

# Vocera Alarm Management Handheld User Guide

Version 2.2.5



# Notice

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## About Vocera Alarm Management

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Vocera Alarm Management is an FDA Class II medical device alarm management platform that helps reduce alarm fatigue by offering a closed-loop secondary alarm notification system with audio-visual cues and contextual data, like ECG wave forms, sent to clinicians via smartphones and other devices.

Features of Vocera Alarm Management include:

- Real time alarms with contextual data in 10~20 second waveform snippet on a smart device
- Configurable filters and escalation rules that improve caregiving
- Native push technology to ensure delivery of fully auditable alarms
- The ability to view contact presence and availability
- Extensive reporting and audit capabilities

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### About the Vocera Alarm Management Handheld Application

The Vocera Alarm Management handheld application enables nurses and other primary caregivers to improve response to critical alarms and reduce alarm fatigue.

When an alarm, such as a cardiac monitoring alarm, is received on the handheld application, the caregiver is given contextual evidence, such as waveforms and vital signs, to help make a decision on whether or not that particular alarm is actionable. Vocera Alarm Management delivers a high-resolution waveform, along with grids and caliper settings that can be set by the individual user at either the unit or the enterprise level. The exact tones that sound on the patient monitor can be used as the tones on the end user's smartphone, dramatically improving the ability to discern one type of alarm from another.

## Vital Information

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Throughout this guide, critical information will be set off from the rest of the text as described here.



**Important:** Text set off in this manner presents important information. Information that is vital to the proper use of the system is labeled as Important.



**Warning:** A warning indicates information that is related to patient or operator safety, or possible damage to the equipment.

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### Warnings / Contraindications / Precautions



**Warning:** If you are using this product in the U.S.A., federal law restricts this device to sale by or on the order of a physician. This system is to be used by trained medical personnel only.



**Warning:** Electrostatic Discharges and certain Electromagnetic fields might adversely affect the functioning of the handheld device. Be aware of your surroundings when operating handheld devices. If it is determined that the use of a particular device in its normal data mode can cause or be susceptible to harmful electromagnetic interference or electrostatic discharge, change the device on which Vocera Alarm Management is deployed.



**Warning:** Vocera Alarm Management is a SECONDARY notification system. This does not reduce the need for primary monitoring on either the patient monitors or at the central stations.



**Warning:** Vocera Alarm Management is only as reliable as your wireless network. Consult your hospital's Information Technology personnel for planning against network issues that might impede proper functioning of the Vocera Alarm Management system. If sufficient network coverage is not available, STOP use of the Vocera Alarm Management system.



**Warning:** Do NOT update or change the firmware or system software on the handheld without prior permission from your hospital Information Systems personnel. Change in system firmware may make the Vocera Alarm Management system inoperable.



**Warning:** If the system is used through the cellular data network, the data connection might be intermittent or the latency very high. This is outside the control of Vocera. Use other means of communication if network latency is high.



**Warning:** Operating this equipment in environments with high electromagnetic radiation might cause noise on the display.



**Warning:** Vocera does not recommend the use of Vocera Alarm Management through the cell phone network when in clinical care areas. Follow your hospital's guidelines and policies regarding the use of cellular devices in clinical areas.

Fully qualified personnel should install, maintain, troubleshoot, calibrate, and repair the system.  
DO NOT use a malfunctioning Vocera Alarm Management system.

