

Vital Sync™

Virtual Patient Monitoring Platform and Informatics Manager

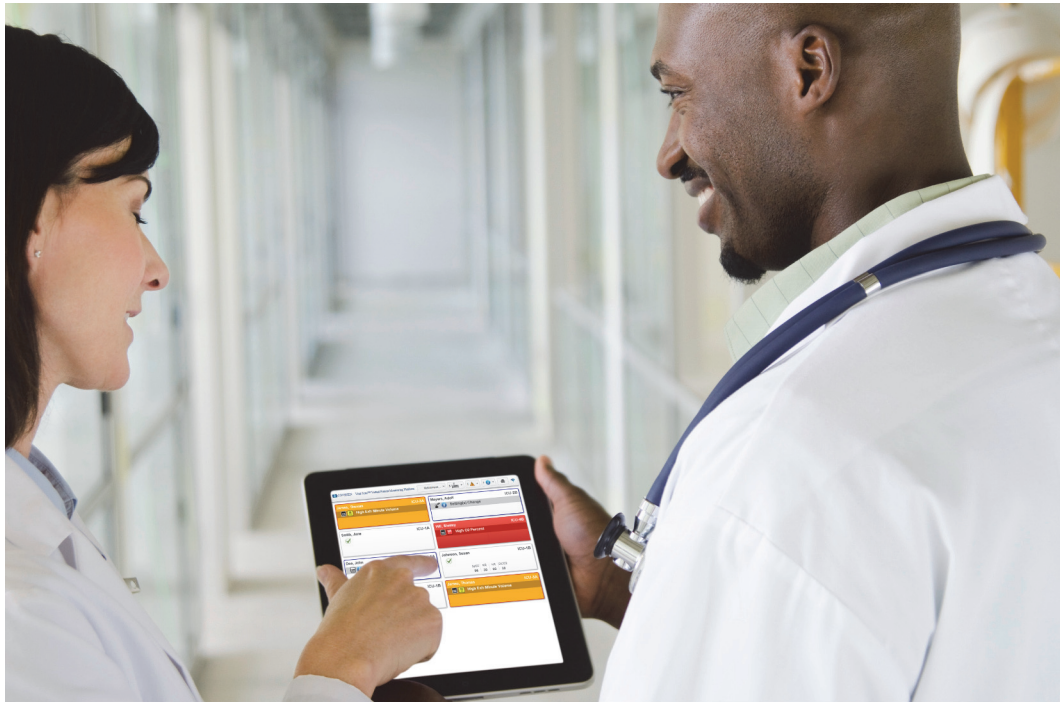


Table of Contents

1 Introduction

1.1	Overview	1-1
1.2	Conventions	1-1
1.3	Applicable Version	1-2
1.4	Labeling Symbols	1-2
1.5	Safety Information	1-2
1.5.1	Safety Symbols	1-2
1.5.2	Warnings	1-3
1.5.3	Cautions	1-5
1.5.4	Notes	1-5
1.6	Obtaining Technical Assistance	1-6
1.6.1	Technical Services	1-6
1.6.2	Related Documents	1-6
1.7	Warranty Information	1-6
1.8	Licensing Information	1-7
1.9	HIPAA Disclaimer	1-7

2 Product Overview

2.1	Overview	2-1
2.2	Intended Use	2-1
2.3	User Interface Overview	2-2
2.3.1	Basic Functions	2-2
2.3.2	User Roles	2-3
2.4	User Interface Symbols	2-5
2.5	Device Types Supported	2-10

3 Installation and Access

3.1	Overview	3-1
3.2	System Requirements	3-1
3.3	Installation	3-1
3.4	Access	3-2
3.5	Login	3-2

4 Clinician and Supervisor Operation

4.1	Overview	4-1
4.2	Alarms and Notifications	4-1
4.3	Navigation and Basic User Interface	4-2
4.3.1	Common Navigation Bar	4-2
4.3.2	Function Drop-Down Menus	4-5

Table of Contents

4.3.3	System Messages	4-5
4.3.4	Multi-Page Lists	4-5
4.3.5	Tool Tips	4-6
4.4	Tile View (Patient Overview Screen)	4-6
4.4.1	Availability by User Role	4-8
4.4.2	Tile Information	4-8
4.4.3	Bed Tile Colors	4-9
4.4.4	Additional Tile View Functions	4-10
4.5	Device Detail Screen	4-12
4.5.1	Availability by User Role	4-12
4.5.2	Screen Layout	4-12
4.5.3	Select a Device	4-23
4.5.4	Manage Device Connections	4-23
4.5.5	View Parameter Trend Data	4-24
4.5.6	View Waveform Detail	4-26
4.5.7	Manage Patient Detail	4-27
4.5.8	View Event Rules	4-30
4.5.9	Manage Settings	4-30
4.6	All Patients and Devices Screen	4-32
4.6.1	Availability by User Role	4-32
4.6.2	Patient and Device Information	4-32
4.6.3	Additional View Options	4-33
4.6.4	View Patient and Device Detail	4-33
4.6.5	View Patient Assignments	4-34
4.7	Patient and Device Links	4-34
4.7.1	Availability by User Role	4-34
4.7.2	Link a Patient and a Device	4-35
4.7.3	Link Additional Devices	4-38
4.7.4	Manage Primary Devices	4-38
4.7.5	Device Connection Functions	4-39
4.8	Manual Parameter Entry	4-42
4.9	Discharge (Remove) a Patient	4-43
4.10	Patient Assignments	4-45
4.10.1	Availability by User Role	4-46
4.10.2	Patient Assignment Screen Layout	4-46
4.10.3	Show Unassigned Patients	4-47
4.10.4	Show Another User's Assignments	4-47
4.10.5	Show Assignments by Work Shift	4-48
4.10.6	Change Patient Assignments	4-49
4.11	Area Assignments	4-52
4.11.1	Availability by User Role	4-53
4.11.2	Area Assignment Screen Layout	4-53
4.11.3	Show Unassigned Areas	4-54

Table of Contents

4.11.4	Show Another User's Assignments	4-54
4.11.5	Show Assignments by Work Shift	4-55
4.11.6	Change Area Assignments	4-56
4.12	Select User Mode	4-59
4.13	Event List	4-60
4.13.1	Event Information	4-61
4.13.2	Specify Events Per Page and Sort Order	4-61
4.13.3	Lock the Event Display	4-61
4.14	Reports	4-62
4.15	Change Password	4-62
4.16	Audible Alerts	4-63
4.17	Help	4-65
4.18	Version Information	4-65
4.19	Platform Logout	4-66

5 Administrative Operation

5.1	Overview	5-1
5.2	Navigation and Basic User Interface	5-1
5.2.1	Screen Links	5-2
5.2.2	Multi-Page Lists	5-2
5.2.3	System Messages	5-2
5.2.4	Save and Cancel Functions	5-3
5.2.5	Deletion of Field Text	5-3
5.2.6	Sort Function	5-3
5.3	Administrative Home Screen	5-4
5.3.1	Availability by User Role	5-4
5.3.2	Dashboard Tiles	5-4
5.4	Manage Users	5-6
5.4.1	Availability by User Role	5-6
5.4.2	User Information	5-6
5.4.3	User Status	5-7
5.4.4	Add or Edit a User	5-7
5.4.5	Change User Status	5-11
5.4.6	Unlock a User	5-12
5.4.7	Manage Passwords	5-13
5.5	Manage Bedside Display Users	5-15
5.5.1	Availability by User Role	5-15
5.5.2	Bedside Unit User Information	5-15
5.5.3	Bedside Display User Status	5-16
5.5.4	Edit a Bed Assignment	5-16
5.5.5	Change Bedside User Status	5-17
5.6	Manage Shifts	5-18
5.6.1	Availability by User Role	5-18

Table of Contents

5.6.2	Shift Information	5-18
5.6.3	Add or Edit a Shift	5-19
5.6.4	Delete a Shift	5-20
5.7	Manage Locations	5-20
5.7.1	Manage Areas	5-20
5.7.2	Manage Beds	5-24
5.8	Manage Device Inventory	5-26
5.8.1	Availability by User Role	5-26
5.8.2	Device Information	5-27
5.8.3	Add or Edit a Device	5-27
5.8.4	Delete a Device	5-29
5.9	Device Status	5-29
5.9.1	Availability by User Role	5-29
5.9.2	Basic Device Data	5-29
5.9.3	Device Detail	5-30
5.10	Manage Alarm, Notification, and Setting Rules	5-31
5.10.1	Availability by User Role	5-32
5.10.2	Access Rule Sets	5-32
5.10.3	Rule Set Information	5-33
5.10.4	Add or Edit a Rule Set	5-33
5.10.5	Define Alarm and Notification Rules	5-37
5.10.6	Delete Rules	5-40
5.11	Manage Alerts	5-42
5.11.1	Availability by User Role	5-43
5.11.2	Alert Information	5-43
5.11.3	Edit an Alert	5-43
5.12	Manage Parameters	5-45
5.12.1	Availability by User Role	5-45
5.12.2	Parameter Information	5-45
5.12.3	Add a Parameter	5-46
5.12.4	Export a Parameter	5-46
5.13	Manage Algorithms	5-47
5.13.1	Availability by User Role	5-47
5.13.2	Algorithm Information	5-47
5.13.3	Add an Algorithm	5-47
5.13.4	Activate or Deactivate an Algorithm	5-48
5.13.5	Algorithm Use and Behavior	5-48
5.14	System Status and Utilization Reports	5-49
5.15	Help	5-49
5.16	Version Information	5-50
5.17	Platform Logout	5-50

Table of Contents

6 Reports

6.1	Overview	6-1
6.2	Access	6-1
6.3	Report Functions	6-2
6.3.1	Reports Screen	6-2
6.3.2	Select Report Output	6-3
6.3.3	Navigate Reports	6-5
6.3.4	Additional Report View Functions	6-5
6.3.5	Report Data Functions	6-6
6.3.6	Print a Report	6-6
6.4	Administrative Reports	6-7
6.4.1	Alarm Normalization Report	6-7
6.4.2	Alarm Rule Set Report	6-8
6.4.3	Application Event Log	6-10
6.4.4	Connectivity Details	6-11
6.4.5	Connectivity Summary	6-12
6.4.6	DPA Usage Summary	6-14
6.4.7	Historical Performance Log	6-15
6.4.8	Users by Time of Day	6-16
6.5	Clinician Reports	6-17
6.5.1	Alarm Threshold Analysis	6-17
6.5.2	Comprehensive Oximetry and Capnography	6-20
6.5.3	Device Usage Hours Per Patient	6-23
6.5.4	Oxygenation Snapshot	6-24
6.5.5	Reported Apneas Per Hour	6-26
6.5.6	Ventilation Snapshot	6-28
6.6	Supervisory Reports	6-29
6.6.1	Alarm Duration by Time of Day	6-30
6.6.2	Alarm Occurrence Pareto Chart	6-31
6.6.3	Alarm Threshold Analysis	6-32
6.6.4	Comprehensive Oximetry and Capnography	6-32
6.6.5	Device Usage Hours Per Patient	6-32
6.6.6	Device Utilization	6-32
6.6.7	Highest Frequency Setting Changes	6-34
6.6.8	Monitored Patients Per Day	6-35
6.6.9	Oxygenation Snapshot	6-36
6.6.10	Setting Change Acknowledgement Time	6-36
6.6.11	Subscription Utilization	6-38
6.6.12	Ventilation Snapshot	6-39

Table of Contents

7 Supplementary Information

7.1	Overview	7-1
7.2	Alarm Communication from Devices	7-1
7.3	Locations	7-1
7.3.1	Areas	7-1
7.3.2	Beds	7-2
7.3.3	Use and Behavior of Locations	7-2
7.4	Alarm Functionality and Behavior	7-3
7.4.1	Device Data Reporting	7-3
7.4.2	True Alarm Duration	7-4
7.4.3	Alarm Escalation	7-5
7.5	Alarm Rule Considerations	7-5
7.5.1	Event and Delay Options	7-6
7.5.2	Delay Constraints	7-6
7.5.3	Effects of Rule Settings	7-7
7.6	Event Priority	7-8
7.7	Default Alarm Priority by Device	7-9
7.8	Audible Alert Tones	7-11
7.8.1	Alert Tone Types	7-11
7.8.2	Alert Silencing and Device Alarms	7-12
7.9	Device Auto-Reconnection	7-12
7.10	Device Data Handling After Unlinking	7-13
7.11	Web API Functionality	7-13
7.12	Relevant Standards	7-14
7.13	Functionality Summary	7-14
7.13.1	Clinicians	7-14
7.13.2	Supervisors	7-17
7.13.3	Administrators	7-21
7.13.4	Other Roles	7-23

8 Alarms

8.1	Overview	8-1
8.2	Summary of Alarm Indicators	8-1
8.2.1	Visual Indicators	8-1
8.2.2	Audible Indicators	8-3
8.3	Clear Alarm Indicators	8-4
8.4	Audible Alerts and Alarms	8-4
8.4.1	Silence Audible Alerts in the Platform	8-4
8.4.2	Paused or Silenced Device Alarm Indicators	8-5
8.5	View Alarm Information	8-6
8.5.1	Common Navigation Bar	8-7
8.5.2	Bed Tiles	8-7

Table of Contents

8.5.3	Device Detail Screen (Patient Header)	8-8
8.5.4	Device Detail Screen (Parameter Panel)	8-9
8.5.5	Device Detail Screen (Parameter Trend Window)	8-9
8.5.6	Device Detail Screen (Event Panel)	8-10
8.6	Filtered Alarms	8-11
8.6.1	Bed Tiles	8-11
8.6.2	Device Detail Screen (Patient Header)	8-12
8.6.3	Device Detail Screen (Parameter Tile)	8-13
8.6.4	Device Detail Screen (Event Panel)	8-13
8.6.5	Other Locations	8-14
8.7	Event Priority	8-14
8.8	Alarm Behavior in the Platform	8-15

9 Notifications

9.1	Overview	9-1
9.2	Summary of Notification Indicators	9-1
9.2.1	Visual Indicators	9-1
9.2.2	Audible Indicators	9-2
9.3	View Notification Information	9-3
9.3.1	Common Navigation Bar	9-3
9.3.2	Bed Tiles	9-3
9.3.3	Device Detail Screen (Patient Header)	9-7
9.3.4	Device Detail Screen (Parameter Panel)	9-7
9.3.5	Device Detail Screen (Event Panel)	9-8
9.3.6	Device Detail Screen (Settings Panel)	9-8
9.4	View and Acknowledge Setting Changes	9-9
9.5	Event Priority	9-10

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List of Figures

Figure 3-1.	Login Screen	3-2
Figure 4-1.	Common Navigation Bar (Standard)	4-2
Figure 4-2.	Function Menu (Clinician)	4-3
Figure 4-3.	Function Menu (Supervisor)	4-3
Figure 4-4.	Alarm Button Menu	4-4
Figure 4-5.	Notification Button Menu.....	4-4
Figure 4-6.	Device Button Menu	4-4
Figure 4-7.	Example Function Drop-Down Menu	4-5
Figure 4-8.	Example System Message	4-5
Figure 4-9.	Tool Tip	4-6
Figure 4-10.	Patient Overview Screen (Tile View).....	4-7
Figure 4-11.	Bed Tile Detail	4-7
Figure 4-12.	Device Tile Detail	4-8
Figure 4-13.	Bed Tile (patient name hidden)	4-11
Figure 4-14.	Device Detail Screen Layout (Ventilator)	4-13
Figure 4-15.	Device Detail Screen Layout (Pulse Oximeter or Capnography Monitor)	4-14
Figure 4-16.	Device Detail Screen Layout (Derived Parameter Algorithm)	4-14
Figure 4-17.	Patient Header Panel	4-15
Figure 4-18.	Patient Header Panel (alarm indicated).....	4-15
Figure 4-19.	Device Header Panel (ventilator)	4-16
Figure 4-20.	Device Header Panel (pulse oximeter or capnography monitor).....	4-16
Figure 4-21.	Device Header Panel (regional saturation monitor).....	4-16
Figure 4-22.	Parameter Panel (ventilator data)	4-17
Figure 4-23.	Parameter Panel (pulse oximeter data).....	4-18
Figure 4-24.	Parameter Panel (capnography monitor data)	4-18
Figure 4-25.	Parameter Panel (bispectral index monitor data)	4-19
Figure 4-26.	Parameter Panel (four-channel regional saturation monitor data)	4-19
Figure 4-27.	Parameter Panel (two-channel regional saturation monitor data).....	4-19
Figure 4-28.	Waveform Panel (ventilator data)	4-20
Figure 4-29.	Waveform Panel (pulse oximeter data).....	4-21
Figure 4-30.	Waveform Panel (capnography monitor data)	4-21
Figure 4-31.	Settings Panel	4-21
Figure 4-32.	Trend Panel	4-22
Figure 4-33.	Event Panel.....	4-23
Figure 4-34.	Parameter Trend Window	4-24
Figure 4-35.	Parameter Trend Window (alarm and setting change icons and alarm message shown) ..	4-25
Figure 4-36.	Parameter Trend Window (specific data point shown)	4-25
Figure 4-37.	Waveform Detail Window	4-26
Figure 4-38.	Waveform Detail Window (specific data shown)	4-26
Figure 4-39.	Waveform Detail Window (specific data shown for multiple waveforms)	4-27
Figure 4-40.	Device Detail Screen (patient information fields)	4-27
Figure 4-41.	Update Patient Information Window	4-28
Figure 4-42.	Update Patient Location Window.....	4-29
Figure 4-43.	Rules and Settings Dialog (example delay rules shown)	4-30
Figure 4-44.	Rules and Settings Dialog (example alert thresholds shown)	4-31

List of Figures

Figure 4-45.	All Patients and Devices Screen	4-32
Figure 4-46.	All Patients and Devices Screen (assignments shown for a patient)	4-34
Figure 4-47.	Tile View (device tile dragged onto bed tile at lower left)	4-35
Figure 4-48.	Admit Patient Screen	4-36
Figure 4-49.	Admit Patient Screen (available device list)	4-37
Figure 4-50.	Link New Device dialog	4-38
Figure 4-51.	Device Detail Screen (making a device primary)	4-39
Figure 4-52.	Device Detail Screen (device disconnected from the platform)	4-40
Figure 4-53.	Device Detail Screen (patient information fields & Discharge Patient button)	4-44
Figure 4-54.	Patient Assignment Screen	4-45
Figure 4-55.	Patient Assignment Screen (unassigned patients shown)	4-47
Figure 4-56.	Patient Assignment Screen (other user selected)	4-47
Figure 4-57.	Patient Assignment Screen (other user's assignments)	4-48
Figure 4-58.	Patient Assignment Screen (shift menu shown)	4-48
Figure 4-59.	Area Assignment Screen	4-52
Figure 4-60.	Area Assignment Screen (unassigned areas shown)	4-54
Figure 4-61.	Area Assignment Screen (other user selected)	4-54
Figure 4-62.	Area Assignment Screen (other user's assignments)	4-55
Figure 4-63.	Area Assignment Screen (shift menu shown)	4-55
Figure 4-64.	Select User Menu	4-59
Figure 4-65.	Navigation Bar (Select User Mode)	4-59
Figure 4-66.	Event List Screen	4-60
Figure 4-67.	Device Detail Screen (Reports tab)	4-62
Figure 4-68.	Change Password Dialog	4-63
Figure 4-69.	Audible Alerts Dialog (control of alerts locked)	4-64
Figure 4-70.	Audible Alerts Dialog (control of alerts unlocked)	4-64
Figure 4-71.	Version Information ("About") Dialog	4-66
Figure 5-1.	Example Administrative Navigation Links	5-2
Figure 5-2.	Example System Message	5-2
Figure 5-3.	Column Sort (cursor and heading to be sorted shown)	5-3
Figure 5-4.	Administrative Home Screen	5-4
Figure 5-5.	Manage Users Screen	5-6
Figure 5-6.	Manage Users Screen (inactive users shown)	5-7
Figure 5-7.	Create User Screen	5-8
Figure 5-8.	Edit User Screen	5-9
Figure 5-9.	User Deactivation Dialog	5-11
Figure 5-10.	User Activation Dialog	5-12
Figure 5-11.	User Deletion Confirmation Dialog	5-12
Figure 5-12.	User Unlock Dialog	5-13
Figure 5-13.	Password Reset Confirmation Dialog	5-13
Figure 5-14.	Password Reset Confirmation Message	5-14
Figure 5-15.	Change Password Dialog	5-14
Figure 5-16.	Manage Bedside Display Users Screen	5-15
Figure 5-17.	Manage Bedside Display Users Screen (inactive user records shown)	5-16
Figure 5-18.	Edit Bedside Display Bed Assignment Screen	5-17

List of Figures

Figure 5-19.	Bedside Display User Deactivation Dialog	5-17
Figure 5-20.	Bedside Display User Activation Dialog	5-18
Figure 5-21.	Manage Shifts Screen.....	5-18
Figure 5-22.	Add Shift Screen.....	5-19
Figure 5-23.	Edit Shift Screen	5-19
Figure 5-24.	Manage Areas Screen.....	5-21
Figure 5-25.	Add Area Screen	5-22
Figure 5-26.	Edit Area Screen	5-22
Figure 5-27.	Manage Beds Screen	5-24
Figure 5-28.	Add Bed Screen	5-25
Figure 5-29.	Edit Bed Screen.....	5-25
Figure 5-30.	Manage Device Inventory Screen.....	5-26
Figure 5-31.	Add Device Screen	5-27
Figure 5-32.	Edit Device Screen.....	5-28
Figure 5-33.	Device Status Screen	5-29
Figure 5-34.	Device Detail Window (General tab)	5-30
Figure 5-35.	Device Detail Window (Support tab)	5-31
Figure 5-36.	Manage Rule Sets Screen	5-32
Figure 5-37.	Add Rule Set Screen (Alarm Rules Tab).....	5-33
Figure 5-38.	Add Rule Set Screen (Settings Rules tab)	5-34
Figure 5-39.	Edit Rule Sets Screen (Alarm Rules Tab)	5-35
Figure 5-40.	Edit Rule Sets Screen (Settings Rules Tab)	5-35
Figure 5-41.	Custom Rule Dialog	5-38
Figure 5-42.	Rule Set (with custom rule)	5-39
Figure 5-43.	Edit Rule Set Screen (custom rule deletion)	5-41
Figure 5-44.	Manage Alerts Screen	5-42
Figure 5-45.	Alert Edit Screen.....	5-44
Figure 5-46.	Manage Parameters Screen.....	5-45
Figure 5-47.	Upload Parameter Definitions Screen	5-46
Figure 5-48.	Manage Algorithms Screen.....	5-47
Figure 5-49.	Add Algorithm Screen.....	5-48
Figure 5-50.	Version Information ("About") Dialog	5-50
Figure 6-1.	Patient Report Options Tab in Device Detail screen	6-2
Figure 6-2.	Reports Screen (including example report selection buttons and report output)	6-3
Figure 6-3.	Calendar Drop-Down Window.....	6-4
Figure 6-4.	Time Drop-Down Window.....	6-4
Figure 6-5.	Alarm Normalization Report	6-7
Figure 6-6.	Alarm Rule Set Report	6-8
Figure 6-7.	Application Event Log	6-10
Figure 6-8.	Connectivity Details Report.....	6-11
Figure 6-9.	Connectivity Summary Report.....	6-12
Figure 6-10.	DPA Usage Summary Report	6-14
Figure 6-11.	Historical Performance Log	6-15
Figure 6-12.	Users by Time of Day Report.....	6-16
Figure 6-13.	Alarm Threshold Analysis	6-18

List of Figures

Figure 6-14.	Comprehensive Oximetry and Capnography Report (summary and some IPI data shown)	6-20
Figure 6-15.	Device Usage Hours Per Patient	6-23
Figure 6-16.	Oxygenation Snapshot Report	6-24
Figure 6-17.	Reported Apneas Per Hour (12-hour output shown)	6-26
Figure 6-18.	Ventilation Snapshot Report	6-28
Figure 6-19.	Alarm Duration by Time of Day Report	6-30
Figure 6-20.	Alarm Occurrence Pareto Chart	6-31
Figure 6-21.	Device Utilization Report	6-32
Figure 6-22.	Highest Frequency Setting Changes Report	6-34
Figure 6-23.	Monitored Patients Per Day Report	6-35
Figure 6-24.	Setting Change Acknowledgement Time Report	6-36
Figure 6-25.	Subscription Utilization Report	6-38
Figure 8-1.	Silence Button	8-4
Figure 8-2.	Silence Button (alerts silenced)	8-5
Figure 8-3.	Bed Tile (platform alert silence indicated)	8-5
Figure 8-4.	Bed Tile (device alarm pause or silence indicated)	8-6
Figure 8-5.	Patient Header Panel (device alarm pause or silence indicated)	8-6
Figure 8-6.	Common Navigation Bar (alarms indicated)	8-7
Figure 8-7.	Bed Tile (alarm indicated)	8-7
Figure 8-8.	Bed Tile (secondary alarm indicator shown)	8-8
Figure 8-9.	Patient Header (active alarm indicated on device)	8-8
Figure 8-10.	Parameter Panel (alarm indicators shown)	8-9
Figure 8-11.	Parameter Trend Window (alarm message shown)	8-9
Figure 8-12.	Event Panel (alarms and durations shown)	8-10
Figure 8-13.	Alarm Information Window	8-10
Figure 8-14.	Bed Tile (filtered alarm indicated)	8-11
Figure 8-15.	Bed Tile (secondary alarm indicator shown for filtered alarm)	8-12
Figure 8-16.	Patient Header (filtered alarm indicated on device)	8-12
Figure 8-17.	Parameter Panel (filtered alarm indicated for parameter)	8-13
Figure 8-18.	Event Panel (filtered alarm message shown)	8-13
Figure 8-19.	Filtered Out Alarm Information Window	8-13
Figure 9-1.	Common Navigation Bar (notifications indicated)	9-3
Figure 9-2.	Bed Tile (reset alarm indicated)	9-3
Figure 9-3.	Bed Tile (setting change indicated)	9-4
Figure 9-4.	Bed Tile (device disconnection indicated)	9-4
Figure 9-5.	Bed Tile (informational notification indicated)	9-5
Figure 9-6.	Bed Tile (unfavorable patient event indicated)	9-5
Figure 9-7.	Bed Tile (favorable patient event indicated)	9-6
Figure 9-8.	Bed Tile (secondary notification indicator shown)	9-6
Figure 9-9.	Patient Header (standard notification indicated)	9-7
Figure 9-10.	Patient Header (unfavorable patient event indicated)	9-7
Figure 9-11.	Patient Header (favorable patient event indicated)	9-7
Figure 9-12.	Parameter Panel (reset alarm indicator shown)	9-7
Figure 9-13.	Settings Panel (changed settings shown)	9-8
Figure 9-14.	Unacknowledged Settings Changes Window	9-9

List of Tables

Table 1-1.	Labeling Symbol Definitions	1-2
Table 1-2.	Safety Symbol Definitions	1-2
Table 2-1.	Device Symbol Definitions	2-5
Table 2-2.	Alarm and Status Symbol Definitions	2-5
Table 2-3.	Miscellaneous User Interface Symbol Definitions	2-9
Table 7-1.	Device Communication Rates and Disconnect Periods	7-3
Table 7-2.	Event Priority Ranking	7-8
Table 7-3.	Device and Algorithm Priority Ranking	7-9
Table 7-4.	Default Automatic Reconnection Intervals	7-12
Table 7-5.	Harmonized Standards	7-14
Table 7-6.	Non-Harmonized Standards	7-14
Table 8-1.	Visual Alarm Indicators (Normal Alarms)	8-1
Table 8-2.	Visual Alarm Indicators (Filtered or Silenced Alarms)	8-2
Table 8-3.	Alarm Colors	8-2
Table 8-4.	Audible Alert Tones (Default)	8-3
Table 9-1.	Visual Notification Indicators (Device-Related)	9-1
Table 9-2.	Visual Notification Indicators (Informational)	9-2
Table 9-3.	Notification Colors	9-2

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1 Introduction

1.1 Overview

This manual provides instructions for the Vital Sync™ virtual patient monitoring platform and informatics manager software. It includes functionality descriptions for users acting in a clinical, supervisory, or link management role, as well as for system and clinical administrators.

1.2 Conventions

Text and terminology conventions used in this manual include the following:

- “Clinician” generally refers to nurses, physicians, respiratory care professionals, and other caregivers.
- “Platform” and “platform component” generally refer to functional areas of the software that are accessible to users acting as clinicians, supervisors, and link managers. “Software” generally refers to functional areas accessible to users acting as administrators and clinical administrators, and also to the product as a whole.
- Button names, menu options, field names, and report field names appear in **boldface** text.
- “Click” refers to the action activating buttons and menus in the platform’s user interface. If using a touch-screen monitor or mobile device, substitute “touch” for “click” where it appears in the text.
- “Drag and drop” refers to clicking on or touching a user interface element, moving it over another user interface element, then letting go of the mouse button or breaking contact with the touchscreen.
- Unless otherwise specified, “device” refers to patient devices (for example, pulse oximeters, ventilators, or capnography monitors), **not** to mobile devices (for example, tablets or smartphones) or to dedicated bedside display units used to access and perform functions in the software.
- “Priority” and “severity” are used interchangeably to refer to events.
- “Event” refers both to alarms and notifications from devices and algorithms.



Note:

The terms “clinician”, “supervisor”, “administrator”, “clinical administrator”, “link manager”, and “external services user”, as used in this manual, refer only to types of users and to roles fulfilled when using the software.

These terms do not necessarily correspond to similar titles used for employees of any particular facility, nor to functions those employees perform at that facility.




1.3 Applicable Version

This manual applies to version 2.7 of the Vital Sync™ virtual patient monitoring platform and informatics manager. Users can view specific version information for their installation by accessing the Version Information (“About”) dialog in the software.

1.4 Labeling Symbols

This section contains definitions for symbols used on labeling for this product.

Table 1-1. Labeling Symbol Definitions




Symbol	Definition
	Federal (U.S.A.) law restricts the use of the software to sale by or on the order of a physician.
	Consult instructions for use.
	Manufacturer.

1.5 Safety Information

This section contains generally applicable safety information for this product.

1.5.1 Safety Symbols

Table 1-2. Safety Symbol Definitions

Symbol	Definition
	WARNING Warnings alert users to potential serious outcomes (death, injury, or adverse events) to the patient, user, or environment.
	Caution Cautions alert users to exercise appropriate care for safe and effective use of the product.
	Note Notes provide additional guidelines or information.

1.5.2 Warnings

**WARNING:**

The Vital Sync™ Virtual Patient Monitoring Platform and Informatics Manager is intended to supplement and not to replace any part of the facility's monitoring. Do not rely on the Vital Sync™ Virtual Patient Monitoring Platform and Informatics Manager as the sole source of alarms.

In order to assure a timely response to device alarms, a clinician (not necessarily the clinician viewing data in the platform) must be within visual and/or audible range of the alarming device. In order to provide medical intervention, a clinician must interact with the device at the bedside.

**WARNING:**

The platform is intended only as an adjunct in patient assessment. It must be used in conjunction with clinical signs and symptoms and periodic patient observations.

**WARNING:**

The dedicated bedside display unit is designed for use in conjunction with the Vital Sync™ Virtual Patient Monitoring Platform and Informatics Manager. Do not rely on the dedicated bedside display unit as a primary source of alarms.

**WARNING:**

Always follow the facility's established patient safety protocols when using the Vital Sync™ Virtual Patient Monitoring Platform and Informatics Manager.

**WARNING:**

The alarm rule functionality within the software is intended to supplement and not replace any part of the facility's monitoring. Do not rely on the platform as the sole source of alarms.

**WARNING:**

Alarm rules should adhere to facility policy, procedures, and alarm management protocols. This alarm management protocol should address alarm safety and the potential impact of alarm fatigue in all patient care areas within the facility.

**WARNING:**

Alarm priority normalization and ranking functionality within the software is intended to supplement and not replace any part of the facility's monitoring. Do not rely on the platform as the sole source of alarms.

**WARNING:**

The default alarm priority is determined by the connected device, and cannot be changed on the device itself. The *same* alarm condition may be reported with a *different* priority on *different* device models. Carefully review the Alarm Normalization Report for default alarm priorities for each connected device model.



WARNING:

Alarm priorities in the software should not be set to be lower than those on the actual device. Use caution if changing the priority of a device alarm in the software to a different level than is indicated on the actual device, especially for devices that are life-sustaining.



WARNING:

Alarms from connected devices should not be set as notifications in the platform, especially for devices that are life-sustaining. Because notifications do not audibly annunciate, setting an alarm as a notification may cause users to not respond or delay in responding to a clinically significant event.



WARNING:

Notifications from connected devices should not be set as alarms in the platform, especially for events not requiring clinical intervention. Setting a notification as an alarm may create nuisance audible alerts that are not clinically significant.



WARNING:

If using audible alerts, ensure the sound volume of the PC or mobile device on which the software is used is sufficient for alerts to be heard and recognized.



WARNING:

It is possible for the platform's audible alert tone to be confused with audible alarm tones from connected devices when in close physical proximity. Users should carefully attend to all audible indicators when within audible range of connected devices.



WARNING:

When setting alarm rules and priorities in the software for any device, consult the operator's manual for the device in question for default priority levels of device alarms, and for a description of each device alarm. Obtain a detailed understanding of the patient or device conditions that trigger any alarm before creating an alarm rule or adjusting the alarm's priority in the software.



WARNING:

Medtronic does not assume any responsibility for accuracy, reliability, or clinical relevance of user-designed derived parameter algorithms.

1.5.3 Cautions

**Caution:**

Do not set alarm limits to extreme values that render the monitoring system useless. Ensure alarm limits are appropriate for each patient.

**Caution:**

Connected devices report data to the platform periodically, not continuously. Because of this, as well as delays caused by network bandwidth or hardware limitations or network loading, the true duration of any device alarm will be longer than the delay set in this screen for that alarm.

Carefully consider these factors when choosing delay settings, and use the shortest delay settings that are practical to reduce nuisance alarms, to avoid undue delay in response to events actually requiring direct clinical intervention.

**Caution:**

Loss of patient privacy may occur if using the Vital Sync™ Virtual Patient Monitoring Platform and Informatics Manager on unsecured or unencrypted networks. Always adhere to facility patient privacy practices and procedures to ensure security of patient data on the facility's network.

1.5.4 Notes

**Note:**

Before use, carefully review appropriate sections of this manual and the operator's manual for each connected device, applicable accessory instructions for use, and all precautionary information and specifications.

**Note:**

The platform's data and audible alerts (including those on dedicated bedside display units) are informational. Except as specified for derived parameter algorithms with adjustable alarm thresholds, the platform does not provide the ability to change device settings or control linked devices in any way (including adjusting or silencing device alarms).

**Note:**

Before acting on information shown in the platform, check the patient at the bedside.

**Note:**

Patients monitored via dedicated bedside display units should also be monitored at a central monitoring station, as the dedicated bedside display unit is not intended to be a primary source of alarms.

**Note:**

Some mobile devices do not support the sounding of audible alerts from the platform due to device limitations. Make sure to test audible alert capability on any mobile device to be used.

**Note:**

Audible alerts only sound to indicate alarms on devices linked to patients. Audible alerts do **not** sound for notifications.

**Note:**

The platform has been verified on systems using MicrosoftTM* WindowsTM* and WindowsTM*-based software. User experience may vary with other operating systems and hardware and software configurations.

1.6 Obtaining Technical Assistance

1.6.1 Technical Services

For technical information and assistance if unable to correct a problem while using the platform or platform-related applications, contact Medtronic or a local Medtronic representative.

Medtronic Technical Services

15 Hampshire Street

Mansfield, MA 02048 USA

1 800 497 4968, or 1 925 463 4635,

or contact a local Medtronic representative

HIMSupport@Medtronic.com

When calling Medtronic or a local Medtronic representative, provide the software version number, build number, and build date, shown on the About screen.

1.6.2 Related Documents

Before using the software, review appropriate sections of both this manual and the operator's manual for any connected device carefully. This information is essential for understanding the software's functions and information displays.

Also read all precautionary information and specifications, both for the platform (and any platform-related applications installed) and for any connected device.

1.7 Warranty Information

The information contained in this document is subject to change without notice. Medtronic makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties or merchantability and fitness for a particular purpose. Medtronic shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

1.8 Licensing Information

Licenses obtained from Medtronic for use of the virtual patient monitoring platform (including the informatics manager) do not include licenses for any third party software, including software identified in Chapter 2 of this manual.

Users must obtain their own licenses for the downloading and use of such third party software.

1.9 HIPAA Disclaimer

The Vital Sync™ Virtual Patient Monitoring Platform and Informatics Manager is a software application used in conjunction with electronic medical devices within the customer's secure health information system. Healthcare providers using the software are expected to take appropriate security measures to protect the confidentiality of all data created, stored or transmitted on their systems.

Although the software contains certain features to assist users in the users' steps to protect their data, Medtronic cannot provide any assurance that the user's use of the software will comply with HIPAA regulations or be otherwise in compliance with the customer's obligations as a covered entity.

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2 Product Overview

2.1 Overview

This chapter provides an overall description of the functionality of the Vital Sync™ virtual patient monitoring platform and informatics manager software.

2.2 Intended Use

The Vital Sync™ Informatics Manager is software that is intended to route and store medical device data and device diagnostic information from supported devices to the Virtual Patient Monitoring Platform, 3rd Party Annunciation Systems, Electronic Medical Record (eMR) and Clinical Information System (CIS).

The Vital Sync™ Virtual Patient Monitoring Platform (VPMP) is a display system that provides visual and audible renderings of physiologic data, waveforms and alarms routed through the Vital Sync™ Informatics Manager from supported devices.

The Vital Sync™ Virtual Patient Monitoring Platform is intended to be used by healthcare professionals in a hospital or hospital-type facility for the following purposes:

- To remotely view and review patient data, waveforms, alerts, and alarm information from supported devices and clinical information systems to facilitate clinical management.
- To facilitate remote collaboration with other healthcare professionals regarding patient data from supported devices.
- To access additional processed parameters to facilitate patient monitoring, assessment and clinical management.
- To set and adjust thresholds on supported devices where this capability is not available on the device itself.
- To access data, waveforms and alerts from supported devices where these capabilities are not enabled or available on the device itself.



WARNING:

The Vital Sync™ Informatics Manager and Virtual Patient Monitoring Platform are notification systems and are not replacements for direct patient observation, patient assessment or clinical judgment.

2.3 User Interface Overview

The Vital Sync™ virtual patient monitoring platform is designed to allow nurses, physicians, respiratory care professionals and other caregivers (referred to in this manual as “clinicians”), as well as users acting in a supervisory role, to access data from connected devices via a computer terminal, mobile device, or dedicated bedside display unit.

The Vital Sync™ informatics manager is designed to allow administrative users to access and manage system records for users, devices, algorithms, locations, and shifts; perform alarm rule and normalization functions; and view system events and performance.

Users view data and perform other program functions within a browser window.

2.3.1 Basic Functions

Users can view general information, including alarms and advisory messages, for multiple medical devices. The platform supports a wide range of devices, and in some cases acts as the primary device user interface.

In the general device view (called the Tile View), each bed and unassociated device is represented by a tile. Clicking on a bed tile accesses detailed information for a specific bed and devices linked to the patient in that bed. Clicking on a tile for an unassociated device, or dragging it onto a bed tile, accesses functions for linking the device to a patient.

Users can also create, manage, and remove links between patients and devices, and discharge patients within the platform if appropriate. They can also create and remove patient and area assignments. Shift management features help streamline the process of assigning patients and areas to individual clinicians and supervisors.

Device inventory, bed management, and area management functions allow users to associate individual devices (including dedicated bedside display units) with specific beds in the facility, and to define areas in the platform that correspond with specific locations (also sometimes referred to as zones or areas of care) within the facility. Areas are assignable to specific clinicians and supervisors just as patients are.

Alarm and event management functions allow users to set up rule sets to refine the timing of alarm and notification annunciation in the platform, also known as alarm filtering; this can assist in reducing the incidence of nuisance alarms. In addition, users can adjust alarm priorities for devices in the platform, in order to normalize alarm priorities across a facility.

Single-tone or multi-tone audible alerts are available, allowing users to hear as well as see alarm indications when using the platform. Audible alerts can be enabled or disabled for any user. Any user who has audible alerts enabled can temporarily silence them as they occur. The platform visually indicates silenced alerts, alarms paused or silenced on devices, and filtered alarms.

Reporting functions allow access to both current and historical information about monitored devices and patients, users and usage, and the functioning of the platform itself. These can be used in conjunction with HL7 data aggregators and user-defined derived parameter algorithms (which can be linked to patients in the same way as devices are) as an aid in monitoring and managing

patient conditions. They also allow system administrators to monitor performance and events within the platform, and also on its associated hardware.

The platform supports the use of dedicated bedside display units, which allow view-only access to patient and device data for a specific bed, and are especially intended for devices that use the platform as their primary user interface. The platform also can be used at a central monitoring station, via a non-user-specific account specifically designed for this purpose.



Note:

The platform's data displays and audible alerts (including those on dedicated bedside display units) are informational. Except as specified for derived parameter algorithms with adjustable alarm thresholds, the platform does not provide the ability to change device settings or control linked devices in any way (including adjusting or silencing device alarms).



Note:

The current release of this software allows viewing of data from ventilators, capnography monitors, pulse oximeters, regional saturation monitors, and bispectral index monitors. The software also shows information from data aggregators and derived parameter algorithms. See [Device Types Supported](#) on page 2-10 for a list of specific device types with which this software is usable.



Note:

Some mobile devices do not support the sounding of audible alerts from the platform due to device limitations. Make sure to test audible alert capability on any mobile device to be used.



Note:

The platform has been verified on systems using Microsoft™ Windows™ and Windows™-based software. User experience may vary with other operating systems and hardware and software configurations.

2.3.2 User Roles

Each user is identified in the platform by username and password, and enters these to log into the platform. Functions available depend on the user's assigned role.

- **Clinicians**—Users in this role may view device information for many patients and devices at once in a tiled overview screen, clicking on any tile to access detailed information. They may also link devices with patients in the platform, manage patient identifying information and links between patients and devices, and manage their own patient and area assignments. They will hear an alert tone (if enabled in the platform) when a device linked to any of their patients enters an alarm state, and may also receive email and text message alerts for alarms. Finally, clinicians may run “snapshot” reports showing oxygenation or ventilation data for specific patients.
- **Supervisors**—Users in this role are able to perform the same tasks in the platform as clinicians can, complemented with additional functions to assist in their supervisory role. These functions include a multi-device list view; the ability to manage patient and area assignments for other users; and a virtual user function allowing a view of the platform as the selected clinician would see it. A wide range of reporting functions is also available, providing information on alarm and setting change information, system utilization statistics, and other historical data.

- **Administrators**—Users in this role perform various system administration functions. They may set up, maintain and deactivate user records in the platform; reset passwords and unlock locked-out users (if the deployment allows); and view event and system performance logs and utilization reports. They also manage the inventory of connected devices, and set up and maintain beds, areas, work shifts, and dedicated bedside display unit assignments in the platform. Administrators manage rule sets governing alarm and event annunciation, normalize alarm priorities in the platform (if needed), and may set up algorithms and derived parameter algorithms in addition to those already supported in the platform. They also may access system performance and usage reports, as well as reports showing alarm rule setting and priority information.
- **Clinical Administrators**—Users in this role access the platform as administrators do, but are not tasked with direct management of users, locations, or devices. Instead, their role is to manage alarm and event priorities, rules, and rule sets, as well as to manage parameters and derived parameter algorithms.
- **Link Managers**—Users in this role access the platform as clinicians and supervisors do, but do not directly monitor patients. Instead, their role is to link devices to patients to support reporting of device data to an electronic medical record (eMR) system. As such, link manager functionality is limited to linking of devices and management of existing links. Consult Medtronic Professional Services for more details, and for information on enabling this role.
- **External Services**—Users in this role manage and configure interfaces between the platform and various external application services. Consult Medtronic Professional Services for more details.

In addition to using the platform on a PC or mobile device, users may also access it via a central monitoring station (which does not require individualized login credentials) or on a dedicated bedside display unit, which runs a streamlined version of the software and shows patient and device data for a single bed. Consult Medtronic Professional Services for more details on setup for either or both of these options. (Platform operations for central monitoring stations or bedside unit users are similar to those for individual users, varying only in the scope of functions available.)

**WARNING:**

The dedicated bedside display unit is designed for use in conjunction with the Vital Sync™ Virtual Patient Monitoring Platform and Informatics Manager. Do not rely on the dedicated bedside display unit as a primary source of alarms.

**Note:**

Patients monitored via dedicated bedside display units should also be monitored at a central monitoring station, as the dedicated bedside display unit is not intended to be a primary source of alarms.

**Note:**

The terms “clinician”, “supervisor”, “administrator”, “clinical administrator”, “link manager”, and “external services user”, as used in this manual, refer only to types of users and to roles fulfilled when using the software.

These terms do not necessarily correspond to similar titles used for employees of any particular facility, nor to functions those employees perform at that facility.

2.4 User Interface Symbols

The software makes use of icons and symbols to denote user functions and to show data from patients and devices. These are defined in the tables in this section.



Note:

Some symbols may appear in different colors in the software than are shown in the tables (for example, device icons shown in dark colors on a light background here may, in certain locations, appear in light colors on a dark background). Unless noted, symbols in the tables have the same meaning even if appearing in a different color scheme than is shown here.

Table 2-1. Device Symbol Definitions








Icon or symbol	Description	Definition
	Ventilator	Represents a ventilator linked to a patient in the platform, or available for linking. Appears in various locations in the platform.
	Capnography monitor	Represents a capnography monitor linked to a patient in the platform, or available for linking. Appears in various locations.
	Pulse oximeter	Represents a pulse oximeter linked to a patient in the platform, or available for linking. Appears in various locations.
	Bispectral index (BIS) monitor	Represents a bispectral index monitor linked to a patient in the platform, or available for linking. Appears in various locations.
	Regional saturation monitor	Represents a regional saturation monitor linked to a patient in the platform, or available for linking. Appears in various locations.
	Data aggregator	Represents a data aggregator linked to a patient in the platform, or available for linking. Appears in various locations.
	Derived parameter algorithm	Represents a derived parameter algorithm linked to a patient in the platform. Note: Certain algorithms may have their own specific symbols. Appears in various locations.

