the Message List*

The message list displays the date and time you received each VMI message, preceded by one of the following icons:

- An open envelope icon indicates a message you have played or read.
- A closed envelope icon indicates a message you have not listened to or read.

The message list presents the most recent text message first. In some situations, however, you may want to play older messages. For example, if your badge receives two or three messages while you are too busy to acknowledge them, you may want to play all of them when you have the opportunity. In this situation, use the message list to play messages.

### ***To play a message in the badge message list:***

1. If the message list is not displayed, you can display it from the main screen by pressing the Select button twice.
2. Use the Up and Down buttons to scroll through the list of messages until you select the message you want.

By default, the most recent message is at the top of the list, the message you received previously is next, and so on.

3. Press the Select button three times.

The badge plays the message, then plays response prompts (if any).

4. The device displays the message list again after you play a message. You typically use the message list only to continue playing messages after listening to the most recent message.

### ***To display the badge message list when an unanswered message is not visible:***

You can display the message list when there is no unanswered message on the badge.

1. Look at the display screen to make sure the message list is not already visible.
2. Press the Select button twice to display the message list.

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## **Reading VMI Messages**

You can read VMI messages on a badge or smartphone and use menu choices to respond.

***To read the most recent unacknowledged VMI message on a badge:***

1. Look at the message on the display screen.

The badge displays the most recently received message until you press the Select button or the Call button.

2. Press the Select button.

The badge displays a menu of responses.

The menu displayed on your badge may be slightly different. For example, if the message was sent with a list of responses, the menu would include those responses. If the message was sent without a callback number, the menu would not include the CALL option.

3. Use the Up and Down buttons to choose a response.
4. Press the Select button.

The badge sends the response, then displays the message list.

***To read a VMI message on a badge using the message list:***

1. Use the Up and Down buttons to scroll through the list of messages until you find the message you want.
2. Press the Select button.

The badge displays the text of the message.

3. Read the message, then press the Select button.

The badge displays a menu of responses.

4. Use the Up and Down buttons to choose a response.
5. Press the Select button.

The badge automatically sends the messaging system an acknowledgement, performs the requested action, and then displays the message list again.

***To read a VMI text message immediately on a smartphone:***

1. When the VMI message is received, an alert window displays the message. Press **Open Message** to open the message and respond to it.
2. The smartphone displays the body of the message, the sender's name or email address, and the date and time the message was received by the Vocera server.
3. To respond to the message, press **Menu**, and then choose one of the response choices.

If you choose **Play**, the message is played aloud, and you can use voice commands to respond to the message. See [Responding to Played Messages Using Voice Commands](#) on page 14.

**To open a VMI text message from the New Messages list on a smartphone:**

1. On the Home screen, press the **Vocera Apps** soft key. The Vocera Apps screen appears.

**Figure 4. Vocera Apps screen**



2. Press the Navigation keys—up, down, left, or right (◂)◃)—to highlight the **Messaging** app.  
You can also press **Menu > Messaging** to select the Messaging app from a menu.
3. Press the center key (◉) to select the **Messaging** app.
4. On the New Messages tab, use the navigation key ◂◃ to scroll through the list of messages until you see the message you want to read. Newest messages are listed first. Press the center key ◉ to open it.
5. The smartphone displays the body of the message, the sender's name or email address, and the date and time the message was received by the Vocera server.
6. To respond to the message, press **Menu**, and then choose one of the response choices.

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## Responding to VMI Messages

You can use voice commands, button clicks, and menu commands to respond to messages. Urgent VMI messages are automatically played aloud.

## Responding to Played Messages Using Voice Commands

Text messages that are played aloud (such as urgent messages) play a beep when the message is finished. After the beep, you have approximately 1.5 seconds to say one of the valid responses before the Genie begins to prompt for a response. This allows you to respond quickly to the message.

After the 1.5-second interval, the Genie announces the responses you can say. You can also call back to the sender (by saying "Call back") or skip the message (by saying "Skip").

### **To respond to an unacknowledged VMI message that is played aloud:**

1. Listen to the message, and wait for the beep to indicate that the message is finished.
2. Within 1.5 seconds after the beep, say one of the valid responses.
3. If you don't know what the valid responses are, do one of the following:
  - Wait for the Genie to announce them, and then say your response.
  - Press the Select button, and then use the Up and Down buttons to choose a response. Press Select again to send the selected response.

## Responding to Played Messages Using Buttons

You Vocera system can be configured to allow button responses to urgent VMI messages. This feature allows you to respond to an urgent VMI message using the Call or DND buttons on the device. Check with your Vocera system administrator to see if this feature has been enabled.

**Note:** You cannot use the Call or DND buttons to respond to VMI messages that you play aloud later using the "Play Text Messages" command.

## Responding to Read Messages Using Menu Commands

After you read the text of a VMI message and press Select, the badge displays a list of responses for you to choose from. The list usually includes the following menu choices, along with responses (if any) sent with the message.

**Table 1. Badge Message menu commands**

Command	Description
PLAY	Converts a text message to a spoken message and plays it for you.
CALL	Available only when a callback number is sent with the message. Initiates a call to the specified number.

Command	Description
TO NEXT MSG	Skips to the next message in the list.
DELETE MSG	Erases the message from the badge memory and from the Vocera server.
SAVE MSG	Saves the message and prevents it from being automatically deleted. You are limited to 20 text messages at a time, and you can save up to 10 of these messages. Saved messages are maintained on the server until you delete them. They are not affected by scheduled sweeps of the server.
BACK TO LIST	Returns to the list of text messages, where you can select another message.
EXIT MENU	Returns to the main screen.