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## Cautions and Disclaimers

- The equipment is intended for use by qualified medical personnel and should be used only after personnel have been trained in the proper use of this equipment.  
For continued safety, it is necessary that the instructions listed in this manual are followed. It is important that instructions in this manual in no way supersede established medical procedures concerning patient care. Bring any such conflicts to the attention of your management.
- Ensure that sufficient network coverage exists where Vocera Alarm Management is intended to be used. If deemed essential, deploy a secondary failover network.
- The screen of the device you are using may be set to blank or dim for saving power. It is recommended that you consult with your system administrator and set this up appropriately.
- Report a missing or stolen handheld with Vocera software on it immediately to your system administrator for immediate deactivation of the Vocera Alarm Management client on that device.
- It is recommended that a minimum of 3 users be logged in if at least one patient is being monitored and Vocera Alarm Management is being used for delivery of secondary alarm notification to assure a high reliability rate.
- The system depends on fully charged and functional handheld units being available for use. The customer should accordingly ensure that there are sufficient handheld devices available for use.
- Batteries on devices typically have a limited life. Consult the device user's manual and ensure that batteries have the ability to carry sufficient charge.
- Confirm that you are familiar with identifying the different alarm levels and their respective color and ring tone representations prior to using the system.
- Vocera Alarm Management is individually validated for use at each facility. The overall system delay is explicitly measured. Consult your system administrator and understand the possible system delays prior to using Vocera Alarm Management. Typical Maximum Alarm Generation Delay is in the order of 3 seconds.

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## Trademarks

The names and images of various devices used are trademarks of the various companies that manufacture or market the respective devices.

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## Patents

Vocera Alarm Management and its components are covered by one or more patents pending.

# Using Vocera Alarm Management

## Preparing To Use Vocera Alarm Management

Before you use Vocera Alarm Management, you must perform these steps.

- Make sure you are comfortable with the general user interface of the device on which VAM is deployed. The screen shots presented in this are only examples, although ALL functionality described in this manual is available on all smartphone platforms.
- Make sure that you have undergone VAM training.
- Confirm that the device is sufficiently charged and that the device is functioning.

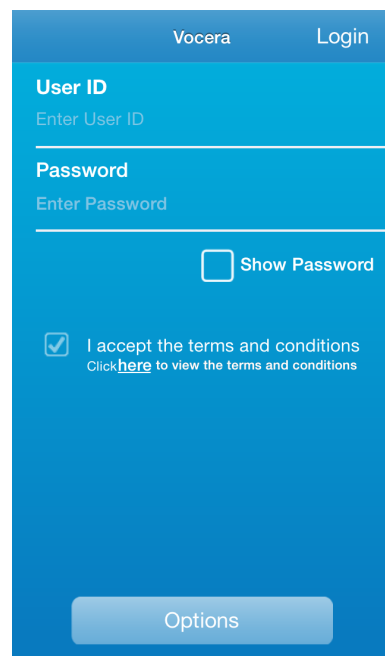
## Operating System Requirements

To use VAM, your device must be running a supported operating system.

- For iOS, versions 7.0 and above are supported.
- For Android, versions 4.1 and above are supported, including version 6.0 (Marshmallow).

## Logging In

To use the handheld application, you must log in.

A screenshot of the Vocera Login screen. The screen has a blue header with 'Vocera' on the left and 'Login' on the right. Below the header, there are two input fields: 'User ID' with the placeholder text 'Enter User ID' and 'Password' with the placeholder text 'Enter Password'. Below the password field is a checkbox labeled 'Show Password'. Below that is a checkbox labeled 'I accept the terms and conditions' with the text 'Click [here](#) to view the terms and conditions' below it. At the bottom of the screen is a button labeled 'Options'.

Launch the VAM application on the handheld. The login screen is launched. Type your user ID and password to log in into the system.



**Important:** Do not give out your unique user ID and password to anyone else. If you forget your user ID or password, or if you have reason to believe your login credentials have been compromised, contact your Vocera system administrator immediately.



**Note:** On iOS devices, you cannot use the & character as part of your password.

## Login Options

In the Login screen, tap Options to display a list of login options.

The following options are available:

Option	Description
Change Server	Change the server that you are using to access VAM.
Ping Server	Test that the VAM server is working.
About	Information on this version of VAM.

Tap **Cancel** to exit the options and return to the Login screen.

## Alarm List / Alarm History Screen

On logging in, the alarm history screen is displayed. This is a list of alarms for the patients/beds you have been assigned by your nurse manager.