Table 2-2. Alarm and Status Symbol Definitions



Icon or symbol	Description	Definition
	Alarms active for patients	Alarms are active for the indicated number of patients. Note: This symbol does not indicate alarm severity. Appears on the common navigation bar (alarm button).
	No alarms active	No alarms are active on devices linked to this user's patients. Appears on the common navigation bar (alarm button).

Table 2-2. Alarm and Status Symbol Definitions (Continued)








Icon or symbol	Description	Definition
	Device with active alarm	<p>One or more alarms is active on the device indicated by the icon. (See Table 2-1 for device icons.)</p> <p>Note: This symbol does not indicate alarm severity, but only indicates that alarms are active on this device.</p> <p>Appears in the All Patients and Devices screen.</p>
	Device with active alarm (severity indicated)	<p>One or more alarms is active on the device indicated by the icon. (See Table 2-1 for device icons.)</p> <p>The colored square indicates the severity of the highest-priority alarm currently active on the device. (Alarm priority symbols are explained elsewhere in this table.)</p> <p>Appears on bed tiles in the Tile View, and in the Device Detail screen's patient header.</p>
	Algorithm with active alarm	<p>The patient is in an alarm condition according to the derived parameter algorithm indicated by the icon.</p> <p>Note: This symbol does not indicate alarm severity, but only indicates an alarm condition.</p> <p>Note: If an algorithm has its own specific symbol, it will appear instead, with the designator for an alarm or missing data at lower right.</p> <p>Appears in the All Patients and Devices screen.</p>
	Algorithm with active alarm (severity indicated)	<p>The patient is in an alarm condition, according to the derived parameter algorithm indicated by the icon.</p> <p>The colored square indicates the severity of the patient's alarm state, as defined in the algorithm. (Alarm priority symbols are explained elsewhere in this table.)</p> <p>Note: If an algorithm has its own specific symbol, it will appear instead, with the colored square at lower right.</p> <p>Appears on bed tiles in the Tile View, and in the Device Detail screen's patient header.</p>
	High priority alarm	<p>When shown on the alarm button menu, the message bar on bed tiles in the Tile View, or in the Device Detail screen's patient header—The active event with the highest priority on the indicated device is a high-priority alarm.</p> <p>When shown in other locations—At least one high-priority alarm is active on the indicated device, or the indicated parameter or algorithm is in a high-priority alarm condition.</p>
	Medium priority alarm	<p>When shown on the alarm button menu, the message bar on bed tiles in the Tile View, or in the Device Detail screen's patient header—The active event with the highest priority on the indicated device is a medium-priority alarm.</p> <p>When shown in other locations—At least one medium-priority alarm is active on the indicated device, or the indicated parameter or algorithm is in a medium-priority alarm condition.</p>
	Low priority alarm	<p>When shown on the alarm button menu, the message bar on bed tiles in the Tile View, or in the Device Detail screen's patient header—The active event with the highest priority on the indicated device is a low-priority alarm.</p> <p>When shown in other locations—At least one low-priority alarm is active on the indicated device, or the indicated parameter or algorithm is in a low-priority alarm condition.</p>

Table 2-2. Alarm and Status Symbol Definitions (Continued)








Icon or symbol	Description	Definition
	Standard notification	<p>When shown on the notification button menu, the message bar on bed tiles in the Tile View, or in the Device Detail screen's patient header—The active event with the highest priority on the indicated device or algorithm is a notification. (Specifically, this means no alarms are active on any devices or algorithms linked to this patient.)</p> <p>When shown in other locations—At least one notification is active on the indicated device or algorithm.</p>
	Unfavorable patient event notification	<p>When shown on the notification button menu, the message bar on bed tiles in the Tile View, or in the Device Detail screen's patient header—A potentially unfavorable event has occurred for the patient linked to the indicated device or algorithm. This requires attention from the user.</p> <p>When shown in other locations—At least one unfavorable event notification is active on the indicated device or algorithm.</p>
	Favorable patient event notification	<p>When shown on the notification button menu, the message bar on bed tiles in the Tile View, or in the Device Detail screen's patient header—A favorable event has occurred for the patient linked to the indicated device or algorithm (for example, completion of an activity related to an algorithm).</p> <p>When shown in other locations—At least one favorable event notification is active on the indicated device or algorithm.</p>
	Filtered alarm	<p>An alarm is active on the indicated device, but the delay interval before visible and audible annunciation in the platform has not completely elapsed.</p> <p>Appears on bed tiles in the Tile View, in the All Patients and Devices screen, and on the parameter tile associated with the alarm in the Device Detail screen.</p>
	Device with filtered alarm	<p>One or more alarms that have been filtered (that is, annunciation is delayed or turned off) is active on the device indicated by the icon. (See Table 2-1 for device icons.)</p> <p>Note: This symbol does not indicate alarm severity, but only indicates that filtered alarms are active on this device.</p> <p>Appears on bed tiles in the Tile View, in the All Patients and Devices screen, and (in a slightly different form) in the Device Detail screen's patient header.</p>
	Audible alerts silenced in the platform	<p>Indicates that the platform's audible alerts are currently silenced for one or more devices linked to a patient.</p> <p>Appears in the Tile View on the bed tile for the affected patient during the alert silence period.</p>
		<p>Indicates that the platform's audible alerts are currently silenced for the device currently shown in the Device Detail screen.</p> <p>Appears in the Device Detail screen's patient header (in the color scheme shown) during the alert silence period.</p>
	Audible alarms paused or silenced on a device	<p>Audible alarms have been paused or silenced at the bedside on a device linked to one of this user's patients.</p> <p>Appears in various locations.</p>
	Device with audible alarms paused or silenced	<p>Indicates that audible alarms have been paused or silenced at the bedside on the indicated device. (See Table 2-1 for device icons.)</p> <p>Appears on bed tiles in the Tile View, in the All Patients and Devices screen, and (in a slightly different form) in the Device Detail screen's patient header.</p>

Table 2-2. Alarm and Status Symbol Definitions (Continued)

























Icon or symbol	Description	Definition
	Notifications active for patients	Notifications are active for the indicated number of patients. Appears on the common navigation bar (notification button).
	No notifications active	No notifications are active on any devices linked to this user's patients. Appears on the common navigation bar (notification button).
	Setting change on device	One or more settings have been changed on a device linked to one of this user's patients. Appears in various locations.
	Device with active setting changes	One or more setting change notifications is active on the device indicated by the icon, and has not yet been acknowledged. (See Table 2-1 for device icons.) Appears in bed tiles on the Tile View, and in the Device Detail screen's patient header.
	Reset alarm on device	An alarm on a device linked to one of this user's patients has reset (i.e., an alarm condition temporarily existed, but has resolved itself without intervention). Appears in various locations.
	Device with reset alarms	One or more reset alarms has occurred on the device indicated by the icon. (Refer to Table 2-1 for specific device icons.) Appears on bed tiles in the Tile View, in the Device Detail screen's patient header, and in the All Patients and Devices screen.
	Algorithm with standard notification	An event has occurred for the patient linked to the algorithm indicated by the icon. Note: If an algorithm has its own specific symbol, it will appear instead, with the notification designator at lower right. Appears on bed tiles in the Tile View, and in the Device Detail screen's patient header.
	Unassociated devices available	The indicated number of devices are connected to the platform, but are not currently linked to any patient. Appears in the common navigation bar (device button).
	No unassociated devices	All devices connected to the platform are currently linked to patients.
	Disconnection	A device is not currently communicating with the platform. Appears in various locations. On the Device Detail screen for a disconnected device, this symbol appears in a much larger form.
	Device disconnected	The device indicated by the icon is not communicating with the platform. Appears on bed tiles on the Tile View, in the Device Detail screen's patient header, and on the All Patients and Devices screen.
	Database connected	The platform is currently communicating with its databases. The squares cycle through various colors when a data request is in process. Appears on the common navigation bar, at far right.
	Database disconnected	Communication between the platform and its databases is currently interrupted. Appears on the common navigation bar, at far right.

Table 2-3. Miscellaneous User Interface Symbol Definitions

Icon or symbol	Description	Definition
	Silence audible alert in the platform	Denotes the button used to silence alert tones for a specific patient in the platform. This function does not silence audible alarms on any linked device; those must be silenced on the device itself at the bedside. Appears in the Device Detail screen's patient header when alarms are present on the selected device.
	View patient and location information	Denotes a link to information about the current patient. Appears in the patient header on the Device Detail screen.
	Edit patient information or location information	Denotes a link to a dialog for editing information about the current patient or location. Appears in Device Detail screen (patient detail).
	Reports	Denotes a link to available report functions. Appears in the Device Detail screen's patient header.
	Link new device	Denotes the button used to access Admit Patient screen for purposes of linking a new device to a patient. Appears in the Device Detail screen's patient header.
	Home screen	Denotes a link to the current user's home screen. Appears in the common navigation bar (Home button).
	Patient type	The patient type (from left to right, indicates neonatal, pediatric, or adult, respectively). The darkened icon indicates the patient type for the patient currently linked to this device. Appears in the Device Detail screen's device header.
	Freshness level	Denotes the level of confidence in the data used in calculation of certain derived parameters. Freshness levels shown are 100%, 75%, 50%, 25%, and 0%. The top half of the icon ranges from completely black for the 100% level to completely white for the 0% level. (The icon at left indicates a 50% freshness level.)
	Mark for deletion	Denotes the button used to mark alarm rules for deletion. Appears in the Manage Alarm Rules screen next to each custom alarm rule.
	Search	Denotes the button used to search the platform databases for a patient ID number. Appears in the Link Patient & Device screen and the Update Patient Information window.
	Battery charge	For supported devices, shows the current battery charge level (more black boxes indicate a higher charge level).

2.5 Device Types Supported

**Note:**

Medtronic has verified the communication protocols used with the device types listed in this section.

For more information on communication protocols, see [Device Data Reporting](#) on page 7-3. For a listing of relevant standards, see [Relevant Standards](#) on page 7-14.

The current release of the software supports the following device types:

- Ventilators (including the Puritan Bennett™ 980 ventilator, Puritan Bennett™ 840 ventilator, and Newport™ HT70 ventilator)
- Pulse oximeters (including the Nellcor™ OxiMax N-595, Nellcor™ OxiMax N-600x, and Nellcor™ N-600x-A bedside pulse oximeters, the Nellcor™ OxiMax N-85 handheld pulse oximeter, and the Nellcor™ bedside respiratory patient monitoring system)
- Capnography monitoring devices (including the Oridion Capnostream™ 20 and Oridion Capnostream™ 20P capnography monitors and the Capnostream™ 35 portable bedside monitor)
- Regional saturation monitors (including the INVOS™ 5100C regional saturation patient monitoring system)
- Bispectral index monitors (including the BIS™ Vista monitoring system)

Also, data aggregators and derived parameter algorithms, if set up and used in the software, will appear in various screens as if they are devices, and can be linked to patients in the same way as devices of the other types listed in this section.

**Note:**

This manual includes only a partial listing of supported device types, and examples of devices supported. Individual facilities may also support additional devices not listed in this manual. Contact Medtronic Professional Services for a complete list of devices currently supported.

**Note:**

The term “device type” is replaced in some screens and report output in the software with the term “device category”. For purposes of this manual and the software user interface, the terms are interchangeable.

3 Installation and Access

3.1 Overview

This chapter tells users where to find current software and hardware requirements for installation of the Vital Sync™ virtual patient monitoring platform and informatics manager software, and also provides details on how to access and log into the software.

3.2 System Requirements

To install and use the software, the systems in question must meet certain hardware and operating system requirements, and must also in some cases have other supporting software installed.

For minimum hardware and software requirements, as well as recommended configurations for best results when using the platform, refer to the installation manual.

For the most current information regarding minimum requirements and recommended configurations, as well as additional installation and configuration information and lists of known and resolved issues, refer to the release notes. Consult with Medtronic Professional Services for the most current applicable revision.

3.3 Installation

For detailed information on installing and configuring platform components and supporting software, refer to the installation manual, as well as the release notes for this version of the software.



Note:

Licenses obtained from Medtronic for installation and use of the Vital Sync™ virtual patient monitoring platform (including the informatics manager) do not include licenses for any third party software identified in this manual. Users must obtain their own licenses for the downloading and use of such third party software.

3.4 Access

To access the software:

1. Open the Web browser on the PC or mobile device.
2. Enter the software's Uniform Resource Locator (URL) in one of these formats, depending on facility IT setup and policy:
`http://{server name or IP address}/InformaticsWeb`
`https://{server name or IP address}/InformaticsWeb`



Note:

Before first using the software, consult facility IT personnel to obtain the server name or IP address needed for access, and to find out whether to use "http" or "https" in the URL.

3.5 Login

To log into the software:

1. Access the platform in a Web browser. See [Access](#) on page 3-2.
2. Make sure the login screen is shown.

Figure 3-1. Login Screen

Vital Sync™
Virtual Patient Monitoring Platform

Username

Password

Login

The application is intended only as an adjunct in patient assessment. It must be used in conjunction with clinical signs and symptoms and periodic patient observations.

Medtronic

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3. **Username**—Enter the username.
4. **Password**—Enter the password associated with the username. (The password will appear as a series of dots when entered.)
5. Click **Login**.

Upon login, the home screen appropriate to the user's role will appear.

**Note:**

If credentials are entered incorrectly, the login screen will show a system message indicating incorrect entry. If this user is locked out, or if a network or system problem is preventing system access, a system message will appear with a brief description of the problem. Consult with an administrative user or with facility IT personnel for assistance.

**Note:**

To protect password integrity when using a public or shared computer to access the platform, ensure the Web browser does **not** “remember” login information.

**Note:**

Screen captures in this manual are representative. Actual screens may vary slightly from those shown here, depending on the specific software release used, how the user is accessing and viewing the software, and specific facility requirements. Also, the size and position of tiles and other screen elements will vary with the number of elements present and the size of the browser window. Finally, the format in which dates appear may differ depending on the localized software build used.

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4 Clinician and Supervisor Operation

4.1 Overview

This chapter describes functionality and operation of the Vital Sync™ virtual patient monitoring platform and informatics manager software for respiratory care professionals and caregivers (referred to as “clinicians” throughout this chapter) and supervisory users. This information also applies to users at central monitoring stations or dedicated bedside display units, as well as link managers.

For administrative functionality and operations, reference Chapter 5.



Note:

The terms “clinician”, “supervisor”, and “link manager”, as used in this manual, refer only to types of users and to roles fulfilled when using the software.

These terms do not necessarily correspond to similar titles used for employees of any particular facility, nor to functions those employees perform at that facility.



Note:

Parameter values converted from other units of measure may be rounded when shown in the platform. This may lead to some loss of precision. For more information regarding unit conversions, consult with Medtronic Professional Services.

4.2 Alarms and Notifications

The Vital Sync™ virtual patient monitoring platform reports alarms and notifications from linked devices and algorithms in many places. Event types and severity are denoted using color, symbols, or both.

In addition, if available and enabled, an audible alert tone will sound on the user’s PC or mobile device (or at a central monitoring station or dedicated bedside display unit, if used) if an alarm is active on any device or algorithm linked to any of the user’s assigned patients.

Alarm behavior in the platform is also controlled via alarm rule sets and alarm annunciation settings, which administrative users set up and manage in the Vital Sync™ informatics manager. See *Manage Alarm, Notification, and Setting Rules* on page 5-31 for details.

For details on viewing and dealing with alarms, see *Alarms* on page 8-1. For details on viewing and dealing with notifications, see *Notifications* on page 9-1.

4.3 Navigation and Basic User Interface

This section details navigation and user interface features that clinicians, supervisors, and link managers, as well as users at central monitoring stations and dedicated bedside display units, will commonly encounter when using the platform.



Note: Do **not** use the browser’s “forward” or “back” buttons to navigate in the platform. Only use links and buttons provided in the platform’s user interface.



Note: Screen captures in this manual are representative. Actual screens may vary slightly from those shown here, depending on the specific software release used, how the user is accessing and viewing the software, and specific facility requirements. Also, the size and position of tiles and other screen elements will vary with the number of elements present and the size of the browser window. Finally, the format in which dates appear may differ by software localization.

4.3.1 Common Navigation Bar

Users access available functions via the common navigation bar, which appears at the top of all screens. See [User Interface Symbols](#) on page 2-5 for additional explanation of symbols appearing in the common navigation bar.

Figure 4-1. Common Navigation Bar (Standard)



1	Alarm button	Shows the number of active alarms for currently assigned patients; click to access a menu of patients with alarms. (Icon is blank if no alarms are active.)
2	Notification button	Shows the number of active notifications for currently assigned patients; click to access a menu of patients with notifications. (Icon is blank if no notifications are active.)
3	Device button	Shows the number of devices currently unassociated with patients; click to access a menu of unassociated devices. (Icon is blank if there are no unassociated devices.)
4	Home button	Click to return to the home screen.
5	User function button	Shows the name of the user currently logged in (or the name of the central monitoring station or dedicated bedside display unit at which the platform is used). Click to access a menu of available functions.
6	Connection icon	Indicates the current database connection status for the platform.



Note: If using the platform on a dedicated bedside display unit, the common navigation bar does not include the alarm, notification, or device buttons, since dedicated bedside display units are specific to a single bed.

Function Menu

For a menu of functions, hover over the user function button.

Available functions depend on the user's role, as shown in Figure 4-2 and Figure 4-3, and on whether audible alerts are enabled for the user (see [Add or Edit a User](#) on page 5-7).

Figure 4-2. Function Menu (Clinician)

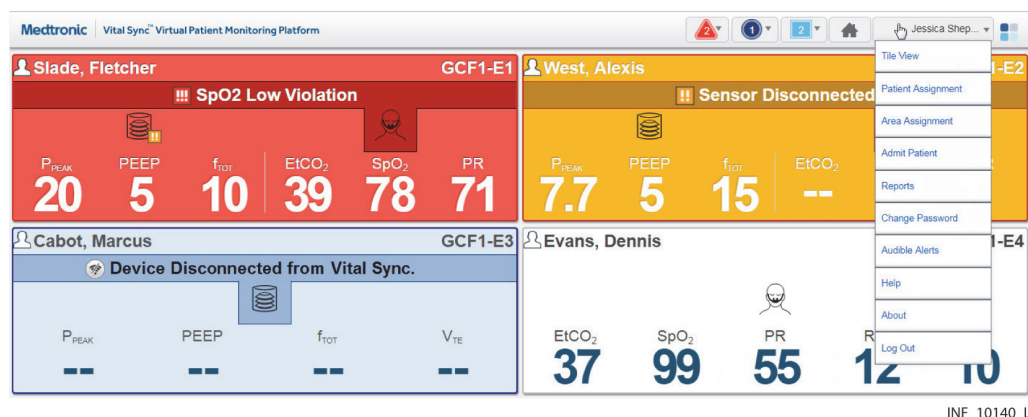
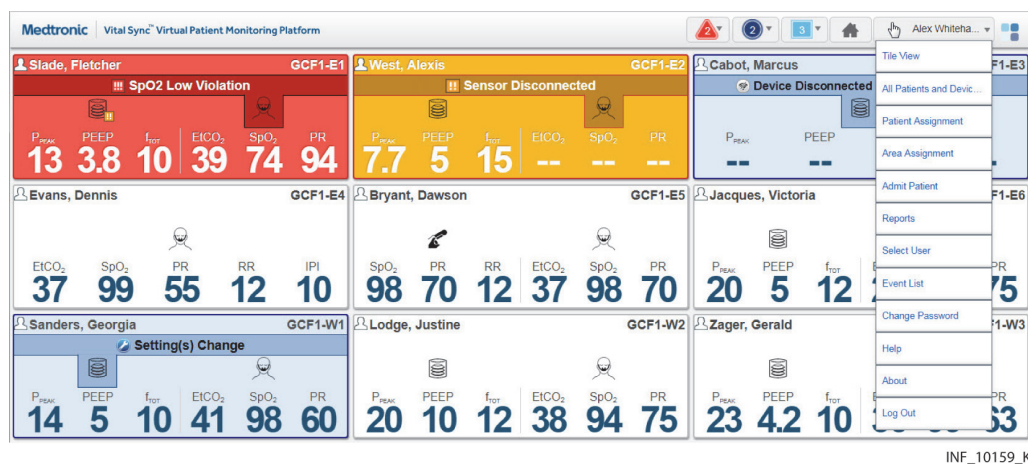


Figure 4-3. Function Menu (Supervisor)



For functions available at a central monitoring station, see [Central Monitoring Station Users](#) on page 7-24. For functions available on a dedicated bedside display unit, see [Bedside Unit Users](#) on page 7-25.



Note:

The clinician and supervisor roles are designed for individual users who are actively supporting patient care and patient care decisions. The link manager role is intended only to address device connectivity and device linking issues, not for active patient support. Refer to [Link Managers](#) on page 7-23, or consult Medtronic Professional Services for more information on availability, setup, and accessible functions.

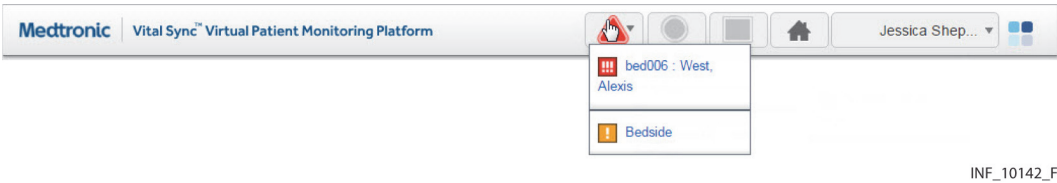
Users may also use the platform at a central monitoring station or on a dedicated bedside display unit, each of which allow use of a subset of the functions available to individual clinicians and supervisors.

In any case, platform functions described in this manual work in the same way for clinicians, supervisors, link managers, or at central monitoring stations or dedicated bedside display units, unless noted otherwise.

Alarm and Notification Button Menus

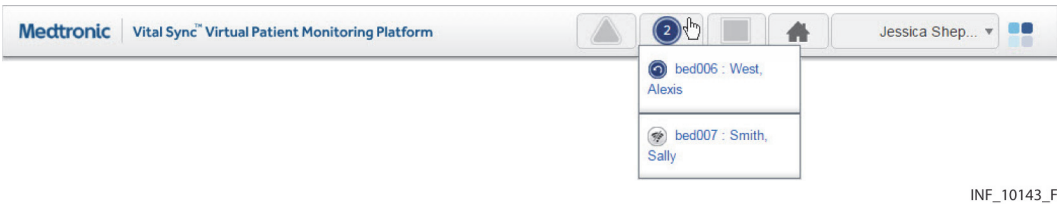
For a menu of this user’s patients who have active alarms, hover over the alarm button. An icon next to each patient’s name indicates the severity of the alarm.

Figure 4-4. Alarm Button Menu



For a menu of this user’s patients who have active notifications, or with devices that have lost communication with the platform, hover over the notification button. An icon next to each patient’s name indicates the type of notification.

Figure 4-5. Notification Button Menu



On either of these menus, click on a patient to open the Device Detail screen to view specific data for that patient and device.



Note:
Numbers on the alarm and notification buttons denote **the number of patients who have active alarms or notification on linked devices**, not the total number of alarms or notifications currently active. Any patient may have multiple active alarms or notifications.
For supervisors, numbers on the alarm and notification buttons denote **all** patients with active alarms or notifications on linked devices, not just patients assigned to the current supervisor.

Device Button Menu

For a menu of devices not currently linked to patients in the platform, hover over the device button. An icon next to the device identifier indicates the device type.

Figure 4-6. Device Button Menu

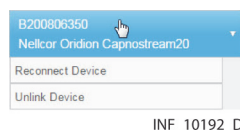


In this menu, click on a device to open the Admit Patient screen for linking of that device to a patient.

4.3.2 Function Drop-Down Menus

Occasionally, additional functions are consolidated into a drop-down menu (similar to the button menus on the common navigation bar), denoted by a downward-pointing triangle on one or more buttons on the screen.

Figure 4-7. Example Function Drop-Down Menu

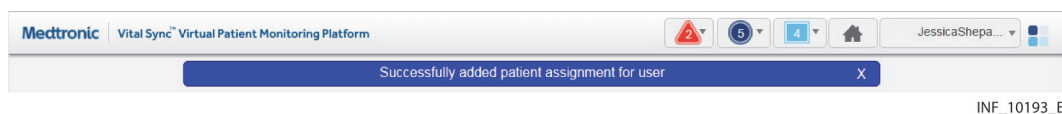


To open the drop-down menu, hover over the button. Click on a function to select it.

4.3.3 System Messages

System messages will sometimes appear near the top of the screen (just below the navigation links) in response to events or user actions.

Figure 4-8. Example System Message



Standard informational messages appear in a blue box. A message in a red box indicates either a user error or a platform error. A message in a yellow box indicates an issue possibly requiring user intervention.

To dismiss a system message, click the **X** on the right side of the message box, or navigate to a different screen.

4.3.4 Multi-Page Lists

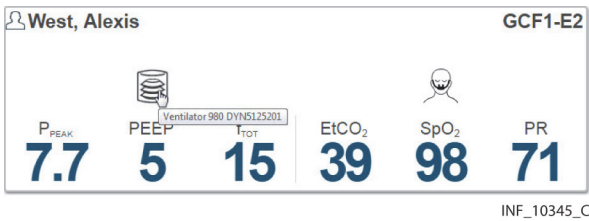
Certain screens may list more records than can be shown on a single screen. When this occurs, navigation links will appear near a corner of the list, as follows:

- Numbered links access specific pages in the list. Click a numbered link to navigate to that page.
- Click the << link to show the first page in the list.
- Click the >> link to show the last page in the list.

4.3.5 Tool Tips

Users can obtain additional information about devices and controls by hovering the cursor over some associated user interface elements. This will cause a small text box (also called a tool tip) to appear, which shows the information.

Figure 4-9. Tool Tip



Tool tips will appear when hovering over some controls in the Device Detail and Reports screens, and also when hovering over device icons in the Tile View and All Patients and Devices screens.

4.4 Tile View (Patient Overview Screen)

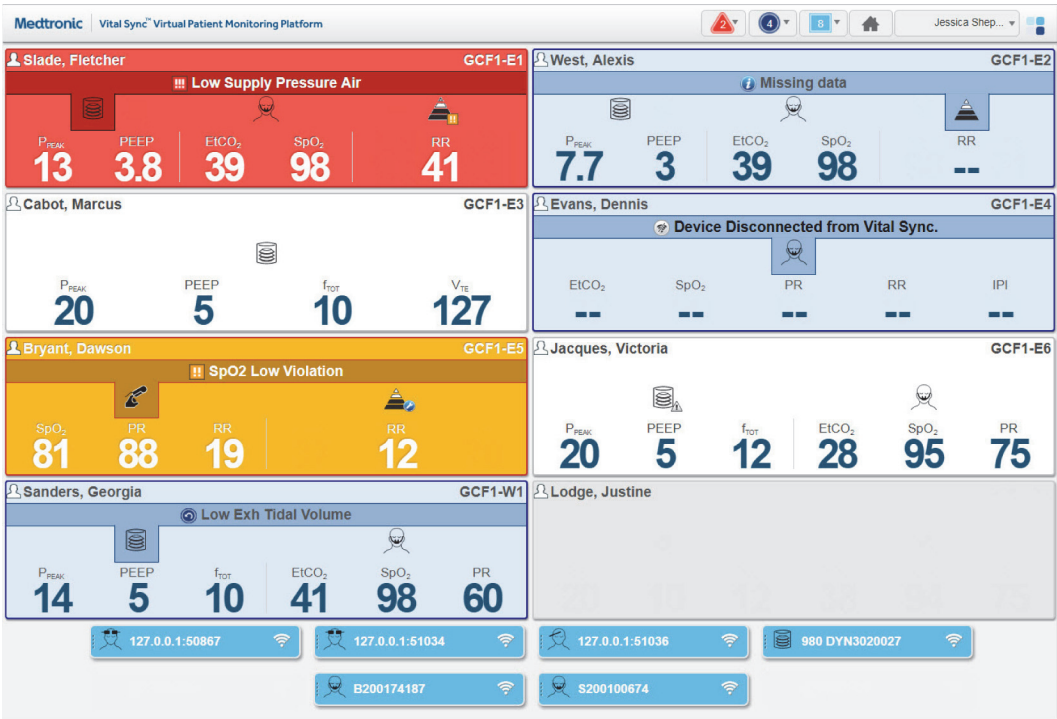
The Patient Overview screen (generally referred to as the Tile View) is the home screen for clinicians and supervisors; for those users, it appears automatically after login. To access the Tile View from elsewhere in the platform at any time, click on the Home button on the navigation bar, or hover over the navigation bar’s user function button and select **Tile View** from the menu.

The Tile View shows identifiers, key monitored parameters, and device messages for multiple patients and devices or derived parameter algorithms simultaneously via bed and device tiles.



Note: Illustrations of derived parameter algorithms in this section show generic algorithm icons and data. Each individual algorithm has its own specific parameters, and may have a specific icon (not shown here). Basic platform behavior described here is the same for all algorithms.

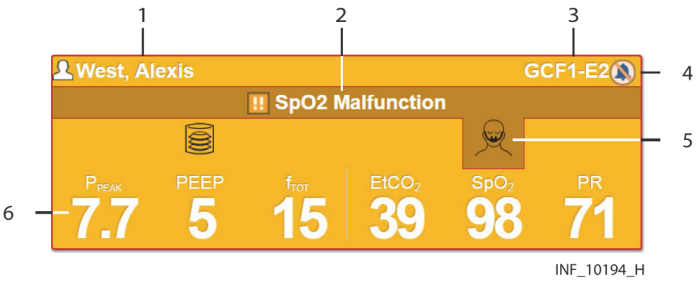
Figure 4-10. Patient Overview Screen (Tile View)



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Each large tile on the screen represents a single bed. If a patient is present in the bed, the tile will show the patient's name and linked devices (if any). If no patient is present, but at least one device is associated with the bed, icons for any devices associated with the bed will appear. See [Manage Device Inventory](#) on page 5-26 and [Tile Information](#) on page 4-8.

Figure 4-11. Bed Tile Detail

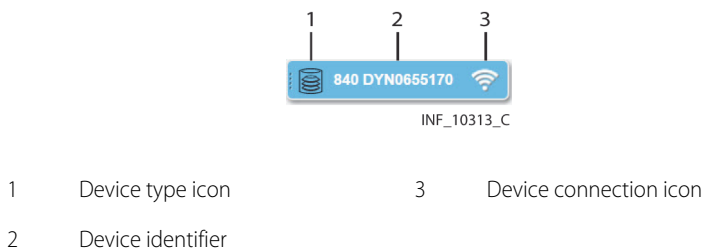


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- | | | | |
|---|--|---|---|
| 1 | Patient name | 4 | Silence icon (if an audible alert is silenced for this patient) |
| 2 | Device message (highlighting indicates associated device; duration of alarm appears after 2 minutes) | 5 | Device type icon |
| 3 | Location | 6 | Key monitored parameters |

Each small tile on the screen represents a single device that is currently in the device inventory, but is not currently linked to any patient or associated with any bed.

Figure 4-12. Device Tile Detail



Note: Unless otherwise specified, the term “device” refers to patient devices (for example, pulse oximeters, ventilators, or capnography monitors), **not** to mobile devices (for example, tablets or smartphones) or dedicated bedside display units used to access and perform functions in the software.

4.4.1 Availability by User Role

Clinicians, supervisors, and central monitoring station users may use all functions in the Tile View. Bedside unit users may view only the bed tile for the bed associated with the dedicated bedside display unit. Link managers do not have access to the Tile View.

4.4.2 Tile Information

Bed tiles show patient information and data from linked devices. If alarms or notifications are active on a linked device, the bed tile will show a device message and will change color to indicate the severity of the event.

Information shown in each bed tile includes:

- **Patient Data**—The patient name (if any)
- **Device Message**—If alarms or notifications are active on any device linked with this patient, a message for the alarm or notification with the highest priority (the text of the alarm or notification message is the same as that which appears on the device itself)
- **Location**—The bed number in the platform (see [Manage Beds](#) on page 5-24 for details on setting up beds)
- **Device Type Icon**—Icons showing the type of device or devices linked to this patient; if an alarm or notification message is currently shown on the bed tile, the icon denoting the device involved will be highlighted
- **Key Monitored Parameters**—Important parameters for each linked device (parameters shown will vary by device and by the communication protocol the device uses)

Device tiles show the device type and device identifier for each device or data aggregator not currently linked to a patient or associated with a bed.

Hovering the cursor over a device type icon on a bed tile will open a tool tip showing the device serial number. Hovering the cursor over a device tile will open a tool tip showing the device model.

**Note:**

This release of the software allows the following standard parameters to appear on bed tiles:

- For capnography monitors and pulse oximeters—End tidal carbon dioxide level (ETCO₂), blood oxygen saturation (SpO₂), pulse rate (PR), respiration rate (RR), and Integrated Pulmonary Index (IPI)
- For ventilators—Peak inspiratory circuit pressure (P_{PEAK}), patient end expiratory pressure (PEEP), respiration rate (f_{TOT}), and exhaled tidal volume (V_{TE})
- For regional saturation monitors—Regional saturation of oxygen (rSO₂) and blood volume index (BVI)
- For bispectral index monitors—Bilateral bispectral index (BIS) and electromyography (EMG) values
- For early warning score algorithms (if used)—The current early warning score value
- For spontaneous breathing trial algorithms (if used)—Fraction of inspired oxygen (FiO₂) and blood oxygen saturation (SpO₂) when evaluating weaning readiness, or the current status or outcome of the actual trial

Not all devices may measure all parameters listed here, and some communication protocols limit the types of data reported to the platform. If not measured or reported, the parameter will not appear on the tile.

**Note:**

Additional device parameters not shown on bed tiles in the standard configuration of the software may be available for use with additional configuration. Consult Medtronic Professional Services for more information.

**Note:**

The platform's data displays are informational. Except as specified for derived parameter algorithms with adjustable alarm thresholds, the platform does not provide the ability to change device settings or control linked devices in any way (including adjusting or silencing device alarms).

**Note:**

Before acting on information shown in the platform, check the patient at the bedside.

4.4.3 Bed Tile Colors

Bed tile colors depend on whether or not a patient is present or has linked devices, and on whether any device linked with the patient in the bed in question has active alarms or notifications.

- **Grey**—Indicates a patient with no linked devices, or (if no patient name is shown) an empty bed
- **White**—Indicates no active alarms or notifications on any of this patient's linked devices, or indicates a bed with no patient, but with at least one associated device
- **Yellow**—Indicates at least one low-priority or medium-priority alarm is active on at least one device linked to the patient in this bed

- **Red**—Indicates at least one high-priority alarm is active on at least one device linked to the patient in this bed
- **Blue**—Indicates at least one standard notification is active on at least one device linked to the patient in this bed
- **Light Yellow**—Indicates at least one unfavorable patient event notification is active on at least one device linked to the patient in this bed
- **Green**—Indicates at least one favorable patient event notification is active on at least one device linked to the patient in this bed

If multiple alarms or notifications are active, the alarm or notification with the highest priority determines the color of the tile. See [Event Priority](#) on page 8-14 and [Visual Indicators](#) on page 8-1 or page 9-1.

**Note:**

The same tile color is used for medium-priority and low-priority alarms. The alarm symbol in the message area of the tile denotes the specific alarm priority. See [User Interface Symbols](#) on page 2-5.

**Note:**

The colors that appear in the bed tile are also used to indicate alarms and notifications in various locations in the Device Detail screen. See [Visual Indicators](#) on page 8-1 or page 9-1.

4.4.4 Additional Tile View Functions

For user convenience, additional sorting and view settings are available for the Tile View.

To access, hover over **Tile View** on the user function menu to open the Tile View function submenu.

**Note:**

Selections made in the Tile View function submenu persist for the user in question until actively changed.

Sort Order

To sort tiles alphabetically by patient last name, select **Sort by Name** in the Tile View function submenu. To sort tiles alphanumerically by patient location, select **Sort by Location**. The default sort order is by location.

Device Identifiers and Available Devices

To show device identifiers below device icons on bed tiles, select **Show Device ID** in the Tile View function submenu. To hide device identifiers on bed tiles, select **Hide Device ID**. The default setting hides device identifiers.

To show all available devices in the Tile View, regardless of user, select **Show All Available Devices** in the Tile View function submenu. To show only devices available to the current user in the Tile View, select **Show My Available Devices**. The default setting shows devices available to the current user, which are devices assigned to the same area to which the current user is assigned.



Note:

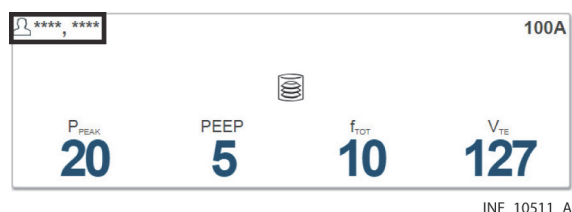
Devices not assigned to any area will show as available regardless of the view mode selected.

See [Area Assignments](#) on page 4-52 for information on assigning areas to users; see [Manage Device Inventory](#) on page 5-26 for information on assigning devices to areas.

Patient Names

To not show patient names in the Tile View, select **Hide Patient Name** in the Tile View function submenu. Enabling this setting replaces patient names in the Tile View with a string of characters, as shown in Figure 4-13.

Figure 4-13. Bed Tile (patient name hidden)



To show patient names in the Tile View, select **Show Patient Name**. The default setting shows patient names.



Note:

To enhance patient privacy, set the Tile View to hide patient names if the screen on which the Tile View is visible is in an open or heavily trafficked area, such as a central monitoring station.



Note:

The Sort by Name function will still work correctly even if names are hidden.

Empty Bed Tiles

To not show tiles in the Tile View for empty beds assigned to the current user, select **Hide Empty Beds** in the Tile View function submenu. If this setting is enabled, the only beds assigned to the current user that will appear in the Tile View will be those with patients or with devices, or both.

To show tiles in the Tile View for all beds assigned to the current user, including empty beds, select **Show Empty Beds**. The default setting shows empty beds.

4.5 Device Detail Screen

Users can view detailed information about device and algorithm parameters and settings and active alarms and notifications for a patient in the Device Detail screen. From here, users can also link patients with devices and algorithms, manage device links, and edit certain patient information.

To access the Device Detail screen, click on any Tile View bed tile, or select a patient listed in the Alarm or Notification menus.

**Note:**

Before acting on information shown in the platform, check the patient at the bedside.

**Note:**

The platform's data displays are informational. Except as specified for derived parameter algorithms with adjustable alarm thresholds, the platform does not provide the ability to change settings or control devices in any way (including adjusting or silencing device alarms).

**Note:**

Illustrations of derived parameter algorithms in this section show generic algorithm icons and data. Each individual algorithm has its own specific parameters, and may have a specific icon (not shown here). Basic platform behavior described here is the same for all algorithms.

4.5.1 Availability by User Role

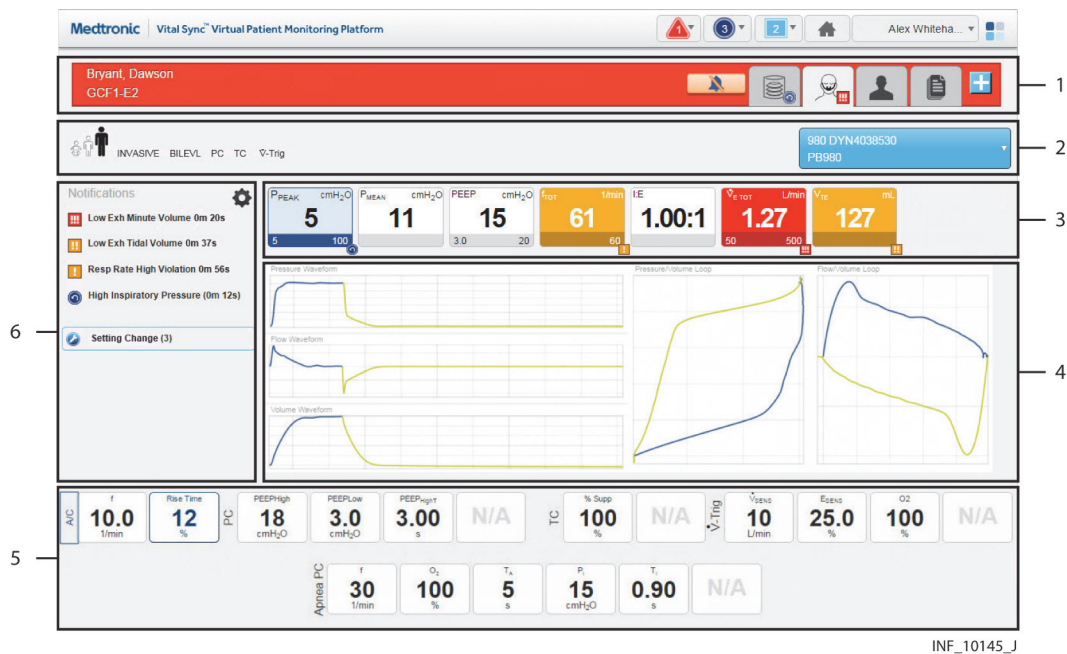
Clinicians, supervisors, central monitoring station users, and link managers may use all functions in the Device Detail screen. Bedside unit users have view-only access to detail for devices linked to the patient in the associated bed, and to patient detail.

4.5.2 Screen Layout

The Device Detail screen is divided into panels that show data for the patient and the selected device or algorithm.

General screen features are shown in [Figure 4-14](#), [Figure 4-15](#), and [Figure 4-16](#).

Figure 4-14. Device Detail Screen Layout (Ventilator)



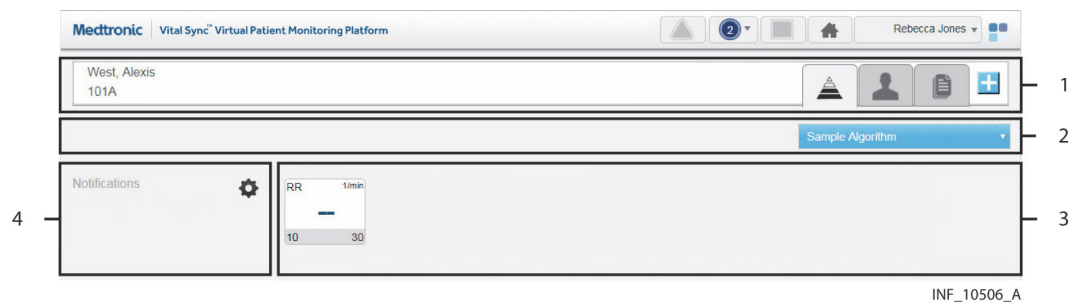
- | | | | |
|---|----------------------|---|----------------|
| 1 | Patient header panel | 4 | Waveform panel |
| 2 | Device header panel | 5 | Setting panel |
| 3 | Parameter panel | 6 | Event panel |

Figure 4-15. Device Detail Screen Layout (Pulse Oximeter or Capnography Monitor)



- | | | | |
|---|----------------------|---|----------------|
| 1 | Patient header panel | 4 | Waveform panel |
| 2 | Device header panel | 5 | Trend panel |
| 3 | Parameter panel | 6 | Event panel |

Figure 4-16. Device Detail Screen Layout (Derived Parameter Algorithm)



- | | | | |
|---|----------------------|---|----------------------|
| 1 | Patient header panel | 3 | Algorithm data panel |
| 2 | Device header panel | 4 | Event panel |

The Device Detail screen for regional saturation monitors, bispectral index monitors, and data aggregators has a similar layout to that used for pulse oximeters and capnography monitors, but does not have a waveform panel.

Derived parameter algorithms will have Device Detail screens specifically designed for the algorithm and the parameters monitored. For more information on the Device Detail screen for any such device, contact Medtronic Professional Services.



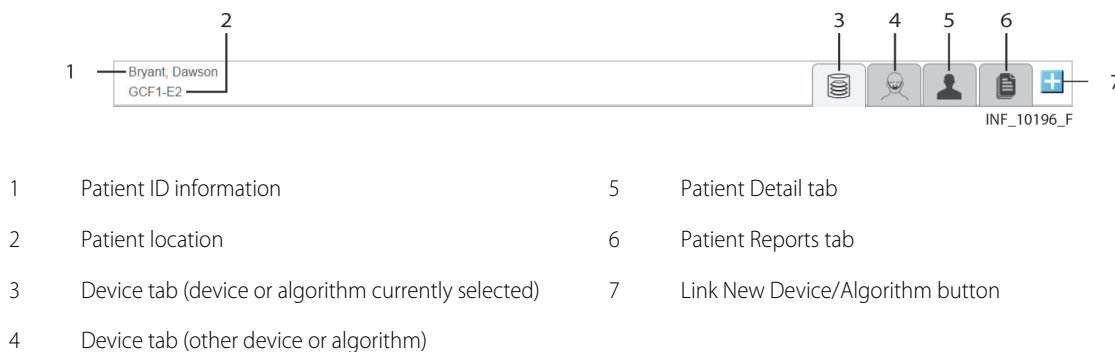
Note:

The screen captures for the Device Detail screen show examples of data for specific device types. Data appearing on the Device Detail screen will vary by device type, and also among devices of the same type, depending on operation mode and settings, parameters supported, and the communication protocol used. Not all data shown in the screen captures may be shown for all devices.

Patient Header Panel

The patient header panel at the top of the screen (just below the navigation bar) shows information for the currently selected patient.

Figure 4-17. Patient Header Panel

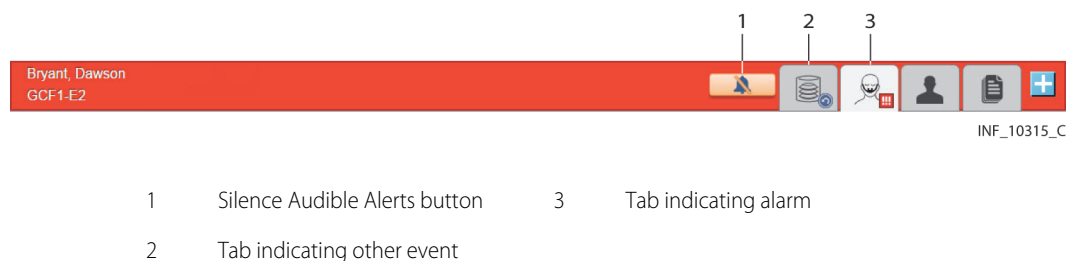


Patient data includes room number or location identifier, patient name, and patient ID number. Device icons on tabs denote each device or algorithm currently linked to this patient. The icon for the currently selected device or algorithm appears on a lighter-colored tab.

To select the device or algorithm for which to show detail on the Device Detail screen, click a device tab. See [Select a Device](#) on page 4-23.