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## Saving and Deleting VMI Messages

You typically do not have to save or delete VMI messages. Vocera automatically stores up to 20 text messages for you, regardless of whether you explicitly save them.

**Note:** Undelivered messages are not stored.

If you exceed your message limit, Vocera automatically deletes the oldest message and stores the most recently received one. In addition, Vocera also routinely sweeps and deletes old messages, regardless of whether they have been read, after storing them for a number of days determined by the system administrator. The default sweep age for text messages is 2 weeks.

Because VMI messages are typically time-critical, this automated message management is all that most users need. However, you can also explicitly save and delete text messages. See the *Vocera Badge User Guide* for complete information.

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## Managing VMI Messages

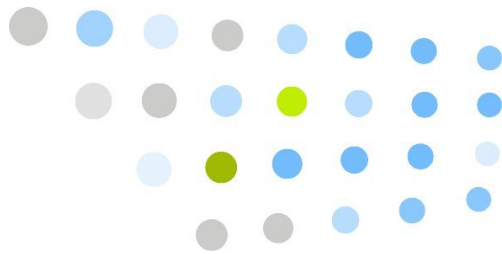
You can issue voice commands to save, delete, and navigate while playing VMI messages, as described in [Playing VMI Messages](#) on page 10. These commands do not let you respond to VMI messages, they help you manage them.

The following table summarizes the voice commands you can use while playing messages. To use these commands, press the Call button while playing the message, then say the command. To stop playing a message, press the Hold/DND button, or press the Call button twice.

**Table 2. Voice commands for working with messages**

<b>Action</b>	<b>Recommended Voice Commands</b>	<b>Alternative Forms</b>
Delete the message you just played or are in the process of playing.	Delete.	Erase.
Save the message you just played or are in the process of playing.	Save.	Archive.
Play the next message.	Next.	Skip.
Replay the current message.	Repeat.	
Get the time the message was received.	Time stamp.	Time.
Get the date the message was received.	Date stamp.	Date.
Cancel message play.	Cancel.	Goodbye.





## Frequently Asked Questions

This chapter answers frequently asked questions about VMI.

**Q: What is the Vocera Messaging Interface?**

**A:** The Vocera Messaging Interface (VMI) is an application programming interface (API) that enables text messaging between external systems and Vocera badges and smartphones via the Vocera server. VMI allows a **client** (for example, a nurse call or patient monitoring system) to send a text message to a badge or smartphone, and to receive acknowledgements that describe the delivery status of the message, along with optional responses from a message **recipient**.

**Q: Which healthcare, hospitality, and middleware solutions are supported with VMI?**

**A:** For a list of vendors of nurse call, patient monitoring, patient flow, medical telemetry, hospitality, and middleware systems, and other solutions that Vocera has integrated with using VMI, contact your Vocera representative.

Also, see the [Vocera Voice Integration<sup>1</sup>](#) page.

**Q: How does a badge user read a VMI message?**

**A:** When a VMI message arrives on the Vocera badge, the message text is displayed on the badge immediately. A badge user can read the message on the badge LCD or press the Select button twice to play the message aloud. Urgent VMI messages are automatically played aloud.

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<sup>1</sup> <http://www.vocera.com/index.php/voice/integration>



When a VMI message is played aloud, a beep tone will sound when the message is finished playing. At that point, the user can say one of the valid responses, such as “Reject” or “Accept.” After 1.5 seconds, the user is placed into an interactive voice-driven menu where the valid responses to the message are announced to assist the user. The user can say one of the valid responses, call back to the sender, or skip the call.

**Q: How does a Vocera smartphone user read a VMI message?**

**A:** The experience is very similar to reading a VMI message on a badge. When a VMI message arrives on the Vocera smartphone, the message text is displayed on the phone immediately. The user can read the message onscreen or press **Open Message** to open it. Urgent VMI messages are automatically played aloud on the smartphone, and users can respond to the message using voice commands.

**Q: What kinds of messages can be sent to a badge from VMI?**

**A:** VMI can send text messages, and a VMI message can include audio files (.WAV files) containing recordings of the message and responses (if any). Vocera users can play text messages aloud using Vocera’s text-to-speech feature.

**Q: How does VMI distinguish between normal, high priority, and urgent calls?**

**A:** VMI interprets three levels of call priority – normal, high, and urgent.

- When a Vocera device receives a normal VMI message, it plays a tone (“klunk”) and displays the message text onscreen.
- When a Vocera device receives a high priority message, it plays a different tone (two “klunks”) and displays the message text onscreen.
- When a Vocera device receives an urgent message, it plays a tone (two “klunks”) and then automatically plays the message aloud.

**Note:** You can customize the alert tones for VMI messages.

**Q: Can VMI messages be sent to groups?**

**A:** Yes. A VMI message can be sent to a group identified by the group name or the Vocera extension stored in a group profile on the Vocera server.

**Q: What is the maximum number of characters per message?**

**A:** The maximum number of characters allowed in a VMI text message is 256 characters.

**Q: How are VMI messages managed?**



**A:** VMI can delete messages from a user's badge by message ID and user ID. The message is removed from the badge regardless of its status (Read, Saved, etc.)

Status and content for text messages are stored on the Vocera Server and redelivered if the user logs in using a different badge.

Up to 20 messages are stored automatically for each user. When the twenty-first message comes in, the first (oldest) stored message is deleted. Saved messages can only be deleted by the user or, if delivered by the VMI interface, by the VMI application.

The Vocera Server Sweep interval and age can also be used to manage text messages. Users can explicitly save messages. These messages are prefixed with "[S]" on the badge display. Up to 10 messages can be saved.

If the saved message count is 10, then a saved message must be "Unsaved" (available from the saved text messages menu on the badge) or deleted prior to saving another message.