Alarms are listed in order from newest to oldest. Scroll down to view older alarms, and scroll up to return to the newest ones.

Tap **All** to display all alarms sent to you, or tap **Unread** to view alarms that you have not yet seen.

For each alarm, the patient name, bed number, time of alarm, and current status of the alarm on the VAM system is shown. The background color shows the level of the alarm.



Alarm History Marshal S		
James White Status: Acknowledged by: Marshal Snow	1	04/22/2015 09:13 AM Bed: 1000
James White Status: Opened by: Marshal Snow	1	04/22/2015 09:03 AM Bed: 1000
Michael Lewis Status: Opened by: Marshal Snow	2	04/22/2015 09:00 AM Bed: 1001
Jeff Carter Status: Opened by: Marshal Snow	3	04/22/2015 08:57 AM Bed: 1002
Sandra Turner Status: Opened by: Marshal Snow	4	04/22/2015 08:54 AM Bed: 1003
Margaret Green	5	04/22/2015
All Unread		

The alarm history also displays the status of each alarm WITHIN the VAM system. The status is one of the following:

Status	Description
New	An alarm that has not yet been opened.
Opened	An alarm that has been viewed but not yet responded to.
Acknowledged	An alarm that has been responded to.
Escalated	An alarm that has been escalated to either a higher-level nurse or a physician.



**Important:** Acknowledging an alarm on VAM does NOT silence or acknowledge the alarm on the patient monitor or the central station.

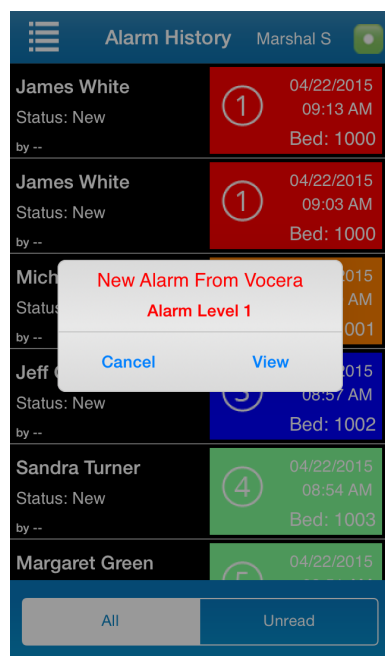
## Alarm Notification

These sections describe notification delivery, alarm level and type, and reminders.

### New Alarms

When a new alarm is delivered to you, VAM pops up a notification.

The phone will also ring the preset ring tone chosen by your system administrator, which may vary depending upon the level of the alarm.



Click **View** to open the alarm and view the alarm details directly. Click **Cancel** if you want to ignore the alarm. If you have logged out of VAM, the system will prompt you to login with your unique username and password.

The New Alarm notification and ring occurs regardless of which screen you are currently viewing. Click **View** to display the details of the new alarm.



**Note:** The VAM server configures the ring tone volume.

## Alarms Level/Type

The notification ring tone, the color presentation of the pop up, and the background color of the alarm in the alarm list depend on the type and criticality of the alarm. The specific color, ring tone, and ring volume depend on local configuration.

Alarms can also include system alarms, which are generated when a nurse is out of Wi-Fi range. These alarms, intended for the charge nurse, are typically presented in a different background color scheme and ring tone.

If multiple new alarms present themselves at the same time, the ring tone and color of the new alarm pop up correspond to the alarm with the highest criticality. For example, if a Patient Warning and a Patient Crisis alarm present together, the pop up indicates a Patient Crisis color code and ring tone.

## Reminders

If there are unacknowledged alarms on your handheld device that exceed a preset time limit set by your system administrator, the device displays a popup to remind you to view and acknowledge those alarms.

Clicking **View** opens the alarm, while clicking **Cancel** returns you to the screen that was displayed before the pop up reminder appeared.



**Note:** Pop up reminders are not displayed if your system administrator has specified that alarms are to be escalated before reminders are sent.