The patient header shown in Figure 4-17 indicates no active alarms or notifications on any of the patient's linked devices. If any linked device or algorithm has active alarms or notifications, the patient header will change color to indicate the event with the highest priority among all devices and algorithms linked to this patient.

Figure 4-18. Patient Header Panel (alarm indicated)



The device tab for any device or algorithm with an active alarm or notification will show a symbol for the event with the highest priority on that device or for that algorithm. A button for silencing audible alerts (if enabled) will also appear if an alarm is active. (See [Device Detail Screen \(Event Panel\)](#) on page 8-10 or page 9-8, and [Audible Alerts and Alarms](#) on page 8-4 for details on silencing alerts.)

To link another device to this patient, click the Link New Device button. See [Patient and Device Links](#) on page 4-34.

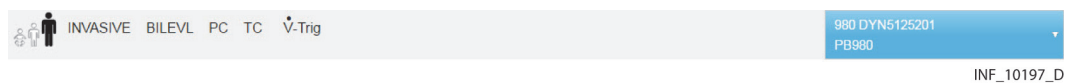
To view patient information, click on the Patient Detail tab. See [Manage Patient Detail](#) on page 4-27.

To access snapshot reports for this patient without leaving the Device Detail screen, click the Patient Reports tab. See Figure 6-1 on page 6-2.

Device Header Panel

Basic mode and identifier information for the device appears in the device header, just below the patient header.

Figure 4-19. Device Header Panel (ventilator)



Information shown in the device header for a ventilator includes some or all of the following items, if supported on the device or by the device's communication protocol:

- Circuit type (adult, pediatric, or neonatal)
- Ventilation mode
- Mandatory breath type
- Trigger type
- Ventilation type
- Spontaneous breath type
- Device model and identifier (shown on the blue function button)

Figure 4-20. Device Header Panel (pulse oximeter or capnography monitor)

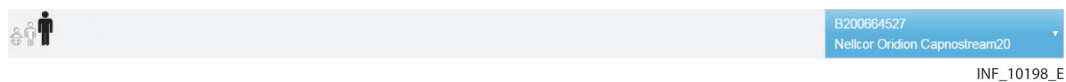
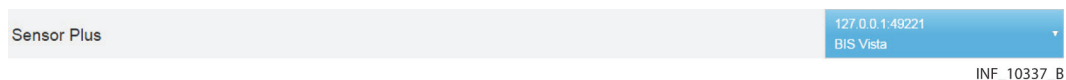


Figure 4-21. Device Header Panel (regional saturation monitor)



Information shown in the device header for a pulse oximeter, capnography monitor, or regional saturation monitor includes some or all of the following, if supported on the device or by the device's communication protocol:

- Patient type
- Signal strength from sensor
- Sensor type
- Battery charge remaining
- Sensor identifier (serial and lot number)
- Device model and identifier (shown on the blue function button)

To disconnect or reconnect devices in the platform, use the drop-down function menu on this panel. See [Manage Device Connections](#) on page 4-23.



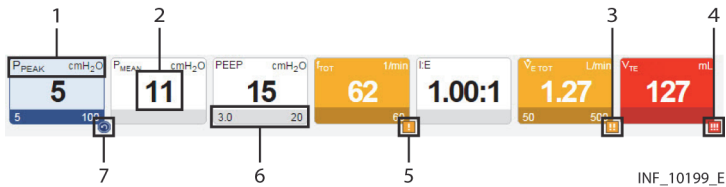
Note:

Information appearing in the device header depends on device type and mode of operation and the communication protocol used. Not all devices support display of all possible information, and some information is not applicable in certain modes of operation. See the operator’s manual for the device for more information on specific data shown.

Parameter Panel

The most recent parameter data reported for the device (unless data is not available for that parameter) appears on tiles in the parameter panel.

Figure 4-22. Parameter Panel (ventilator data)



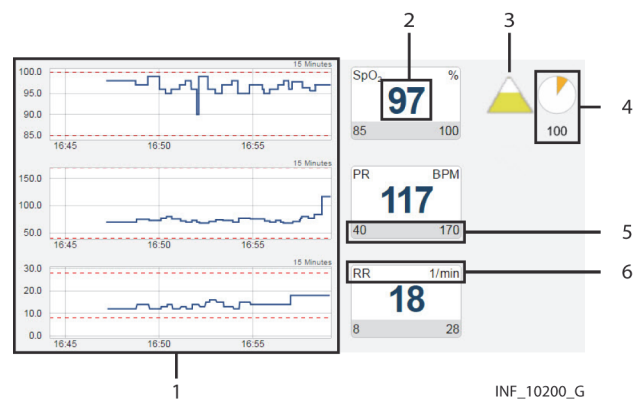
- | | | | |
|---|----------------------------------|---|---|
| 1 | Parameter name & unit of measure | 5 | Low-priority alarm icon |
| 2 | Parameter value | 6 | Parameter upper and lower limits (if set or applicable) |
| 3 | Medium-priority alarm icon | 7 | Reset alarm icon |
| 4 | High-priority alarm icon | | |



Note:

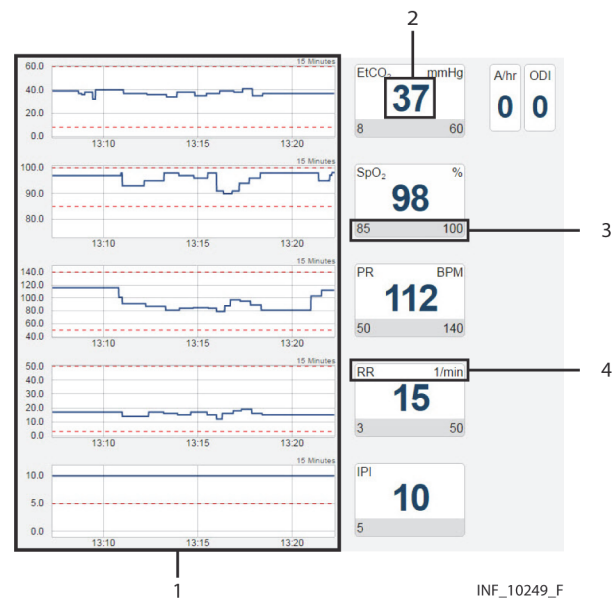
The alarm priority icons shown in Figure 4-22 are used in parameter panels for all device types.

Figure 4-23. Parameter Panel (pulse oximeter data)



- | | | | |
|---|---|---|---|
| 1 | Trend panel with trend tiles | 4 | SatSeconds indicator and value (if supported) |
| 2 | Parameter value | 5 | Parameter upper and lower limits (if set or applicable) |
| 3 | Saturation pattern detection (SPD) indicator (if supported) | 6 | Parameter upper and lower limits (if set or applicable) |

Figure 4-24. Parameter Panel (capnography monitor data)



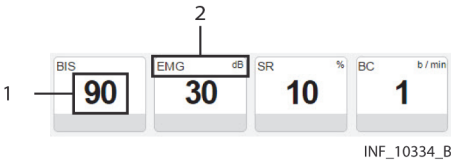
- | | | | |
|---|------------------------------|---|---|
| 1 | Trend panel with trend tiles | 3 | Parameter upper and lower limits (if set or applicable) |
| 2 | Parameter value | 4 | Parameter name and unit of measure |



Note:

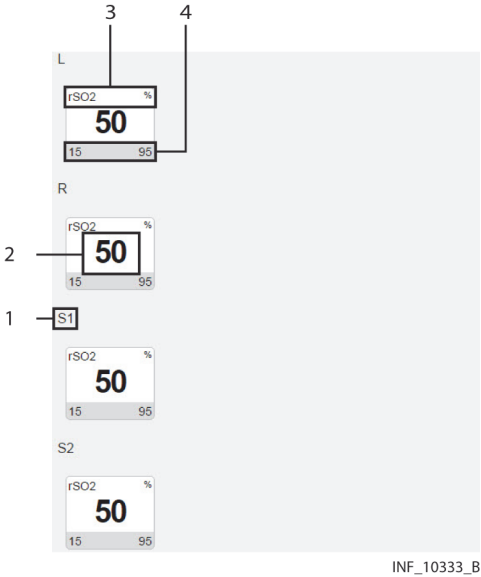
For more information on oximetry and capnography trend tiles, see [Trend Panel](#) on page 4-22.

Figure 4-25. Parameter Panel (bispectral index monitor data)



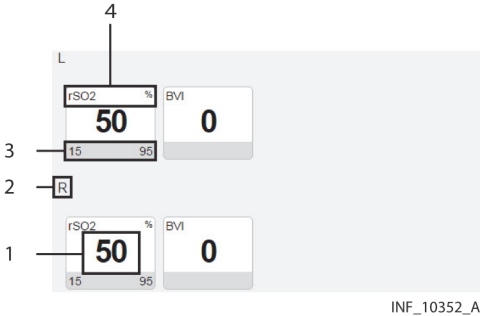
- 1 Parameter value
- 2 Parameter name and unit of measure

Figure 4-26. Parameter Panel (four-channel regional saturation monitor data)



- 1 Sensor channel
- 2 Parameter value
- 3 Parameter name and unit of measure
- 4 Parameter upper and lower limits

Figure 4-27. Parameter Panel (two-channel regional saturation monitor data)



- 1 Parameter value
- 2 Sensor channel
- 3 Parameter upper and lower limits
- 4 Parameter name and unit of measure

**Note:**

Not all devices monitor all parameters the platform can show for that device type. If the device does not monitor a particular parameter, the tile for that parameter will not appear in the parameter panel.

**Note:**

The screen captures for the Device Detail screen show examples of data for specific device types. Data appearing on the Device Detail screen will vary by device type, and also among devices of the same type, depending on operation mode and settings, parameters supported, and the communication protocol used. Not all data shown in the screen captures may be shown for all devices.

Parameters shown are specific to the device and ventilation mode or sensor type selected. Reference the operator's manual for the device for more information.

If data is unavailable for a parameter the device normally monitors, two dashes (--) will appear in the tile.

Regardless of device type, if any parameters are outside alarm limits set on the device, an alarm icon will appear below the lower right corner of the tile, and the tile will change color to red (indicating a high-priority alarm) or yellow (indicating a low-priority or medium-priority alarm). If audible alerts are enabled, an alert tone will also sound. See [Audible Indicators](#) on page 8-3.

**Note:**

If an audible alert sounds, the alert will be related to the alarm message with the highest priority on the linked device with the highest priority. **This device may not be the device that is currently selected.**

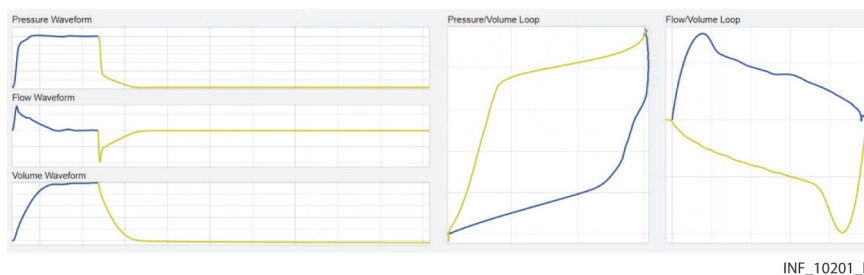
If a reset alarm occurs for a parameter, the reset alarm icon will appear below the lower right corner of the tile, and the tile will be outlined in blue. See [Visual Indicators](#) on page 9-1.

To access detailed trend data for individual parameters, click on any tile. See [View Parameter Trend Data](#) on page 4-24.

Waveform Panel

The waveform panel shows real-time waveform data for the selected device.

Figure 4-28. Waveform Panel (ventilator data)



For ventilators, loop waveforms (showing the most recent monitored breath) and scalar waveforms (showing a collection of breaths over time) appear here.

Figure 4-29. Waveform Panel (pulse oximeter data)

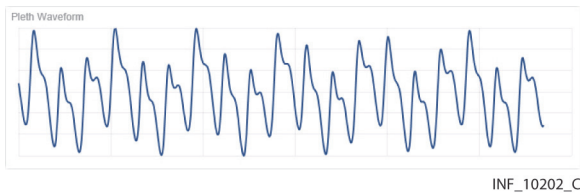
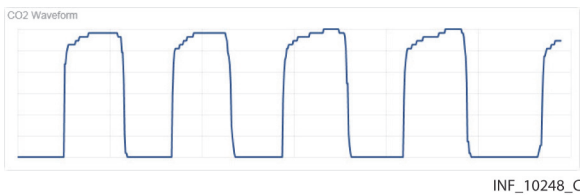


Figure 4-30. Waveform Panel (capnography monitor data)



For pulse oximeters and capnography monitors, waveform data for the most recent ten seconds monitored appears here.

Waveforms shown vary by device and configuration; reference the operator’s manual for the specific device for more information.

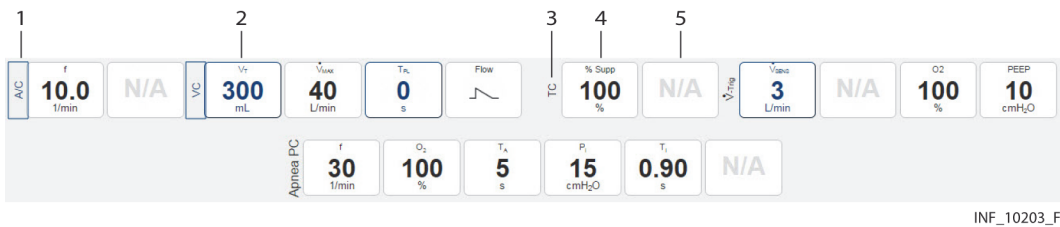
If a particular waveform is not supported, or data is unavailable for a supported waveform, the message “No Data Available” will appear in the panel for that waveform.

To access more detailed information for a specific waveform, click on the waveform. See [View Waveform Detail](#) on page 4-26.

Settings Panel

The settings panel shows the settings for the currently selected device, with indicators for unused and changed settings.

Figure 4-31. Settings Panel



- | | | | |
|---|------------------------------------|---|---|
| 1 | Device mode label (mode changed) | 4 | Settings tile (setting unchanged) |
| 2 | Settings tile (setting changed) | 5 | Settings tile (setting not used or not supported) |
| 3 | Device mode label (mode unchanged) | | |



Note:

The Device Detail screen settings panel only shows settings data for ventilators.

The tiles in the settings panel are the same regardless of the device linked; active and unused tiles are specific to the device and device mode. For details on settings, reference the operator’s manual for the specific device.

If a setting shown in the settings panel is changed on the device, the tile showing that setting will change color to show a blue outline, or the label indicating a device mode will be outlined in blue. Click on the tile to view details of, and acknowledge, changes to settings. See [Device Detail Screen \(Settings Panel\)](#) on page 9-8.

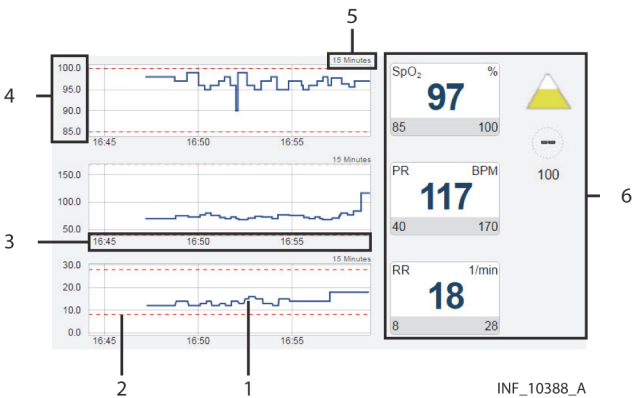


Note: Changes to any setting shown in the settings panel will trigger a setting change notification in the event panel. Changes to any alarm limit setting will also trigger a setting change notification in the event panel, but are not denoted on the corresponding tile in the parameter panel.

Trend Panel

The trend panel shows trend data for the previous 15 minutes for parameters measured by the currently selected device.

Figure 4-32. Trend Panel



- | | | | |
|---|--------------------------------------|---|---|
| 1 | Parameter trend line | 4 | Parameter trend value axis |
| 2 | Parameter alarm limit indicator line | 5 | Parameter trend time interval indicator |
| 3 | Parameter trend time axis | 6 | Parameter panel with parameter tiles |



Note: The Device Detail screen trend panel only shows trend data for pulse oximeters and capnography devices. In addition to the trend line, each trend tile has dotted indicator lines for upper and lower alarm limits for the associated parameter, as set on the device. For details on settings, reference the operator’s manual for the specific device.

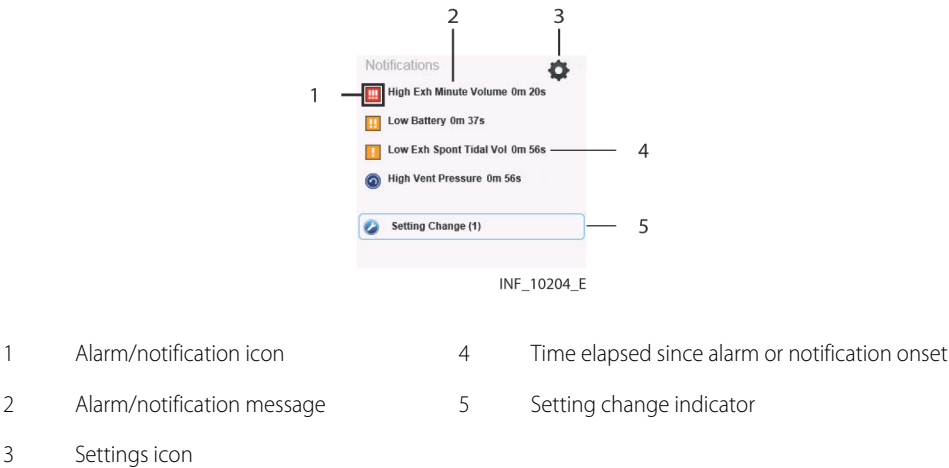


Note: Clicking on a parameter trend tile will open the Parameter Trend window for that parameter.

Event Panel

The event panel shows recent device alarms and notifications that require the user to acknowledge them.

Figure 4-33. Event Panel



To view details of alarms, or to view details of and acknowledge notifications, click on an alarm or a notification message. See [Device Detail Screen \(Event Panel\)](#) on page 8-10 or page 9-8.

4.5.3 Select a Device

When initially accessed, the Device Detail screen shows details for the device with the highest priority, based on device type, whether the device is the primary device, and on severity of active alarms if any are present.

To select a different device:

1. Find the tab showing the icon for the desired device in the patient header panel.
2. Click on the tab for the desired device. Data for the device will appear in the other panels on the screen.

See [Event Priority](#) on page 8-14 for device priority details.

4.5.4 Manage Device Connections

Users can access device connection controls from the device header panel to attempt to reconnect or replace devices that have lost communication with the platform, or to unlink devices from patients in the platform.

See [Device Connection Functions](#) on page 4-39 for details.

4.5.5 View Parameter Trend Data

To view recent trend data (including alarm conditions and setting changes) for a parameter, click on the desired parameter tile to open the Parameter Trend window.

Figure 4-34. Parameter Trend Window



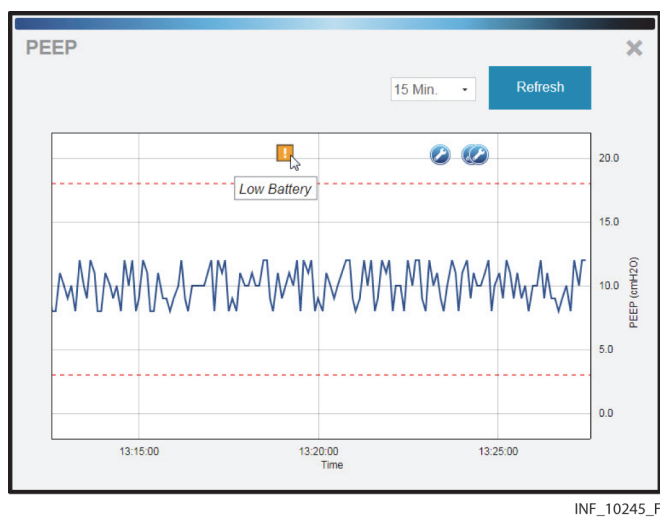
Default Data

The default data shown is for the previous 15 minutes. Click on the drop-down box at lower left for other options (30 minutes, or 1, 2, or 4 hours).

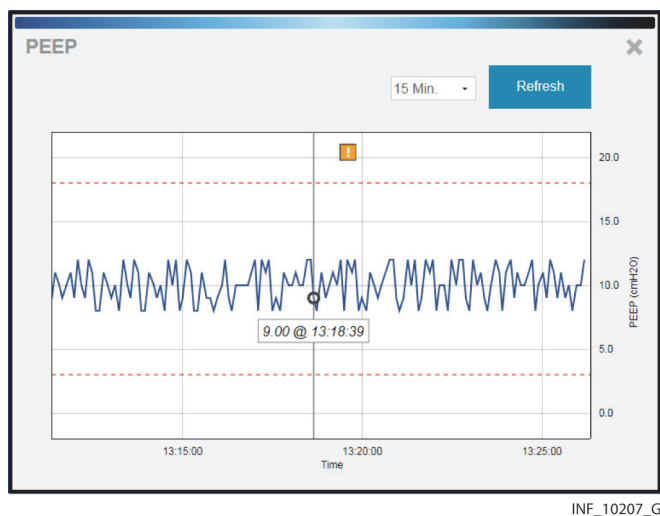
Upper and lower alarm limits set on the device for this parameter are indicated by red dotted lines. (The vertical axis is scaled automatically according to the limits set for the parameter.)

Additional View Options

Alarms and setting changes occurring during the timeframe shown are indicated on the trend graph with appropriate icons. To view the alarm message associated with an alarm, click the desired alarm icon.

Figure 4-35. Parameter Trend Window (alarm and setting change icons and alarm message shown)

To get the exact value for the parameter at any point on the trend data graph, simply click on the line at the desired time point.

Figure 4-36. Parameter Trend Window (specific data point shown)

To view a different part of the trend graph not currently shown (if any), click and drag the graph to either the left or the right.

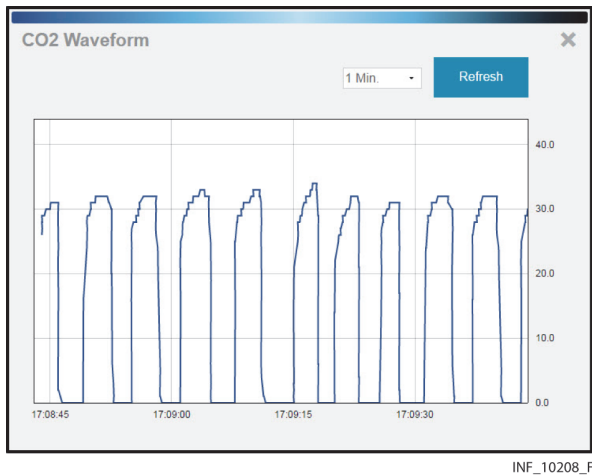
To refresh the trend graph to show the most recent data, click **Refresh**.

To close the Parameter Trend window, click the **X** at upper right in the window.

4.5.6 View Waveform Detail

To view a more detailed view of any waveform shown in the waveform panel, click on the desired waveform to open the Waveform Detail window.

Figure 4-37. Waveform Detail Window



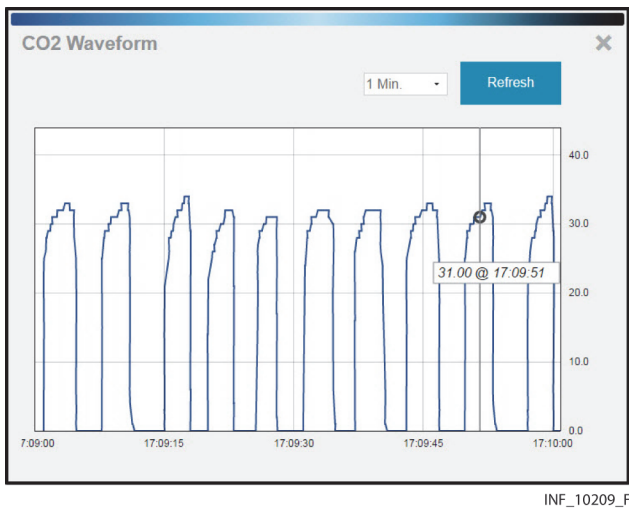
Default Data

The default data shown is for the previous breath. Click on the drop-down box at lower left for other options (2, 4, or 8 breaths).

Additional View Options

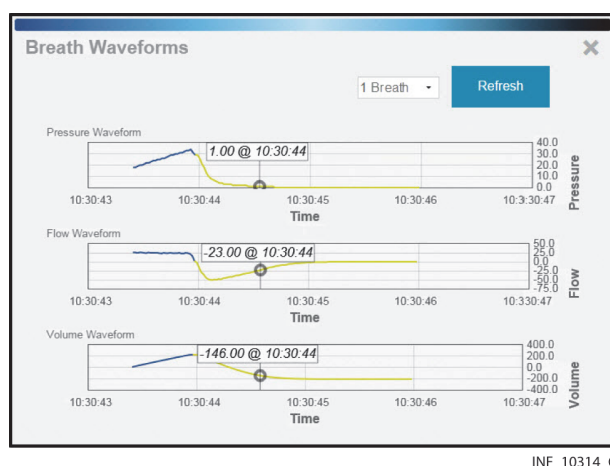
To get the exact value at any point on the waveform, simply click on the line at the desired time point.

Figure 4-38. Waveform Detail Window (specific data shown)



If viewing waveform detail for multiple waveforms at once, specific data will be shown on all waveforms for the time point selected.

Figure 4-39. Waveform Detail Window (specific data shown for multiple waveforms)



To refresh the waveform view to show the most recent data, click **Refresh**.

To close the Waveform Detail window, click the **X** at upper right in the window.

4.5.7 Manage Patient Detail

Users can view patient information, including the bed location and platform users assigned to any patient, directly from the patient header in the Device Detail screen. Users (except for those using the platform on dedicated bedside display units) can also edit identifying information and locations for patients.

To access patient information, click the Patient Detail tab in the patient header.

Figure 4-40. Device Detail Screen (patient information fields)

The figure shows the 'Medtronic Vital Sync Virtual Patient Monitoring Platform' interface. The patient header displays 'Bryant, Dawson' and 'GCF1-E2'. Below this, the patient details are shown: Name: Bryant, Dawson; ID: 2113; DOB: 11/9/1985; Location: Integrated Delivery Network > Care Facility > GCF1 > GCF1-E > GCF1-E2. There are three tabs: Primary Contact, Secondary Contact, and Monitoring Only. The Primary Contact tab is active, showing a list of users: supervisor (Permanent - GCF1), AlWhitehall (Permanent - GCF1-E), JeShepard (Permanent - Patient), and ToJones (Permanent - Patient). A 'Discharge Patient From System' button is at the bottom. The patient ID 'INF_10335_B' is at the bottom right.

The following information appears here:

- **Name**—The patient’s name (last name first)
- **ID**—The patient’s identification number
- **DOB**—The patient’s date of birth (if entered)
- **Location**—The patient’s location, including all associated areas starting with the highest-level area and ending with the patient’s bed (for details on locations in the platform, see [Locations](#) on page 7-1)
- **Primary Contact**—The usernames and assignment types (permanent or shift-based) of all users who have primary responsibility in the platform for this patient
- **Secondary Contact**—The usernames and assignment types (permanent or shift-based) of all users who have secondary responsibility in the platform for this patient
- **Monitoring Only**—The usernames and assignment types (permanent or shift-based) of all users who are only monitoring this patient in the platform

The **Discharge Patient from System** button allows the user to discharge this patient in the platform. See [Discharge \(Remove\) a Patient](#) on page 4-43 for details.

Edit Information for a Patient

To update patient information:

1. With the patient information fields shown, click on the edit button next to the **Name**, **ID**, or **DOB** field to open the Update Patient Information window.

Figure 4-41. Update Patient Information Window

INF_10254_D

2. **ID**—The ID number currently used for the patient appears here. If desired, edit this number, then click the magnifying glass icon to make sure the new number is not in use. (If changing the ID number for the patient, all patient information will need to be reentered in this window.)
3. **First Name**—The first name currently used for the patient appears here. If desired, edit this name. (This field is optional.)

4. **Last Name**—The last name currently used for the patient appears here. If desired, edit this name. (This field is optional.)
5. **Date of Birth**—The date of birth currently indicated for the patient appears here. If desired, edit this date. (This field is optional.)
6. Click **Save** to update the information in the platform.

**Note:**

Users can also update patient information in the Admit Patient screen when linking a new device to the patient. Refer to [Link a Patient and a Device](#) on page 4-35 for more information.

Change a Patient Location

To change a patient's location:

1. Click on the tile for the desired patient to access the Device Detail screen.
2. Click on the Patient Detail tab to access patient information.
3. Click on the edit button next to the patient's room number in the upper left corner of the patient header **Location** field to open the Update Patient Location window.

Figure 4-42. Update Patient Location Window

INF_10253_D

4. **Old Location**—The patient's current location in the platform appears here.
5. **New Location**—Click on the drop-down box to view available locations, then click on a location in the list to select it.
6. Click **Save** to update the location in the platform. The patient's information will appear in the bed tile for the new location in the Tile View.

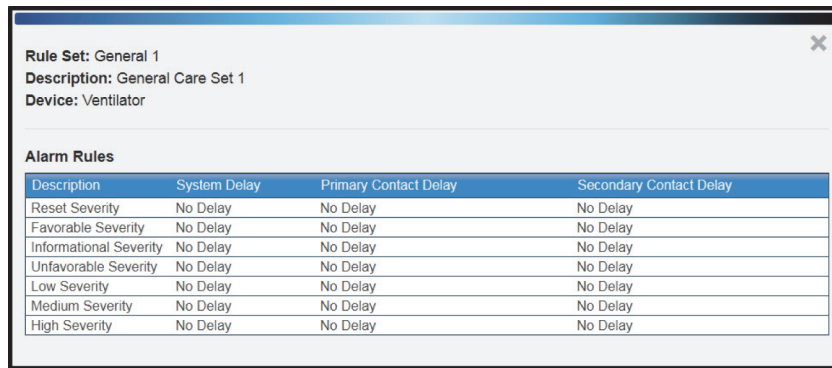
**Note:**

When updating a patient's location, if any device not currently associated with the new location is currently linked to the patient, a message will appear indicating that the patient's new location does not match the location associated with the device. See [Manage Device Inventory](#) on page 5-26 for details on updating location assignments for devices.

4.5.8 View Event Rules

To access a dialog showing current delay rules in use for alarms and notifications, click on the settings icon in the upper right corner of the Device Detail screen event panel.

Figure 4-43. Rules and Settings Dialog (example delay rules shown)



Rule Set: General 1 Description: General Care Set 1 Device: Ventilator			
Alarm Rules			
Description	System Delay	Primary Contact Delay	Secondary Contact Delay
Reset Severity	No Delay	No Delay	No Delay
Favorable Severity	No Delay	No Delay	No Delay
Informational Severity	No Delay	No Delay	No Delay
Unfavorable Severity	No Delay	No Delay	No Delay
Low Severity	No Delay	No Delay	No Delay
Medium Severity	No Delay	No Delay	No Delay
High Severity	No Delay	No Delay	No Delay

INF_10301_G

The name and description of the current rule set in effect for the selected device appears at upper left.

The following information appears for each event (an alarm of a particular severity level, or a specific device alarm) defined in the rule set:

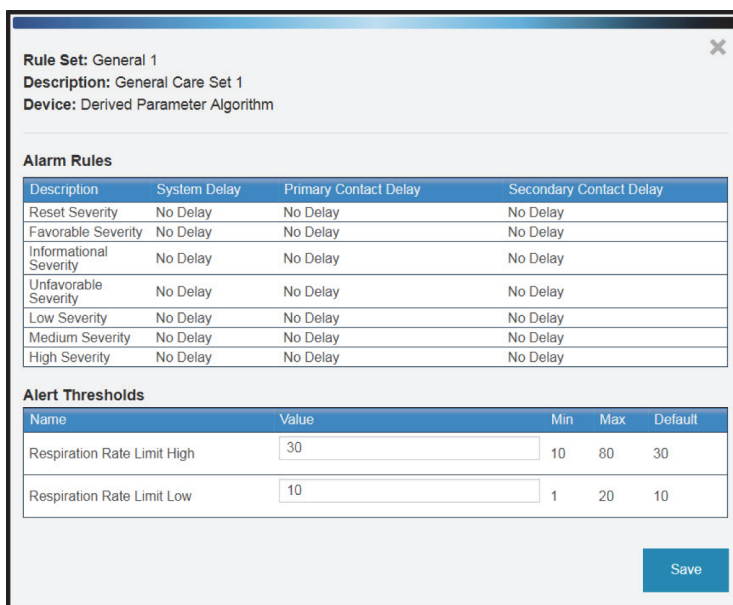
- **Description**—The device alarm severity level or the specific device alarm
- **System Delay**—The delay (if any) before the indicated event will annunciate in the platform
- **Primary Contact Delay**—The delay (if any) before the indicated event will trigger an email or SMS message to users assigned to the affected patient as primary contacts
- **Secondary Contact Delay**—The delay (if any) before the indicated event will trigger an email or SMS message to users assigned to the affected patient as secondary contacts

This dialog allows users to view the rule set in effect for the currently selected device, but does not allow changes. Administrative users set up and maintain rule sets and determine where they are applied. For more information on setting up delay rules, see [Add or Edit a Rule Set](#) on page 5-33, and [Define Alarm and Notification Rules](#) on page 5-37.

4.5.9 Manage Settings

The platform does not allow users to directly change settings, except for certain derived parameter algorithms. Users can change alert threshold settings for such algorithms from the Device Detail screen, according to the setting rules established for the algorithm.

To access a dialog showing current settings and setting rules, click on the settings icon in the upper right corner of the Device Detail screen event panel.

Figure 4-44. Rules and Settings Dialog (example alert thresholds shown)


Rule Set: General 1
Description: General Care Set 1
Device: Derived Parameter Algorithm

Alarm Rules

Description	System Delay	Primary Contact Delay	Secondary Contact Delay
Reset Severity	No Delay	No Delay	No Delay
Favorable Severity	No Delay	No Delay	No Delay
Informational Severity	No Delay	No Delay	No Delay
Unfavorable Severity	No Delay	No Delay	No Delay
Low Severity	No Delay	No Delay	No Delay
Medium Severity	No Delay	No Delay	No Delay
High Severity	No Delay	No Delay	No Delay

Alert Thresholds

Name	Value	Min	Max	Default
Respiration Rate Limit High	30	10	80	30
Respiration Rate Limit Low	10	1	20	10

Save

INF_10378_D

**Note:**

The alert thresholds shown in Figure 4-44 are purely illustrative. Individual algorithms have their own specific settings. Basic functionality described here is the same for all algorithms.

The following information appears in the lower half of the dialog for each alert supported:

- **Name**—The name of the alert threshold
- **Value**—The value to which the alert threshold is currently set
- **Min**—The lowest value to which the threshold can be set
- **Max**—The highest value to which the threshold can be set
- **Default**—The default value for the alert threshold

To change setting rules:

1. Click in the **Value** field for the desired threshold and enter a new value. The value entered must be no lower than the value shown in the **Min** field, and must be no higher than the value in the **Max** field.
2. When finished, click **Save** to exit the dialog.

For details on thresholds used with a specific algorithm, consult with Medtronic Professional Services.

Administrative users set the minimum, maximum, and default thresholds (that is, the **Min**, **Max**, and **Default** values appearing in the Rules and Settings dialog) in the Vital Sync™ informatics manager. These thresholds apply to all devices of a specific type that use specific setting rules in the platform. For more information, see [Define a Setting Rule](#) on page 5-40.

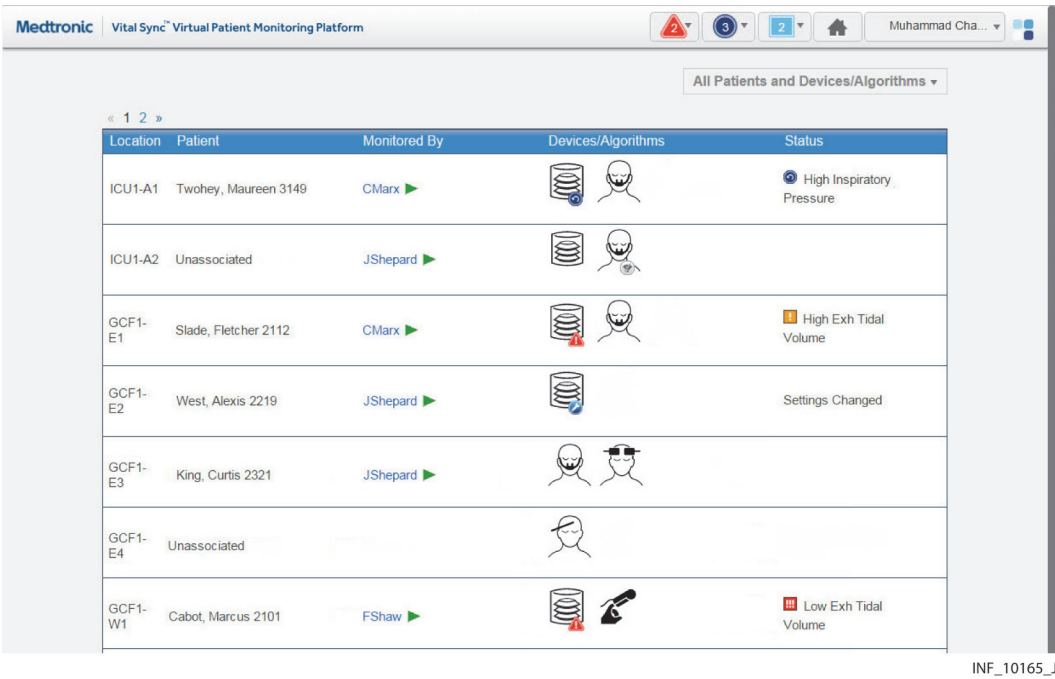
4.6 All Patients and Devices Screen

The All Patients and Devices screen provides users with a summary of all patients and linked devices, assigned personnel, and current status. This screen is the home screen for link managers.

To access the All Patients and Devices screen:

- 1. Hover over the navigation bar’s user function button to access the function menu.
- 2. Select **All Patients and Devices**.

Figure 4-45. All Patients and Devices Screen



4.6.1 Availability by User Role

Supervisors and link managers may use all functions in the All Patients and Devices screen. Clinicians do not have access to this screen, nor is it accessible from a central monitoring station or dedicated bedside display unit.

4.6.2 Patient and Device Information

Information shown for each patient includes:

- **Location**—The room number or location identifier
- **Patient**—The patient’s name
- **Monitored By**—The first user to whom the patient is assigned

- **Devices**—The device or devices linked to the patient
- **Status**—The currently active alarm or notification (if any) with the highest priority

**Note:**

Before acting on information shown in the platform, check the patient at the bedside.

**Note:**

The platform's data displays are informational. Except as specified for derived parameter algorithms with adjustable alarm thresholds, the platform does not provide the ability to change settings or control linked devices in any way (including adjusting or silencing device alarms).

**Note:**

The All Patients and Devices screen shows all patients currently monitored in the platform, not just those patients who are assigned to the supervisor currently logged in. There may be multiple pages of patients and devices; if the desired patient or device is not immediately visible, navigate through additional pages to find the patient or device.

4.6.3 Additional View Options

The default view for the All Patients and Devices screen is of all patients currently monitored in the platform, along with all devices currently linked to patients. Users can also view currently unassigned patients and devices.

To change the patient and device view:

1. Hover over the drop-down menu near the upper right corner of the screen.
2. To show only devices communicating with the platform but not currently linked to any patients, select **Unassigned Devices**. To show only patients not currently assigned to any users, select **Unassigned Patients**. To select all patients regardless of status, select **All Patients**. A check mark will appear next to the currently selected view option.

If there are no unassigned patients or devices, a message indicating as such will appear after selecting the view option.

4.6.4 View Patient and Device Detail

Users can access the Device Detail screen from the All Patients and Devices screen.

To access patient and device detail:

1. Navigate the All Patients and Devices screen until the row for the desired patient is visible.
2. Click anywhere in the row showing the desired patient. The Device Detail screen will appear.

See [Device Detail Screen](#) on page 4-12 for more information.

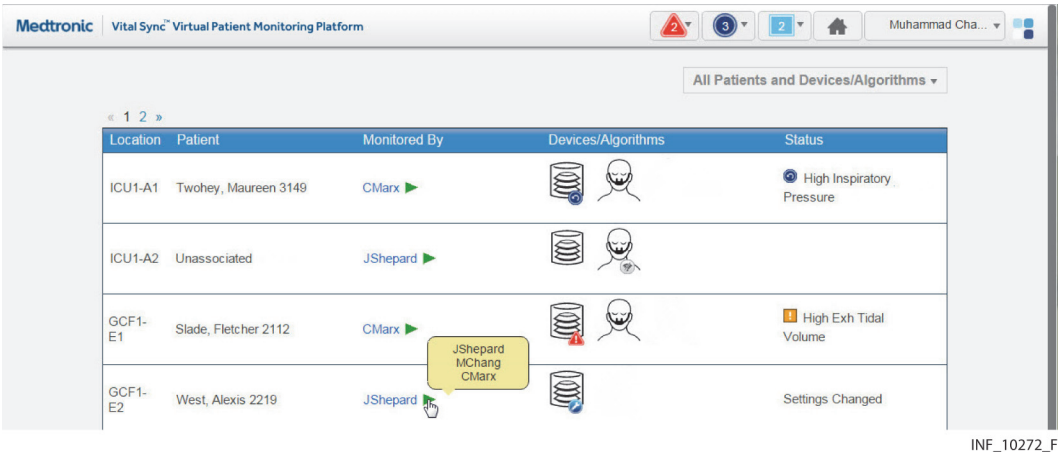
4.6.5 View Patient Assignments

The first user to whom a patient is assigned appears in the **Monitored By** field.

To view all users to whom a patient is assigned:

- 1. Navigate the All Patients and Devices screen until the row for the desired patient is visible.
- 2. Hover over the green triangle in the **Monitored By** field. The names of all users to whom the patient is assigned will appear in a tool tip next to the mouse cursor.

Figure 4-46. All Patients and Devices Screen (assignments shown for a patient)



4.7 Patient and Device Links

For users to be able to view device data for patients, devices that are communicating with the platform must be linked to patients in the platform.

The Admit Patient screen provides access to primary device linking functionality, including creating or searching for patient records and linking devices to patients. Other linking functions, including choosing primary devices, and managing patient name and location data, device links, and connections, are accessible from the Device Detail screen.

Users may also link activated algorithms or data aggregators, using the same procedures as those used to link devices.



Note:

The terms “device category” (as used in the software user interface and in this section) and “device type” (as used elsewhere in this manual) are interchangeable.

4.7.1 Availability by User Role

Clinicians, supervisors, link managers, and central monitoring station users may use all functions in the Admit Patient screen. Bedside unit users do not have access to the Admit Patient screen.

Clinicians, supervisors, link managers, and central monitoring station users may use all other device linking and device connection functions. Bedside unit users cannot use these functions, since their access to device detail is view-only.

4.7.2 Link a Patient and a Device

Users create new patient records in the platform and link devices to those patients via the Admit Patient screen.

Once a patient record is created, the Device Detail screen offers the ability to link additional devices to a patient who already has devices linked in the platform.

Access

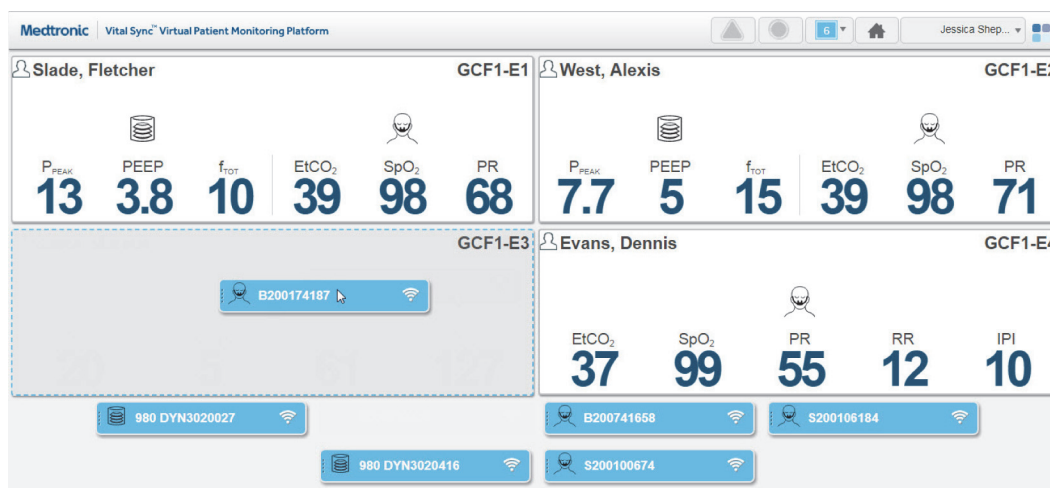
To access the Admit Patient screen from any screen:

1. Hover over the navigation bar's user function button to access the function menu.
2. Select **Admit Patient**.

To access the Admit Patient screen from the Tile View, do any of the following:

- Drag and drop a tile for the desired unassociated device (if it is visible in the Tile View) onto the desired bed tile. A dotted line will appear around the edge of the bed tile.

Figure 4-47. Tile View (device tile dragged onto bed tile at lower left)



INF_10379_D

- Click on a tile for an unassociated device not currently linked to any patient.
- Click on an empty bed tile.
- Click on a tile for an unassociated device.

Figure 4-48. Admit Patient Screen

Medtronic Vital Sync Virtual Patient Monitoring Platform

AlexWhitehall

Admit Patient

Patient	Location	Device/Algorithm
ID <input type="text"/>	Location <input type="text"/>	Category <input type="text"/>
First Name (Optional) <input type="text"/>		ID <input type="text"/>
Last Name (Optional) <input type="text"/>		<input type="button" value="Link"/>
Date of Birth (Optional) <input type="text"/> (mm/dd/yyyy)		

INF_10154_G

Information appearing in the Admit Patient screen varies depending on how the user accesses it. If accessed from the common navigation bar, all fields will be empty. If accessed from the Tile View, information for the location or device selected (depending on the tile clicked) will appear.

- If accessed from the user function menu, all fields will be empty.
- If accessed by dragging and dropping a device tile onto a bed tile in the Tile View, location and device information will appear. If a patient is already assigned to the bed, that patient's information will also appear.
- If accessed by clicking a bed tile in the Tile View, location information will appear; other fields will be empty.
- If accessed by clicking a device tile in the Tile View, device information will appear; other fields will be empty.

Field Entry

Users can link patients to any available device within the platform. A device is considered available if it is currently in the device inventory, connected to and communicating with the platform, and not linked to any other patient. If the patient ID number entered is not currently in the platform database, linking the device also creates a record for that patient.



Note:

Instructions for all field entries in this screen are presented in this section. However, not all fields may require entries, depending on how the user accesses the screen.

To select a patient or create a new patient:

1. **ID**—Enter the desired patient ID, then click the search button to the right of this field. (If the patient ID for the desired patient is already selected, skip this step.)

If a record for a patient with this ID number is already present, current information for that patient will appear, including linked devices.

If this is a new patient, a message will appear indicating the ID number was not found. Completing the linking procedure will create a record in the software for the new patient.

Enter or edit patient and location data as follows:

1. **First Name**—Enter the patient's first name, or (if needed) edit the existing name. This field is optional.
2. **Last Name**—Enter the patient's last name, or (if needed) edit the existing name. This field is optional.
3. **Date of Birth**—Enter the patient's date of birth, or (if needed) edit the existing date, following the date format shown in the lower left corner of the screen. This field is optional.
4. **Location**—Select the desired location from available locations in the drop-down list. (If the desired location is already selected, skip this step.)

After selecting or creating the patient, link any available device.

To link a device to the selected patient:

1. **Category**—Select the category of device to link with the patient from the list of available categories. (If a device is already selected, the category will automatically appear here; if the category is correct, skip this step.)
2. **ID**—Select the serial number or network address of the desired device from the drop-down list. (If a device is already selected, its information will automatically appear; if the device information matches the desired device, skip this step.)

Figure 4-49. Admit Patient Screen (available device list)

INF_10217_F

3. Once all fields in the screen have entries, the **Link** button will be available. Confirm that the information is correct, then click **Link** to link the device to the patient. The Device Detail screen will appear, showing data for the device just linked, as well as a system message describing the operations just completed.



Note:

After linking the device to the patient in the platform, visually check the device itself to confirm that the data it is showing also appears on the Device Detail screen for that patient.



Note:

If, after linking a device to a patient, both the patient and the linked device are moved to a different bed, make sure the device inventory is updated to indicate the new bed association. (Refer to [Manage Device Inventory](#) on page 5-26.) Otherwise, an error message will appear in the Device Detail screen indicating that the device is not in its associated location.

**Note:**

Linking a patient and a device adds the new patient record (if new patient data is entered), and automatically assigns the patient to the current user. If needed, use the Patient Assignment screen to remove the assignment. See [Patient Assignments](#) on page 4-45.

4.7.3 Link Additional Devices

Users can link more devices using the same procedure used for the first device. (See [Link a Patient and a Device](#) on page 4-35.)

Users also can link more devices to a patient directly from the Device Detail screen for that patient.

To link another device to a patient from the Device Detail screen:

1. Click on the tile for the desired patient in the Tile View.
2. In the Device Detail screen, click on the blue Add Device icon in the patient header, near the top right corner of the screen. A dialog for selecting a device will appear.

Figure 4-50. Link New Device dialog

Link New Device/Algorithm

Category
Select a category.

ID

Link

INF_10309_C

3. **Category**—Select the desired device category from the list of available device types.
4. **ID**—Select the serial number or network address of the desired device from the drop-down list.
5. Click **Link** to link the device to the patient. The Device Detail screen will appear, showing data for the device just linked, as well as a system message describing the operation just completed.

4.7.4 Manage Primary Devices

Users may designate a linked device as the primary device of that type for the patient.

The platform will show data from the primary device in places where data for only a single device can be shown (for example, on a bed tile in the Tile View), unless the presence of active alarms or notifications of higher priority on another linked device overrides this.

Also, alarms and notifications on the primary device have a higher priority in the platform than alarms and notifications of the same severity level on other linked devices. See [Event Priority](#) on page 8-14.

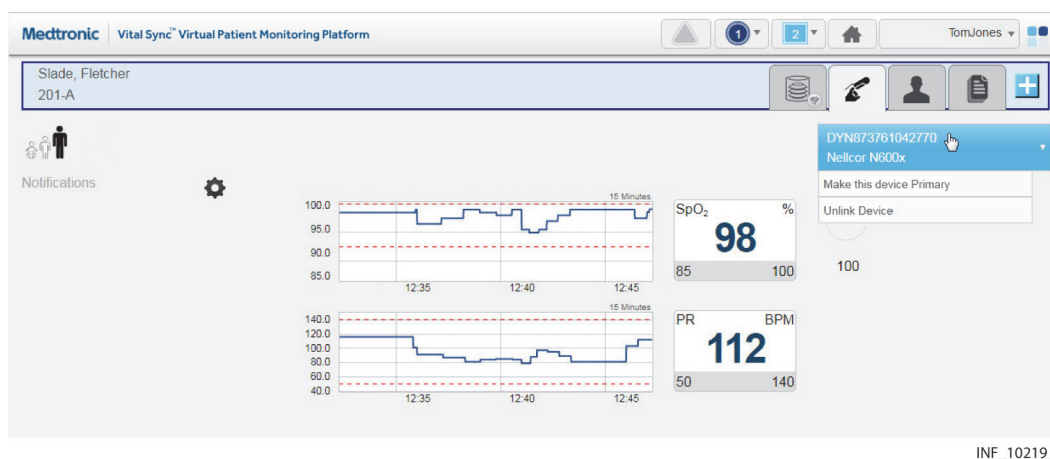
**Note:**

Designating a primary device is only possible when multiple devices of a particular type are linked to the patient. If only one device of a particular type is linked to the patient, it is automatically the primary device, and will remain the primary device if another device of the same type is subsequently linked to the same patient (unless changed).

To make a linked device the primary device of its type:

1. In the Tile View, click on the bed tile for the desired patient to access the Device Detail screen.
2. Show the device that is to be the primary device of its type by clicking on its tab in the patient header.
3. Hover over the device button in the device header to access a drop-down menu.

Figure 4-51. Device Detail Screen (making a device primary)



4. In the drop-down menu, select **Make This Device Primary**. The device currently shown will now be designated as the primary device.

4.7.5 Device Connection Functions

Devices may occasionally lose communication with the software. The software allows devices to automatically reconnect once able to communicate again. However, if the affected device has not automatically reconnected, or has been out of communication for a longer period than the automatic reconnection period set in the software, users may try to manually reestablish communication with (relink) the affected device. They may also unlink a device entirely.

To relink a disconnected device or unlink a currently linked device, use the drop-down menu on the device button in the Device Detail screen.

**Note:**

The frequency with which devices lose communication will vary depending on the amount of data being passed over the facility's network, the specific configuration of the network, and on network settings.

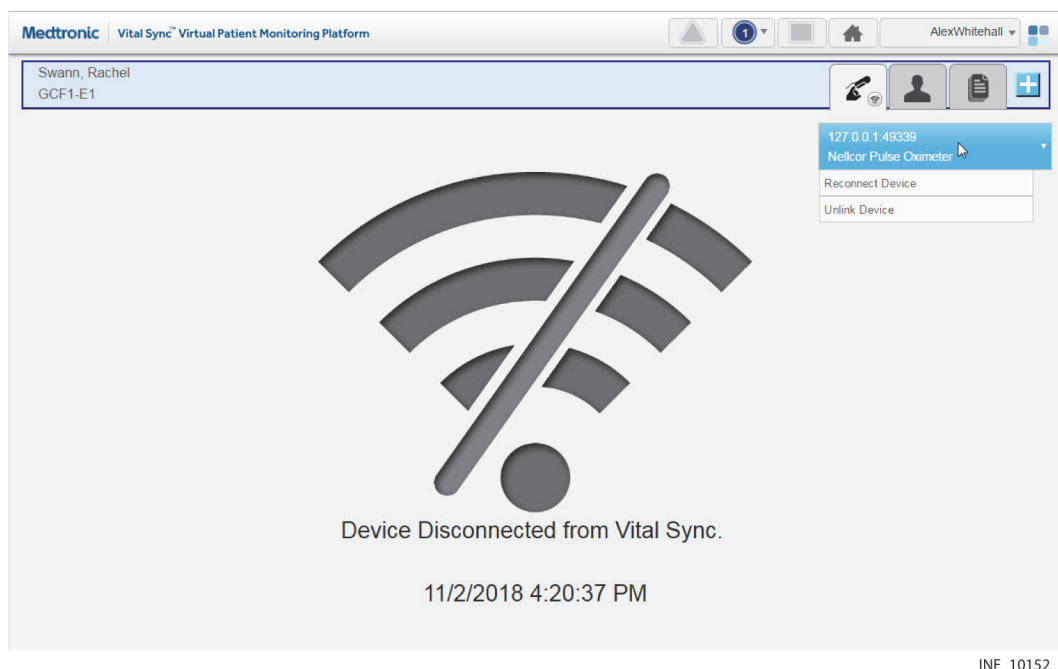
Always check the actual device first, especially if difficulties with maintaining communication are common or remain persistent. If there are no problems with the device, consult with facility IT personnel or contact Medtronic (see [Obtaining Technical Assistance](#) on page 1-6).

Relink a Device

If a device has lost communication, the bed tile and the device tab in the device header will show a device disconnection icon.

If the device is selected in the Device Detail screen, the device panels will be blank, replaced by the device disconnection icon. The date and time when communication was lost is also shown.

Figure 4-52. Device Detail Screen (device disconnected from the platform)



Both the bed tile and the Device Detail screen will also show a message with more detail on the type of problem, as follows:

- **Device Off:** Both the platform and the device are able to communicate with the network, but no device data is being received.
- **Device Disconnected from Vital Sync:** The platform is able to communicate with the network, but the device is not visible on the network.
- **Device Disconnected - Available to Reconnect:** Both the platform and the device are able to communicate with the network, and the device is available for relinking to the patient.

To attempt to relink a disconnected device in the Device Detail screen:

1. With the disconnected device selected, hover over the device button in the device header to access connection functions.
2. Select **Reconnect Device**.

To attempt to relink a disconnected device in the Tile View:

1. Find the device tile for the disconnected device, ensuring that the serial number or identifier on the device tile matches the serial number or identifier of the disconnected device.

2. Find the bed tile for the patient with the disconnected device. (If there are no alarms active for devices linked to this patient, the message “Device Disconnected – Available to Reconnect” will appear on the bed tile.)
3. Drag the device tile for the disconnected device onto the bed tile.

If communication is reestablished, data for the device will appear, along with a system message (in blue) indicating success. If communication cannot be reestablished, a system message (in red) will appear indicating failure.



Note:

If the device has been disconnected for longer than the automatic reconnection interval set in the software, it is possible to link the device to the patient multiple times, or for the device to have already been linked to a different patient. To avoid these possibilities, **unlink the device first**.



Note:

Always check the actual device for problems if reconnecting is unsuccessful.



Note:

After linking the device to the patient in the platform, visually check the device itself to confirm that the data it is showing also appears on the Device Detail screen for this patient.

Unlink a Device

When removing a device from a patient, the device also needs to be unlinked from the patient in the platform.

To unlink a currently linked device:

1. With the desired device selected, hover over the device button in the device header to access connection functions.
2. Select **Unlink Device**. A warning dialog will appear indicating that unlinking is a permanent action; click **Yes** to continue with unlinking, or click **No** to abort and return to the Admit Patient screen.

Once unlinked, a system message will appear confirming that the device is no longer linked to this patient, and data for the device will no longer appear on the Device Detail screen. Once the device is available for linking, a tile representing the device will appear in the Tile View. (For information on how the platform handles data collected on the device after unlinking, see [Device Data Handling After Unlinking](#) on page 7-13.)



Note:

Unlinking a device from a patient only removes the link between the device and the patient within the platform, stopping the platform from reporting data from that device. Unlinking does not affect or control the functioning of the actual device in any way.

4.8 Manual Parameter Entry

If a derived parameter algorithm is activated and linked to a patient in the platform, users may need to enter data manually in order to properly use the algorithm. For information on setting up and activating algorithms in the platform, see [Manage Algorithms](#) on page 5-47.

Clinicians, supervisors, link managers, and central monitoring stations may enter parameter data. Bedside unit users cannot enter parameter data, since their access to device detail is view-only.

To enter parameter data manually:

1. Click on the tile for the desired patient to access the Device Detail screen.
2. If needed, click on the tab for the algorithm in the patient header to show parameter information.
3. Click **Enter Manual Parameters**. A dialog will appear for entry of parameter data. (Available fields in the dialog may or may not correspond directly to the parameters shown on the Device Detail screen, depending on the algorithm.)



Note:

Data and available manually-entered parameters are specific to the particular algorithm.

4. Make appropriate entries in parameter fields. When finished, click **Save**.

Once parameters are entered, if an alarm state is indicated for the patient according to the rules defined in the algorithm, an alarm will annunciate in the platform according to rules and delay settings set up for the algorithm.



Note:

Not all algorithms are designed to indicate an alarm state if particular conditions or combinations of measured or manually entered parameters exist. Some algorithms will only generate notifications in the platform.

If data for one or more parameters on which the algorithm is dependent is unavailable (for example, due to disconnection of an associated device, or because the user has not entered manual parameter data), a notification will appear indicating there is missing data, along with a time interval since the platform received the most recent usable data.

If the algorithm is prevented from functioning at all, it will appear in the platform (after a certain period of time) as a disconnected device.



Note:

If an algorithm is not functioning, the period of time before it appears in the platform user interface as a disconnected device is dependent on the frequency with which the platform reports algorithm data, and on the parameters involved. Generally, the more frequently the platform reports algorithm data, the shorter the default period is before the algorithm appears as a disconnected device.

Algorithm disconnection is typically an uncommon occurrence. It may be possible to reconnect an algorithm, depending on how it is defined. Otherwise, assistance from facility IT personnel or Medtronic Professional Services may be required.

**Note:**

Algorithm parameters shown on the Device Detail screen or available for manual entry are specific to each algorithm. Discussion of specific parameters, or the nature and frequency of manual parameter entry, is beyond the scope of this manual. Consult with Medtronic Professional Services for details on setting up parameters and algorithms in the platform.

4.9 Discharge (Remove) a Patient

A patient who is no longer present in a bed must be discharged (removed from monitoring) in the platform in order to make that bed available in the platform for other patients.

Clinicians, supervisors, link managers, and users at central monitoring stations may remove patients. Bedside unit users cannot remove patients, since their access to patient detail is view-only.

**Note:**

Performing the discharge function only removes the patient from monitoring in the platform. This function is separate from any procedure or system used to physically discharge the patient from the facility.

**Note:**

The platform can be set up to automatically remove patients with no associated devices after a specified period of time. Consult with Medtronic Professional Services for more information.

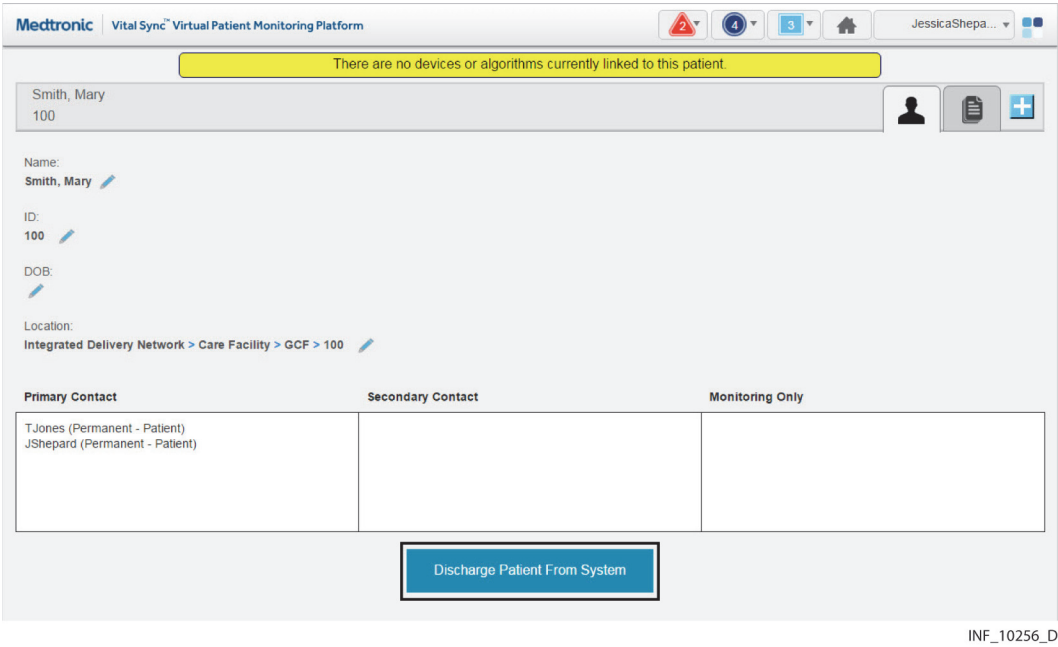
To remove a patient from a bed with currently associated devices:

1. In the Tile View, find the tile showing the patient to be removed.
2. Click on the tile to access the Device Detail screen.
3. Click on the Patient Detail tab on the right side of the patient header to access the patient information fields.
4. Click **Discharge Patient from System**. A warning dialog will appear indicating that this action will permanently remove the patient from the system.
5. Click **Yes** to confirm and return to the Tile View. The bed tile for the patient removed will now only show the location ID and information for the bed's associated devices. (Click **No** or click the **X** at upper right in the dialog to return to the patient information fields without removing the patient.)

To remove a patient from a bed with no currently associated devices:

1. In the Tile View, find the tile showing the patient to be discharged. (The tile will be grey and will show no device data or messages.)
2. Click on the tile to access the Device Detail screen. A message will appear indicating that the patient currently has no linked devices, and the patient information fields will also appear.

Figure 4-53. Device Detail Screen (patient information fields & Discharge Patient button)



3. Click **Discharge Patient from System**. A warning dialog will appear indicating that this action will remove the patient from the system.
4. Click **Yes** to confirm the discharge and return to the Tile View; the bed tile for the patient removed will now be completely blank except for the location ID. (Click **No** or click the **X** at upper right in the dialog to return to the patient information fields without discharging the patient.)



Note:

A patient who has no linked devices remains visible and accessible in the platform (in the most recent associated bed), in case devices need to be linked again later, or all existing device links need to be replaced.

If the platform is set up to automatically remove patients with no associated devices from monitoring in the platform, any such patient will remain visible and accessible in the platform until the time period for automatic discharge has passed.



Note:

The discharge function does not clear existing platform data pertaining to the patient removed.

4.10 Patient Assignments

The Patient Assignment screen shows patients assigned to the current user, as well as all patients currently linked to devices in the platform.

Clinicians can manage their patient assignments in this screen, while supervisors can manage their own patient assignments and those of other users.

Patients selected will appear in the Tile View for the users to whom they are assigned. Assignments can be permanent, or can be based on work shifts. Patients permanently assigned to a user will appear in the platform at all times for that user, while patients assigned to a user for a particular shift will appear during the hours of that shift.



Note:

All patients in areas assigned to a user will automatically appear in the Tile View for that user, unless changed in the Patient Assignment screen. (See [Area Assignments](#) on page 4-52.)

To access the Patient Assignment screen:

1. Hover over the navigation bar's user function button to access the function menu.
2. Select **Patient Assignment**.

Figure 4-54. Patient Assignment Screen

Primary Contact [2]	Secondary Contact [0]	Monitoring Only [0]
GCF1-E1	2112	Slade, Fletcher
BS1	2319	West, Alexis

Device ID	Patient ID	Patient Name
BS1	2319	West, Alexis
GCF1-E1	2112	Slade, Fletcher
GCF1-E2	2417	King, Curtis
GCF1-W6	1111	Tester, Jonathan
GCF1-E3	3478	Twohey, Maureen

INF_10155_H

4.10.1 Availability by User Role

Clinicians, supervisors, link managers, and central monitoring station users can use all functions in the Patient Assignment screen, as described in this section. Bedside unit users do not have access to this screen.

4.10.2 Patient Assignment Screen Layout

The Patient Assignment screen is divided into two panels, showing current assignments and patients available for assignment.

The panel on the left (also called the left-side panel) contains tabs for different types of patient assignments for a user. These include:

- **Primary Contact tab**—If there is an alarm or notification for any patient on this tab, this user is the primary person to be contacted via Short Message Service (SMS) message or email
- **Secondary Contact tab**—If there is an alarm or notification for any patient on this tab, this user is a secondary person to be contacted via SMS message or email
- **Monitoring Only tab**—If there is an alarm or notification for any patient on this tab, this user will not be contacted via SMS message or email (the user is only assigned to monitor the patient, not provide care)

Each tab shows a number denoting the number of patient assignments of that type for this user.

Tiles representing the patients assigned to the current user will appear on the tab on the left appropriate to the assignment type. The number of patients assigned to the current user appears in parentheses above the panel. (For supervisors, the number is in a drop-down menu.)

The panel on the right (also called the right-side panel) contains tiles showing either all patients currently linked to devices in the platform or all patients currently unassigned to any user. In either case, the number of patients in this column appears in parentheses in a drop-down menu above the panel.

If there are too many patients in a panel or a tab to be shown all at once, scroll bars will appear in that panel or tab.

Each patient tile shows the patient's room number, ID number and name.

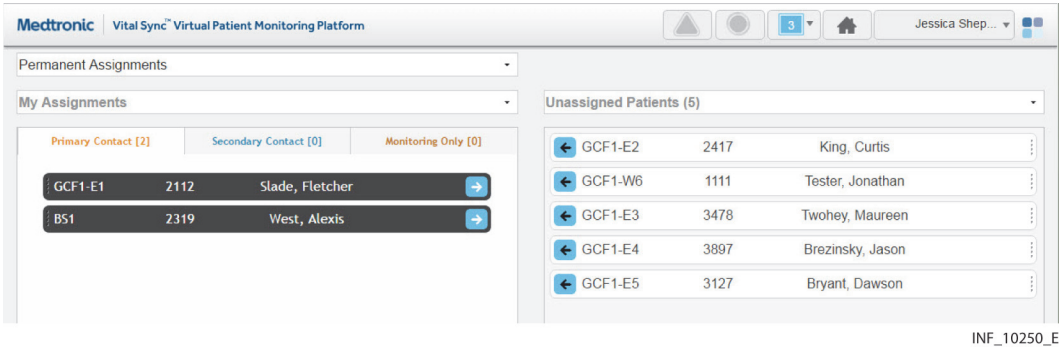
**Note:**

When initially accessed, the Patient Assignment screen shows the current user's permanent primary contact patient assignments in the left-side panel (on the Primary Contact tab), and all patients currently linked to devices in the platform in the right-side panel.

4.10.3 Show Unassigned Patients

To show only patients who are not currently assigned to any users, click on the drop-down menu at the top of the right-side panel and select **Unassigned Patients**.

Figure 4-55. Patient Assignment Screen (unassigned patients shown)



INF_10250_E

To once again show all patients in the right-side panel, click on the drop-down menu and select **All Patients**.

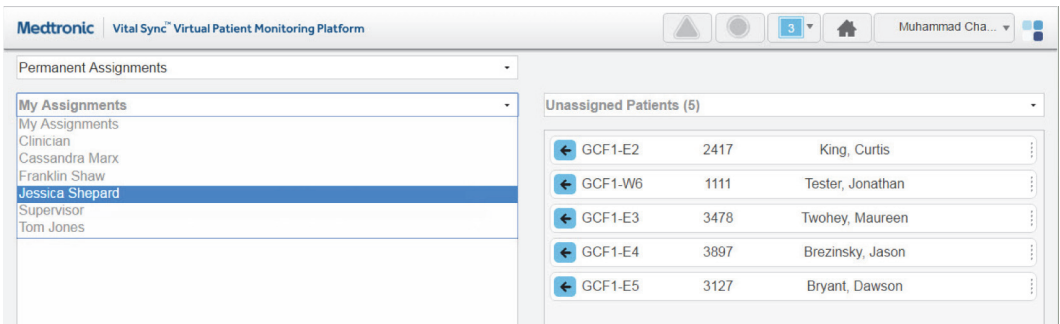
4.10.4 Show Another User's Assignments

Supervisors may show their own patients, or patients assigned to a different user.

To show patients assigned to another user:

1. Click on the drop-down menu at the top of the left-side panel.

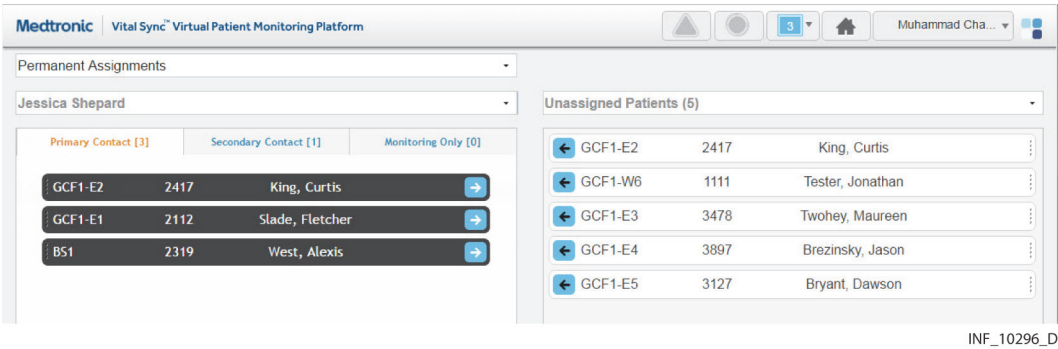
Figure 4-56. Patient Assignment Screen (other user selected)



INF_10252_E

2. Select the desired user from the list.

Figure 4-57. Patient Assignment Screen (other user's assignments)



3. Patients to whom the desired user is assigned as a primary contact user will appear in the left-side panel. To view other patient assignments, click on the Secondary Contact or Monitoring Only tabs.

To once again show patients assigned to the current user in the left-side panel, click on the drop-down menu and select **My Assignments**.

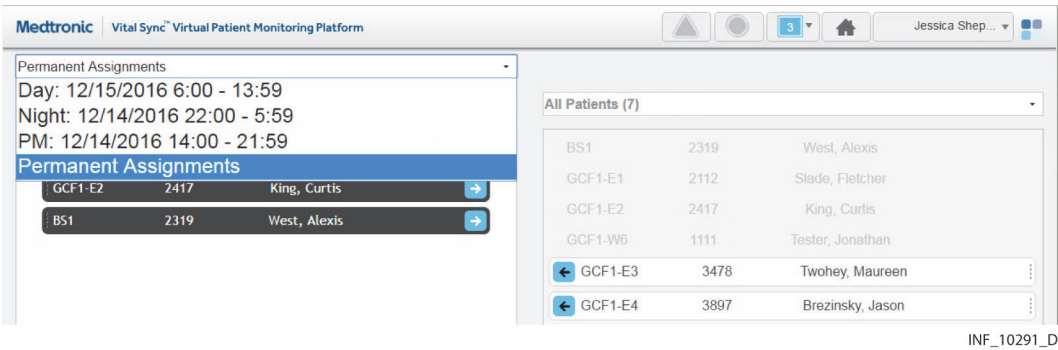
4.10.5 Show Assignments by Work Shift

Patient assignments can be permanent, or can be associated with a specific work shift. Patients permanently assigned to a user will appear in the Tile View for that user at all times. Patients assigned to a user during a specific shift will only appear in the Tile View for that user during that shift.

To show patient assignments for a specific work shift:

1. With the desired user selected, click in the drop-down menu at the top of the Patient Assignment screen to show a list of work shifts available in the platform.

Figure 4-58. Patient Assignment Screen (shift menu shown)



2. Select the desired shift. The screen will show patients assigned to the currently selected user. If the patient assignment is associated with the selected shift, it will appear in color; if not, the patient assignment will appear in grey and will not be selectable.

For details on work shift setup, see [Manage Shifts](#) on page 5-18.



Note:

For added convenience, the date (relative to the current date) when each shift begins next is shown in the drop-down list.

4.10.6 Change Patient Assignments

Clinicians can assign patients to themselves, change the assignment type for an assigned patient, or remove their own patient assignments. Supervisors can perform all of these tasks, and also change assignments for other users.

Assignments are of three types:

- **Primary Contact**—This user is the primary person to be contacted (via SMS message or email) if there is an alarm or notification for this patient
- **Secondary Contact**—This user is a secondary person to be contacted (via SMS message or email) if there is an alarm or notification for this patient
- **Monitoring Only**—This user is assigned only to monitor this patient, not to provide care, and will not receive contact messages even if there is an alarm or notification for this patient

Assign a Patient to a User

To assign a patient as a clinician:

1. Find the desired patient in the right-side panel. If needed, use the scroll bar to move up or down the list. Any patient available for assignment will appear on a tile in color; patients already assigned to this user (if any) will appear in grey and will not be selectable.
2. If the assignment should be permanent (not specific to a work shift), select **Permanent Assignments** in the drop-down menu at the top of the screen (if not already selected). If the assignment is only for a specific work shift, select the desired shift from the drop-down menu at the top of the screen.
3. To assign the patient as a primary contact assignment, click the arrow on the left side of the tile for the desired patient, or click on the Primary Assignment tab in the left-side panel and drag and drop the patient tile into the left-side panel. To assign the patient as a secondary contact or monitoring-only assignment, click on the appropriate tab in the left-side panel to open it, then drag and drop the patient tile into the left-side panel.

To assign a patient as a supervisor:

1. Click on the drop-down menu at the top of the left-side panel.
2. If self-assigning the patient, select **My Assigned Patients** from the menu. If assigning the patient to another user, select the name of the desired user from the menu. Patients assigned to the user selected will appear in the left-side panel; primary assignments are shown by default.
3. Find the desired patient in the right-side panel. If needed, use the scroll bar to move up or down the list. Any patient available for assignment will appear on a tile in color; patients (if any) already assigned to the user currently shown will appear in grey and will not be selectable.
4. If the assignment should be permanent (not specific to a work shift), select **Permanent Assignments** in the drop-down menu at the top of the screen (if not already selected). If the assignment is only for a specific work shift, select the desired shift from the drop-down menu at the top of the screen.

5. To assign the patient as a primary contact assignment, click the arrow on the left side of the tile for the desired patient, or click on the Primary Assignment tab in the left-side panel and drag and drop the patient tile into the left-side panel. To assign the patient as a secondary contact or monitoring-only assignment, click on the appropriate tab in the left-side panel to open it, then drag and drop the patient tile into the left-side panel.

Change a Patient Assignment Type

To change a patient assignment type as a clinician:

1. Find the desired patient in the left-side panel. If needed, click on a different assignment type tab to open it; use the scroll bar to move up or down the list if there are more tiles than can be shown in the tab.
2. Drag and drop the patient tile into the right-side panel.
3. Click on the tab for the desired assignment type in the left-side panel to open it.
4. Drag and drop the patient tile back into the left-side panel.

To change a patient assignment type as a supervisor:

1. Click on the drop-down menu at the top of the left-side panel.
2. Select either **My Assignments** (to show patients assigned to the current user) or the name of the desired user (to show patients assigned to that user).
3. Find the desired patient in the left-side panel. If needed, click on a different assignment type tab to open it; use the scroll bar to move up or down the list if there are more tiles than can be shown in the tab.
4. Drag and drop the patient tile into the right-side panel.
5. Click on the tab for the desired assignment type in the left-side panel to open it.
6. Drag and drop the patient tile back into the left-side panel.

Remove Patient Assignments

To remove a patient assignment as a clinician:

1. Find the desired patient in the left-side panel. If needed, click on a different assignment type tab to open it; use the scroll bar to move up or down the list if there are more tiles than can be shown in the tab.
2. If the patient is assigned only during a specific work shift, select the appropriate shift from the drop-down menu at the top of the screen. (Tiles for patients assigned during a specific shift will appear in grey and cannot be selected unless that shift is selected first.)
3. Click the arrow on the right side of the tile for the desired patient, or drag and drop the tile into the right-side panel.

To remove a patient assignment as a supervisor:

1. Click on the drop-down menu at the top of the left-side panel.
2. Select either **My Assignments** (to show patients assigned to the current user) or the name of the desired user (to show patients assigned to that user).

3. Find the desired patient in the left-side panel. If needed, click a different assignment type tab to open it, and use the scroll bar to move up or down the list.
4. If the patient is assigned only during a specific work shift, select the appropriate shift from the drop-down menu at the top of the screen. (Tiles for patients assigned during a specific shift will appear in grey and cannot be selected unless that shift is selected first.)
5. Click the arrow on the right side of the tile for the desired patient, or drag and drop the tile into the right-side panel.

To remove all current patient assignments as a clinician:

1. If removing all permanent assignments, select **Permanent Assignments** in the drop-down menu at the top of the screen. If removing all assignments for a specific work shift, select the desired shift from the drop-down menu at the top of the screen. If removing assignments for a specific shift, the tiles for patients assigned to the shift will appear in color, while tiles for permanently assigned patients will appear in grey.
2. Click the **Remove Assignments** button. All tiles appearing in color will disappear from the left-side panel, and will now appear in color in the "All Patients" view in the right-side panel. The numbers on each tab in the left-side panel will all change to zero, indicating no patients are assigned.

To remove all current patient assignments for a user as a supervisor:

1. Click on the drop-down menu at the top of the left-side panel.
2. If removing all assignments for the current user, select **My Assignments** from the list; if removing all assignments for another user, select the desired user from the list. The screen will show the patients assigned to the selected user.
3. If removing all permanent assignments, select **Permanent Assignments** in the drop-down menu at the top of the screen. If removing all assignments for a specific work shift, select the desired shift from the drop-down menu at the top of the screen. If removing assignments for a specific shift, the tiles for patients assigned to the shift will appear in color, while tiles for permanently assigned patients will appear in grey.
4. Click the **Remove Assignments** button. All tiles appearing in color will disappear from the left-side panel, and will now appear in color in the "All Patients" view in the right-side panel. The numbers on the tabs in the left-side panel will all change to zero, indicating no patients are assigned.

**Note:**

Changes to patient assignments only affect the currently selected user. Patients shown in either panel of the Patient Assignment screen may also already be assigned to other users.

4.11 Area Assignments

The Area Assignment screen shows areas in the facility (sometimes also referred to as zones or areas of care) to which the current user is assigned, as well as areas with no assigned users or all areas set up in the platform.

Clinicians can manage their own assignments in this screen, while supervisors can manage their own assignments and those of other users.

All patients in areas selected in this screen will appear in the platform for any user to whom the area is assigned, unless specifically unassigned from that user. Area assignments can be permanent, or can be based on work shifts; in the latter case, patients in a particular area will appear to users to whom the area is assigned during those users' work shifts.



Note:

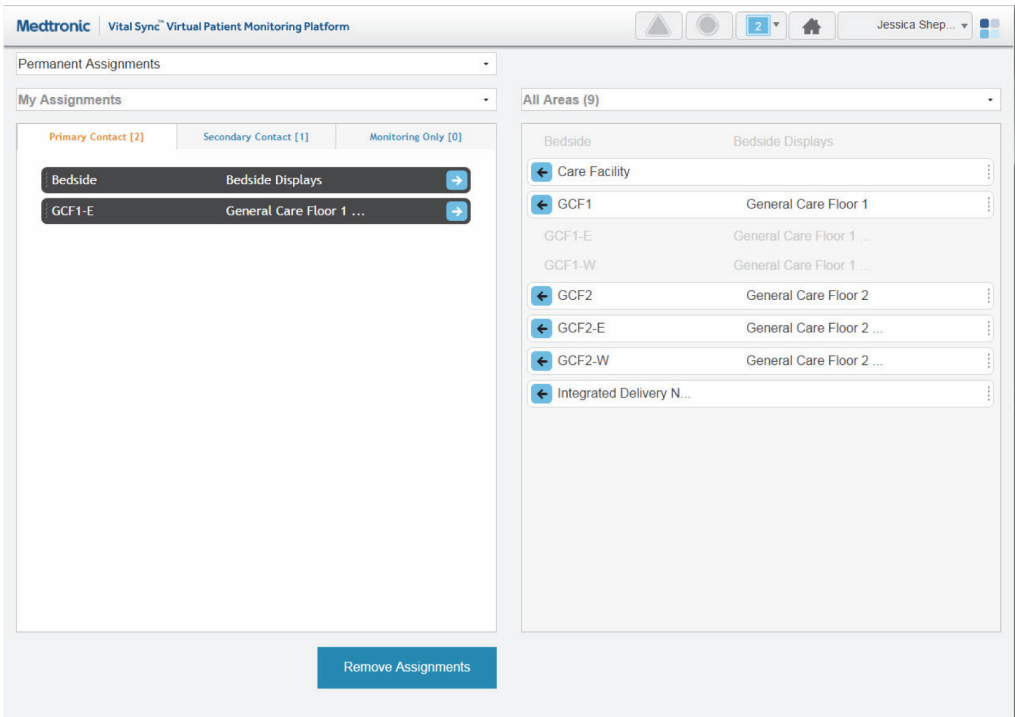
When an area is assigned to a user, all patients in that area are initially assigned to that user. To remove specific individual patient assignments after assigning the area, use the Patient Assignment screen. (See [Patient Assignments](#) on page 4-45).

Also, a user to whom an area is assigned will **not** see, in the Tile View, available devices assigned to other areas without adjusting the view to see all available devices (see [Additional Tile View Functions](#) on page 4-10 for details).

To access the Area Assignment screen:

- 1. Hover over the navigation bar's user function button to access the function menu.
- 2. Select **Area Assignment**.

Figure 4-59. Area Assignment Screen



INF_10257_E

4.11.1 Availability by User Role

Clinicians, supervisors, link managers, and central monitoring station users can use all functions in the Area Assignment screen, as described in this section. Bedside unit users do not have access to this screen.

4.11.2 Area Assignment Screen Layout

The Area Assignment screen is divided into two panels, showing current assignments and areas available for assignment.

The panel on the left (also called the left-side panel) contains tabs for different types of area assignments for a user. These include:

- **Primary Contact tab**—If there is an alarm or notification for any patient on this tab, this user is the primary person to be contacted via Short Message Service (SMS) message or email
- **Secondary Contact tab**—If there is an alarm or notification for any patient on this tab, this user is a secondary person to be contacted via SMS message or email
- **Monitoring Only tab**—If there is an alarm or notification for any patient on this tab, this user will not be contacted via SMS message or email (the user is only assigned to monitor the area, not provide care to patients)



Note:

For an SMS message or email to be sent to a user to whom an area is assigned, the patient associated with the alarm or notification triggering the SMS message or email also has to be assigned to that user.

Each tab shows a number denoting the number of area assignments of that type for this user.

Tiles representing the areas to which the user currently shown is assigned will appear in one or more of these panes. The number of areas assigned to the user appears in parentheses above the **Primary Contact** pane. (For supervisors, the number is in a drop-down menu.)

The panel on the right (also called the right-side panel) contains tiles showing either all areas set up in the platform or just the areas to which the current user is not assigned. In either case, the number of areas shown in this column appears in parentheses in a drop-down menu above the panel.

If there are too many areas in a panel (or a pane within a panel) to be shown on a single screen, scroll bars will appear in that panel or pane.

Each area tile shows the area identifier and description.



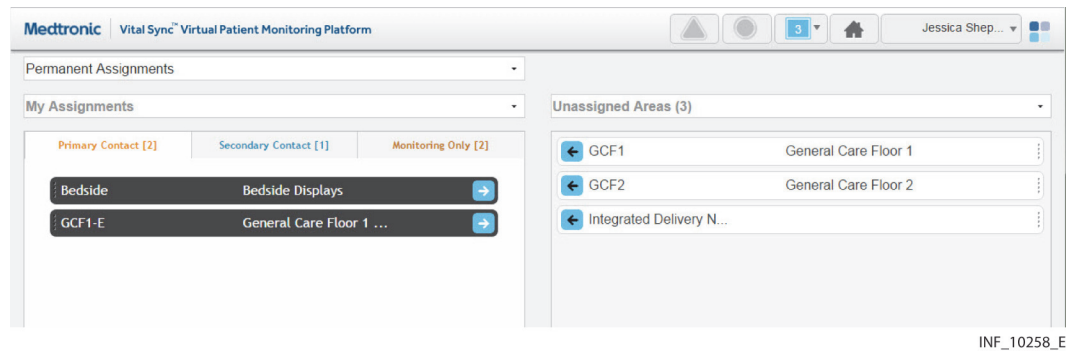
Note:

When initially accessed, the Area Assignment screen shows the current user's permanent primary contact area assignments in the left-side panel (on the Primary Contact tab), and all areas in the platform in the right-side panel.

4.11.3 Show Unassigned Areas

To show only areas not currently assigned to any users, click on the drop-down menu at the top of the right-side panel and select **Unassigned Areas**.

Figure 4-60. Area Assignment Screen (unassigned areas shown)



To once again show all areas in the right-side panel, click on the drop-down menu and select **All Areas**.

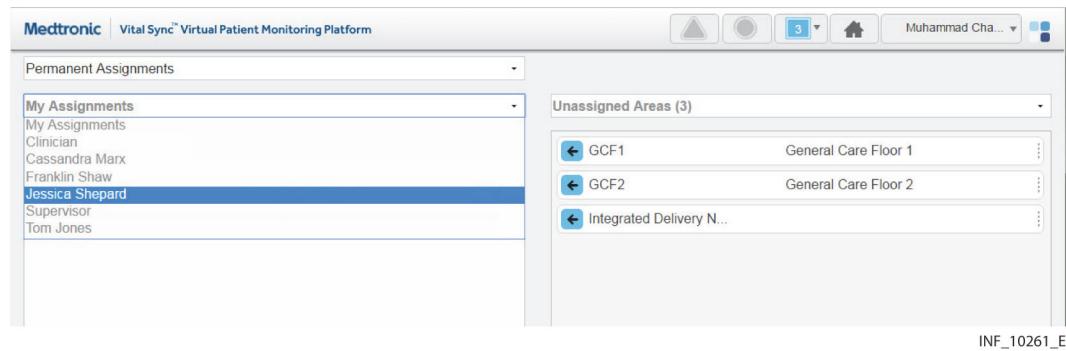
4.11.4 Show Another User's Assignments

The default listing in the left-side panel is of the areas currently assigned to the current user. Supervisors may also view areas to which a different user is assigned.

To show the areas to which another user is assigned:

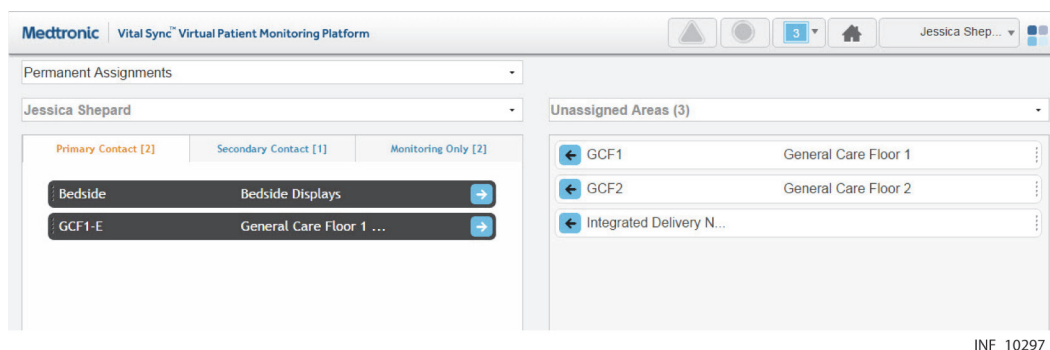
1. Click on the drop-down menu at the top of the left-side panel.

Figure 4-61. Area Assignment Screen (other user selected)



2. Select the desired user from the list.

Figure 4-62. Area Assignment Screen (other user's assignments)



INF_10297_D

To once again show areas assigned to the current user in the left-side panel, click on the drop-down menu and select **My Assignments**.

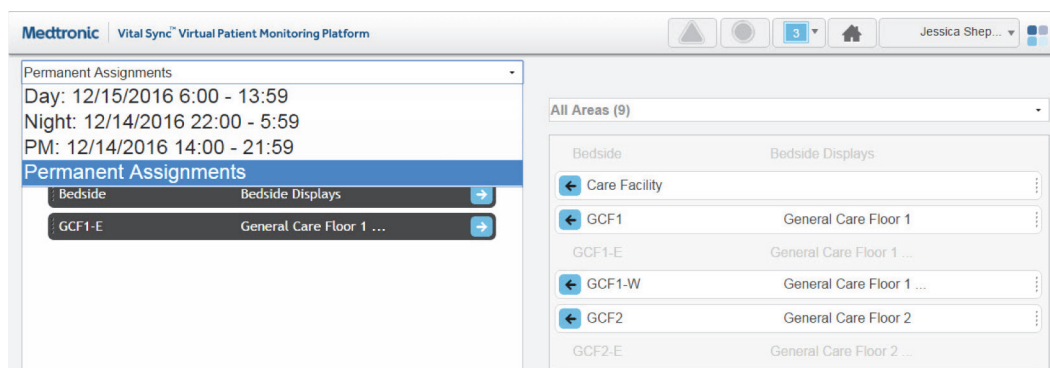
4.11.5 Show Assignments by Work Shift

Area assignments can be permanent, or can be associated with a specific work shift. Patients in areas permanently assigned to a user will appear in the Tile View for that user at all times. Patients in areas assigned to a user during a specific shift will only appear in the Tile View for that user during that shift.

To show area assignments for a specific work shift:

1. With the desired user selected, click in the field at the top of the Area Assignment screen to show a list of work shifts defined in the platform.

Figure 4-63. Area Assignment Screen (shift menu shown)



INF_10293_D

2. Select the desired shift. The left-side panel will show areas assigned to the currently selected user. If the area assignment is associated with the currently selected shift, it will appear on a tile in color; if not, the area assignment will appear in grey and will not be selectable.

For details on work shift setup, see [Manage Shifts](#) on page 5-18.



Note:

For added convenience, the date (relative to the current date) when each shift begins next is shown in the drop-down list.

4.11.6 Change Area Assignments

Clinicians can assign areas to themselves and remove their own area assignments. Supervisors can perform both these tasks for themselves and for other users, and can also change assignment types.