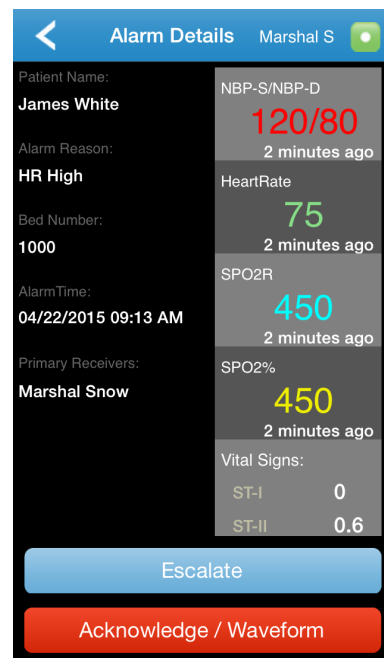
## Alarm Details Screen

The Alarm Details screen shows the particulars of an alarm. This includes the bed number, the time of the event, the patient name, the reason for the alarm, and the patient's vital signs.

It also shows the primary nurse responsible for the alarm. If an alarm is escalated to you, the primary receiver section shows the original nurse who was assigned to the bed.

From this screen, you can:

- Acknowledge the alarm while electing to review the waveform that is associated with the alarm.
- Review a waveform snapshot.
- Escalate the alarm to the physician in charge of the bed, if your hospital administrator has enabled this feature.



## Waveform Review

When you acknowledge a patient alarm, the waveform review screen appears. This displays a static waveform for the patient.

This strip is typically 10 seconds long and is positioned so that the center of the strip is in the center of the screen when the waveform is displayed.



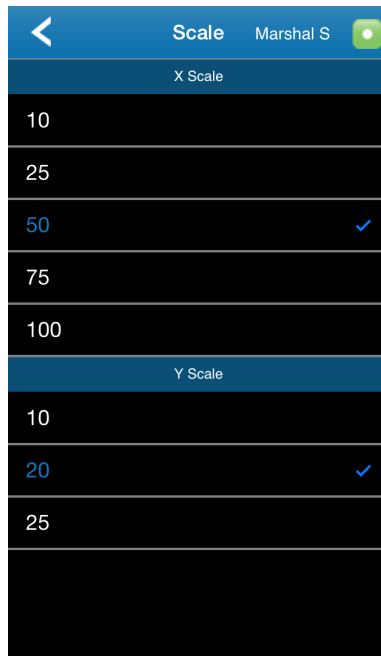
From the Waveform screen, you can:

- Click **Escalate** to escalate the alarm to the physician in charge of the bed, if your hospital administrator has enabled this feature.
- Click to display the latest waveform data for the patient.
- Click to display only waveform data on the screen.
- Click **Grid** to hide or show the display grid. The grid must be displayed if you want to position the caliper.
- Click **Caliper** to display the caliper if it is not already visible.

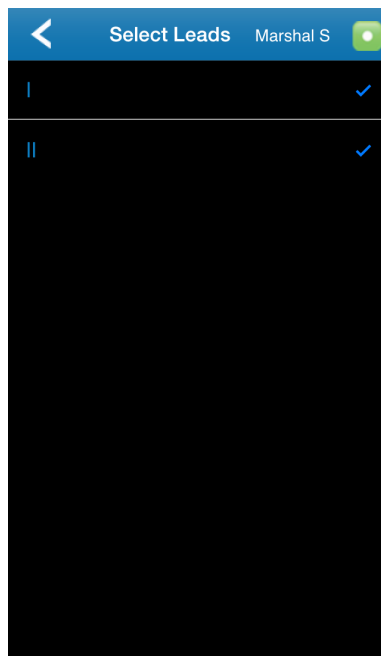


Click and to position the caliper on the waveform, or click **Caliper** again to hide it.

- Click **Scale** to specify the X-axis and Y-axis scale for the waveform:





- Click **Leads** to select the leads to display:



## Patient List

You can display a list of the patients that are in the beds that are assigned to you.

To display the patient list, tap  to display the menu, and then tap **Patient List**.

 Patient List Marshal S 	
James White	Bed: 1000 Primary
Michael Lewis	Bed: 1001 Secondary
Jeff Carter	Bed: 1002 Primary
Sandra Turner	Bed: 1003 Secondary
Margaret Green	Bed: 1004 Primary
Diana Pollard	Bed: 1005 Secondary
William Thompson	Bed: 1006 Primary
Linda Edwards	Bed: 1007 Secondary
Claudia Anderson	Bed: 1008 Primary

An orange background indicates a bed for which you are the primary nurse, and a blue background indicates a bed for which you are a secondary nurse.

### Bed Assignment

In VAM, you can assign yourself to be either the primary nurse or a secondary nurse for a bed, and you can assign yourself to be a secondary nurse for a bed group.

To view bed assignments, select the [Bed Assignment](#) option from the menu, and expand one or more bed groups to view the beds that they contain.



The background color for each bed indicates whether you are assigned to it.

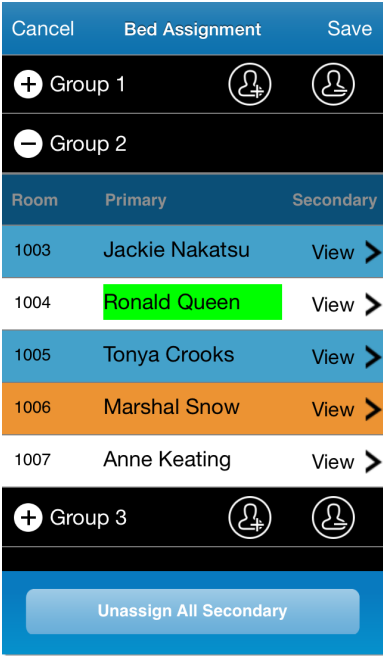
Color	Description
White	The bed is not assigned to you.
Orange	You are the primary nurse for the bed.
Blue	You are a secondary nurse for the bed.

### Assigning the Primary Nurse

When you are logged in to VAM as a nurse, you can assign yourself to be the primary nurse for any bed in your unit, or unassign yourself if you were previously assigned.

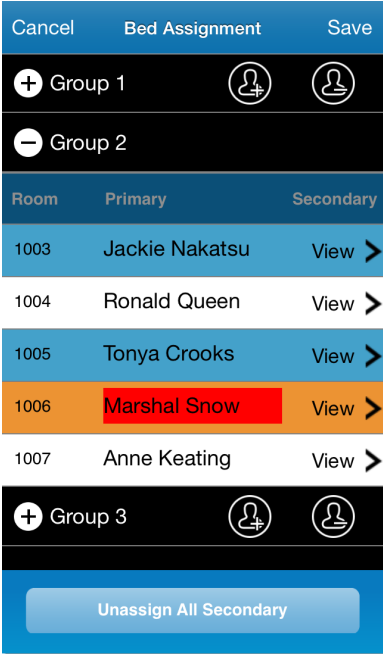
To assign or unassign yourself as the primary nurse:

1. Tap  to display the menu.
2. Tap [Bed Assignment](#). A list of bed groups appears.
3. Tap  to expand a bed group.
4. In the expanded bed group, tap one or more beds to select them. The Primary column for each bed changes to green, which indicates that you are to become the primary nurse for that bed.  
  
The white background color indicates that you were not previously the primary nurse for the bed.



5. If you are the primary nurse for a bed and want to unassign yourself, tap the bed. The Primary column for the bed changes to red, which indicates that you will no longer be the primary nurse for this bed.

The orange background color indicates that you were previously the primary nurse for the bed.



6. Tap Save. The bed assignments are updated to include your changes.





**Note:** If you assign yourself to be the primary nurse for a bed in which you were previously a secondary nurse, you are removed from the list of secondary nurses for this bed.