Assignments are of three types:

- **Primary Contact**—This user is the primary person to be contacted (via SMS message or email) if there is an alarm or notification for a patient in this area and assigned to this user
- **Secondary Contact**—This user is a secondary person to be contacted (via SMS message or email) if there is an alarm or notification for a patient in this area and assigned to this user
- **Monitoring Only**—This user only monitors patients, and will not receive contact messages even if there is an alarm or notification for a patient in this area who is assigned to this user

Assign an Area to a User

To assign an area as a clinician:

1. Find the desired area in the right-side panel. If needed, use the scroll bar to move up or down the list.
2. If this assignment should be permanent (not specific to a work shift), select **Permanent Assignments** in the drop-down menu at the top of the screen (if not already selected). If this assignment is only for a specific work shift, select the desired shift from the drop-down menu at the top of the screen.
3. To assign the area as a primary contact assignment, click the arrow on the left side of the tile for the desired area, or click the Primary Assignment tab in the left-side panel and drag and drop the area tile into the left-side panel. To assign the area as a secondary contact or monitoring-only assignment, click on the appropriate tab in the left-side panel to open it, then drag and drop the area tile into the left-side panel.

To assign an area as a supervisor:

1. Click on the drop-down menu at the top of the left-side panel.
2. If self-assigning the area, select **My Assignments**. If assigning the area to another user, select the name of the desired user from the menu. Areas assigned to the user selected will appear in the left-side panel; primary assignments are shown by default.
3. Find the desired area in the right-side panel. If needed, use the scroll bar to move up or down the list. Any area available for assignment will appear on a tile in color; areas already assigned to the user currently shown (if any) will appear in grey and will not be selectable.
4. If the assignment should be permanent (not specific to a work shift), select **Permanent Assignments** in the drop-down menu at the top of the screen (if not already selected). If this assignment is only for a specific work shift, select the desired shift from the drop-down menu at the top of the screen.
5. To assign the area as a primary contact assignment, click the arrow on the left side of the tile for the desired area, or click on the Primary Assignment tab in the left-side panel and drag and drop the area tile into the left-side panel. To assign the area as a secondary contact or monitoring-only assignment, click on the appropriate tab in the left-side panel to open it, then drag and drop the area tile into the left-side panel.

Change an Area Assignment Type

To change an area assignment type as a clinician:

1. Find the desired area in the left-side panel. If needed, click on a different assignment type tab to open it; use the scroll bar to move up or down the list if there are more tiles than can be shown in the tab.
2. Drag and drop the area tile into the right-side panel.
3. Click on the tab for the desired assignment type in the left-side panel to open it.
4. Drag and drop the area tile back into the left-side panel.

To change an area assignment type as a supervisor:

1. Click on the drop-down menu at the top of the left-side panel.
2. Select either **My Assignments** (to show areas assigned to the current user) or the name of the desired user (to show areas assigned to that user).
3. Find the desired area in the left-side panel. If needed, click on a different assignment type tab to open it; use the scroll bar to move up or down the list if there are more tiles than can be shown in the tab.
4. Drag and drop the area tile into the right-side panel.
5. Click on the tab for the desired assignment type in the left-side panel to open it.
6. Drag and drop the area tile back into the left-side panel.

Remove Area Assignments

To remove an area assignment as a clinician:

1. Find the desired area in the left-side panel. If needed, click on a different assignment type tab to open it; use the scroll bar to move up or down the list if there are more tiles than can be shown in the tab.
2. If the area is assigned only during a specific work shift, select the appropriate shift from the drop-down menu at the top of the screen. (Tiles for areas assigned during a specific shift will appear in grey and cannot be selected unless that shift is selected first.)
3. Click the arrow on the right side of the tile for the desired patient, or drag and drop the tile into the right-side panel.

To remove an area assignment as a supervisor:

1. Click on the drop-down menu at the top of the left-side panel.
2. Select either **My Assignments** (to show the areas assigned to the current user) or the name of the desired user (to show areas assigned to that user).
3. Find the desired area in the left-side panel. If needed, use the scroll bar to move up or down the list.

4. If the area is assigned only during a specific work shift, select the appropriate shift from the drop-down menu at the top of the screen. (Tiles for areas assigned during a specific shift will appear in grey and cannot be selected unless that shift is selected first.)
5. Click the arrow on the right side of the tile for the desired area, or drag and drop the tile into the right-side panel.

To remove all current area assignments as a clinician:

1. If removing all permanent assignments, select **Permanent Assignments** in the drop-down menu at the top of the screen. If removing all assignments for a specific work shift, select the desired shift from the drop-down menu at the top of the screen. If removing assignments for a specific shift, the tiles for areas assigned during this shift will appear in color, while tiles for permanently assigned areas will appear in grey.
2. Click the **Remove Assignments** button. All tiles appearing in color will disappear from the left-side panel, and will now appear in color in the "All Areas" view in the right-side panel. The numbers on the tabs in the left-side panel will all change to zero, indicating no areas are assigned.

To remove all current area assignments for a user as a supervisor:

1. Click on the drop-down menu at the top of the left-side panel.
2. If removing all assignments for the current user, select **My Assignments** from the list; if removing all assignments for another user, select the desired user from the list. The screen will show the areas assigned to the selected user.
3. If removing all permanent assignments, select **Permanent Assignments** in the drop-down menu at the top of the screen. If removing all assignments for a specific work shift, select the desired shift from the drop-down menu at the top of the screen. If removing assignments for a specific shift, the tiles for areas assigned during this shift will appear in color, while tiles for permanently assigned areas will appear in grey.
4. Click the **Remove Assignments** button. All tiles appearing in color will disappear from the left-side panel, and will now appear in color in the "All Areas" view in the right-side panel. The numbers on the tabs in the left-side panel will all change to zero, indicating no areas are assigned.



Note:

Removing an area assignment will unassign patients in that area from the user, unless the patient in question has been specifically assigned to the user in the Patient Assignment screen.



Note:

Changes to area assignments only affect the currently selected user's assignments. Areas shown in either panel may also already be assigned to other users.

4.12 Select User Mode

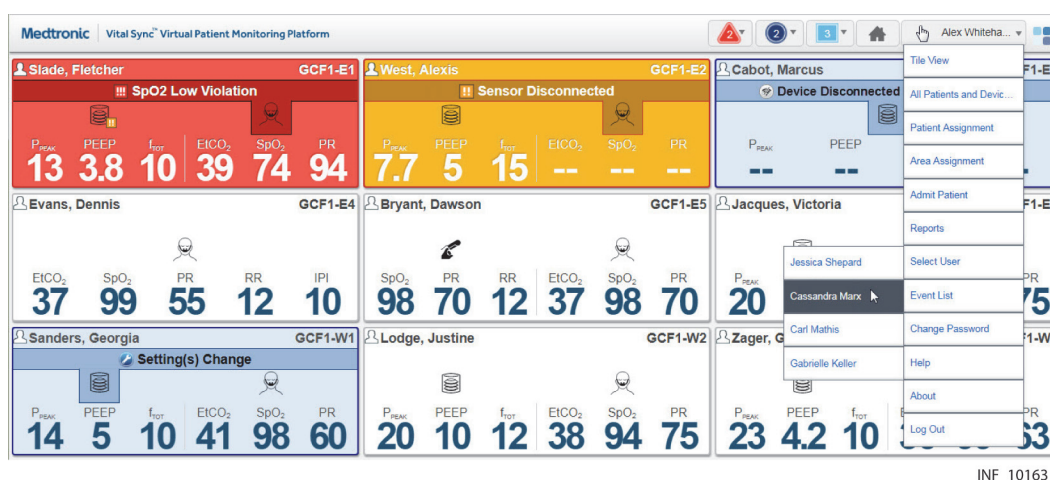
In addition to their own functions, supervisors can use the Select User mode to view and use the platform as if logged in as a specific clinician.

Only supervisors can access this platform mode. It is not available at a central monitoring station or on dedicated bedside display units.

To enter Select User mode:

1. Hover over the navigation bar's user function button to access the function menu.
2. Choose **Select User** to show a list of clinician users by username.

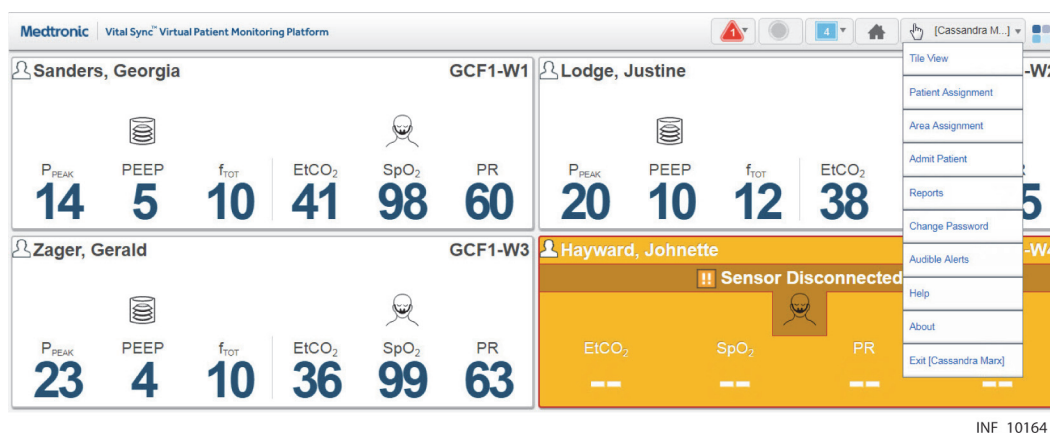
Figure 4-64. Select User Menu



3. Select the desired user from the list.

The Tile View screen will appear, with the selected clinician's name appearing in brackets on the user function button on the navigation bar.

Figure 4-65. Navigation Bar (Select User Mode)



The supervisory user can now view and access all platform screens that the selected clinician is able to access, as if the supervisory user is that clinician.



Note:

Select User mode allows access to clinician screens only. Supervisory functions are not available in this mode.

To exit Select User mode:

1. Hover over the navigation bar's user function button to access the function menu.
2. Select **Exit** to return to the Tile View.

Once logged out of Select User mode, the supervisor's name will appear on the user function button, and normal functioning for the supervisor will be restored.



Note:

Logging out of Select User mode does not log the user out of the platform; it merely returns the user to supervisory screens and functions.

4.13 Event List

Supervisors may access a listing of platform events in the Event List screen. This is a current, real-time listing, but can be locked at any time to allow easier viewing of a particular event or set of events.

Only supervisors may access the Event List screen. It is not available at a central monitoring station or on dedicated bedside display units.

To access the Event List screen:

1. Hover over the navigation bar's user function button to access the function menu.
2. Select **Event List**.

Figure 4-66. Event List Screen

Event End Time	Event Code	Event Description
4/28/2016 3:07:07 PM	70046	Alex Whitehall - Viewing Patient 001 (Jonet, Charlie)
4/28/2016 3:06:50 PM	70043	Alex Whitehall - Log In
4/28/2016 3:06:43 PM	70044	Tom Jones - Log Out
4/28/2016 3:05:54 PM	70044	Joe Smith - Log Out
4/28/2016 3:05:38 PM	70046	Tom Jones - Viewing Patient 002 (Connor, Abigail)
4/28/2016 3:05:36 PM	70043	Tom Jones - Log In
4/28/2016 3:05:30 PM	70044	Alex Whitehall - Log Out
4/28/2016 3:02:54 PM	70043	Alex Whitehall - Log In
4/28/2016 3:01:24 PM	70044	Tom Jones - Log Out
4/28/2016 3:01:05 PM	70043	Tom Jones - Log In

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4.13.1 Event Information

The Event List screen shows the following information for each event:

- **End Time**—The time and date of the event
- **Event Code**—The event code number
- **Event Description**—A brief description of the event, along with the name of the user performing the associated action

4.13.2 Specify Events Per Page and Sort Order

The default settings for the Event List screen are 25 events per page, sorted by event end time.

To change the number of events shown:

1. Click the **Number of Events to Display** drop-down box.
2. Select the desired number. Options are 25, 50, and 100 events.

To change the sort order:

1. Click on the **Event Code** column heading to sort the list in ascending order by code.
2. To restore the default sort order, click on the **End Event** column heading.

4.13.3 Lock the Event Display

The Event List screen normally shows new events in real time as they occur.

To lock the event display, select **Locked** from the **Result Set** drop-down box. This will freeze the screen in its current state; no new events will appear while this setting is imposed.

To return the event display to dynamic updating, select **Unlocked** from the **Result Set** drop-down box.



Note:

The platform continues to log all events while the event display is locked. After unlocking the display, the next event list update will add all events that have taken place since the display was locked. This may force older events currently being viewed off the screen; if needed, navigate pages in the list to see those events.



Note:

The amount of event log data that can be stored depends on the storage space available for report data. If the amount of event log data exceeds the available storage space, event logging will fail. Consult with Medtronic Professional Services or with facility IT personnel for information or assistance.



Note:

In the event of an unintentional loss of power to the system or systems on which the platform is installed, the Event List will be unavailable, but once power is restored, will show subsequent events after platform restart.

4.14 Reports

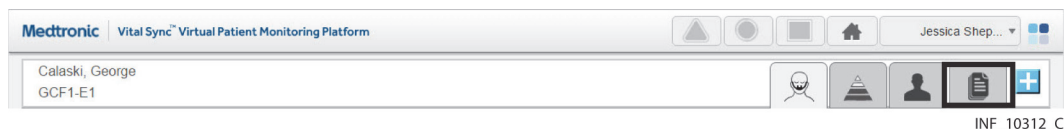
Clinicians and supervisors may view and print “snapshot” reports of key oxygenation and ventilation data for specific patients. Users at a central monitoring station can also view and print these reports.

Supervisors and link managers may also view and print reports on alarm and setting change frequency and response time, as well as basic patient statistics and device and subscription utilization data.

Other reports may also be available, depending on the platform software release and on platform-related applications installed.

To access the reporting module from the Device Detail screen, click on the Patient Reports tab on the far right side of the patient header.

Figure 4-67. Device Detail Screen (Reports tab)



To access the reporting module from any other clinician or supervisor screen:

1. Hover over the navigation bar’s user function button to access the function menu.
2. Select **Reports**.

For details on running available reports, reference Chapter 7.



Note:

Reports are not accessible on dedicated bedside display units.

4.15 Change Password

If allowed by the facility, individual users can change their own passwords if needed (for example, to replace the password the software randomly generates after a password reset).

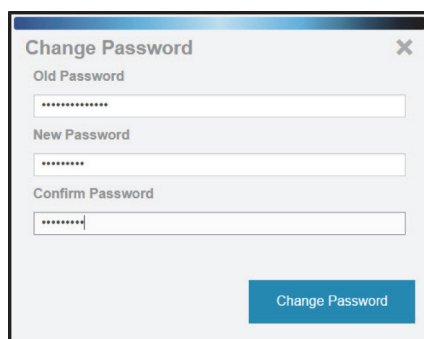


Note:

Password change functionality is not available (or required) on dedicated bedside display units, or for any central monitoring station account. If encountering problems accessing the platform from a dedicated bedside display unit or a central monitoring station, consult with facility IT personnel or, if needed, with Medtronic Technical Services (see [Obtaining Technical Assistance](#) on page 1-6).

To change the current user’s password:

1. Hover over the navigation bar’s user function button to access the function menu.
2. Select **Change Password** to access the Change Password dialog.

Figure 4-68. Change Password Dialog

 A screenshot of a 'Change Password' dialog box. The dialog has a title bar with the text 'Change Password' and a close button (X) in the top right corner. Inside the dialog, there are three text input fields, each with a label above it: 'Old Password', 'New Password', and 'Confirm Password'. Each field contains a series of asterisks to represent masked text. At the bottom right of the dialog is a blue button labeled 'Change Password'.

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3. **Old Password**—Enter the current password for the current user.
4. **New Password**—Enter the desired new password.
5. **Confirm Password**—Enter the password entered in the **New Password** field.
6. Click **Change Password** to save the new password, or click the **X** at upper right in the dialog to return to the previous screen without changing the password.

**Note:**

If using the software's native authentication, a strong password (8 to 32 characters long, including at least one uppercase and one lowercase letter and one number, with special characters also permissible) must be used. If using the facility's local authentication, and password management is enabled in the software, follow facility rules for password creation.

4.16 Audible Alerts

If allowed in the platform and by facility policy and safety protocols, users can enable and disable audible alerts for themselves. All users allowed to use audible alerts can also test the alert tones that will sound for them for each alarm priority level.

**Note:**

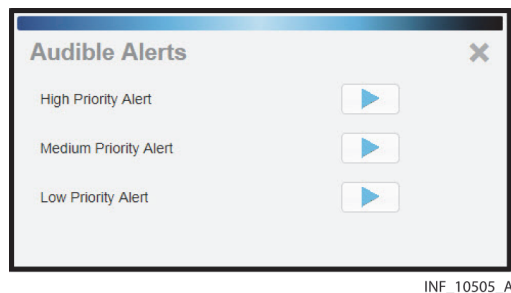
Audible alert functionality and user control of audible alerts are established for each user in the platform in the Add User or Edit User screen. Audible alerts and user control of audible alerts may or may not be allowed for all users who monitor patients, depending on facility policy and patient safety protocols. Refer to [Manage Users](#) on page 5-6 for more information.

To access audible alert settings:

1. Hover over the navigation bar's user function button to access the function menu.
2. Select **Audible Alerts** to access the Audible Alerts dialog. The version of the dialog that appears varies as follows:

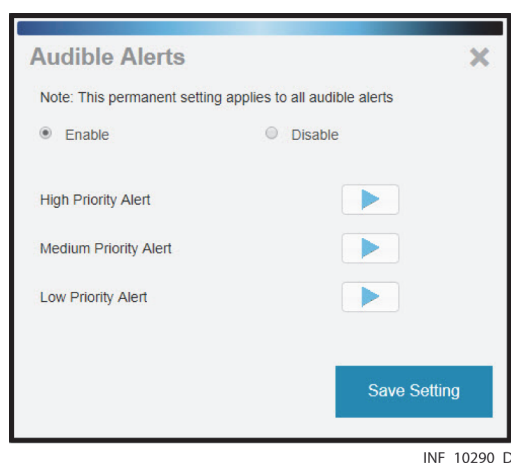
- a. If control of audible alerts is locked out, the dialog shown in Figure 4-70 will appear.

Figure 4-69. Audible Alerts Dialog (control of alerts locked)



- b. If control of audible alerts is unlocked, the dialog shown in Figure 4-71 will appear.

Figure 4-70. Audible Alerts Dialog (control of alerts unlocked)



Both dialogs show play buttons for testing alerts. If the user has control of alerts unlocked, radio buttons for enabling and disabling alerts are also present. The current audible alert setting (enabled or disabled) is indicated by the radio button that appears as selected when accessing the dialog.

To test audible alert tones:

1. If the **Enable** radio button is not currently selected, click on it to enable the play buttons.
2. Click the play button next to **High Priority Alarm**. The alert tone associated with high-priority alarms will sound. (The default tone is two beeps.)
3. Repeat step 2 with the other two play buttons to hear the alert tones for medium-priority and low-priority alarms. (The default tone is a single beep for both types.)
4. When finished, click the **X** at upper right in the dialog to dismiss the dialog and return to the previous screen.



WARNING:

If using audible alerts, ensure the sound volume of the PC or mobile device on which the software is used is sufficient for alerts to be heard and recognized.

**Note:**

If the audible alert tone does not sound during testing, check the PC or mobile device to ensure the sound volume is sufficient for sounds to be audible. If problems persist, consult with facility IT staff or with Medtronic Professional Services.

**Note:**

Some mobile devices do not support the sounding of audible alerts from the platform due to device limitations. Make sure to test audible alert capability on any mobile device to be used.

To change the current audible alert setting (enable alerts if disabled, or disable them if enabled):

1. Click on the radio button for the setting not currently selected.
2. Click **Save Setting** to save the new setting. (To exit without saving, click the **X** at upper right in the dialog.)
3. Upon saving, a message will appear showing the new setting (enabled or disabled). Click the **X** at upper right in the dialog to dismiss the dialog and return to the previous screen.

**Note:**

Users of dedicated bedside display units can only test audible alerts, not enable or disable them.

**Note:**

Audible alerts only sound to indicate alarms on devices and for certain algorithms linked to patients. Audible alerts do **not** sound for notifications.

4.17 Help

If needed, users (except those viewing the platform on dedicated bedside display units) can access the most recent applicable release of this manual from within the platform, and view it in the same browser used to view the platform.

To access the manual for viewing:

1. Hover over the navigation bar's user function button to access the function menu.
2. Select **Help** to open the manual (as a Portable Document Format (PDF) file) in a new browser tab.

4.18 Version Information

If needed, users can access version information for the current installation of the platform, as well as any platform-related applications that are also installed.

Version information is available to all users, regardless of how they are accessing the platform.

To show version information:

1. Hover over the navigation bar's user function button to access the function menu.

2. Select **About** to access the Version Information dialog.

Figure 4-71. Version Information ("About") Dialog



INF_10397_C

This dialog shows the software's version number, build number, build date, Unique Device Identifier (UDI), and licensed features, as well as release information for any platform-related applications that are also installed. If problems arise with any of these programs, provide this information to support personnel to aid in troubleshooting.

Scroll down in the dialog if needed to view information. To dismiss the dialog, click the **X** at upper right.

4.19 Platform Logout

Clinicians, supervisors, and link managers accessing the platform on a PC or from a mobile device can log out of the application at any time.

To log out of the platform:

1. Hover over the navigation bar's user function button to access the function menu.
2. Select **Log Out**.

After logout is complete, the login screen will appear.



Note:

To maintain password integrity when using a shared computer, when done using the platform, make sure to log out. Closing the Web browser does not log out the current user.



Note:

The logout function is not available on dedicated bedside display units or at central monitoring stations. Users should lock down the device or station display if it is unattended.

5 Administrative Operation

5.1 Overview

This chapter describes functionality and operation of the Vital Sync™ virtual patient monitoring platform and informatics manager software for administrative users.

For clinician, supervisory and link manager functionality and operations, reference Chapter 4.



Note:

The terms “administrator” and “clinical administrator”, as used in this manual, refer only to types of users and to roles fulfilled when using the software.

These terms do not necessarily correspond to similar titles used for employees of any particular facility, nor to functions those employees perform at that facility.

5.2 Navigation and Basic User Interface

This section details navigation and user interface features commonly encountered when using the software.



Note:

Do **not** use the browser’s “forward” or “back” buttons to navigate in the software. Only use links and buttons provided in the software’s user interface.



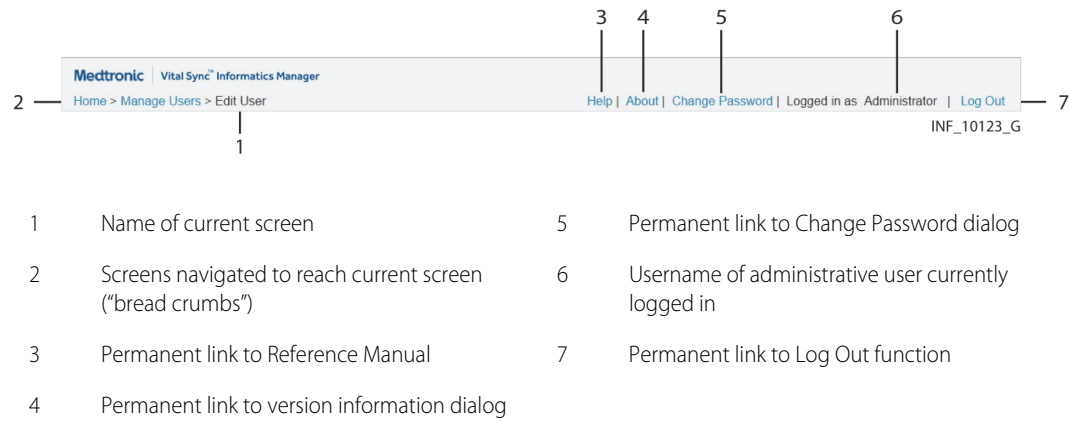
Note:

Screen captures in this manual are representative. Actual screens may vary slightly from those shown here, depending on the specific software release used, how the user is accessing and viewing the software, and specific facility requirements. Also, the size and position of tiles and other screen elements will vary with the number of elements present and the size of the browser window. Finally, the format in which dates appear may differ by software localization.

5.2.1 Screen Links

Navigation links appear near the top of all administrative screens.

Figure 5-1. Example Administrative Navigation Links



Click a link to access the indicated screen, window or function.

5.2.2 Multi-Page Lists

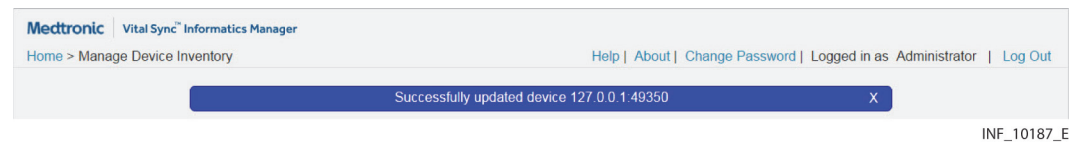
Certain screens may list more records than can be shown on a single screen. When this occurs, links for navigation will appear below the list, as follows:

- Numbered links access specific pages in the list. Click a link to navigate to that page.
- A ... link appears if there are more than five pages in the list. Click this link to access the next set of numbered links after the set currently shown.
- Click the ≤ link to show the first page in the list.
- Click the ≥ link to show the last page in the list.

5.2.3 System Messages

System messages will sometimes appear near the top of the screen (just below the navigation links) in response to events or user actions.

Figure 5-2. Example System Message



To dismiss a system message, click the **X** on the right side of the message box, or navigate to a different screen.

5.2.4 Save and Cancel Functions

For purposes of creating or updating records in the software, unless otherwise noted, clicking **Save** will save the information currently shown on the screen, while clicking **Cancel** will exit the screen without changing currently saved information.

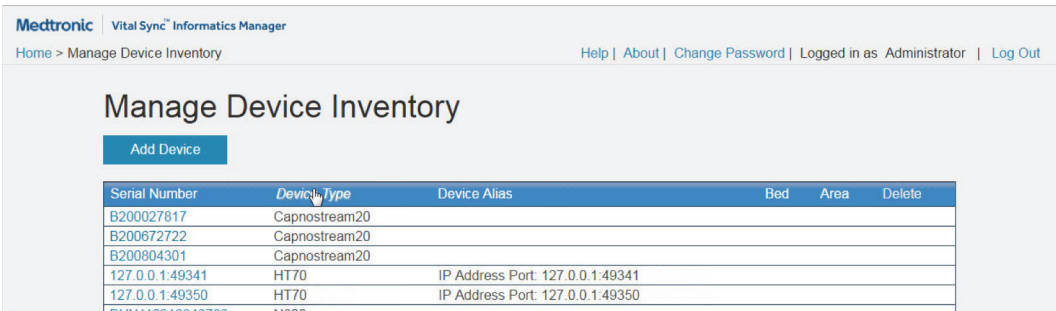
5.2.5 Deletion of Field Text

When adding or updating records, click the **X** to the right of the currently selected field to clear all text currently in that field. (This only applies to text fields.)

5.2.6 Sort Function

On screens that show lists of items, the heading of any column on which the list can be sorted will change to italics if the user hovers the cursor over the heading.

Figure 5-3. Column Sort (cursor and heading to be sorted shown)



Serial Number	<i>Device Type</i>	Device Alias	Bed	Area	Delete
B200027817	Capnostream20				
B200672722	Capnostream20				
B200804301	Capnostream20				
127.0.0.1:49341	HT70	IP Address Port: 127.0.0.1:49341			
127.0.0.1:49350	HT70	IP Address Port: 127.0.0.1:49350			

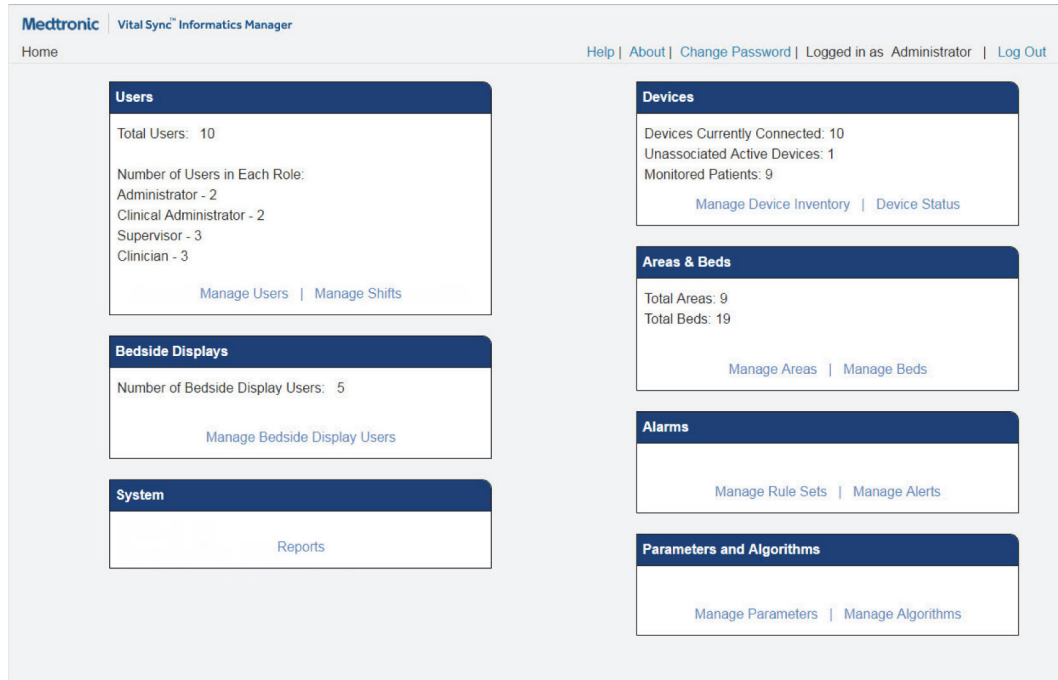
To sort the list in ascending alphabetical order in a column, click on the column heading. To sort the list in descending alphabetical order, click on the heading again.

5.3 Administrative Home Screen

The Administrative home screen provides a dashboard view of the current state of the software, and provides links to administrative functions.

This screen automatically appears on administrator or clinical administrator login. To access it from any other administrative screen, click the **Home** link near the upper left corner of the screen.

Figure 5-4. Administrative Home Screen



5.3.1 Availability by User Role

The Administrative home screen is available to all administrative users. However, only the System, Alarms, and Parameters and Algorithms dashboard tiles will appear for clinical administrators.

5.3.2 Dashboard Tiles

The Users dashboard tile shows:

- The number of users currently set up in the software (including the current administrative user and any central monitoring station user accounts)
- The number of users set up in each user role
- A link to the Manage Users screen (see [Manage Users](#) on page 5-6)
- A link to the Manage Shifts screen (see [Manage Shifts](#) on page 5-18)

The Bedside Displays tab shows:

- The number of bedside unit users currently set up in the software
- A link to the Manage Bedside Display Users screen

The Devices dashboard tile shows:

- The number of devices currently connected to the platform
- The number of these devices not currently linked to any patient
- The number of patients who currently can be viewed in the platform
- A link to the Manage Device Inventory screen (see [Manage Device Inventory](#) on page 5-26)
- A link to the Device Status screen (see [Device Status](#) on page 5-29)

The Areas & Beds dashboard tile shows:

- The number of areas (also known as zones or areas of care) set up in the platform
- The number of beds set up in the platform
- A link to the Manage Areas screen (see [Manage Areas](#) on page 5-20)
- A link to the Manage Beds screen (see [Manage Beds](#) on page 5-24)

The Alarms dashboard tile shows:

- A link to the Manage Rule Sets screen (see [Manage Alarm, Notification, and Setting Rules](#) on page 5-31)
- A link to the Manage Alerts screen (see [Manage Alerts](#) on page 5-42)

The Parameters and Algorithms dashboard tile shows:

- A link to the Manage Parameters screen (see [Manage Parameters](#) on page 5-45)
- A link to the Manage Algorithms screen (see [Manage Algorithms](#) on page 5-47)

The System dashboard tile shows a link to system status and utilization reports (see [System Status and Utilization Reports](#) on page 5-49).



Note:

The administrator role is intended for users who are actively managing day-to-day software operations, particularly user records, device inventory, application software and hardware health and performance, and reporting.

The clinical administrator role is intended for users with clinical expertise who are specifically tasked with managing alarm priorities, alarm and event rules, and derived parameter algorithms, not with active user and platform support.

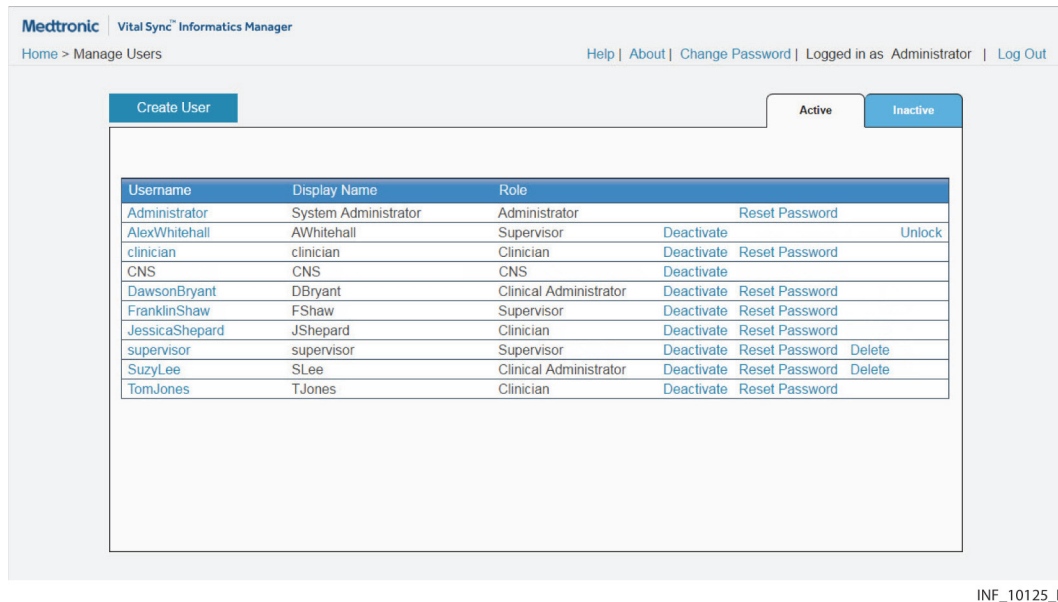
Software functions described in this chapter work in the same way for users in either the administrator or clinical administrator role, except if noted otherwise.

5.4 Manage Users

The Manage Users screen allows access to functions for setup of new users and maintenance of existing users (including editing user information; changing user status; unlocking, deactivating and deleting user records; and, if enabled, resetting and changing user passwords).

To access, click **Manage Users** in the Users tile on the Administrator home screen.

Figure 5-5. Manage Users Screen



5.4.1 Availability by User Role

The Manage Users, Create User and Edit User screens are only available to administrators. Clinical administrators cannot access user management functions, except to change their own passwords.

5.4.2 User Information

- **Username**—The username that this user enters at login
- **Display Name**—The name shown for this user when logged in
- **Role**—The role assigned to this user in the platform (this determines functions available to this user when logged in)



Note:

The terms “clinician”, “supervisor”, “administrator”, and “clinical administrator”, as used in this manual, refer only to types of users and to roles those users fulfill when using the software.

These terms do not necessarily correspond to similar titles used for employees of any particular facility, nor to functions those employees perform at that facility.

Links for changing user status, resetting passwords, unlocking users, and deleting users also appear on this screen.

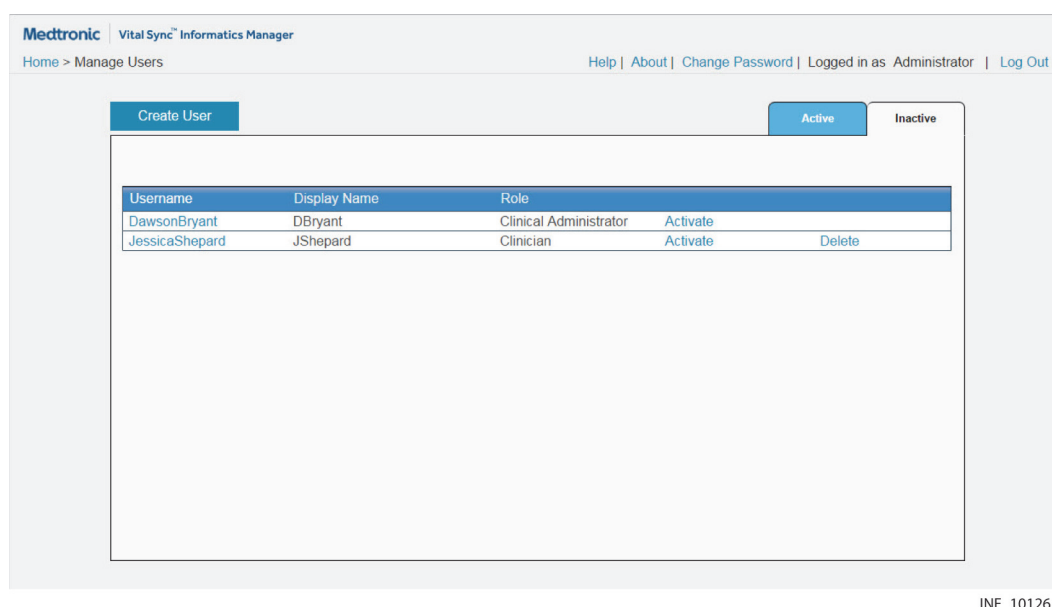
The standard sort order for the user list is alphabetical by username. To reverse the current sort order, click the **Username** heading.

5.4.3 User Status

Users are listed in the Manage Users screen according to their current status in the platform. Active users may log into the platform and use functions appropriate to their role. Inactive users may not access or use the platform until their user records are reactivated. (See [Change User Status](#) on page 5-11.)

To show inactive users, click the **Inactive** tab.

Figure 5-6. Manage Users Screen (inactive users shown)



To once again show active users, click the **Active** tab.

5.4.4 Add or Edit a User



Note:

If using local authentication, the facility's information technology department may assign login credentials; if so, user name and password fields may be unavailable.



Note:

User records set up for central monitoring stations appear in the user list, but are not editable in the Edit User screen. If problems arise with a central monitoring station user record, contact Medtronic for assistance (see [Obtaining Technical Assistance](#) on page 1-6).

To add a new user record:

- 1. In the Manage Users screen, click **Create User** to access the Create User screen.

Figure 5-7. Create User Screen

Medtronic

Vital Sync[™] Informatics Manager

[Home](#) > [Manage Users](#) > [Create User](#)

[Help](#) | [About](#) | [Change Password](#) | Logged in as Administrator | [Log Out](#)

Create User

Username:

Display Name:

Role:

(Select one of the following roles.)

☐ Administrator

☐ Clinical Administrator

☐ Supervisor

☒ Clinician

Audible Alerts:

☐ Multi-Tone

☐ Single-Tone

☒ Disable

☒ Locked

New Password:

Confirm New Password:

Mobile Phone Number:

Send Test Message

Email Address:

Send Test Message

Save

Cancel

INF_10127_H

To access an existing user record for editing:

- 1. Navigate the Manage Users screen until the desired user record is visible. (If needed, click the **Active** or **Inactive** button to change the user listing.)
- 2. Click on the username of the desired user to access the Edit User screen.

Figure 5-8. Edit User Screen

Medtronic Vital Sync[™] Informatics Manager

Home > Manage Users > Edit User Help | About | Change Password | Logged in as Administrator | Log Out

Edit User

Username:

Display Name:

(Select one of the following roles.)

Role:

- ☐ Administrator
- ☐ Clinical Administrator
- ☒ Supervisor
- ☐ Clinician

Audible Alerts: ☒ Multi-Tone ☐ Single-Tone ☐ Disable ☒ Locked

Mobile Phone Number:

Email Address:

INF_10128_H

When adding or editing a user, make field entries as follows:

1. **Username**—Enter the username with which this user will log into the software.
2. **Display Name**—Enter the name to appear in the user interface for this user.
3. **Roles**—Click **Administrator** to give the user access to administrative functions. Click **Clinical Administrator** to give the user access to clinical administrative functions. Click **Supervisor** to give the user access to clinician and supervisory functions. Click **Clinician** to give the user access to clinician functions. (See [User Roles](#) on page 2-3 for user role descriptions.)

(Administrative functions are described throughout this chapter. For clinician, clinical administrator, and supervisor functions, see Chapter 4. For more information on external service functions, consult with Medtronic Professional Services.)



Note:

Since the Administrator role allows access to user records in the software, Medtronic recommends strictly limiting the number of users with this role. However, always assign the Administrator role to at least two users, to help prevent potential inaccessibility of administrative functions due to user unavailability or inadvertent password reset.

4. **Audible Alerts**—Set both the audible alert tone and the user's ability to enable or disable it, as follows:
 - a. Click **Multi-Tone** to turn on multi-tone audible alerts for this user.
 - b. Click **Single-Tone** to turn on single-toned audible alerts for this user.
 - c. Click **Disable** to turn off audible alerts for this user. (If selecting **Disable**, the user in question will not have access to the **Audible Alerts** user function menu option when using the platform.)

- d. If this user should not be allowed to disable or enable alert tones (the default setting), ensure that the **Locked** check box is checked; click in the box if needed to check it.
- e. If this user should be allowed to disable or enable alert tones, ensure that the **Locked** check box is unchecked; click in the box if needed to uncheck it.

**Note:**

The **Audible Alerts** field will be unavailable if the user being added or edited is an administrator or clinical administrator.

**Note:**

The setting of the **Audible Alerts** field only affects alerts in the platform, and only for this specific user. Alert settings or audible alarms on individual devices are not affected.

**Note:**

Some mobile devices do not support sounding of audible alerts in the platform due to device limitations. Make sure to test audible alert capability on any mobile device to be used.

- 5. **New Password**—If allowed, enter the login password for this user. If using the platform's native authentication, this password must be from 8 to 32 characters long, including at least one uppercase and one lowercase letter and one number. Special characters are also permissible. If using local authentication, follow the facility's rules for password creation.
- 6. **Confirm New Password**—If allowed, enter the password just entered in the **New Password** field. (If this entry does not match the **New Password** field entry, an error message will appear.)

**Note:**

The **New Password** and **Confirm New Password** fields are unavailable when editing an existing user. For details on changing passwords for existing users, see [Manage Passwords](#) on page 5-13.

- 7. **Mobile Phone Number**—If desired (and enabled in the platform), enter the user's mobile phone number to allow the platform to send messages to the user's mobile phone. (To test whether the user can receive messages at the number entered, click the **Send Test Message** button next to this field.)
- 8. **Email Address**—If desired (and enabled in the platform), enter the user's email address to allow the platform to send email messages to this address. (To test whether the user can receive messages at the address entered, click the **Send Test Message** button next to this field.)

**Note:**

Use the **Mobile Phone Number** and **Email Address** fields to support primary and secondary contact functionality for patient and area assignments, and in conjunction with rule sets for event annunciation in the platform. See [Patient Assignments](#) on page 4-45; [Area Assignments](#) on page 4-52; and [Manage Alarm, Notification, and Setting Rules](#) on page 5-31.

- 9. When finished with field entry, click **Save** to save user data, or click **Cancel** to exit without saving. In either case, the Manage Users screen will reappear.

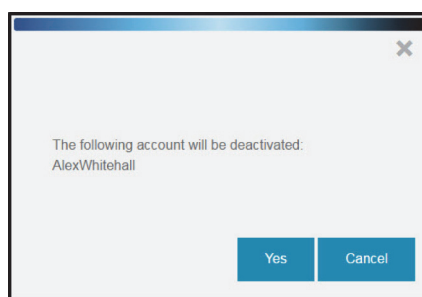
5.4.5 Change User Status

Administrators can deactivate or activate users in the Manage Users screen, and can also delete user records for users who have never logged in.

To deactivate a currently active user:

1. Navigate the Manage Users screen until the desired active user record is visible. (If needed, click the **Active** button to show active users).
2. Click the **Deactivate** link for this user. A confirmation dialog will appear.

Figure 5-9. User Deactivation Dialog



INF_10129_E

3. Click **Yes** to confirm deactivation, or click **Cancel** (or click the **X** at upper right in the dialog) to return to the Manage Users screen without deactivating the user.



Note:

Deactivating a user disables the user's ability to access and use the platform, but does not delete the user record from the platform database.

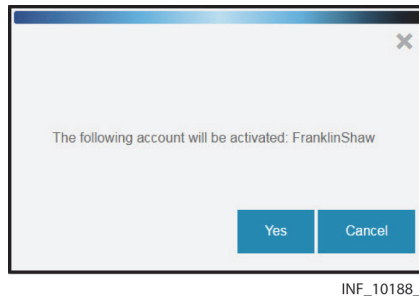


Note:

The platform removes all current patient and area assignments for a deactivated user. If reactivated, that user (or a supervisory user) will need to restore patient and area assignments. See [Change Patient Assignments](#) on page 4-49 and [Change Area Assignments](#) on page 4-56.

To activate a currently inactive user:

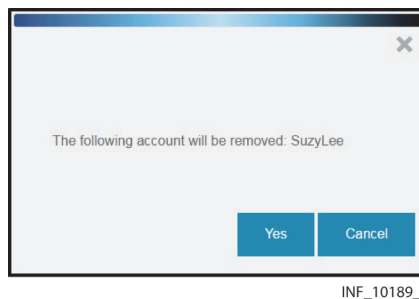
1. Navigate the Manage Users screen until the desired inactive user record is visible. (If needed, click the **Inactive** button to show inactive users).
2. Click the **Activate** link for this user. A confirmation dialog will appear.

Figure 5-10. User Activation Dialog

3. Click **Yes** to confirm activation, or click **Cancel** (or click the **X** at upper right in the dialog) to return to the Manage Users screen without activating the user.

To delete a user record:

1. Navigate the Manage Users screen until the desired user record is visible. (If needed, click the **Active** or **Inactive** button to change the user listing.)
2. Click the **Delete** link for this user. A confirmation dialog will appear.

Figure 5-11. User Deletion Confirmation Dialog

3. Click **Yes** to confirm deletion, or click **Cancel** (or click the **X** at upper right in the dialog) to return to the Manage Users screen without deleting the user.

**Note:**

Only user records for users who have never logged into the platform or have never had supervisory users perform functions on their behalf via the Select User function can be deleted. To maintain platform database integrity, users who have logged in or have had functions performed for them via the Select User function can only be deactivated.