### Assigning the Secondary Nurse for a Bed

When you are logged in to VAM as a nurse, you can assign yourself to be a secondary nurse for any bed in your unit, or unassign yourself if you were previously assigned.

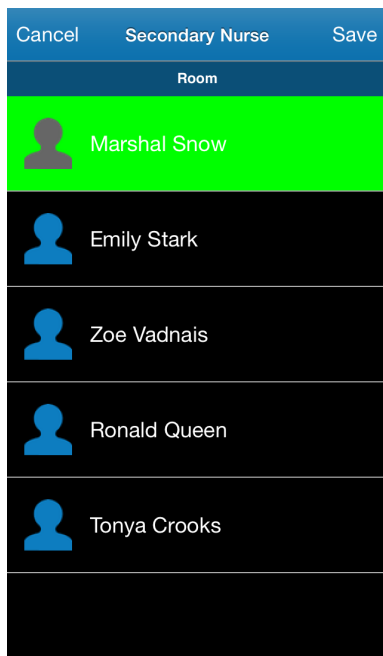
To assign or unassign yourself to be a secondary nurse for a bed:

1. Tap  to display the menu.
2. Tap **Bed Assignment**. A list of bed groups appears.
3. Tap  to expand a bed group.
4. To assign yourself to be a secondary nurse:
  - a. In the expanded bed group, locate the bed to which you want to assign yourself as secondary nurse, and tap **View**. A list of secondary nurses appears.



**Note:** You cannot assign yourself to be a secondary nurse for a bed for which you are already the primary nurse.

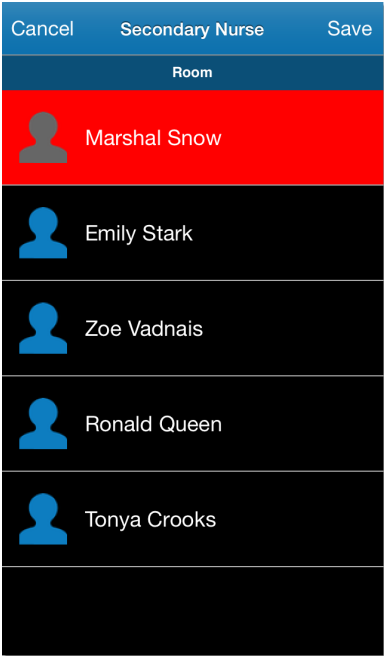
- b. Tap any slot in the list to add yourself as a secondary nurse. If a secondary nurse is already listed in that slot, that nurse will be removed from the list of secondary nurses. The background color for the list entry is set to green, indicating that you are being added to the list.



The number of secondary nurses in the list is set by the system administrator.

5. To remove yourself from the secondary nurse list:
  - a. In the expanded bed group, locate the bed to which you want to unassign yourself as secondary nurse. This bed display will have a blue background.
  - b. Locate your name in the list of secondary nurses, and tap it. This changes the background color for this list entry to red, indicating that you are being removed from the list.