5.4.6 Unlock a User

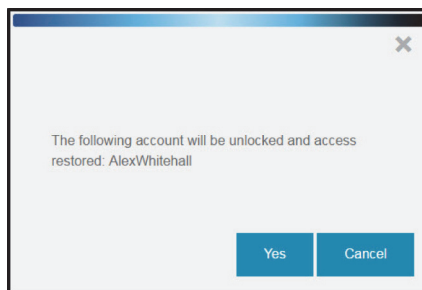
Administrators can unlock user records that have become locked (due, for example, to an excessive number of unsuccessful logon attempts).

To unlock a user record:

1. Navigate the Manage Users screen until the desired user record is visible. (If needed, click the **Active** or **Inactive** button to change the user listing.)

2. Click the **Unlock** link for this user. A confirmation dialog will appear.

Figure 5-12. User Unlock Dialog



INF_10190_D

3. Click **Yes** to confirm unlocking, or click **Cancel** (or click the **X** at upper right in the dialog) to return to the Manage Users screen without unlocking the user.

5.4.7 Manage Passwords

If allowed by the facility, administrators can reset other users' login passwords if needed, or change their own login passwords.



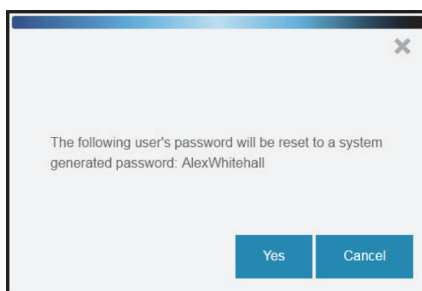
Note:

If using local authentication, the facility's information technology department may assign login credentials; if so, these functions may be unavailable.

To reset a user's password:

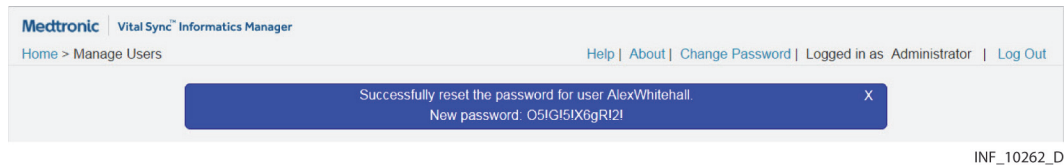
1. Navigate the Manage Users screen until the desired user record is visible. (If needed, click the **Active** or **Inactive** button to change the user listing.)
2. Click the **Reset Password** link for this user. A confirmation dialog will appear.

Figure 5-13. Password Reset Confirmation Dialog



INF_10130_E

3. Click **Yes** to confirm password reset, or click **Cancel** (or click the **X** at upper right in the dialog) to return to the Manage Users screen without resetting the password.
4. A confirmation message will appear showing the new password, which will contain at least one upper-case letter, one lowercase letter, one number, and one special character. Record the password and distribute it to the user.

Figure 5-14. Password Reset Confirmation Message

INF_10262_D

**Note:**

Record the password while the confirmation message is shown on the screen; **it will not appear again**. The user in question will need this password at the next login, and again for a subsequent change.

To change the current user's password:

1. On any administrative screen, click the **Change Password** permanent link. The Change Password dialog will appear.

Figure 5-15. Change Password Dialog

INF_10137_F

2. **Old Password**—Enter the current password for the current user.
3. **New Password**—Enter the desired new password.
4. **Confirm Password**—Enter the password entered in the **New Password** field.
5. Click **Change Password** to save the new password, or click the **X** at upper right in the dialog to return to the previous screen without changing the password.
6. A confirmation message will appear after saving the new password. Click the **X** at upper right to exit the dialog.

**Note:**

If using the software's native authentication, a strong password (8 to 32 characters long, including at least one uppercase and one lowercase letter and one number, with special characters also permissible) must be used. If using local authentication, and password management is enabled in the platform, follow facility rules for password creation.

5.5 Manage Bedside Display Users

The software supports the use of dedicated bedside display units. Each unit allows users to view patient and device data for the specific bed with which the device is associated.

Dedicated bedside display units and user records are set up separately, outside of the platform; consult with Medtronic Professional Services for details. However, administrators can view, activate, deactivate, and access bed assignments for existing bedside unit users in the Manage Bedside Display Users screen.

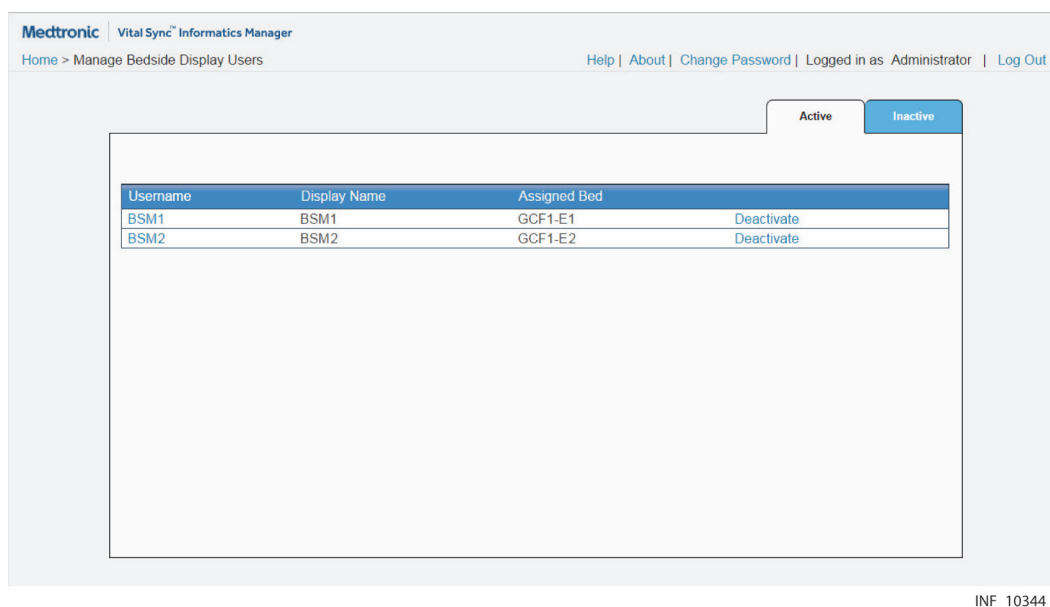


WARNING:

The dedicated bedside display unit is designed for use in conjunction with the Vital Sync™ Virtual Patient Monitoring Platform and Informatics Manager. Do not rely on the dedicated bedside display unit as a primary source of alarms.

To access, click **Manage Bedside Display Users** in the Bedside Displays tile on the Administrator home screen.

Figure 5-16. Manage Bedside Display Users Screen



INF_10344_A

5.5.1 Availability by User Role

The Manage Bedside Display Users and Edit Bedside Display Bed Assignment screens are only available to administrators. Clinical administrators do not have access to bedside unit user management functions.

5.5.2 Bedside Unit User Information

- **Username**—The username for this bedside unit user record

- **Display Name**—The name displayed for this bedside unit user record
- **Assigned Bed**—The bed to which this bedside unit user record is assigned in the platform

Links for changing the status of bedside unit user records also appear on this screen.

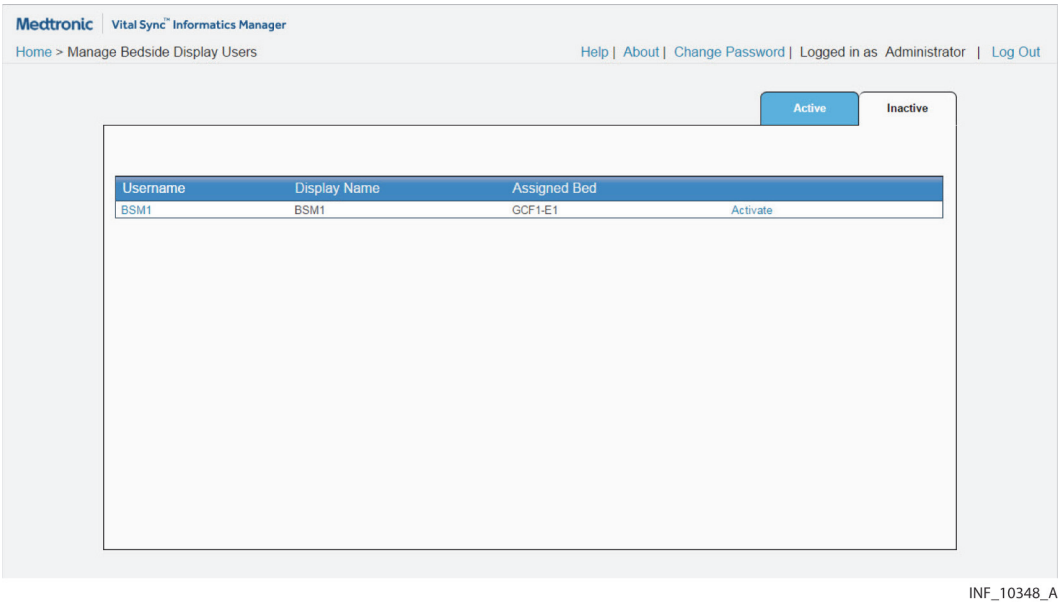
The standard sort order for the user list is alphabetical by username. To reverse the current sort order, click the **Username** heading.

5.5.3 Bedside Display User Status

User records are listed in the Manage Bedside Display Users screen according to their current status in the platform. Active user records allow access to functions on the associated dedicated bedside display unit. Inactive user records do not allow access to the platform until reactivated. (See [Change Bedside User Status](#) on page 5-17.)

To show inactive bedside unit user records, click the **Inactive** tab.

Figure 5-17. Manage Bedside Display Users Screen (inactive user records shown)



To once again show active bedside unit user records, click the **Active** tab.

5.5.4 Edit a Bed Assignment

To access a bedside unit user record:

1. Navigate the Manage Bedside Display Users screen until the desired user record is visible. (If needed, click the **Active** or **Inactive** button to change the user listing.)
2. Click on the username of the desired user to access the Edit Bedside Display Bed Assignment screen.

Figure 5-18. Edit Bedside Display Bed Assignment Screen

Medtronic Vital SyncSM Informatics Manager

Home > Manage Bedside Display Users > Edit Bedside Display Bed Assignment Help | About | Change Password | Logged in as Administrator | Log Out

Edit Bedside Display Bed Assignment

Username: BSM1

Display Name: BSM1

Assigned Bed: GCF1-E1

Save Cancel

INF_10347_A

When editing a bed assignment, make field entries as follows:

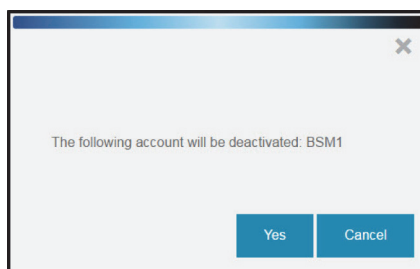
1. **Assigned Bed**—Select the desired bed from the drop-down menu.
2. Click **Save** to save user data, or click **Cancel** to exit without saving. In either case, the Manage Bedside Display Users screen will reappear.

5.5.5 Change Bedside User Status

To deactivate a currently active bedside user:

1. Navigate the Manage Bedside Display Users screen until the desired active user record is visible. (If needed, click the **Active** button to show active users.)
2. Click the **Deactivate** link for this user. A confirmation dialog will appear.

Figure 5-19. Bedside Display User Deactivation Dialog



INF_10349_A

3. Click **Yes** to confirm deactivation, or click **Cancel** (or click the **X** at upper right in the dialog) to return to the Manage Bedside Display Users screen without deactivating the user.



Note:

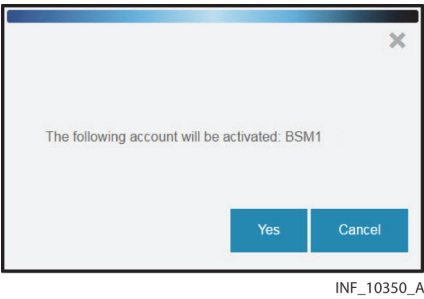
Deactivating a bedside unit user record disables access to the platform via the dedicated bedside display unit. Deactivation does not delete the user record from the platform database.

To activate a currently inactive user:

1. Navigate the Manage Bedside Display Users screen until the desired inactive user record is visible. (If needed, click the **Inactive** button to show inactive users.)

- 2. Click the **Activate** link for this user. A confirmation dialog will appear.

Figure 5-20. Bedside Display User Activation Dialog



- 3. Click **Yes** to confirm activation, or click **Cancel** (or click the **X** at upper right in the dialog) to return to the Manage Bedside Display Users screen without activating the user.

5.6 Manage Shifts

The Manage Shifts screen allows setup and maintenance of work shifts in the platform. This allows assignment of patients and areas to specific users at specific times, since both patient and area assignments can be tied to a particular work shift.

To access, click **Manage Shifts** in the Users tile on the Administrator home screen.

Figure 5-21. Manage Shifts Screen



5.6.1 Availability by User Role

The Manage Shifts, Add Shift, and Edit Shift screens are only available to administrators. Clinical administrators do not have access to shift management functions.

5.6.2 Shift Information

- **Shift Name**—The name of the shift (this name will appear in other screens in the platform where shifts can be selected)
- **Start Time**—The time the shift begins (using a 24-hour clock)

- **End Time**—The time the shift ends (using a 24-hour clock)

Links for deleting shifts also appear in this screen.

The shift list is sorted alphanumerically by shift name.

5.6.3 Add or Edit a Shift



Note:

To allow full leveraging of shift-related functionality in the platform, Medtronic recommends that shifts are set up so that all 24 hours of the day are part of at least one shift.

To add a work shift:

1. In the Manage Shifts screen, click **Add Shift**. The Add Shift screen will appear.

Figure 5-22. Add Shift Screen

INF_10281_C

To access an existing work shift for editing:

1. Navigate the Manage Shifts screen until the desired shift is visible.
2. Click on the shift identifier (in the **Shift Name** field) to access the Edit Shift screen.

Figure 5-23. Edit Shift Screen

INF_10282_C

When adding or editing a shift, make field entries as follows:

1. **Shift Name**—Enter an alphanumeric name for the shift. (If the facility uses specific names for its work shifts, enter the name appropriate to the shift being created.)
2. **Start Time**—Enter the time the shift begins, using a 24-hour clock.
3. **End Time**—Enter the time the shift ends, using a 24-hour clock.
4. When finished with field entry, click **Save** to save data, or click **Cancel** to exit without saving. In either case, the Manage Shift screen will reappear.

**Note:**

The end time for a shift is at the end of the minute entered. To avoid overlap of times for adjacent shifts, set the earlier shift's end time to 1 minute before the later shift's start time. See Figure 5-21 for examples.

5.6.4 Delete a Shift

To delete an existing work shift:

1. Navigate the Manage Shifts screen until the desired shift is visible.
2. Click on the **Delete** link to delete the shift.
3. A confirmation prompt will appear. Click **Yes** to confirm deletion, or click **No** to abort.

**Note:**

Any shift that has associated patient or area assignments cannot be deleted, and an error message will appear. In addition, facility data retention rules may prevent deletion of shifts for a certain period of time, even if otherwise possible.

5.7 Manage Locations

The software uses locations as the basis for keeping track of devices, and (in turn) links between devices and patients. Administrators can set up and manage locations to facilitate device tracking and linkage, assignment of patients to users, and imposition of alarm priority and delay rules.

Each individual device in the device inventory is associated with a particular bed, and each bed is associated with a specific area within the facility. Specific areas, in turn, can be associated with areas that represent larger parts of the facility, or the entire facility. (For a more detailed explanation, see [Locations](#) on page 7-1.)

5.7.1 Manage Areas

The Manage Areas screen allows setup of new area records and editing and deleting existing records.

To access the Manage Areas screen, click the **Manage Areas** link in the Areas / Beds tile on the Administrator home screen.

Figure 5-24. Manage Areas Screen

Area Name	Description	Parent Area Name	Rule Set	
Bedside	Bedside Displays	Care Facility	Vital Sync Default Rule Set	Delete
Care Facility		Integrated Delivery Network	Vital Sync Default Rule Set	Delete
GCF1	General Care Floor 1	Care Facility	Vital Sync Default Rule Set	Delete
GCF1-E	General Care Floor 1 - East	GCF1	Vital Sync Default Rule Set	Delete
GCF1-W	General Care Floor 1 - West	GCF1	Vital Sync Default Rule Set	Delete
GCF2	General Care Floor 2	Care Facility	Vital Sync Default Rule Set	Delete
GCF2-E	General Care Floor 2 - East	GCF2	Vital Sync Default Rule Set	Delete
GCF2-W	General Care Floor 2 - West	GCF2	Vital Sync Default Rule Set	Delete
Integrated Delivery Network			Vital Sync Default Rule Set	

INF_10263_F

Availability by User Role

The Manage Areas, Add Area, and Edit Area screens are only available to administrators. Clinical administrators do not have access to area management functions.

Area Information

- **Area Name**—The area identifier
- **Description**—The area description
- **Parent Area Name**—The name of the parent area, if this area is subsidiary to (i.e., a child of) another area in the facility (otherwise, this field will be blank)
- **Rule Set**—The name of the particular rule set this area uses (specific to this area, or inherited from a parent area) for event annunciation and notification delays (see *Manage Alarm, Notification, and Setting Rules* on page 5-31)

Links for deleting areas also appear on this screen.

The area list is sorted alphanumerically by area name.



Note:

The Care Facility and Integrated Delivery Network areas are already set up, to be used as parent areas for the entire facility and for groups of facilities, respectively. See *Areas* on page 7-1 for more details.

Add or Edit an Area

To add an area:

1. In the Manage Areas screen, click **Add Area**. The Add Area screen will appear.

Figure 5-25. Add Area Screen

Medtronic Vital Sync[™] Informatics Manager

Home > Manage Areas > Add Area

Help | About | Change Password | Logged in as Administrator | Log Out

Add Area

Area Name:

Description:

Parent Area Name:

-- No Parent --

Assigned Beds:

BS1
GCF1-E1
GCF1-E2
GCF1-E3

Alarm Rule Set:

-- Inherited --

Save

Cancel

INF_10264_F

To access an existing area for editing:

- 1. Navigate the Manage Areas screen until the desired area is visible.
- 2. Click on the area identifier (in the **Area Name** field) to access the Edit Area screen.

Figure 5-26. Edit Area Screen

Medtronic Vital Sync[™] Informatics Manager

Home > Manage Areas > Edit Area

Help | About | Change Password | Logged in as Administrator | Log Out

Edit Area

Area Name:

GCF1-E

Description:

General Care Floor 1 - East

Parent Area Name:

GCF1

Assigned Beds:

BS1
GCF1-E1
GCF1-E2
GCF1-E3

Alarm Rule Set:

-- Inherited --

Save

Cancel

INF_10265_F

When adding or editing an area, make field entries as follows:

- 1. **Area Name**—Enter an alphanumeric name for the area.
- 2. **Description**—Enter a description for the area.
- 3. **Parent Area Name**—If this area will be subsidiary to (i.e., a child of) another area in the facility, click on the drop-down box and select the desired parent area. If this area will not be a subsidiary of another area, click on the drop-down box (if needed) and select **No Parent**.

4. **Assigned Beds**—Beds currently set up in the platform will appear in this field, with beds currently assigned to this area already highlighted.
 - To assign a single bed to this area, click on the desired bed to highlight it.
 - To assign multiple beds, find the desired beds in the list, then <Shift>-click on the first and last bed identifiers (if all are adjacent in the list) or <Ctrl>-click on each identifier (if not all are adjacent in the list); all selected beds will be highlighted.
 - To deselect an assigned bed (removing the bed assignment), click on it (or <Ctrl>-click if it is not the only bed selected); the bed will no longer be highlighted.

**Note:**

Each bed can only be assigned to one area, to avoid overlap or conflict of different alarm and event rules. When assigning a bed to an area, select the area that uses the rule set most specifically appropriate for this bed.

5. **Alarm Rule Set**—To apply a specific rule set for alarm and event annunciation and notification delays (see *Manage Alarm, Notification, and Setting Rules* on page 5-31) to all beds assigned to this area, select the desired rule set from the drop-down box. If using a rule set inherited from a parent area, select **Inherited** from the drop-down box (if it is not already shown).

**Note:**

If the area is to be a parent area for other areas, the rule set selected will automatically apply to all of the area's subsidiary (child) areas, unless subsequently changed for a child area. Make sure the rule set selected is appropriate for most or all of the area's intended child areas.

If the area is to be subsidiary to (a child of) another area, it will automatically use the same rule set as the parent area, unless a different rule set is selected. Use caution when making rule set selections for a child area, to ensure that rules chosen are appropriate for the area.

6. When finished with field entry, click **Save** to save data, or click **Cancel** to exit without saving. In either case, the Manage Areas screen will reappear.

Delete an Area

To delete an existing area:

1. Navigate the Manage Areas screen until the desired area is visible.
2. Click on the **Delete** link to delete the area.
3. A confirmation prompt will appear. Click **Yes** to confirm deletion, or click **No** to abort.

**Note:**

Any area that has associated beds or is assigned to a clinical or supervisory user cannot be deleted, and an error message will appear.

5.7.2 Manage Beds

The Manage Beds screen allows setup of new bed records and editing and deleting existing records.

Bed records in the platform correspond to specific beds within the facility. The larger tiles that appear in the Tile View for clinicians and supervisors each represent a single bed, and show data from all devices currently associated with the bed. (For a more detailed explanation, see [Locations](#) on page 7-1.)

To access the Manage Beds screen, click the **Manage Beds** link in the Areas / Beds tile on the Administrator home screen.

Figure 5-27. Manage Beds Screen

Bed Name	Description	Area	
GCF1-E1	General Care Floor 1 ...	GCF1-E	Delete
GCF1-E2	General Care Floor 1 ...	GCF1-E	Delete
GCF1-E3	General Care Floor 1 ...	GCF1-E	Delete
GCF1-E4	General Care Floor 1 ...	GCF1-E	Delete
GCF1-W1	General Care Floor 1 ...	GCF1-W	Delete
GCF1-W2	General Care Floor 1 ...	GCF1-W	Delete
GCF1-W3	General Care Floor 1 ...	GCF1-W	Delete
GCF1-W4	General Care Floor 1 ...	GCF1-W	Delete
GCF2-E1	General Care Floor 2 ...	GCF2-E	Delete
GCF2-E2	General Care Floor 2 ...	GCF2-E	Delete
GCF2-E3	General Care Floor 2 ...	GCF2-E	Delete
GCF2-W1	General Care Floor 2 ...	GCF2-W	Delete
GCF2-W2	General Care Floor 2 ...	GCF2-W	Delete
GCF2-W3	General Care Floor 2 ...	GCF2-W	Delete

INF_10266_E

Availability by User Role

The Manage Beds, Add Bed, and Edit Bed screens are only available to administrators. Clinical administrators do not have access to area management functions.

Bed Information

- **Bed Name**—The bed identifier (this appears in multiple clinician and supervisory screens, including the Tile View, the All Patients and Devices screen, and the Admit Patient screen)
- **Description**—A more verbose description of the bed (this appears in this screen as well as the Add Bed and Edit Bed screens)
- **Area**—The area to which the bed is assigned

Links for deleting beds also appear on this screen.

The bed list is sorted alphanumerically by bed identifier.

Add or Edit a Bed

To add a bed:

1. On the Manage Beds screen, click **Add Bed**. The Add Bed screen will appear.

Figure 5-28. Add Bed Screen

The screenshot shows the 'Add Bed' screen within the Medtronic Vital Sync Informatics Manager. The breadcrumb trail is 'Home > Manage Beds > Add Bed'. The page title is 'Add Bed'. There are three input fields: 'Bed Name' (empty), 'Description' (empty), and 'Assigned Area' (set to 'GCF'). At the bottom, there are two buttons: 'Save' and 'Cancel'.

INF_10267_D

To access an existing bed for editing:

1. Navigate the Manage Beds screen until the desired bed is visible.
2. Click on the bed identifier (in the **Bed Name** field) to access the Edit Bed screen.

Figure 5-29. Edit Bed Screen

The screenshot shows the 'Edit Bed' screen within the Medtronic Vital Sync Informatics Manager. The breadcrumb trail is 'Home > Manage Beds > Edit Bed'. The page title is 'Edit Bed'. There are three input fields: 'Bed Name' (containing 'GCF1-E4'), 'Description' (containing 'General Care Floor 1 - East Bed 4'), and 'Assigned Area' (set to 'GCF1-E'). At the bottom, there are two buttons: 'Save' and 'Cancel'.

INF_10268_D

When adding or editing a bed, make field entries as follows:

1. **Bed Name**—Enter an alphanumeric identifier for the bed.
2. **Description**—Enter a description for the bed.
3. **Assigned Areas**—Click on the drop-down list, then click on the desired area to select it.



Note:

Each bed can only be assigned to one area, to avoid overlap or conflict of different alarm and event rules. When assigning a bed to an area, select the area that uses the rule set most specifically appropriate for this bed.

4. When finished with field entry, click **Save** to save data, or click **Cancel** to exit without saving. In either case, the Manage Beds screen will reappear.

Delete a Bed

To delete an existing bed:

1. Navigate the Manage Beds screen until the desired bed is visible.
2. Click on the **Delete** link to delete the bed.
3. A confirmation prompt will appear. Click **Yes** to confirm deletion, or click **No** to abort.



Note:

Any bed that has an associated patient or associated devices cannot be deleted, and an error message will appear.

5.8 Manage Device Inventory

The Manage Device Inventory screen allows administrators to make devices available for linking to patients in the platform, and also allows association of devices with specific beds.

To access the Manage Device Inventory screen, click the **Manage Device Inventory** link in the Device Status tile on the Administrator home screen.

Figure 5-30. Manage Device Inventory Screen

Serial Number	Device Type	Device Alias	Bed	Area	Delete
B200027817	Capnostream20				
B200672722	Capnostream20				
B200804301	Capnostream20				
127.0.0.1.49341	HT70	IP Address Port: 127.0.0.1.49341			
127.0.0.1.49350	HT70	IP Address Port: 127.0.0.1.49350			
DYN110216846786	N600x				
127.0.0.1.49289	NellcorPulseOximeter	IP Address Port: 127.0.0.1.49289			
127.0.0.1.49339	NellcorPulseOximeter	IP Address Port: 127.0.0.1.49339			
127.0.0.1.49430	NellcorPulseOximeter	IP Address Port: 127.0.0.1.49430			
840 DYN1346303	PB840				
840 DYN2476411	PB840				
980 DYN4278813	PB980				
BHT2000	BH3-M1				

INF_10235_B

5.8.1 Availability by User Role

The Manage Device Inventory, Add Device, and Edit Device screens are only available to administrators. Clinical administrators do not have access to device management functions.

5.8.2 Device Information

- **Serial Number**—The serial number or device identifier
- **Device Type**—The type of device
- **Device Alias**—The device's IP address, MAC address (if available), and inventory tag number (if available)
- **Bed**—The bed (if any) to which the device is assigned
- **Area**—The area (if any) to which the device is assigned
- **Delete**—A link for deletion of the device from the inventory (only shown if deletion is allowed)

The standard sort order for the device list is alphanumeric by serial number. Click on any other column heading to sort the list alphabetically in the selected column; click again to reverse the sort order.

5.8.3 Add or Edit a Device

To add a device:

1. On the Manage Device Inventory screen, click **Add Device**. The Add Device screen will appear.

Figure 5-31. Add Device Screen

The screenshot shows the 'Add Device' screen in the Medtronic Vital Sync Informatics Manager. The breadcrumb trail is 'Home > Manage Device Inventory > Add Device'. The page title is 'Add Device'. The form contains the following fields:

- Serial Number:
- Device Type:
- Designated Bed:
- Designated Area:
- IP Address Port:
- MAC Address:
- Inventory Tag:

At the bottom of the form are two buttons: 'Save' and 'Cancel'.

INF_10270_E

To access an existing device for editing:

1. Navigate the Manage Device Inventory screen until the desired device is visible.
2. Click on the identifier for the desired device (in the **Serial Number** field) to access the Edit Device screen.

Figure 5-32. Edit Device Screen

Medtronic Vital Sync Informatics Manager

Home > Manage Device Inventory > Edit Device

Help | About | Change Password | Logged in as Administrator | Log Out

Edit Device

Serial Number:

Device Type:

Designated Bed:

Designated Area:

IP Address Port:

MAC Address:

Inventory Tag:

INF_10271_E

When adding or editing a device, make field entries as follows:

1. **Serial Number**—Enter the device serial number or identifier.
2. **Device Type**—Click on the drop-down list and select the desired device type.
3. **Designated Bed**—Click on the drop-down list and select the bed (if any) to which to assign the device.
4. **Designated Area**—Click on the drop-down list and select the area (if any) to which to assign the device.



Note:

Even if a device should not be assigned to a specific bed, assigning it to an area causes it to appear in the Tile View only to users to whom that area is assigned. This can aid users in selecting an appropriately located device when linking new devices to a patient. See [Additional Tile View Functions](#) on page 4-10 for more information.

5. **IP Address Port**—Enter the device's IP address.
6. **MAC Address**—If available, enter the device's MAC address.
7. **Inventory Tag**—If used, enter the device's inventory tag number.
8. When finished with field entry, click **Save** to save data, or click **Cancel** to exit without saving. In either case, the Manage Device Inventory screen will reappear.



Note:

If a patient is moved to a different bed along with one or more linked devices, and any of these devices is specifically assigned to the previous bed, use the Edit Device function to update the bed association for the device or devices in question. Until this is done, an error message will appear in the Device Detail screen indicating that the device is not in its associated location.

5.8.4 Delete a Device

To delete an existing device:

1. Navigate the Manage Devices screen until the desired device is visible.
2. Click on the **Delete** link to delete the device.
3. A confirmation prompt will appear. Click **Ok** to confirm deletion, or click **Cancel** to abort.



Note:

Only devices that have never been linked to a patient whose record is currently present in the platform can be deleted.

5.9 Device Status

The Device Status screen allows viewing of all currently connected devices and access to detailed information on individual devices.

To access the Device Status screen, click the **Device Status** link in the Device Status tile on the Administrator home screen.

Figure 5-33. Device Status Screen

Medtronic Vital Sync [®] Informatics Manager					
Home > Device Status			Help About Change Password Logged in as Administrator Log Out		
Device Type	Serial Number	Session Start Time	Protocol	Network Address	Status
BH3-M1	BHT2000	05/11/2016 10:51:50	Zephyr	127.0.0.1:49297	Communicating
HT70	127.0.0.1:49341	05/13/2016 09:56:14	NewportHT70	127.0.0.1:49341	Communicating
Nellcor Oridion Capnostream20	B200804301	05/16/2016 09:50:37	Capnostream	127.0.0.1:49412	Communicating
Nellcor Oridion Capnostream20	B200672722	05/16/2016 10:13:08	Capnostream	127.0.0.1:49413	Communicating
Nellcor Oridion Capnostream20	B200027817	05/16/2016 10:19:13	Capnostream	127.0.0.1:49429	Communicating
Nellcor Pulse Oximeter	127.0.0.1:49430	05/16/2016 10:19:23	SHIP	127.0.0.1:49430	Communicating
PB840	840 DYN1346303	05/13/2016 09:55:17	PB840Ascii	127.0.0.1:49340	Communicating
PB980	980 DYN4278813	05/13/2016 10:03:11	PB840Ascii	127.0.0.1:49348	Communicating

INF_10304_A

5.9.1 Availability by User Role

The Device Status screen is only available to administrators. Clinical administrators do not have access to device status functions.

5.9.2 Basic Device Data

- **Device Type**—The type of device (for example, Nellcor Pulse Oximeter, 840 ventilator)
- **Serial Number**—The device's serial number (if supported) or device IP address

- **Session Start Time**—The date and time the device began its current session
- **Protocol**—The communication protocol by which the device is communicating, or the port through which the device is communicating
- **Network Address**—The address for the device on the local network
- **Status**—The current status of the device

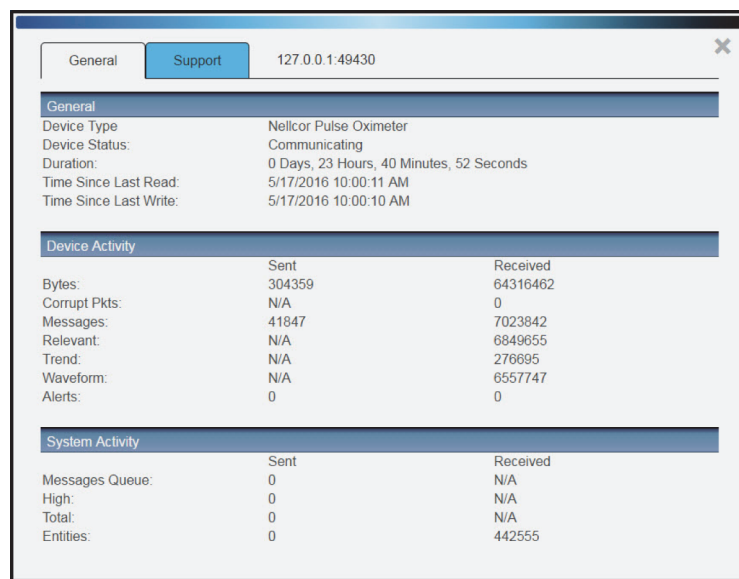
The standard sort order for the device list is alphanumeric by device type. Click on the **Serial Number**, **Session Start Time**, or **Status** column headings to sort the list alphanumerically in the selected column; click again to reverse the sort order.

5.9.3 Device Detail

To show detailed information for a specific device:

1. Navigate the Device Status screen until the desired device is visible.
2. Click on the name of the desired device (in the **Device Type** field) to open the Device Detail window.

Figure 5-34. Device Detail Window (General tab)



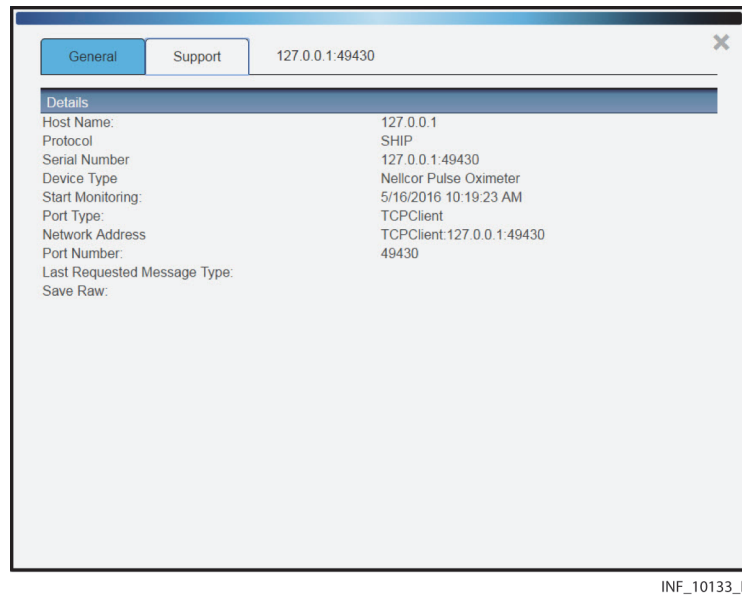
INF_10132_F

The General tab is initially shown when opening this window; clicking on this tab also shows it. The serial number or network address of the selected device appears at the top of the window. Other information shown includes:

- **General**—Basic information (device type, current status, duration, and the date and time of the device's most recent read and write actions in the platform)
- **Device Activity**—Activity details for this device
- **System Activity**—Activity details for the platform

To show the Support tab in the Device Detail window, simply click on it.

Figure 5-35. Device Detail Window (Support tab)



Information shown in this tab includes system host name; communication protocol by which the device is connecting to the platform; the device serial number and type; the session start date and time; sensor type and location; and communication details. If problems arise with the platform, this information can be used for troubleshooting purposes.

5.10 Manage Alarm, Notification, and Setting Rules

Alarms or notifications that are active on devices will annunciate in the platform once the platform detects them. Active events also can trigger Short Message Service (SMS) message or email alerts for clinicians and supervisors assigned to the affected patients.

If desired, administrative users can set delays before events will annunciate (visibly or audibly) and trigger user alerts, using the software's alarm and notification rule management functions.

Appropriate delay settings for alarms may reduce the number of non-clinically significant alarms (generally referred to as "nuisance alarms") that annunciate in the platform, which may reduce the potential for alarm fatigue. Setting delays for alarms is also referred to as "alarm filtering"; alarms that have delays set for them are also referred to as "filtered alarms".

If using derived parameter algorithms that have alarm thresholds, administrative users can also set those thresholds using the software's setting rule function.



WARNING:

The alarm rule functionality within the software is intended to supplement and not replace any part of the facility's monitoring. Do not rely on the platform as the sole source of alarms.

**WARNING:**

In order to assure a timely response to device alarms, a clinician must be within visual and/or audible range of the alarming device. Do not rely on the platform as the sole source of alarms.

**WARNING:**

Alarm rules should adhere to facility policy, procedures, and alarm management protocols. This alarm management protocol should address alarm safety and the potential impact of alarm fatigue in all patient care areas within the facility.

**WARNING:**

When setting alarm rules and priorities in the platform for any device, consult the operator's manual for the device in question for default priority levels of device alarms, and for a description of each device alarm. Obtain a detailed understanding of the patient or device conditions that trigger any alarm before creating an alarm rule or adjusting the alarm's priority in the platform.

**Note:**

In this manual, the terms "priority" and "severity" are used interchangeably to refer to events.

**Note:**

In this manual, the term "event" is used to refer both to alarms and to notifications.

5.10.1 Availability by User Role

The Manage Rule Sets, Add Rule Set, and Edit Rule Set screens, and all associated functions, are available to administrators and clinical administrators.

5.10.2 Access Rule Sets

To access the Manage Rule Sets screen, click on the **Manage Rule Sets** link in the Alarms tile on the Administrator home screen.

Figure 5-36. Manage Rule Sets Screen

Rule Set Name	Rule Set Description	
Vital Sync Default Rule Set	These are the "factory default" settings	
General 1	General Care Set 1	Delete
General 2	General Care Set 2	Delete
Critical 1	Critical Care Set 1	Delete
Critical 2	Critical Care Set 2	Delete

INF_10283_D

5.10.3 Rule Set Information

- **Display Name**—The name of the rule set
- **Description**—The rule set description

Links for deletion of rule sets also appear on this screen.

5.10.4 Add or Edit a Rule Set



Note:

The alert thresholds shown in this section are purely illustrative. Individual algorithms have their own specific settings. Basic functionality described here is the same for all algorithms.

To add a rule set:

1. In the Manage Rule Sets screen, click **Add Rule Set**. The Add Rule Set screen will appear, with the fields on the Alarm Rules tab initially shown.

Figure 5-37. Add Rule Set Screen (Alarm Rules Tab)

Medtronic Vital Sync Informatics Manager

Home > Manage Rule Sets > Add Rule Set

Help | About | Change Password | Logged in as Administrator | Log Out

Add Rule Set

Display Name:

Description:

Auto-acknowledge Setting Changes: Disabled

Alarm Rules **Settings Rules**

BIS Monitor +

Description	System Delay	Primary Contact Delay	Secondary Contact Delay
Reset Severity	No Delay	No Delay	No Delay
Favorable Severity	No Delay	No Delay	No Delay
Informational Severity	No Delay	No Delay	No Delay
Unfavorable Severity	No Delay	No Delay	No Delay
High Severity	No Delay	No Delay	No Delay
Medium Severity	No Delay	No Delay	No Delay
High Severity	No Delay	No Delay	No Delay

Capnograph +

Description	System Delay	Primary Contact Delay	Secondary Contact Delay
Reset Severity	No Delay	No Delay	No Delay
Favorable Severity	No Delay	No Delay	No Delay
Informational Severity	No Delay	No Delay	No Delay
Unfavorable Severity	No Delay	No Delay	No Delay

INF_10284_D

To show the fields on the Settings Rules tab, simply click on the tab.

Figure 5-38. Add Rule Set Screen (Settings Rules tab)

Medtronic Vital Sync[™] Informatics Manager

Home > Manage Rule Sets > Add Rule Set

Help | About | Change Password | Logged in as Alex Whitehall | Log Out

Add Rule Set

Display Name:

Description:

Auto-acknowledge Setting Changes:

Disabled

Alarm Rules

Settings Rules

Sample Algorithm

Setting Name	Setting Value	Setting Minimum Value	Setting Maximum Value
Respiration Rate Limit High	<input type="text" value="30"/>	<input type="text" value="10"/>	<input type="text" value="80"/>
Respiration Rate Limit Low	<input type="text" value="10"/>	<input type="text" value="1"/>	<input type="text" value="20"/>

Save

Cancel

INF_10507_A



Note:

Setting rules only apply to derived parameter algorithms with adjustable alarm thresholds. For details regarding available alarms consult with Medtronic Professional Services.

To access an existing rule set for editing:

1. Navigate the Manage Rule Sets screen until the desired rule set is visible.
2. Click on the rule set identifier (in the **Display Name** field) to access the Edit Rule Set screen.

Figure 5-39. Edit Rule Sets Screen (Alarm Rules Tab)

Medtronic | Vital Sync[™] Informatics Manager

Home > Manage Rule Sets > Edit Rule Set

Help | About | Change Password | Logged in as Administrator | Log Out


Edit Rule Set

Display Name:


Description:

Auto-acknowledge Setting Changes:

Alarm Rules **Settings Rules**

BIS Monitor 

Description	System Delay	Primary Contact Delay	Secondary Contact Delay
Reset Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>
Favorable Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>
Informational Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>
Unfavorable Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>
High Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>
Medium Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>
High Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>

Capnograph 

Description	System Delay	Primary Contact Delay	Secondary Contact Delay
Reset Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>
Favorable Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>
Informational Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>
Unfavorable Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>

INF_10319_D

To show the fields on the Settings Rules tab, simply click on the tab.

Figure 5-40. Edit Rule Sets Screen (Settings Rules Tab)

Medtronic | Vital Sync[™] Informatics Manager

Home > Manage Rule Sets > Edit Rule Set

Help | About | Change Password | Logged in as Alex Whitehall | Log Out

Edit Rule Set

Display Name:

Description:

Auto-acknowledge Setting Changes:

Alarm Rules **Settings Rules**

Sample Algorithm

Setting Name	Setting Value	Setting Minimum Value	Setting Maximum Value
Respiration Rate Limit High	<input type="text" value="30"/>	<input type="text" value="10"/>	<input type="text" value="80"/>
Respiration Rate Limit Low	<input type="text" value="10"/>	<input type="text" value="1"/>	<input type="text" value="20"/>

INF_10508_A

**Note:**

Setting rules only apply to derived parameter algorithms with adjustable alarm thresholds. For details regarding available alarms consult with Medtronic Professional Services.

**Note:**

The software includes a default rule set, which applies automatically unless a different rule set is selected for an area, alarm, alarm type, or threshold setting. Users can view alarm and settings rules in the default rule set in the Edit Rule Set screen, but cannot edit them.

When adding or editing a rule set, make field entries as follows:

1. **Display Name**—Enter the name to appear in the platform for this rule set.
2. **Description**—Enter a brief description for this rule set.
3. **Auto-acknowledge Setting Changes**—If setting change notifications should be automatically acknowledged in the platform (that is, without user action) after a certain interval, select the desired interval (5, 15, 30, or 60 minutes) in the drop-down box. If all setting change notifications should be acknowledged by users, select **Disabled** in the drop-down box (this is the default setting).

**Note:**

Automatic setting change acknowledgment may be useful if the volume or frequency of setting change notifications makes acknowledging all of them a nuisance for the user, particularly if the changes are expected or routine, and not clinically significant. Follow applicable facility rules and safety protocols when determining whether to enable automatic acknowledgment, and when selecting the time interval for acknowledgment.

4. To define alarm rules:
 - a. Make desired delay rule selections to apply to all devices of one or more types. See [Define a General Rule](#) on page 5-37.
 - b. If needed, add new custom rules for specific devices and make delay selections for them. See [Define a Custom Event Rule](#) on page 5-38.
5. If defining setting rules for a derived parameter algorithm, enter threshold values as desired. See [Define a Setting Rule](#) on page 5-40.
6. When finished with field entry, scroll to the bottom of the screen and click **Save** to save data, or click **Cancel** to exit without saving.
7. Upon saving, a dialog will appear indicating that settings for this rule set will apply to all patients in areas of the facility using this rule set. Click **Yes** to confirm and return to the Manage Rule Sets screen, or click **No** to remain in the current screen.

5.10.5 Define Alarm and Notification Rules

When adding or editing a rule set, users choose general delay settings for devices of a particular type, specific delay settings for specific device events, or both.



Caution:

Connected devices report data to the platform periodically, not continuously. Because of this, as well as delays caused by network bandwidth or hardware limitations or network loading, the true duration of any device alarm will be longer than the delay set in this screen for that alarm.

Carefully consider these factors when choosing delay settings, and use the shortest delay settings that are practical to reduce nuisance alarms, to avoid undue delay in response to events actually requiring direct clinical intervention.



Note:

Delay settings only affect the behavior of alarms within the platform. Delay settings do not affect or change behavior of alarms on any connected device.

Define a General Rule

Users can define a general delay rule applicable to all events of a selected severity level from all connected devices of a particular type.

To define a general rule for events of a specific severity level:

1. In the Add Rule Set or Edit Rule Set screen, find the desired device type panel (scroll up or down if needed).
2. In the panel, find the row for the desired event severity level.
3. **System Delay**—Select the desired delay before events of this severity will annunciate visibly and audibly in the platform. Available options include **No Delay**; delays of 10, 20, 40, 60, or 120 seconds; or **OFF**.
4. **Primary Contact Delay**—Select the desired delay before events of this severity will trigger an email or SMS message to users assigned to the affected patient as primary contacts. Available options are the same as for the **System Delay** field; this delay cannot be shorter than the delay selected in the **System Delay** field.
5. **Secondary Contact Delay**—Select the desired delay before events of this severity will trigger an email or SMS message to users assigned to the affected patient as secondary contacts. Available options are the same as for the **System Delay** and **Primary Contact Delay** fields; this delay cannot be shorter than the delay selected in the **Primary Contact Delay** field.



WARNING:

Selecting “OFF” in any delay setting field means there will be NO annunciation or notification when the event in question occurs. Use this setting with caution.

6. If needed, repeat steps 2–5 to select delay settings for other event severity levels for the same device type, or event severity levels for one or more other device types.
7. Click **Save** to save the rule set. (To exit the screen without saving, click **Cancel**.)
8. Upon saving, a dialog will appear indicating that the settings for this rule set will apply to all patients in areas of the facility using the rule set. Click **Yes** to confirm and return to the Manage Rule Sets screen, or click **No** to remain in the current screen.