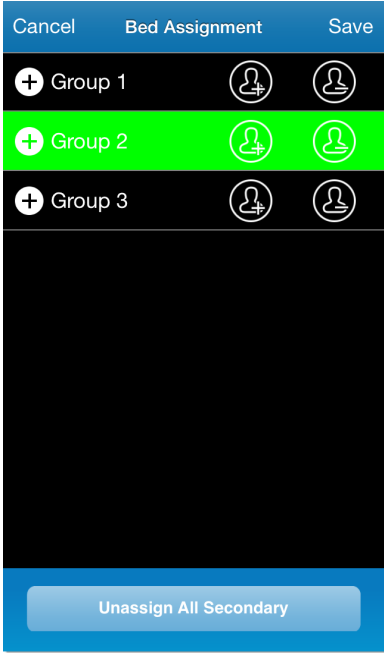


6. Tap **Save**. This updates the bed to add or remove you as a secondary nurse.


**Assigning the Secondary Nurse for a Bed Group**

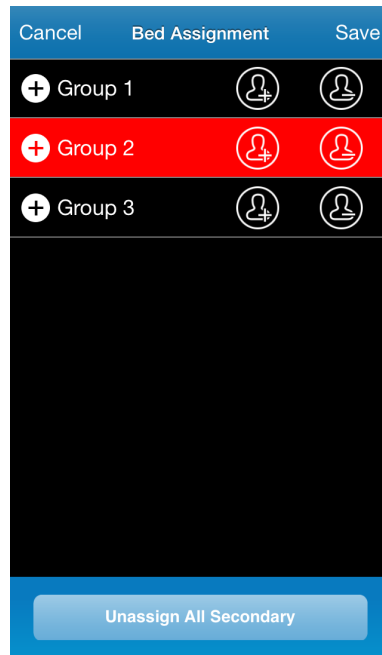
For convenience, you can assign yourself or unassign yourself to an entire bed group at once.

- 1. Tap to display the menu.
- 2. Tap **Bed Assignment**. A list of bed groups appears.
- 3. To assign yourself as a secondary nurse for a bed group, tap . The background color for the bed group changes to green.



**Note:** You cannot assign yourself as a secondary nurse for a bed group if you are the primary or secondary nurse for a bed in the group.

4. To unassign yourself as a secondary nurse for a bed group, tap . The background color for the bed group changes to red.



**Note:** You cannot unassign yourself as a secondary nurse for a bed group if you are the primary nurse for a bed in the group.

5. Tap Save. This updates the bed group to add or remove you as a secondary nurse.



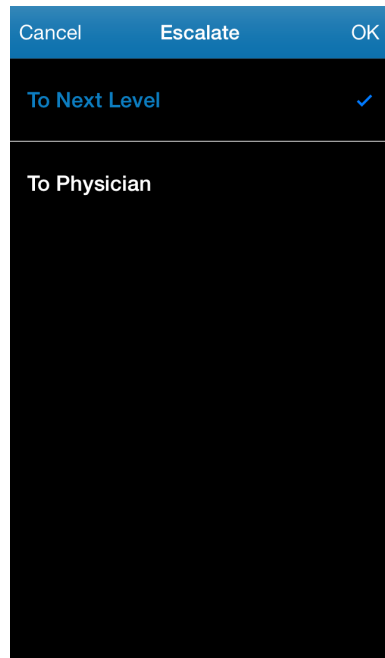
**Tip:** To unassign yourself as a secondary nurse from all beds and bed groups, tap Unassign All Secondary.

## Alarm Escalations

VAM, depending upon your local system configuration, will escalate alarms to other handhelds in three possible conditions.

Escalation Condition	Description
Escalation by time out	The system can escalate an alarm to other users if the alarm has not been acknowledged by the primary recipient in a predefined time frame. For example, the system may be configured to escalate a Patient Crisis alarm to ALL logged in users on the floor.
Escalation due to handheld not available	The system can escalate an alarm to other users if the handheld device of the primary recipient is not immediately reachable. For example, if the handheld device of a nurse assigned to a particular bed gets accidentally turned off, any alarms from the beds assigned to that nurse are automatically escalated immediately to other nurses on the floor.
Manual escalation	To escalate an alarm manually, tap <b>Escalate</b> button on the alarm details screen (if this option is enabled).

When you tap **Escalate** to escalate an alarm manually, the Escalate screen displays the escalation options:



Select an escalation option from the list provided, and tap **OK** to escalate the alarm.




**Important:** The escalation rules and escalation timelines are set on VAM by clinical management. Make sure that you are familiar with the local configuration of your VAM system, including the escalation timelines and escalation processes, prior to using the VAM system.

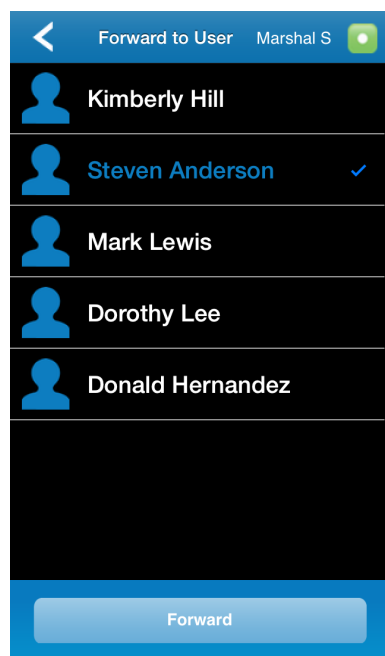
## Test Alarms

The system may be configured to send out test alarms in predefined time intervals. These may be used to remind nurses to manually check on the patients and to support other workflows. Check with your system administrator if this option has been turned on.

## Forward

You can forward alarms from beds you are currently assigned to another logged in nurse on the floor. The forward remains in effect until you manually cancel the forward on your handheld, or you log out of the handheld.

To forward alarms, tap  to display the menu, and then tap **Forward**. In the list of nurses that appears, tap the name of the nurse that you want to forward alarms to, and then tap the **Forward** button at the bottom of the screen.




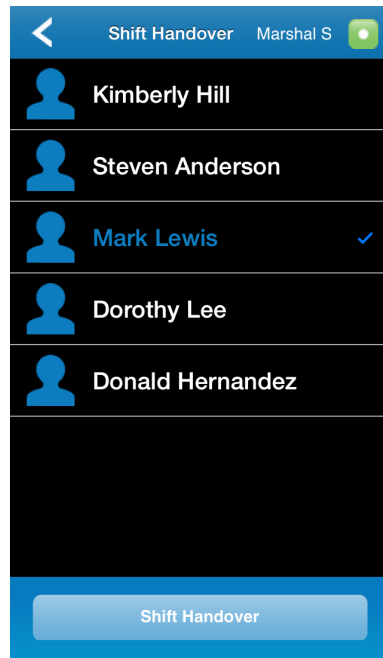
**Important:** IF YOU LOG OUT OF THE HANDHELD WITHOUT CANCELING FORWARD, ALL ALARMS FROM BEDS STILL ASSIGNED TO YOU WILL ESCALATE AS IF NO NURSE IS CURRENTLY ASSIGNED.

## Shift Handover

The shift handover option allows the nurse to hand over patients and beds to the replacement nurse after shift change. All assignments will be automatically reassigned to the shift change nurse, thus eliminating the need to manually assign patients and beds.

To perform a shift handover:

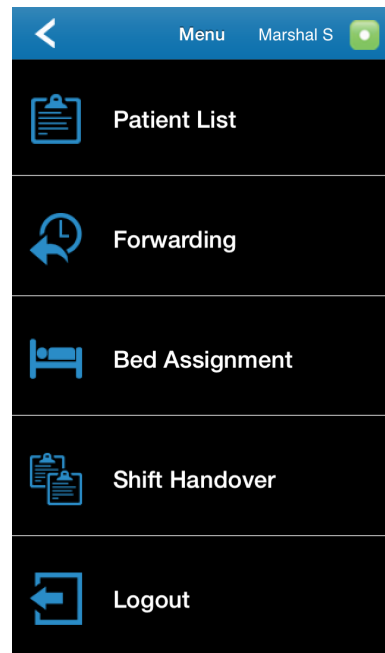
1. Tap  to display the menu.
2. Tap Shift Handover.
3. In the list of nurses that appears, tap the name of the shift change nurse.




4. Tap Shift Handover to initiate the shift handover.

## Logout/Exit

To log out or exit from the VAM system, tap  to display the menu, and then tap Logout.



 **Note:** If you are using Nurse Handheld software, once you log out, YOU NO LONGER CAN RECEIVE ALARMS FROM THE BEDS YOU ARE ASSIGNED TO. Physician Handheld units continue to receive messages even if the physician logs out of the VAM software client.