Delays set here apply to all alarms or notifications of the selected severity level on any connected device of the selected type. (For a more detailed explanation, see [Effects of Rule Settings](#) on page 7-7.)



Note:

If an alarm with an applied **System Delay** setting (also known as a filtered alarm) is present on a linked device, visual indicators will appear in the platform during the delay interval, showing that a filtered alarm is active. However, filtered alarms will not visibly or audibly annunciate until the delay interval set for them has passed.

If a filtered alarm has a **System Delay** setting of OFF, the visual indicators for the filtered alarm will still appear when the alarm is reported to the platform, and will remain visible until the alarm condition no longer exists.

See [Filtered Alarms](#) on page 8-11 for details on how filtered alarms are shown in the platform.



Note:

Delay settings only affect the behavior of alarms within the platform. Delay settings do not affect or change behavior of alarms on the actual device.

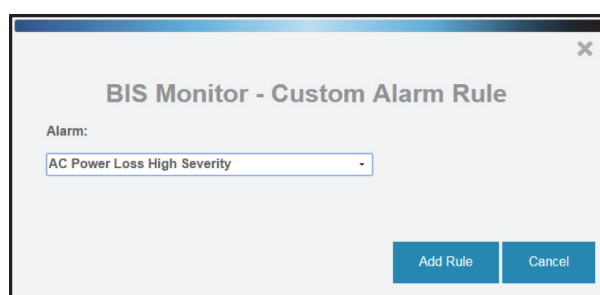
Define a Custom Event Rule

Users can define delays applicable to a specific alarm or notification supported on a particular device. This is useful to help determine the ideal delay setting for a specific alarm, or if a particular alarm is known to be a nuisance alarm.

To add and define a custom rule for a specific event:

1. In the Add Rule Set or Edit Rule Set screen, find the desired device type panel (scroll up or down if needed).
2. Click the add icon (the plus sign) just above the upper right corner of the device type panel. The Custom Alarm Rule dialog box will appear.

Figure 5-41. Custom Rule Dialog



INF_10285_C

3. **Alarm**—Click in the drop-down box and select the desired alarm (scroll up or down in the box if needed).

- Click **Add Rule** to add the rule. (To exit this dialog without saving, click **Cancel**.) The newly-defined custom rule will now appear on the screen below the event severity fields for the device type.

Figure 5-42. Rule Set (with custom rule)

Medtronic Vital Sync Informatics Manager

Home > Manage Rule Sets > Edit Rule Set

Help | About | Change Password | Logged in as Administrator | Log Out

Edit Rule Set

Display Name:

Description:

Auto-acknowledge Setting Changes:

Alarm Rules **Settings Rules**

BIS Monitor +

Description	System Delay	Primary Contact Delay	Secondary Contact Delay
Reset Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>
Favorable Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>
Informational Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>
Unfavorable Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>
Low Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>
Medium Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>
High Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>
AC Power Loss High Severity	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>	<input type="text" value="No Delay"/>

X

INF_10286_D

- Set delays in the **System Delay**, **Primary Contact Delay**, and **Secondary Contact Delay** fields as desired for the event (and as allowed based on what delays are used; see [Define a General Rule](#) on page 5-37). Options in each field include **No Delay**; delays of 10, 20, 40, 60, or 120 seconds; or **OFF**.

**WARNING:**

Selecting “OFF” in any delay setting field means there will be NO annunciation or notification when the event in question occurs. Use this setting with caution.

- Click **Save** to save the rule set. (To exit the screen without saving, click **Cancel**.)
- Upon saving, a dialog will appear indicating that the settings for this rule set will apply to all patients in areas of the facility using this rule set. Click **Yes** to confirm and return to the Manage Rule Sets screen, or click **No** to remain in the current screen.

**Note:**

If an alarm with an applied **System Delay** setting (also known as a filtered alarm) is present on a linked device, visual indicators will appear in the platform during the delay interval, showing that a filtered alarm is active. However, filtered alarms will not visibly or audibly annunciate until the delay interval set for them has passed.

If a filtered alarm has a **System Delay** setting of OFF, the visual indicators for the filtered alarm will still appear when the alarm is reported to the platform, and will remain visible until the alarm condition no longer exists.

See [Filtered Alarms](#) on page 8-11 for details on how filtered alarms are shown in the platform.

Define a Setting Rule

Certain derived parameter algorithms annunciate alarms if certain device parameters are outside a nominal range. Users define alarm thresholds for these parameters using the Settings Rules tab.



Caution:

Do not set alarm limits to extreme values that render the monitoring system useless. Ensure alarm limits are appropriate for each patient.

To define a setting rule for a specific parameter:

1. In the Settings Rules tab in the Add Rule Set or Edit Rule Set screen, find the desired algorithm panel (scroll up or down if needed).
2. In the panel, find the row for the desired alarm.
3. **Setting Value**—Enter the default threshold for this alarm. (If no other values are set on this tab, the device will enter an alarm state if the measured parameter is greater than this value for a “high” alarm, or is less than this value for a “low” alarm.)
4. **Setting Minimum Value**—Enter the lowest acceptable threshold value for this alarm. This must be less than or equal to the number entered in the **Setting Value** field.
5. **Setting Maximum Value**—Enter the highest acceptable threshold value for this alarm. This must be greater than or equal to the number entered in the **Setting Value** field.
6. Upon saving, a dialog will appear indicating that the settings for this rule set will apply to all patients in areas of the facility using this rule set. Click **Yes** to confirm and return to the Manage Rule Sets screen, or click **No** to remain in the current screen.



Note:

Fields available on the Settings Rules tab are related to parameters measured by a device associated with the derived parameter algorithm. Consult with Medtronic Professional Services for details on settings available for specific algorithms.



Note:

Users can change setting values if needed for certain derived parameter algorithms from the Device Detail screen. See [Manage Settings](#) on page 4-30.

5.10.6 Delete Rules

If needed, users can delete custom rules from rule sets, or can delete entire rule sets.

Delete a Custom Event Rule

To delete a custom rule:

1. In the Edit Rule Set screen, find the desired device type panel (scroll up or down if needed).

2. In the panel, find the row for the custom rule to be removed.
3. Click the **X** on the right side of the row. The row will turn red to indicate that this rule is marked for deletion.

Figure 5-43. Edit Rule Set Screen (custom rule deletion)

Medtronic Vital Sync Informatics Manager

Home > Manage Rule Sets > Edit Rule Set

Help | About | Change Password | Logged in as Administrator | Log Out

Edit Rule Set

Display Name:

Description:

Auto-acknowledge Setting Changes:

Alarm Rules **Settings Rules**

BIS Monitor +

Description	System Delay	Primary Contact Delay	Secondary Contact Delay
Reset Severity	No Delay	No Delay	No Delay
Favorable Severity	No Delay	No Delay	No Delay
Informational Severity	No Delay	No Delay	No Delay
Unfavorable Severity	No Delay	No Delay	No Delay
Low Severity	No Delay	No Delay	No Delay
Medium Severity	No Delay	No Delay	No Delay
High Severity	No Delay	No Delay	No Delay
AC Power Loss High Severity	No Delay	No Delay	No Delay

INF_10287_D

4. If needing to delete other custom rules, repeat steps 2 and 3 for each additional rule to be removed. These rows will also turn red.
5. Upon saving, a dialog will appear indicating that the settings for this rule set will apply to all patients in areas of the facility using this rule set. Click **Yes** to confirm and return to the Manage Rule Sets screen, or click **No** to remain in the current screen.

Delete a Rule Set

To delete an entire rule set:

1. In the Manage Rule Sets screen, find the desired rule set (scroll down if needed).
2. Click **Delete**. A dialog will appear asking for confirmation; click **Yes** to confirm or click **No** to return to the Manage Rule Sets screen without deleting the rule set.



Note:

Any rule set currently assigned to any areas in the platform cannot be deleted, and an error message will appear.



Note:

The default rule set cannot be deleted.

5.11 Manage Alerts

Users can configure priority levels within the platform for alerts triggered by events on connected devices. This functionality allows users to normalize the priority of similar device alarms that have different default priorities on different devices of the same type.

To access, click **Manage Alerts** in the Alarms tile on the Administrator home screen.

Figure 5-44. Manage Alerts Screen

Medtronic Vital Sync[™] Informatics Manager


Home > Manage Alerts


Help | About | Change Password | Logged in as Administrator | Log Out


Manage Alerts

Device Type	Modified Alerts
BiS Vista	
BRPMS	
Capnostream20	
Capnostream35	
CardioCap5	
HT70	
Invos 5100C	
N-560	
N-595	
N600x	1
N600x-A	1
N85	
NeelcorPulseOximeter	
PB840	
PB980	
PM1000N	
Sample Algorithm	
Unspecified Bispectral Index Monitor	
Unspecified Capnography Monitor	
Unspecified ECG Telemetry Monitor	
Unspecified Infusion Pump	
Unspecified MPM	
Unspecified Pulse Oximeter	
Unspecified Regional Oximeter	

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 **WARNING:**
Alarm priority normalization and ranking functionality within the platform is intended to supplement and not replace any part of the facility’s monitoring. Do not rely on the platform as the sole source of alarms.

 **WARNING:**
The default alarm priority is determined by the connected device, and cannot be changed on the device itself. The *same* alarm condition may be reported with a *different* priority on *different* device models. Carefully review the Alarm Normalization Report for default alarm priorities for each connected device model.

 **WARNING:**
Alarm priorities in the platform should not be set to be lower than those on the actual device. Use caution if changing the priority of a device alarm in the platform to a different level than is indicated on the actual device, especially for devices that are life-sustaining.

**WARNING:**

Alarms from connected devices should not be set as notifications in the platform, especially for devices that are life-sustaining. Because notifications do not audibly annunciate, setting an alarm as a notification may cause users to not respond or delay in responding to a clinically significant event.

**WARNING:**

Notifications from connected devices should not be set as alarms in the platform, especially for events not requiring clinical intervention. Setting a notification as an alarm may create nuisance audible alerts that are not clinically significant.

**Note:**

Do **not** attempt to reduce the incidence of nuisance alarms by setting a lower priority for a device alarm in the platform than is indicated on the actual device. Use delay rule functions to deal with nuisance alarms; see [Manage Alarm, Notification, and Setting Rules](#) on page 5-31 for details.

**Note:**

Changing alert priority in the platform does not change the default priority on the device itself.

5.11.1 Availability by User Role

The Manage Alerts and alert editing screens, and all associated functions, are available to administrators and clinical administrators.

5.11.2 Alert Information

- **Device Type**—The name of the device type or specific device supported in the platform
- **Modified Alerts**—The number of device alerts for this device or device type with a priority level in the platform that has been changed from the device's default priority level (if no alerts have been changed, this field will be blank)

If a device or device type has modified alerts, its row in this screen will be shaded in a different color.

5.11.3 Edit an Alert

To edit a device alert:

1. Navigate the Manage Alerts screen until the identifier for the desired specific device or generic device type is visible.
2. Click on the identifier to access the alert edit screen, which shows all events for the selected device or device type that trigger alerts in the platform. The list is sorted alphanumerically by device alert.

Figure 5-45. Alert Edit Screen

Device Alert	Device Severity	Vital Sync Severity	Rank
ACPowerLoss	High	High	0
ACPowerLoss	Low	Low	0
ACPowerLoss	Medium	Medium	0
ACPowerLoss	Reset	Reset	0
ApneaVentilation	High	High	0
ApneaVentilation	Low	Low	0
ApneaVentilation	Medium	Medium	0
ApneaVentilation	Reset	Reset	0
CompensationLimit	High	High	0
CompensationLimit	Low	Low	0
CompensationLimit	Medium	Medium	0

3. Navigate the screen until the desired alert (listed in the **Alert** column) is visible, scrolling up or down if needed.

The event's default priority level in the platform (which is the same as its severity level as defined on the device) appears in the **Default Severity** column. (If the event's priority level is already set to be different in the platform, the row for the event will be shaded in a different color.)

4. **Configured Priority**—If this event should have a different priority than the default, click on the drop-down box to select a priority level for this event.
5. **Rank**—If this event should be ranked higher or lower relative to other events of the same priority, enter a numeric ranking, or hover over the right side of the field and click the up or down icons to increase or decrease the current rank number. Enter a larger rank number for a more important event; enter a smaller number for a less important event.
6. If needing to edit priority or rank for another alert, repeat steps 3–5.
7. Upon saving, a dialog will appear describing the risk inherent in adjusting alert priorities. Click **Yes** to confirm the edit and return to the Manage Alerts screen, or click **No** to remain in the current screen.

Events with a larger rank number relative to other events of the same priority will appear in the platform before those other events, essentially as if they have a higher priority. In locations where only a single event can be shown, the event with the highest priority and the highest numerical ranking will appear.

If a specific event of a particular priority level on a device should always appear first in the platform, make sure to enter a larger rank number for it in this screen than for any other event of that priority level on that device.

5.12 Manage Parameters

Users can add their own parameters to supplement those already present in the platform using the Manage Parameters screen.

To access, click **Manage Parameters** in the Parameters and Algorithms dashboard tile.

Figure 5-46. Manage Parameters Screen

Parameter Unique ID	Name	Description	Units of Measurement	Has UI Definition	Is System Parameter
Activity	Activity	Activity		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Export
ApneaConfidence	Apnea Confidence	Apnea Confidence	pcnt	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Export
ArterialBloodGasConfidence	Arterial Blood Gas Confidence	Arterial Blood Gas Confidence	pcnt	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Export
ArterialBloodGasSampleNumber	Sample Number	Sample Number		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Export
AsymmetricBispectralIndex	ASYM	Asymmetry	pcnt	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Export
BaselineDelta	% Change from Baseline	Percentage change from baseline value		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Export
Basophils	Basophils	Basophils	ten_pwr_nine_per_L	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Export
BIS	BIS	BIS		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Export
BispectralIndexConfidence	SQI	Signal Quality Index	pcnt	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Export
BispectralIndexImpedance1	IMPED1	Combined Impedance 1	kOhm	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Export
BispectralIndexImpedance2	IMPED2	Combined Impedance 2	kOhm	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Export
BloodPressureConfidence	Confidence	Confidence	pcnt	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Export

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5.12.1 Availability by User Role

The Manage Parameters and Upload Parameter Definitions screens, and all associated functions, are available to administrators and clinical administrators.

5.12.2 Parameter Information

- **Parameter Unique ID**—The parameter's identifier in the platform
- **Name**—The parameter name
- **Description**—A brief description of the parameter
- **Units of Measurement**—The measurement unit in which this parameter is expressed
- **Has UI Definition**—If checked, this parameter is defined in the user interface
- **Is System Parameter**—If checked, this is a system parameter

The list is sorted alphanumerically by unique identifier.

5.12.3 Add a Parameter

To add a parameter:

1. In the Manage Parameters screen, click **Add Parameter** to access the Upload Parameter Definitions screen.

Figure 5-47. Upload Parameter Definitions Screen



2. Click the **Choose File** button to access a dialog for selecting the parameter file.
3. Navigate to the directory containing the desired file or files.
4. Select the file or files to upload.
5. Click the **Upload** button to add the parameter or parameters to the platform.

Upon returning to the Manage Parameters screen, any newly added parameter will appear in the list.

5.12.4 Export a Parameter

If desired, parameters can be exported to a file.

To export a parameter:

1. Navigate in the Manage Parameters screen until the desired parameter is visible.
2. Click the **Export** link for the desired parameter to export the parameter as an XML file.

The exported file will be saved to the default download directory for the Web browser used to access the platform.

For more information on this function, consult with Medtronic Professional Services.

5.13 Manage Algorithms

Users can add, activate, and deactivate algorithms (also referred to as derived parameter algorithms, or DPA) to aid in monitoring of patient conditions in the Manage Algorithms screen.

To access, click **Manage Algorithms** in the Parameters and Algorithms dashboard tile.

Figure 5-48. Manage Algorithms Screen

Name	Upload Date	Activation
MEWS v1.0.0	11/29/2016	Deactivate Export
NEWS v1.0.0	11/29/2016	Deactivate Delete Export
SEWS v1.0.0	11/29/2016	Deactivate Delete Export
WEWS v1.0.0	11/29/2016	Deactivate Delete Export
SBT v1.0.0	11/29/2016	Deactivate Delete Export
Weaning Readiness v1.0.0	11/29/2016	Deactivate Delete Export

5.13.1 Availability by User Role

The Manage Algorithms and Upload Algorithms screens, and all associated functions, are available to administrators and clinical administrators.

5.13.2 Algorithm Information

- **Name**—The algorithm name
- **Upload Date**—The date and time the algorithm was uploaded to the platform
- **Activation**—If the algorithm has not been activated for use in the platform, a link for activation will appear here (if the algorithm has been activated, a link for deactivation will appear instead)

The list is sorted alphanumerically by algorithm name.

5.13.3 Add an Algorithm



WARNING:

Medtronic does not assume any responsibility for accuracy, reliability, or clinical relevance of user-designed derived parameter algorithms.

To add an algorithm:

1. In the Manage Algorithms screen, click **Add Algorithm** to access the Add Algorithm screen.

Figure 5-49. Add Algorithm Screen



2. Click the **Choose File** button to access a dialog for selecting the algorithm file.
3. Navigate to the directory containing the desired file or files.
4. Select the file or files to upload.
5. Click the **Upload** button to add the algorithm or algorithms to the platform.

Upon returning to the Manage Algorithms screen, any newly added algorithm will appear in the list.

5.13.4 Activate or Deactivate an Algorithm

An algorithm must be activated to be available for use with patients.

To activate an algorithm:

1. In the Manage Algorithms screen, find the algorithm to be activated.
2. Click the **Activate** link. This algorithm will now appear in the list of algorithms shown in the **Device ID** field when linking an algorithm to a patient in the Admit Patient screen. See [Link a Patient and a Device](#) on page 4-35.

If an algorithm should not be available for use with patients, it must be deactivated.

To deactivate an algorithm:

1. In the Manage Algorithms screen, find the algorithm to be deactivated.
2. Click the **Deactivate** link. This algorithm will no longer appear in the list of algorithms shown in the **Device ID** field when linking an algorithm to a patient in the Admit Patient screen. See [Link a Patient and a Device](#) on page 4-35.

5.13.5 Algorithm Use and Behavior

Once any algorithm is activated, users may link it to a patient as if it were a device (see [Link a Patient and a Device](#) on page 4-35). Detailed information (and possibly fields for manual data entry) will appear in the Device Detail screen for any algorithm linked to a patient.

If, according to the criteria set up in the algorithm, the patient has entered an alarm state, visible and audible alarm indicators will appear in the platform, just as for any device with an active alarm (see

Chapter 8 for details). If the algorithm is designed to notify users when particular conditions or combinations of measured or manually entered parameter data exist, visible notification indicators will appear (see Chapter 9 for details).

For more information, consult with Medtronic Professional Services.

5.14 System Status and Utilization Reports

Administrators and clinical administrators may run reports showing system events and performance. Administrators may also run reports showing how the platform is being used.

Other reports may also be available, depending on the platform software release and on platform-related applications installed.

To access the reporting module:

1. If needed, click the **Home** link below the logo in the upper left corner of the Administrator home screen.
2. Click the **Reports** link on the System tile.

For details on running administrative reports, reference Chapter 7.



Note:

Administrative utilization reports only describe which users are using the platform and at what times. Reports showing utilization data for devices or by device category must be run by a supervisory user. See [Supervisory Reports](#) on page 6-29.

5.15 Help

If needed, administrators and clinical administrators can access the most recent applicable release of this manual from within the platform, and view it in the same browser in which they view the Vital Sync™ software.

In any administrative screen, click the **Help** link to open the manual (as a Portable Document Format (PDF) file) in a new browser tab.

5.16 Version Information

If needed, administrators and clinical administrators can access version information for the current installation of the platform, as well as any platform-related applications that are also installed.

In any administrative screen, click the **About** link to access the version information dialog.

Figure 5-50. Version Information ("About") Dialog



INF_10397_C

This dialog shows the software's version number, build number, build date, Unique Device Identifier (UDI), and licensed features, as well as release information for any platform-related applications that are also installed. If problems arise with any of these programs, provide this information to support personnel to aid in troubleshooting.

Scroll down in the dialog if needed to see more information. To dismiss the dialog, click on the **X** at upper right.

5.17 Platform Logout

To log out of the platform, simply click on the **Log Out** link in the upper right corner of any of the administrative screens.

After logout is complete, the login screen will appear.



Note:

To maintain password integrity when using a shared computer, when done using the platform, make sure to log out. Closing the Web browser does not log out the current user.

6 Reports

6.1 Overview

This chapter describes the reporting functions available for users of the Vital Sync™ virtual patient monitoring platform and informatics manager software.



Note:

Report screens included in this chapter are representative and only show the first page of the report. Actual reports will vary according to the user's role in the platform, reports installed, and the choices selected for the report output. Also, the format in which dates appear in report output may differ by software localization.



Note:

The terms “device category” (as used in the software user interface and in this section) and “device type” (as used elsewhere in this manual) are interchangeable except where noted.

6.2 Access

Reports are accessible from multiple locations in the software. Available reports depend on the user's role, and also on platform-related applications installed (if any).

To access utilization reports as an administrator:

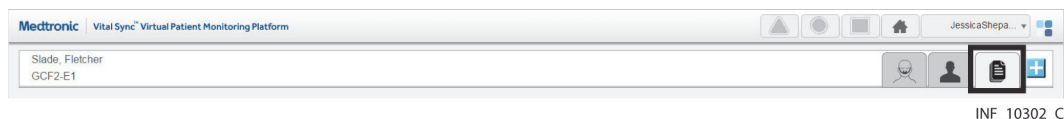
1. Click the **Home** link in any screen to navigate to the Administrator home screen, if not in that screen already.
2. Click the **Reports** link in the System tile.

To access system status reports as an administrator or clinical administrator:

1. Click the **Home** link in any screen to navigate to the Administrator home screen, if not in that screen already.
2. Click the **Reports** link in the System tile.

To access reports as a clinician or supervisor from the Device Detail screen, click on the Patient Reports tab on the far right side of the patient header. (Available reports depend on the platform software release and on platform-related applications installed.)

Figure 6-1. Patient Report Options Tab in Device Detail screen



Note:

When accessing reports from the Device Detail screen, the patient header for the currently selected patient remains visible, and tabs for linked devices remain immediately accessible.

The report will show data for the currently selected patient by default.

To access reports as a clinician, supervisor, or link manager from any other screen:

1. Click the user function button on the navigation bar to access the function menu.
2. Select **Reports**.

6.3 Report Functions

Users access reports and use all reporting functions from the Reports screen.

6.3.1 Reports Screen

When first accessing the Reports screen, a drop-down menu for accessing all reports available to the current user appears near the upper left corner of the screen. This menu remains available at all times while in the Reports screen.

Upon selecting a report, controls for data viewing and selection, printing, saving, and exporting appear at the top of the screen. Fields showing current output settings for the selected report appear on the left side of the screen, just below the report selection drop-down menu.

Report output appears in a viewing frame to the right of these fields. Each page of the report includes a header showing the report title, facility name, and report settings selected, and a footer showing page numbers and the date and time of the report.

Figure 6-2. Reports Screen (including example report selection buttons and report output)

- | | | | |
|---|---------------------------------|---|--|
| 1 | Report viewing frame | 6 | Page navigation function buttons and field |
| 2 | Run Report button | 7 | Export drop-down menu |
| 3 | Report parameter panel | 8 | Print button |
| 4 | Report selection drop-down menu | 9 | Zoom function buttons |
| 5 | Refresh button | | |

**Note:**

Installed platform-related applications may include reports. If available to the current user, those reports will appear in the drop-down menu, along with the platform's standard reports.

6.3.2 Select Report Output

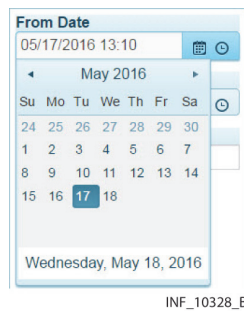
Each report has parameter settings to determine report output. These typically include the time-frame for the report; other options available vary by report.

Users can run reports using the default parameters, or can select different settings if desired, using the fields in the parameter panel to the right of the viewing frame.

To select the report timeframe and output settings:

1. To select a different start date than the default, click on the calendar icon to the right of the **From Date** field to open the calendar drop-down window.

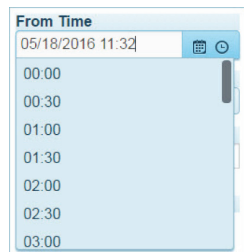
Figure 6-3. Calendar Drop-Down Window



INF_10328_B

2. Select the start date by doing any of the following:
 - The current date appears at the bottom of the window; click on it to select it as the start date.
 - To select a different date in the same month as the default date, click on the desired date in the calendar view. (The calendar shows all dates in the month up to the current date.)
 - To navigate to a different month, use the arrow icons at the top of the window, or click on the month at the top of the window to show a list of months in the current year, then select the desired month. Once the desired month is shown in the calendar view, click on the desired date.
3. To select a different start time than the default start time, click on the clock icon to the right of the **From Date** field to open the time drop-down window.

Figure 6-4. Time Drop-Down Window



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4. If needed, scroll in the window until the desired time is shown, then click on it to select it.



Note:

Start times available for selection (other than the current time) are on the hour and half-hour.

5. To select a different end date than the default, click on the calendar icon to the right of the **To Date** field to open the calendar drop-down window, then follow the instructions in step 2 of this procedure. (The current date will be highlighted.)
6. To select a different end time than the default, click on the clock icon to the right of the **To Date** field to open the time drop-down window, then follow the instructions in steps 3 and 4 of this procedure. (The current time will be highlighted.)



Note:

End times available for selection (other than the current time) are on the hour and half-hour.

7. If other output setting fields are available for the report being created, make entries in those fields as desired. Refer to the individual report descriptions in this chapter for details on field entry.
8. Click **Preview** to create the report and view report output.

**Note:**

To enter a date or time directly into the **From Date** or **To Date** fields, click and drag over the date or time to highlight it, then enter the new date or time. (Triple-click in the field to select both the date and time.)

When entering a new date, use the same date format as the default date. When entering a new time, use HH:MM format and a 24-hour clock.

**Note:**

If selecting a new date in the **From Date** or **To Date** fields using the calendar drop-down window, the time will remain unchanged from the value currently in the field. If a different time is required after selecting a new date, use the time drop-down window to change the time value as needed.

6.3.3 Navigate Reports

For reports with multiple pages, the current page number and the total number of pages in the report appear in the middle of the page selection function area of the report controls (appearing as {x} / {y}, with {x} in an editable page number field).

Users can navigate within the report currently shown, as follows:

- To go to a specific page in the current report, enter a page number in the editable page number field. The selected page will appear in the viewing frame.
- Click the **Previous Page** button to go back one page from the page currently shown.
- Click the **Next Page** button to go forward one page from the page currently shown.
- Click the **First Page** button to go to the first page of the current report.
- Click the **Last Page** button to go to the last page of the current report.

**Note:**

Depending on system configuration, users may also be able to use the arrow keys on the keyboard to scroll up and down in the viewing frame, and may also be able to use the **Home** and **End** keys on the keyboard to go to the start and end (respectively) of the report.

6.3.4 Additional Report View Functions

Refresh

To refresh the current report view, click the **Refresh** button.

Magnification (Zoom)

Magnification functions include the following:

- Click the **Zoom In** button to magnify the area of the report currently appearing in the report output frame.
- Click the **Zoom Out** button to reduce magnification of the area of the report currently appearing.
- Click the **Toggle Full Page/Page Width** button to fit the entire page into the report output frame. Click the button again to fit the width of the page to the width of the frame. Click the button again to return to the original size shown.

If the zoom level selected does not allow the entire width or height of a page to appear in the report frame, scroll bars will appear in the frame (independent of those that may be present in the browser window). Use these to move the view in the frame as needed.

6.3.5 Report Data Functions

To export report data:

1. With the desired report shown, click the **Export** drop-down menu to show options for export format.
2. Select the desired file format. The platform will export the report data into the selected format, and will save the resulting file to the default download location on the user's PC or mobile device.

To save an exported report file:

1. Access recent downloads in the Web browser used to view the platform, or access the default download directory in the file system.
2. Find the desired exported report.
3. Open the report file in its native application and save it to the desired directory, or copy the file from the download directory into the desired directory using the file system.

6.3.6 Print a Report

To print report data:

1. With the desired report shown, click the **Print** button.
2. Select an available printer in the Print dialog box and click **OK**.



Note:

Printing functions may require additional setup, depending on the configuration of the system from which the user is accessing the platform. Consult with Medtronic Professional Services or with facility IS personnel for further assistance, if needed.

6.4 Administrative Reports

Standard reports that administrators may run include system status and utilization reports, which provide data on overall system functioning and connectivity, alarm configuration in the platform, and usage. Clinical administrators may also run certain system status reports.

Reporting functions are available from the Reports screens. See [Access](#) on page 6-1.



Note:

Platform performance and system health should be consistently monitored to allow timely detection and resolution of any problems, especially with communication of alarm messages. Periodically run the system status reports to assist in this ongoing monitoring.



Note:

Administrative utilization reports only describe which users are using the platform and at what times. Reports showing utilization data for devices or by device category must be run by a supervisory user. See [Supervisory Reports](#) on page 6-29.

6.4.1 Alarm Normalization Report

This report (available to administrators and clinical administrators) shows current alarm normalization and rank settings in the platform. (For details on alarm normalization functions, see [Manage Alerts](#) on page 5-42.)

Figure 6-5. Alarm Normalization Report

Alarm Normalization Report				
Hospital Id : 6135 Gunbarrel Ave, Boulder, CO				
Device Type	Alarm Type	Default Severity	Normalized Severity	Alarm Rank
BISVista	BISHighViolation	Low	Low	0
BISVista	BISLowViolation	Low	Low	0
BISVista	BISxInitError	High	High	0
BISVista	DataUnavailablePoorSignal	Info	Info	0
BISVista	DscSelfTestError	Low	Low	0
BISVista	DSCSelfTestTimeout	Low	Low	0
BISVista	ExcessiveArtifactDetected	Info	Info	0
BISVista	IsoelectricEEGDetected	Info	Info	0
BISVista	LowBattery	Info	Info	0
BISVista	NoData	Medium	Medium	0
BISVista	NoMoreCableUses	Medium	Medium	0
BISVista	NoMoreSensorUses	Medium	Medium	0
BISVista	OperatingOnBattery	Info	Info	0
BISVista	PossiblePicProblem	Medium	Medium	0
BISVista	PossiblePicProblemCheck	High	High	0
BISVista	ReplaceWithCompatibleSensor	Medium	Medium	0

INF_10329_A

Default Output

The default report lists all alarms currently supported in the platform, and is sorted alphabetically by device type, showing each alarm's priority, normalization, and rank data.

Report Parameter Settings

No parameter settings are available for this report. Only the default output is available.

Report Data

- **Device Type**—The device type as defined in the platform
- **Alarm Type**—The alarm, as defined in the platform
- **Default Severity**—The alarm severity (priority) level defined on the actual device
- **Normalized Severity**—The alarm severity (priority) level, as set in the platform
- **Alarm Rank**—The ranking for this alarm relative to other alarms of the same priority level, as set in the platform (higher numbers indicate greater importance)

6.4.2 Alarm Rule Set Report

This report (available to administrators and clinical administrators) shows alarm rule settings for the selected area and rule set. (For more details on alarm and notification rule functions, see [Manage Alarm, Notification, and Setting Rules](#) on page 5-31.)

Figure 6-6. Alarm Rule Set Report

Alarm Rule Set Report						
Hospital Id : 6135 Gunbarrel Ave, Boulder, CO 80301						
Area Of Care: Integrated Delivery Network, Rule Set: Default						
Rule Set Name		Default				
Rule Set Unique ID		A843AADC-843C-4695-AAC4-132871825421				
Description		Default				
Device Category	Severity	Alarm Name	Alarm Description	System Delay	Page Delay	Secondary Page Delay
BIS Monitor	High			No Delay	No Delay	No Delay
	Info			No Delay	No Delay	No Delay
	Low			No Delay	No Delay	No Delay
	Medium			No Delay	No Delay	No Delay
	Favorable			No Delay	No Delay	No Delay

INF_10330_B

Default Output

This report has no default parameter selections. Once run, the report is sorted alphabetically by device category.

Report Parameter Settings

- **Area of Care**—Select the desired area in this drop-down box.
- **Rule Set**—Select the desired rule set in this drop-down box.

Report Data

The report header shows the selections made in the parameter fields, and also shows the name, unique system ID, and description for the rule set selected.

The body of the report shows rule information both for alarm priority levels generally applicable to a device category and for specific device alarms within that category. This includes the following:

- **Device Category**—The device category for the alarm
- **Severity**—The alarm severity (priority); rows appear for rule settings generally applicable to alarms of each severity level (High, Info (informational), Low, Medium, and Reset) for this device category, and also for any specific device alarm in this device category that has its own rule settings
- **Alarm Name**—For a specific device alarm with its own rule setting, the name of the specific alarm
- **Alarm Description**—For a specific device alarm with its own rule setting, the description of the alarm
- **System Delay**—The delay (if any) before alarms of this severity annunciate in the platform, or before the specific alarm listed annunciates in the platform
- **Page Delay**—The delay (if any) before alarms of this severity triggers email or SMS message notification to the user with primary responsibility for the patient, or before the specific alarm listed triggers a notification
- **Secondary Page Delay**—The delay (if any) before alarms of this severity triggers email or SMS message notification to the user with secondary responsibility for the patient, or before the specific alarm listed triggers a notification

6.4.3 Application Event Log

This report (available to administrators and clinical administrators) shows events occurring on platform startup for a selected timeframe. This can help facilitate analysis of the startup process for a device by listing trace data for platform-level and task-level events, as well as for errors.

Figure 6-7. Application Event Log

Application Event Log

Hospital Id : 6135 Gunbarrel Ave, Boulder, CO 80301
From: 11/2/2018 21:28:00 To: 11/3/2018 21:28:07

Start Time	Event Code	Description	Category	Status
11/3/2018 11:54:55	50006	Successfully open session to database	ApplicationTrace	Info
11/3/2018 11:54:55	74000	Completed loading page /InformaticaWeb/Accounts/Login	ApplicationTrace	Info
11/3/2018 11:55:05	74000	Completed loading page /InformaticaWeb/Accounts/Login	ApplicationTrace	Info
11/3/2018 11:55:05	70043	Alex Whitehall - Log In	ApplicationTrace	Info
11/3/2018 11:55:05	74000	Completed loading page /InformaticaWeb/Admin/Home/Index/	ApplicationTrace	Info
11/3/2018 11:59:08	74000	Completed loading page /InformaticaWeb/Admin/Users/Index/	ApplicationTrace	Info
11/3/2018 11:59:10	74000	Completed loading page /InformaticaWeb/Admin/Users/Create/	ApplicationTrace	Info
11/3/2018 12:16:19	70044	Alex Whitehall - Log Out	ApplicationTrace	Info
11/3/2018 12:16:19	74000	Completed loading page /InformaticaWeb/Accounts/LogOff	ApplicationTrace	Info
11/3/2018 12:16:20	74000	Completed loading page /InformaticaWeb/Accounts/Login	ApplicationTrace	Info
11/3/2018 12:16:34	74000	Completed loading page /InformaticaWeb/Accounts/Login	ApplicationTrace	Info
11/3/2018 12:16:34	70043	Alex Whitehall - Log In	ApplicationTrace	Info
11/3/2018 12:16:34	74000	Completed loading page /InformaticaWeb/	ApplicationTrace	Info
11/3/2018 12:16:34	74000	Completed loading page /InformaticaWeb/Admin/Home/Index	ApplicationTrace	Info
11/3/2018 12:16:37	74000	Completed loading page /InformaticaWeb/Admin/Zone/Index/	ApplicationTrace	Info
11/3/2018 12:16:44	74000	Completed loading page /InformaticaWeb/Admin/Zone/Edit/	ApplicationTrace	Info
11/3/2018 12:16:51	74000	Completed loading page /InformaticaWeb/Admin/Zone/Index/	ApplicationTrace	Info
11/3/2018 12:16:53	74000	Completed loading page /InformaticaWeb/Admin/Zone/Create/	ApplicationTrace	Info
11/3/2018 12:36:54	70044	Alex Whitehall - Log Out	ApplicationTrace	Info
11/3/2018 12:36:54	74000	Completed loading page /InformaticaWeb/Accounts/LogOff	ApplicationTrace	Info
11/3/2018 12:36:54	74000	Completed loading page /InformaticaWeb/Accounts/Login	ApplicationTrace	Info
11/3/2018 13:36:28	50006	Successfully open session to database	ApplicationTrace	Info

INF_10135_E

Default Output

The default report shows data from the last 2 hours, with earliest events shown first.

Report Parameter Settings

Only report timeframe settings are available for this report.

Report Data

- **Start Time**—The time the event began
- **Event Code**—The platform-assigned event code
- **Description**—A brief description of the event
- **Category**—The platform-assigned event category
- **Status**—The platform-assigned event criticality



Note:

The amount of event log data that can be stored depends on the storage space available for report data. If the amount of event log data exceeds the available storage space, event logging will fail. Consult with Medtronic Professional Services or with facility IT personnel for information or assistance.

6.4.4 Connectivity Details

This report (only available to administrators) shows information about device monitoring sessions for a selected timeframe. This can be used in conjunction with the Connectivity Summary Report (and, if needed, the Application Event Log) to troubleshoot problems with device connections.

Figure 6-8. Connectivity Details Report

Connectivity Details

Hospital ID : 6135 Gunbarrel Ave, Boulder, CO 80301
From: 10/21/2018 13:46:41 To: 10/22/2018 13:46:41
Protocol: - All Protocols - | Area: - All Areas -

Device Monitoring Session ID	Room #	Serial #	Start Monitoring	End Monitoring	Total Patient Device Time	Connection Status	Connection Start	Status Updated	Disconnected Time (sec)	Connected Time (sec)	Protocol	Port Name	Port	Shutdown Reason
1	Bed1	8300513222	10/22/2018 12:13:00	10/22/2018 12:42:50	1750	Disconnected	10/22/2018 12:12:57	10/22/2018 12:42:43	0	1750	Capnostream	127.0.0.1:40405	3021	I/O Socket Error
2	Bed1	8200101400	10/22/2018 12:14:00	10/22/2018 12:16:20	131	Disconnected	10/22/2018 12:14:00	10/22/2018 12:16:16	0	130	Capnostream	127.0.0.1:40408	3021	User Requested
3	Bed1	840 0714074055	10/22/2018 12:16:01	Active Session	5440	Communicating	10/22/2018 12:16:54	10/22/2018 13:46:29	0	5435	PuritanBennettCO2	127.0.0.1:40416	3001	Active
4		0714222827522187	10/22/2018 12:16:32	10/22/2018 12:16:58	26	Disconnected	10/22/2018 12:16:32	10/22/2018 12:16:52	0	20	HelicoRacal	127.0.0.1:40422	3010	Protocol Timeout
16	Bed1	88870103560750	10/22/2018 10:55:5618	10/22/2018 10:55:5618	0	Disconnected	10/22/2018 10:55:5618	10/22/2018 10:55:5618	18	0	Capnostream	127.0.0.1:40425	3001	User Requested

INF_10356_B

Default Output

The default report shows data from the last 24 hours, and is sorted by monitoring session identification number.

Report Parameter Settings

- **Protocol**—Select the desired device communication protocol in this drop-down box. To show data for all protocols, select **All Protocols**.
- **Area**—Select the desired area of care in this drop-down box. To show data for all areas, select **All Areas**.

Report Data

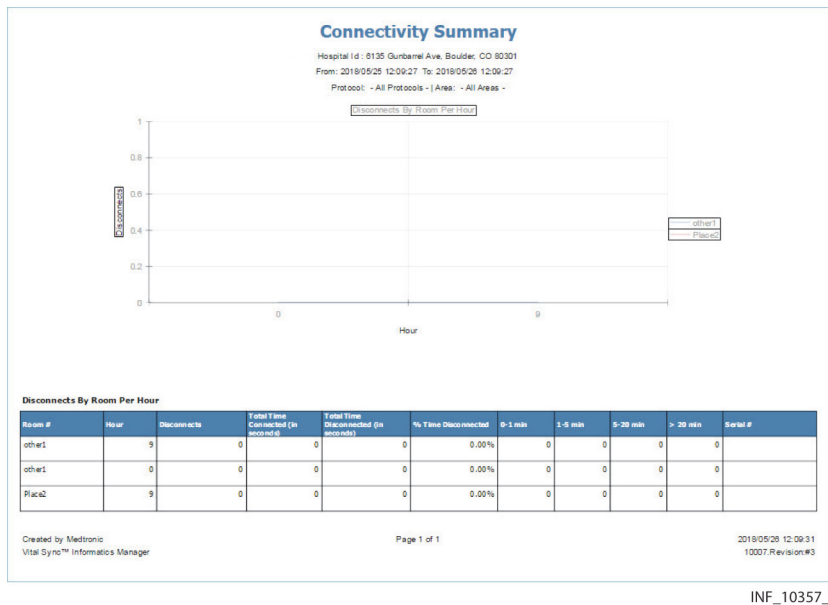
- **Device Monitoring Session ID**—The identification number for the monitoring session
- **Room #**—The number of the room where the device is located
- **Serial #**—The device's serial number
- **Start Monitoring**—The time the monitoring session started
- **End Monitoring**—The time the monitoring session ended
- **Total Patient Device Time**—The total amount of time the patient spent on the device
- **Connection Status**—The current status of the device connection
- **Connection Start**—The time the device connected to and began communicating with the platform
- **Connection End**—The time the device disconnected from the platform
- **Disconnected Time**—The total amount of time the device was disconnected from the platform
- **Connected Time**—The total amount of time the device was connected to the platform

- **Protocol**—The communication protocol the device uses
- **Port Name**—The name of the port to which the device connected
- **Port**—The number of the port to which the device connected
- **Shutdown Reason**—The reason for any shutdown in communication (if the device is currently connected and communicating, the word “Active” will appear in this field)

6.4.5 Connectivity Summary

This report (only available to administrators) shows more detailed information about device monitoring session disconnections than is available in the Connectivity Details report.

Figure 6-9. Connectivity Summary Report



Default Output

The default report shows data from the last 24 hours, and is sorted by room number. For rooms with more than one device with disconnections, devices are sorted by serial number.

Report Parameter Settings

- **Protocol**—Select the desired device communication protocol in this drop-down box. To show data for all protocols, select **All Protocols**.
- **Area**—Select the desired area of care in this drop-down box. To show data for all areas, select **All Areas**.
- **Disconnects Per Minute**—Select the desired number of device disconnections per minute in this drop-down box, or select **All Disconnects**. (Selecting a number will limit the report to only the devices with at least the selected number of disconnections per minute.)

Report Data

The report has both a chart and a table.

The chart shows the following information:

- **Hour**—The chart's horizontal axis is divided into segments for each hour of the day where there were device disconnections. The zero column indicates 12:00 AM.
- **Disconnects**—The chart's vertical axis indicates the average number of device disconnections during each 1-hour period.

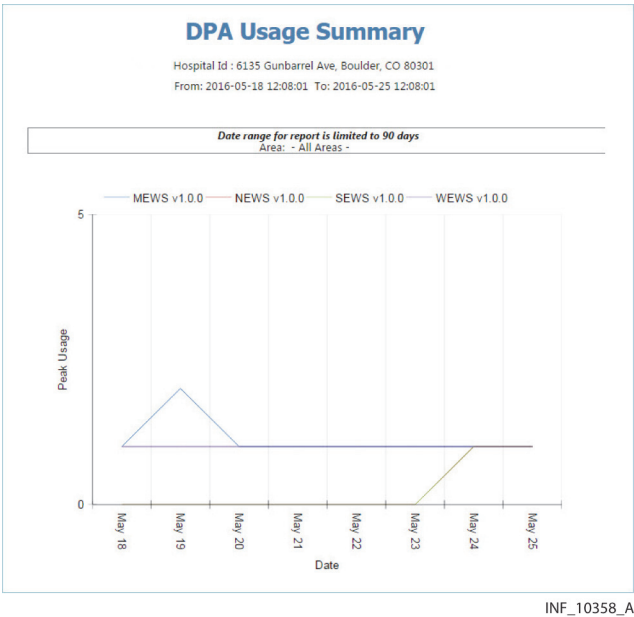
The table shows the following information for each device with one or more disconnections:

- **Room #**—The number of the room where the disconnected device is located
- **Hour**—The hour of the day when the disconnection or disconnections occurred
- **Disconnects**—The number of disconnections during this hour
- **Total Time Connected**—The total amount of time the device was connected to the platform
- **Total Time Disconnected**—The total amount of time the device was disconnected from the platform
- **% Time Disconnected**—The percentage of time the device was disconnected from the platform during this hour
- **0–1 Min**—The number of disconnections lasting up to 1 minute
- **1–5 Min**—The number of disconnections lasting from 1 minute to up to 5 minutes
- **5–20 Min**—The number of disconnections lasting from 5 minutes to up to 20 minutes
- **>20 Min**—The number of disconnections lasting more than 20 minutes
- **Serial #**—The device serial number

6.4.6 DPA Usage Summary

This report (only available to administrators) shows summary usage statistics for derived parameter algorithms.

Figure 6-10. DPA Usage Summary Report



Default Output

The default report shows data for the last 8 days (including today), starting at the current time of day.

Report Parameter Settings

- **Area**—Select the desired area of care in this drop-down box, or select **All Areas**.

Report Data

- **Devices Connected Simultaneously**—The chart’s vertical axis indicates the peak number of algorithms of each type linked simultaneously in the platform.
- **Date**—The chart’s horizontal axis indicates the day.

Each different algorithm is represented on the graph by a line of a different color.

Subsequent pages of the report show the following information in chart form:

- **Date**—The day for which the peak usage data applies
- **Peak Usage**—The peak number of algorithms of this type linked in the platform on the indicated date

6.4.7 Historical Performance Log

This report (available to administrators and clinical administrators) shows historical trace data for service and thread events in the platform, in user-selectable intervals.

Figure 6-11. Historical Performance Log

Time	Event Code	Average Response Time (sec)	Description	Status
10/29/2015 12:40:00 AM	74000	0.003	Completed loading page /InformaticsWeb/	Info
10/29/2015 12:40:00 AM	74004	3.72	Completed loading page /InformaticsWeb/Admin/Home/Index	Info
10/29/2015 12:40:00 AM	74006	0.03	Completed loading page /InformaticsWeb/Admin/Reports/AvailableReports	Info
10/29/2015 12:40:00 AM	74015	0.253	Completed loading page /InformaticsWeb/Account/Login	Info
10/29/2015 1:00:00 AM	-1	0.726	Completed loading page /InformaticsWeb/Admin/Alarm/RuleSetCreate/	Info
10/29/2015 1:00:00 AM	-1	0.508	Completed loading page /InformaticsWeb/Admin/Alarm/RuleSetIndex/	Info
10/29/2015 1:00:00 AM	-1	0.081	Completed loading page /InformaticsWeb/Admin/Alarm/RuleSetSave/	Info
10/29/2015 1:00:00 AM	74000	0	Completed loading page /InformaticsWeb/	Info
10/29/2015 1:00:00 AM	74004	0.636	Completed loading page /InformaticsWeb/Admin/Home/Index	Info
10/29/2015 1:00:00 AM	74004	0.015	Completed loading page /InformaticsWeb/Admin/Home/Index/	Info
10/29/2015 1:00:00 AM	74009	0.02	Completed loading page /InformaticsWeb/Admin/Zone/Create/	Info

Default Output

The default report shows data from the previous 2 hours, with a time interval of 5 minutes; the earliest events are shown first.

Report Parameter Settings

In addition to report timeframe settings, users have the following option:

- **Time Interval**—To run the report using a different time interval, select the desired interval here. Available options are 5, 10, 15, 20, 25, and 30 minutes, as well as 1 hour and 2 hours.

Report Data

- **Time**—The time the event began
- **Event Code**—The platform-assigned event code
- **Average Response Time (sec)**—The average response time in seconds for an event (by event code) during the given five-minute time interval
- **Description**—The event type
- **Status**—The platform-assigned event status (typically reflecting the criticality of the event)



Note:

The amount of event log data that can be stored depends on the storage space available for report data. If the amount of event log data exceeds the available storage space, event logging will fail. Consult with Medtronic Professional Services or with facility IT personnel for information or assistance.



Note:

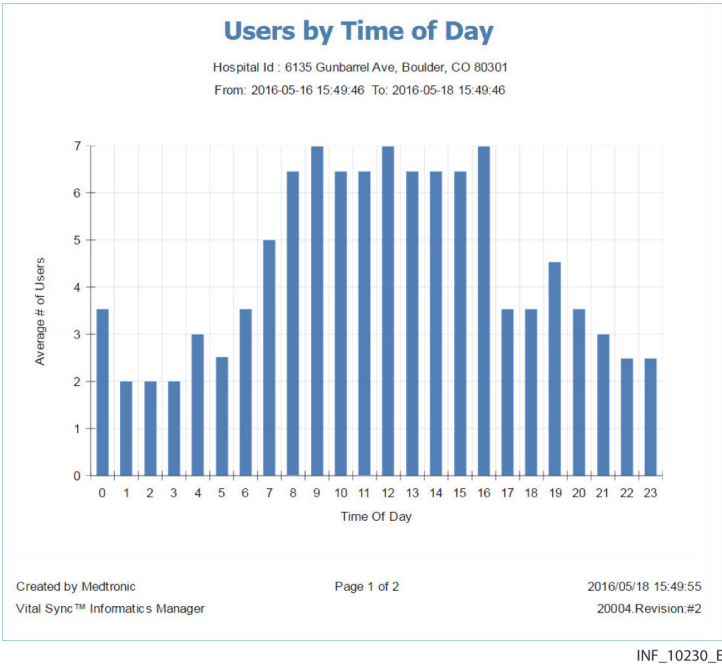
In the event of an intentional platform shutdown, the Historical Performance log will record the shutdown request. The operating system’s event logging will also record the stopping of platform-related services.

In the event of an unintentional loss of power to the system or systems on which the platform is installed, the Historical Performance log will not show the actual power loss event, but once power is restored, will show subsequent events after the platform is restarted. The operating system’s event logging will record the system restart. The Application Event log (see page 6-10) will show additional information about events occurring on platform startup.

6.4.8 Users by Time of Day

This report (available only to administrators) shows the average number of users logged into the platform by time of day within a selected timeframe.

Figure 6-12. Users by Time of Day Report



INF_10230_E

Default Output

The default report shows data from the last 31 days (including today).

Report Parameter Settings

Only report timeframe settings are available for this report.

Report Data

- **Time of Day**—The chart's horizontal axis is divided into 24 segments, one for each hour of the day. The zero column indicates 12:00 AM.
- **Average # of Users**—The chart's vertical axis indicates the average number of users logged into the platform during each 1-hour period.

To view the same data in a table, navigate past the first page of the report.

6.5 Clinician Reports

Clinicians may run “snapshot” reports capturing key settings, parameter data, events, and active alarms at particular times for types of devices linked to a specific patient, as well as a report providing more detailed respiratory data for a specific patient.

Reporting functions are available from the Device Detail or Reports screens. See [Access](#) on page 6-1.



Note:

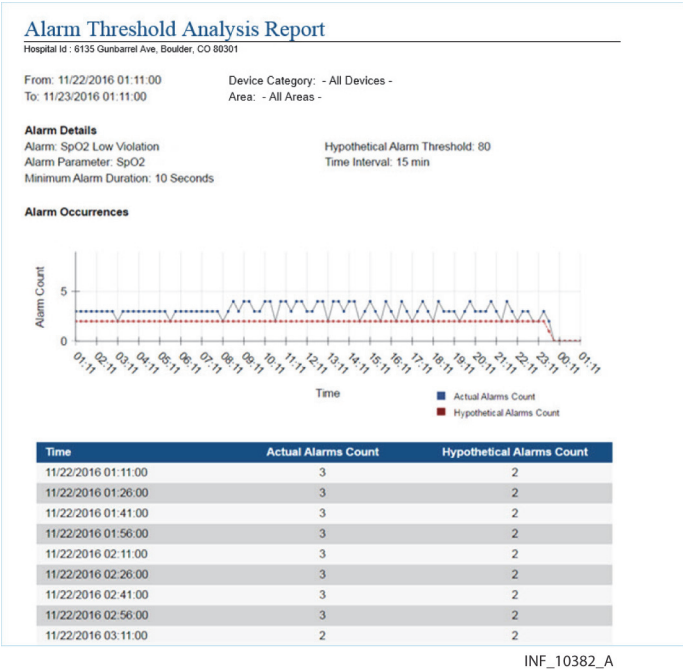
If platform-related applications are installed, reports for those applications may also be available. Refer to the user manual for the individual application for more information on accessing and running application-specific reports.

6.5.1 Alarm Threshold Analysis

This report shows the number of occurrences of the selected alarm (lasting at least a selected amount of time) in each user-selected period of time within the selected timeframe.

Users set a hypothetical alarm threshold (different from the actual threshold) to see how many alarms would have occurred if that threshold had been used instead. This information can be useful in analyzing the effectiveness of alarm thresholds, and in reducing nuisance alarms.

Figure 6-13. Alarm Threshold Analysis



Default Output

The default report shows a graph of the number of occurrences of the selected alarm in all areas of care per 15-minute interval over the last 24 hours. It also shows a graph of the estimated number of occurrences if the alarm threshold had been set to the selected hypothetical value. (To be included in the report, actual occurrences of the selected alarm have to have lasted at least 10 seconds.)

Report Parameter Settings

In addition to report timeframe settings, users have the following options:

- **Area**—To run the report for a single area, select the desired area here.
- **Device Category**—To run the report for a single device category, select the desired category here.
- **Alarm**—Select the desired alarm here.
- **Alarm Parameter**—If more than one parameter can trigger the alarm selected in the **Alarm** field, select the desired parameter here. (If only one parameter can trigger the alarm in question, it will be the only option available.)
- **Minimum Alarm Duration**—To use a different minimum alarm duration, enter the desired duration (in seconds) here.
- **Hypothetical Alarm Threshold**—Enter the desired hypothetical threshold here. It can be higher or lower than the actual threshold.

- **Minimum Alarm Duration**—To use a different minimum alarm duration, enter the desired duration (in seconds) here.
- **Time Interval**—To use a different time interval for the data points on the graph, select it here. Available options are 1 minute, 5 minutes, 15 minutes, or 30 minutes. (The hypothetical number of alarm instances is calculated using this value.)
- **Show Data Table**—To also show the data in the graph in table form, check this box.

Report Data

The report timeframe and selections appear at the top of the report.

The graph shows the following information:

- **Alarm Count**—The chart's vertical axis indicates the number of alarm occurrences, both actual and hypothetical.
- **Time**—The chart's horizontal axis indicates the time, with a gridline for each hour in the selected timeframe.

The actual and hypothetical alarm counts are represented by points and lines of different colors.

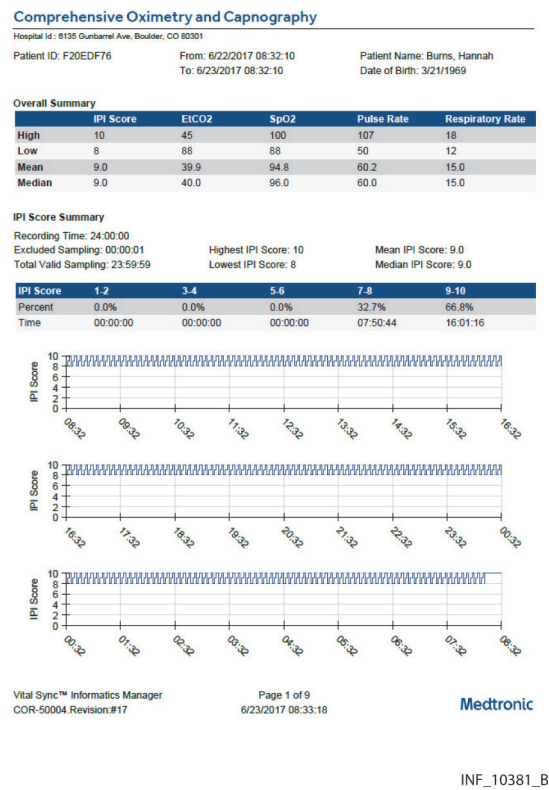
The data table (if created) shows the following information:

- **Time**—The start time for the time period (the first row of the table has the start time selected in the **From Date** field; subsequent rows have start times at the interval selected in the **Time Interval** field)
- **Actual Alarms Count**—The number of actual alarm occurrences during this time period
- **Hypothetical Alarm Count**—The estimated number of alarm occurrences during this time period if the hypothetical threshold had been in effect

6.5.2 Comprehensive Oximetry and Capnography

The report provides information on the overall respiratory health of a specific patient during a user-specified timeframe, based on data from oximetry and capnography devices.

Figure 6-14. Comprehensive Oximetry and Capnography Report (summary and some IPI data shown)



Default Output

For the selected patient, the default report shows data from 24 hours ago to the present time, with a desaturation event threshold of 89.

Report Parameter Settings

To specify the patient for whom to run the report, enter the desired patient ID number in the **Patient ID** field. (If accessing this report from the Device Detail screen for a patient, that patient’s ID number will automatically appear.)

- In addition to report timeframe and patient selection settings, users have the following options:
- **Desat Threshold**—Select a value to define the SpO₂ level below which a desaturation event is considered to have occurred. Available options are 84, 85, 86, 87, 88, 89, and 90.
 - **Desaturation Duration**—Enter a duration (in seconds) at or in excess of which a desaturation event is considered to have occurred.

- **Include**—The default report includes IPI score, EtCO₂, SpO₂, pulse rate, and respiratory rate data. Make selections as desired in the check boxes for these parameters to control the data appearing in the report.

Report Data

The patient ID and the start and end times for the report appear in a header at the top of the report. A detailed breakdown of respiratory health-related data for the patient appears below the header.



Note:

All data that can appear in this report is described in this section. Data included in report output will vary based on selections made in the **Include** check boxes.

- **Overall Summary**—A chart with the following information for the patient's measured Integrated Pulmonary Index (IPI), EtCO₂, SpO₂, pulse rate, and respiration rate:
 - **High**—The highest single value recorded for the parameter at any time in the report timeframe
 - **Low**—The lowest single value recorded for the parameter at any time in the report timeframe
 - **Mean**—The average value for the parameter over the entire report timeframe
 - **Median**—The median value for the parameter over the entire report timeframe
- **IPI Score Summary**—A chart with the following information for the patient's measured IPI values:
 - **Percent**—The portion of the report timeframe during which the IPI value was in the specified range
 - **Time**—The amount of time the IPI value was in the specified range (in hours, minutes, and seconds)
- **IPI Score trend**—A graph of IPI data over the report timeframe
- **EtCO₂ Summary**—A chart with several EtCO₂ ranges, with the patient's measured parameter data shown as follows:
 - **Percent**—The portion of the report timeframe during which the SpO₂ value was in the specified range
 - **Time**—The amount of time the SpO₂ value was in the specified range (in hours, minutes, and seconds)
- **EtCO₂ Summary (Cumulative Totals)**—A chart showing the same information as the previous chart, but for wider EtCO₂ ranges
- **EtCO₂ Summary trend**—A graph of EtCO₂ data over the report timeframe
- **Apneas per Hour**—A chart with several numeric ranges, with the patient's measured number of apnea events per hour shown as follows:
 - **Percent**—The portion of the report timeframe during which the number of apnea events per hour was in the specified range
 - **Time**—The amount of time the number of apnea events per hour was in the specified range (in hours, minutes, and seconds)

- **SpO₂ Summary**—A chart with several SpO₂ ranges, with the patient's measured parameter data shown as follows:
 - **Percent**—The portion of the report timeframe during which the SpO₂ value was in the specified range
 - **Time**—The amount of time the SpO₂ value was in the specified range (in hours, minutes, and seconds)
 - **Desats**—For the time that the patient's SpO₂ value was within the specified range, the number of distinct desaturation events that occurred, defined as any periods when the patient's SpO₂ value was below the **Desat Threshold** value set for the report (this will show as **N/A** for any range with values all greater than the **Desat Threshold** value)
- **SpO₂ Summary (Cumulative Totals)**—A chart showing the same information as the previous chart, but for wider SpO₂ ranges
- **Desaturation Event Summary**—A detailed narrative explanation of SpO₂ data for the specified timeframe, including start time and duration of the longest desaturation event, the number of events lasting longer than 3 minutes, the mean high and low SpO₂ values and mean event length for events lasting less than 3 minutes, and the number of events per hour
- **SpO₂ Trend Summary**—A graph of SpO₂ data over the report timeframe
- **Pulse Rate Summary**—A chart with the following information for the patient's measured pulse rate:
 - **Percent**—The portion of the report timeframe during which the pulse rate was in the specified range
 - **Time**—The amount of time the pulse rate was in the specified range (in hours, minutes, and seconds)
- **Pulse Rate trend**—A graph of pulse rate data over the report timeframe
- **Respiration Rate Summary**—A chart with the following information for the patient's measured respiration rate:
 - **Percent**—The portion of the report timeframe during which the respiration rate was in the specified range
 - **Time**—The amount of time the respiration rate was in the specified range (in hours, minutes, and seconds)
- **Respiration Rate trend**—A graph of respiration rate data over the report timeframe
- **Comparison Summary**—All trend graphs (IPI, ETCO₂, SpO₂, pulse rate, and respiration rate) over the same portion of the report timeframe, allowing for side-by-side comparison of parameters at a specific time point

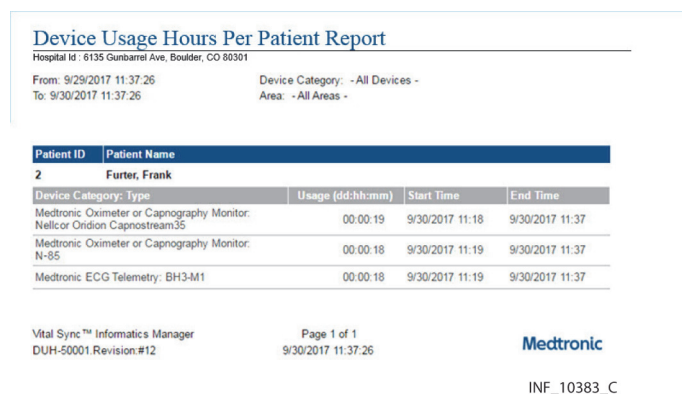
Each summary chart includes high, low, mean, and median values for the parameter in question, as well as information on any exclusions (data not taken into consideration due to excessive motion or sensor disconnection).

The format of all trend graphs is the same as that used in the graph shown in Figure [6-14](#).

6.5.3 Device Usage Hours Per Patient

This report shows the number of hours patients have been linked to devices in the platform, as well as the start and end times.

Figure 6-15. Device Usage Hours Per Patient



Default Output

The default report shows a table of usage data for devices in all device categories for the previous 24 hours.

If accessed via the Patient Reports tab in the Device Detail screen, data appears for that patient only. If accessed via the Reports button on the user function menu, data for all patients appears (one patient per page).

Report Parameter Settings

In addition to report timeframe settings, users have the following options:

- **Device Category**—To run the report for a single device category, select the desired category here. This option is not available if running the report for a single patient.
- **Area**—To run the report for a single area of care, select the desired area here. This option is not available if running the report for a single patient.
- **Patient ID**—To run the report for a specific patient, enter the desired patient ID number here.

Report Data

The report timeframe and selections appear at the top of the report.

The patient name and ID number appears at the top of each patient data table. The table shows the following information:

- **Device Category: Type**—The device category and specific device model
- **Usage**—The total monitoring time for the device for this patient during the selected timeframe (in days, hours, and minutes, formatted as dd:hh:mm)

- **Start Time**—The date and time monitoring began with this device
- **End Time**—The date and time monitoring ended with this device (if the device is still linked to the patient and monitoring, this field will be blank)



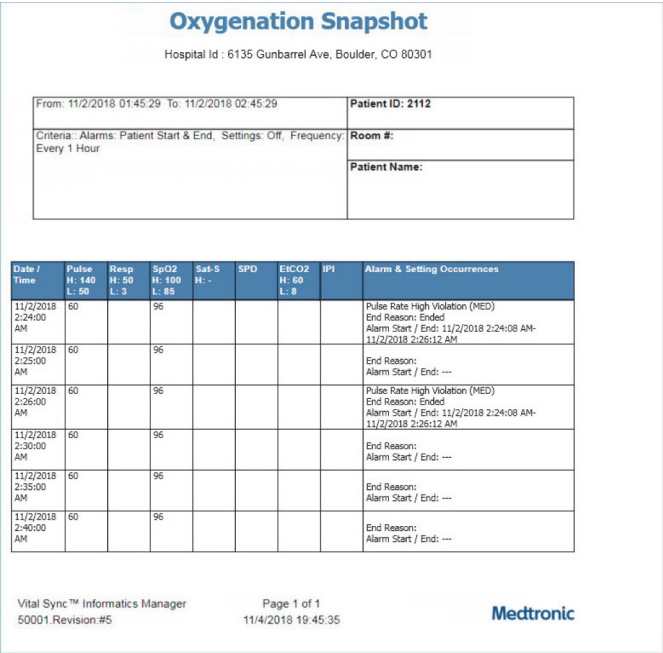
Note:
The entry in the **Start Time** field is when the device in question is connected to the platform, not when it is linked to the patient. The Usage field shows how long the device in question was linked to the patient.

6.5.4 Oxygenation Snapshot

This report shows key oxygenation monitoring settings, parameter data, alarms, and events during a selected timeframe.

The report captures data for a particular pulse oximeter or capnography monitor linked with a specific patient at user-specified intervals, and can also capture the same data at the time of alarms or other device events.

Figure 6-16. Oxygenation Snapshot Report



INF_10237_E

Default Output

For the selected patient, the default report shows hourly data from 2 hours ago to the present time, with additional entries in the list for patient alarms (including alarm type and start and end times).

Report Parameter Settings

To specify the patient for whom to run the report, enter the desired patient ID number in the **Patient ID** field.

In addition to report timeframe and patient selection settings, users have the following options:

- **Report at Setting Change**—To also show setting changes in the report, select **On** here.
- **Report at Alarm**—To show more or different types of alarms, select the desired option here. Available options include **None**, **Patient** (patient alarms only), **Device** (device alarms only), or **Patient & Device** (both alarm types).
- **Alarm Start / End**—To show only alarm start times, select **Start Only** here.
- **Reading Frequency**—To use a different interval for data snapshots, select the desired interval here. Available options are 1, 5, 10, 15, 20, or 30 minutes, or 1, 2, 4, 8, 12, or 24 hours.

Report Data

The timeframe, patient ID, and report criteria appear at the top of the report.

In addition, the following information appears for each timed data snapshot or event captured:

- **Date/Time**—The date and time
- **Resp**—The patient's respiration rate
- **SpO2**—The patient's blood oxygen saturation (SpO₂) reading
- **Sat-S**—The patient's SatSeconds figure, if available from the linked device
- **SPD**—The patient's saturation pattern detection (SPD) figure, if available from the linked device
- **EtCO2**—The patient's end tidal carbon dioxide (EtCO₂) reading, if available from the linked device
- **IPI**—The Integrated Pulmonary Index (IPI) figure, if available from the linked device
- **Alarm & Setting Occurrences**—If this report entry is for an alarm, data shown includes alarm severity, start and end time, and the reason for the alarm ending; if this report entry is for a setting change, data shown includes previous and new settings and the time of the setting change



Note:

Minimum and maximum settings for each parameter (if applicable, as set on the device) appear in the column headers on the report.

6.5.5 Reported Apneas Per Hour

This report aggregates reported apneas and oxygen desaturation index (ODI) values per hour for patients monitored with capnography devices during the selected timeframe.

The report also shows totals of the aggregated data for the entire timeframe selected.

Figure 6-17. Reported Apneas Per Hour (12-hour output shown)

Reported Apneas Per Hour													
Medtronic Test Hospital Id : 6135 Gunbarrel Ave, Boulder, CO 80301													
From: 8/26/2018 13:00:00 To: 8/27/2018 00:59:59 Area: Area-584430													
This report displays a patient's apneas per hour (A/Hr) and Oxygen Desaturation Index (ODI) as reported by a capnography monitor. (Please consult individual monitor user manuals for details on how apnea is defined.) The values in the table below indicate the total number of apneas reported for the hour in which they occurred. For example, a column labeled '10:00' would contain the total apneas reported between 10:00:00 and 10:59:59. A cell with a dash (-) indicates insufficient data to accurately determine apneas per hour.													
Patient Name: Tryniski, Savannah Patient ID: 8F1D6165 Room #: Bed-12966													
	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	Total
A/Hr	10	40	43	26	22	9	40	31	9	36	-	-	266
ODI	17	15	17	7	34	30	3	15	17	13	-	-	168
Patient Name: Rice, Jace Patient ID: F176971D Room #: Bed-13543													
	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	Total
A/Hr	33	5	38	44	32	6	41	7	38	14	-	-	258
ODI	8	32	11	11	2	10	31	29	25	20	-	-	179
Patient Name: Murray, Mateo Patient ID: 56B6A8C4 Room #: Bed-13774													
	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	Total
A/Hr				31	41	3	23	30	39	36	-	-	284
ODI				23	24	22	28	8	22	16	-	-	215
Patient Name: Webster, Sadie Patient ID: 19A53E2A Room #: Bed-14390													
	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	Total
A/Hr	6	24	43	3	9	5	4	10	8	25	-	-	137
ODI	18	28	34	12	8	5	23	17	7	27	-	-	179
Patient Name: Burns, Landon Patient ID: BB8CA28E Room #: Bed-14471													
	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	Total
A/Hr	32	37	20	26	33	19	8	35	3	22	-	-	235
ODI	18	11	5	29	29	32	18	31	24	10	-	-	207
<div> <div>A/Hr</div> <div>Reported Apneas Per Hour</div> <div>ODI</div> <div>Oxygen Desaturation Index</div> <div></div> <div>Patient Not Monitored</div> <div>-</div> <div>Insufficient Data</div> </div>													

INF_10512_A

Default Output

The default report shows hourly data from 12 hours ago to the present time for each patient monitored with a capnography monitor. Hours are shown using a 24-hour clock.

Report Parameter Settings

In addition to report timeframe settings, users have the following options:

- **Time Interval**—To run the report for a 24-hour period, select **24 Hours** here.
- **Area**—To run the report for a single area of care, select the desired area here.

Report Data

The report timeframe and selections appear at the top of the report.

The report has a data table for each monitored patient. The table header has columns for each hour in the report timeframe. The table rows show the following information:

- **A/Hr**—The number of apneas occurring during this hour
- **ODI**—The Oxygen Desaturation Index reported during this hour

The **Totals** column in the data table for each patient shows sums of the reported apneas and ODI values for the entire report timeframe.

For this report, each hour is considered to begin at zero minutes and zero seconds past the hour, and end at 59 minutes and 59 seconds past the hour. For example, the 10:00 hour starts at 10:00:00 and ends at 10:59:59.

If a patient is not monitored during a particular hour, the fields in the table for that hour will be empty and colored gray. If there is insufficient device data available during a particular hour due to device disconnection or other issues, a dash will appear in the fields for that hour.



Note:

The Reported Apneas per Hour report is dependent on data from the capnography devices associated with patients in the area or areas selected. The sums in the **Total** fields only include hours for which there is sufficient device data. The report does not interpolate or estimate totals to account for any hours where device data is insufficient, nor does it make any other calculation beyond summation of available device data.



Note:

The 24-hour report output has 25 columns in each patient data table (one for each hour, plus totals); it is otherwise identical to the 12-hour report output.

6.5.6 Ventilation Snapshot

This report shows key ventilation settings, parameter data, alarms, and events during the selected timeframe.

The report captures data for a particular ventilator linked with a specific patient at user-specified intervals, and can also capture the same data at the time of alarms or other device events.

Figure 6-18. Ventilation Snapshot Report

Ventilation Snapshot

Hospital Id : 6135 Gunbarrel Ave, Boulder, CO 80301

From: 10/24/2018 06:18:07 To: 10/24/2018 06:18:07	Patient ID: 2112
Criteria : Alarms: Patient Start & End, Settings: Off, Frequency: Every 1 Hour	Room #:
	Patient Name:

Date / Time	Ppeak L: 1 H: 100	Pmean L: 5 H: 100	fTot L: 5 H: 100	f:E L: 1 H: 100	Vt L: 50 H: 500	Vte	Alarm & Setting Occurrences
10/24/2018 06:18:07	20	11	10	1.00:1	1.27	127	
10/24/2018 07:18:07	20	11	10	1.00:1	1.27	127	
10/24/2018 08:18:07	20	11	10	1.00:1	1.27	127	

Vital Sync™ Informatics Manager
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Page 1 of 1
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Default Output

For the selected patient, the default report shows hourly data from 2 hours ago to the present time, with additional entries in the list for patient alarms (including alarm type and start and end times).

Report Parameter Settings

To specify the patient for whom to run the report, enter the desired patient ID number in the **Patient ID** field.

In addition to report timeframe and patient selection settings, users have the following options:

- **Report at Setting Change**—To also show setting changes in the report, select **On** here.
- **Report at Alarm**—To show more or different types of alarms, select the desired option here. Available options include **None**, **Patient** (patient alarms only), **Device** (device alarms only), or **Patient & Device** (both alarm types).
- **Alarm Start / End**—To show only alarm start times, select **Start Only** here.
- **Reading Frequency**—To use a different interval for data snapshots, select the desired interval here. Available options are 1, 5, 10, 15, 20, or 30 minutes, or 1, 2, 4, 8, 12, or 24 hours.

Report Data

The timeframe, patient ID, and report criteria appear at the top of the report.

In addition, the following information appears for each timed data snapshot or event captured:

- **Date/Time**—The date and time
- **Ppeak**—The peak inspiratory circuit pressure
- **Pmean**—The mean circuit pressure over the entire breath cycle
- **f Tot**—The respiratory rate as measured by the ventilator
- **I:E**—The patient's ratio of inspiratory time to expiratory time
- **Ve**—The patient's minute volume reading
- **Vte**—The exhaled tidal volume reading
- **Alarm Occurrences**—If this report entry is for an alarm, the alarm data shown includes alarm severity, start and end time, and the reason for the alarm ending



Note:

Minimum and maximum settings for each parameter (if applicable, as set on the device) appear in the column headers on the report.

6.6 Supervisory Reports

Supervisors and link managers may run reports that show frequency, time of day, and average duration for device alarms; frequency of setting changes and response time to setting change notifications; and device and subscription utilization statistics. In addition, supervisors can run the same comprehensive oximetry report and snapshot reports available to clinicians, and can run an alarm threshold analysis report.

Reporting functions are available from the Device Detail or Reports screens. See [Access](#) on page 6-1.



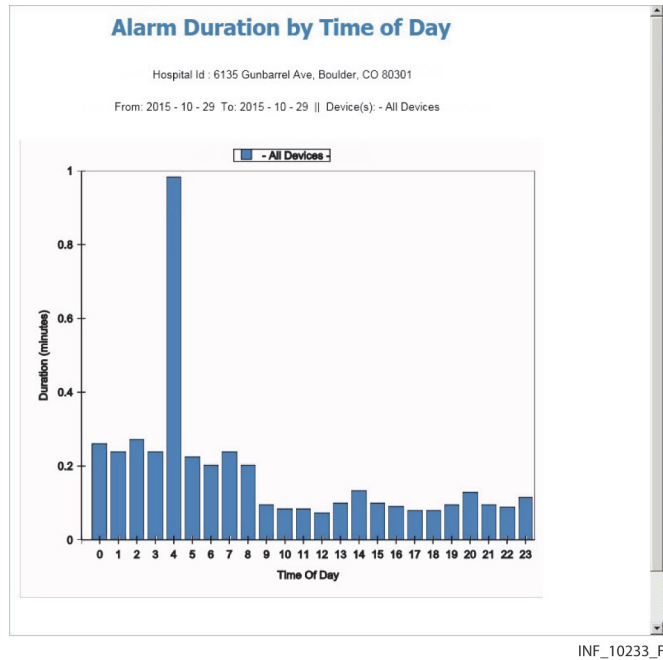
Note:

If platform-related applications are installed (such as the Vital Sync™ early warning score application or the Vital Sync™ spontaneous breathing trial readiness and monitoring application) are installed, reports for those applications may also be available. Refer to the user manual for the individual application for more information on accessing and running application-specific reports.

6.6.1 Alarm Duration by Time of Day

This report shows average alarm duration (i.e., time from alarm onset to when the alarm is cleared on the device itself) by time of day during the selected timeframe.

Figure 6-19. Alarm Duration by Time of Day Report



Default Output

The default report shows data from devices of all categories for the last 31 days (including today).

Report Parameter Settings

In addition to report timeframe settings, users have the following options:

- **Device Category**—To run the report for a single device category, select the desired category here.
- **Area**—Select the desired area of care in this drop-down box. To show data for all areas, select **All Areas**.

Report Data

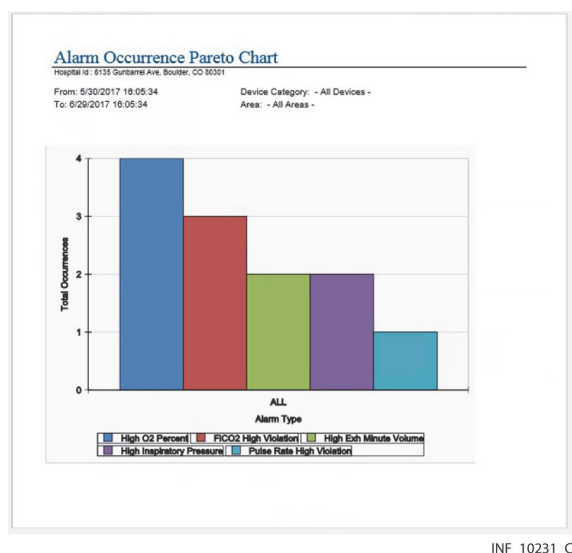
- **Time of Day**—The chart's horizontal axis is divided into 24 segments, one for each hour of the day. The zero point indicates 12:00 AM.
- **Alarm Duration**—The chart's vertical axis indicates the average alarm duration in minutes for each 1-hour period.

To view the same data in a table, navigate forward in the report.

6.6.2 Alarm Occurrence Pareto Chart

Click **Alarm Occurrence Pareto Chart** to create a chart showing the types of alarms that have occurred the most often during the selected timeframe.

Figure 6-20. Alarm Occurrence Pareto Chart



Default Output

Eight (8) alarm types (or all alarm types, if fewer than eight) for all device categories in all areas of care over the last 31 days (including today).

Report Parameter Settings

The following options are available for this report:

- **Device Category**—To run the report for a single device category, select the desired category in this drop-down box.
- **Number to Display**—To show a different number of alarm types than the default, select the desired number in this drop-down box. Available options range from three (3) to eight (8).
- **Area**—To show data for a specific area of care, select the desired area in this drop-down box.

Report Data

- **Total Occurrences**—The chart's vertical axis indicates the number of times this alarm has occurred in the selected timeframe.
- **Alarm Type**—The chart's horizontal axis indicates the specific alarm type, as defined on the device.

The leftmost bar in the chart denotes the alarm type occurring the most often; the next most frequent alarms are displayed to the right in descending order of frequency. (To view the same data in a table, go to page 2 of the report.)

6.6.3 Alarm Threshold Analysis

Clinicians and supervisors can run this report. For detailed information, see [Alarm Threshold Analysis](#) on page 6-17.

6.6.4 Comprehensive Oximetry and Capnography

Clinicians and supervisors can run this report. For detailed information, see [Comprehensive Oximetry and Capnography](#) on page 6-20.

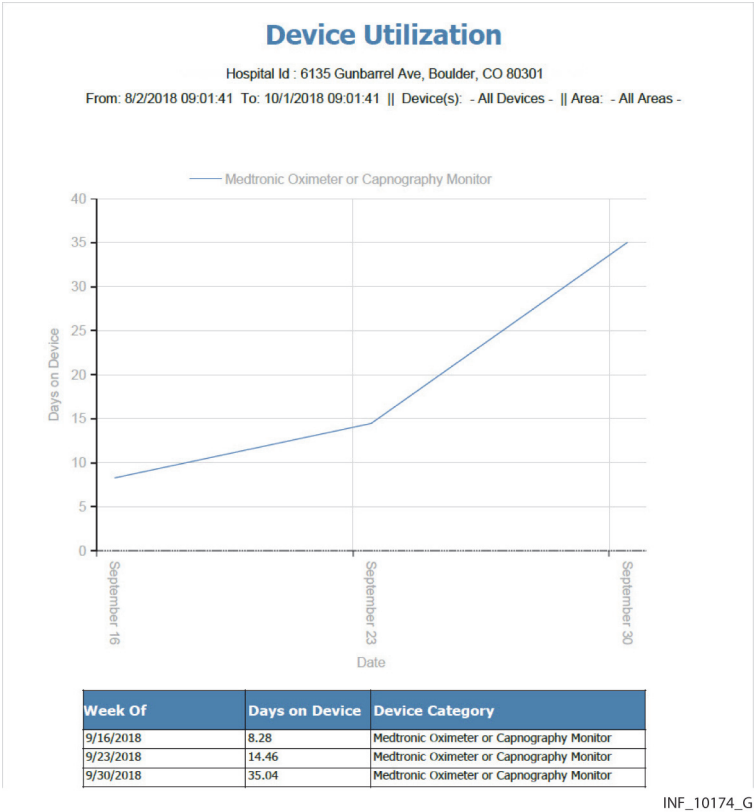
6.6.5 Device Usage Hours Per Patient

Clinicians and supervisors can run this report. For detailed information, see [Device Usage Hours Per Patient](#) on page 6-23.

6.6.6 Device Utilization

This report shows (by week) the average number of days patients spend linked to devices in the platform.

Figure 6-21. Device Utilization Report



Default Output

The default report shows averages for each device category for the current week, as well as preceding weeks (or portions thereof) going back to three months ago. For purposes of this report, the current week begins on the most recent Sunday, or today if running the report on a Sunday. Preceding weeks also begin on the associated Sunday.

Report Parameter Settings

In addition to report timeframe settings, users have the following option:

- **Device Category**—To run the report for a single device category, select the desired category here.
- **Area**—Select the desired area of care in this drop-down box. To show data for all areas, select **All Areas**.

Report Data

- **Number of Patients**—The chart's vertical axis indicates the average number of patients linked to devices in the platform.
- **Date**—The chart's horizontal axis indicates the week.

Each device category is represented by a line of a different color. The same data appears in a table on a subsequent page.



Note:

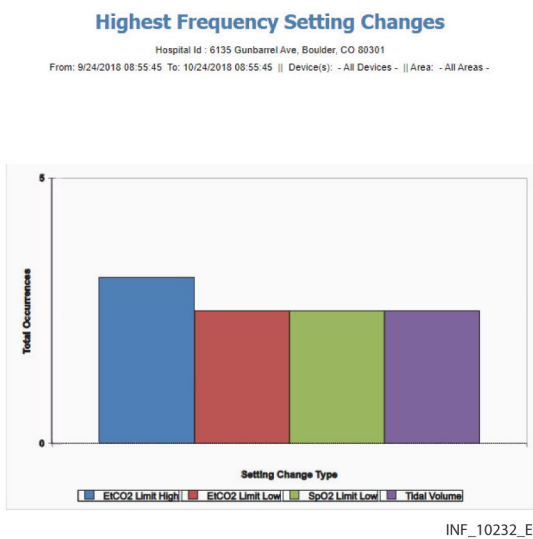
The number of days a patient spends linked to a device is added into the total for all patients for that device type for each week during which that patient was linked to the device, even if the patient did not spend that entire week linked to the device.

For example, assume a patient is linked to a device for nine days, from Saturday the 7th to Sunday the 15th. When running the report, nine days are added into the overall total of patient days for that device type in three different weeks: the week of Sunday the 1st, the week of Sunday the 8th, and the week of Sunday the 15th.

6.6.7 Highest Frequency Setting Changes

This report shows the types of setting changes most often occurring during the selected timeframe.

Figure 6-22. Highest Frequency Setting Changes Report



Default Output

The default report shows eight setting change types (or all setting change types, if fewer than eight) for all device categories over the last 31 days (including today).

Report Parameter Settings

In addition to report timeframe settings, users have the following options:

- **Device Category**—To run the report for a single device category, select the desired category here.
- **Number to Display**—To show a different number of setting change types, select the desired number here. Available options range from three to eight.
- **Area**—Select the desired area of care in this drop-down box. To show data for all areas, select **All Areas**.

Report Data

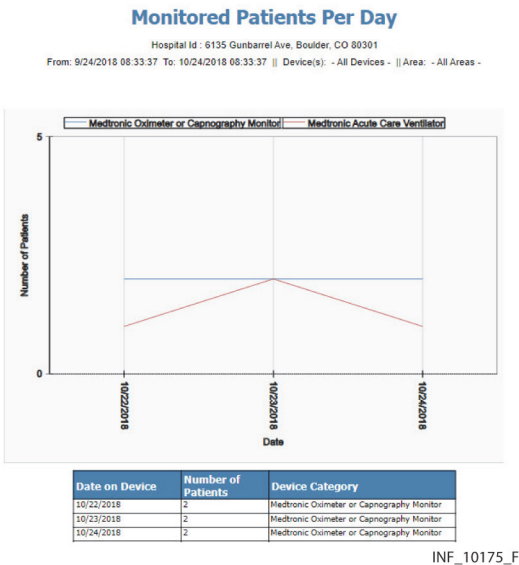
- **Total Occurrences**—The chart’s vertical axis indicates the number of times this setting change has occurred in the selected timeframe.
- **Alarm Type**—The chart’s horizontal axis indicates the specific setting change type, as defined on the device.

Setting change types are shown in alphabetical order by name. (To view the same data in a table (sorted by number of occurrences, with the most frequent setting change type listed first), navigate forward in the report.)

6.6.8 Monitored Patients Per Day

This report shows the daily numbers of patients linked to devices.

Figure 6-23. Monitored Patients Per Day Report



Default Output

The default report shows daily totals for each device type, as well as a separate total for patients, from 31 days ago up to (and including) today.

Report Parameter Settings

In addition to report timeframe settings, users have the following options:

- **Device Category**—To run the report for a single device category, select the desired category here.
- **Area**—Select the desired area of care in this drop-down box. To show data for all areas, select **All Areas**.



Note:

If running the report for a single device type, the line for that device type will overlap the line for “All Devices”. The “Total Patients” line will still appear, but will be adjusted to account only for patients linked to devices of the type selected.

Report Data

- **Number of Patients**—The chart’s vertical axis indicates the number of patients linked to devices of each type, or the total number of patients with any devices linked to them.
- **Date**—The chart’s horizontal axis indicates the date.

Each device category is represented by a line of a different color. The report will also show a line for the total number of patients linked to devices of the category or categories shown. To view the same data in a table, go to a subsequent page.



Note:
The number on the graph for a device type on a particular day may exceed the number for “Total Patients” on the graph for that day, since patients may be linked to multiple devices in the platform.

6.6.9 **Oxygenation Snapshot**

Clinicians normally run this report, which is also available to supervisors. For detailed information, see *Oxygenation Snapshot* on page 6-24.

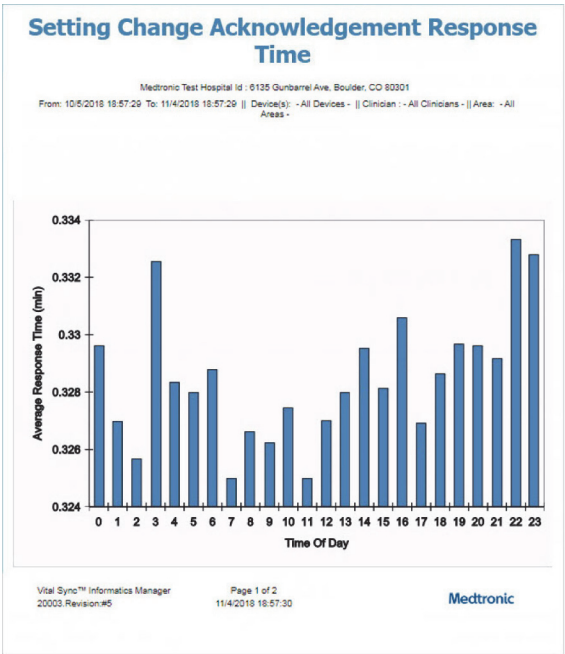
6.6.10 **Setting Change Acknowledgement Time**

This report shows the average clinician response time to setting change notifications by time of day in the selected timeframe.



Note:
This report does not track actions performed on the device itself in response to setting changes. The report tracks time elapsed from when a setting change notification for a device first appears in the platform to when the clinician to whom that patient is assigned acknowledges the change in the Device Detail screen, or when the setting change is automatically acknowledged in the platform. See *View and Acknowledge Setting Changes* on page 9-9.

Figure 6-24. Setting Change Acknowledgement Time Report



INF_10172_G

Default Output

The default report shows data for all device types and clinicians for the last 31 days (including today).

Report Parameter Settings

In addition to report timeframe settings, users have the following options:

- **Device Type**—To run the report for a single device type, select the desired type in this drop-down box.
- **Clinicians**—Select **All Clinicians** or **Manager Link** here.
- **Area**—Select the desired area of care in this drop-down box. To show data for all areas, select **All Areas**.

Report Data

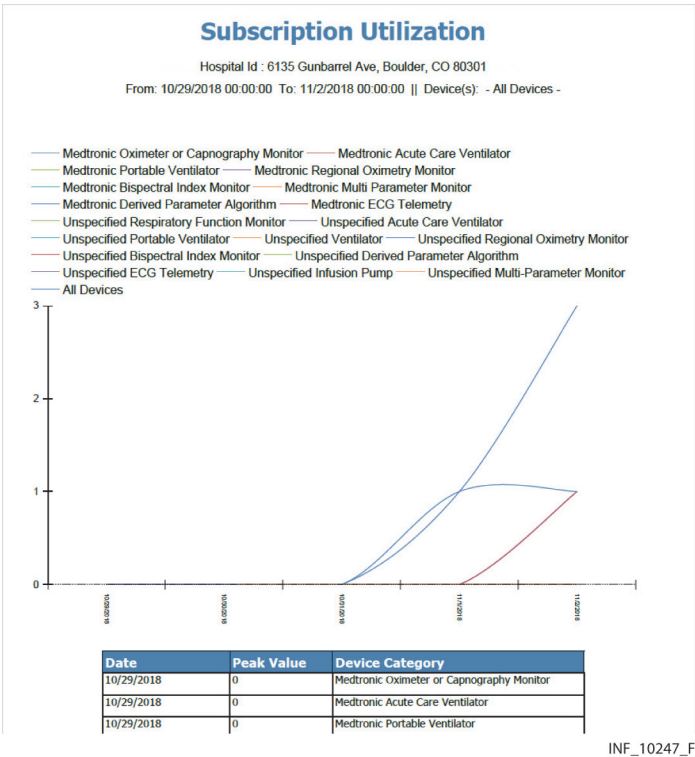
- **Time of Day**—The chart's horizontal axis is divided into 24 segments, one for each hour of the day. The zero point indicates 12:00 AM.
- **Acknowledgement Interval**—The chart's vertical axis indicates the average time to acknowledge setting changes for each 1-hour period.

To view the same data in a table, navigate forward in the report.

6.6.11 Subscription Utilization

This report shows the daily peak numbers of devices from different device categories simultaneously connected to the platform.

Figure 6-25. Subscription Utilization Report



Default Output

The default report shows daily peak numbers of devices connected to the platform for all device categories during the most recently completed calendar month.

Report Parameter Settings

In addition to report timeframe settings, users have the following option:

- **Device Category**—To run the report for a single device category, select the desired category in this drop-down box.

Report Data

- **Devices Connected Simultaneously**—The chart’s vertical axis indicates the peak number of devices from each device category connected simultaneously to the platform.
- **Date**—The chart’s horizontal axis indicates the day.

Each device category is represented on the graph by a line of a different color.

Subsequent pages of the report show the following information in chart form:

- **Date**—The month to which the peak usage data applies (if the report timeframe covers multiple months, each device category selected for inclusion in the report will have a separate line for each month)
- **Avg Daily Peak**—The average peak number of devices of this type connected to the platform in the indicated month
- **Device Category**—The device category



Note:

The Subscription Utilization report is automatically generated once per month and (with appropriate software and facility email server configuration) can be emailed to Medtronic. Consult with Medtronic or your local Medtronic representative for more information.

6.6.12 Ventilation Snapshot

Clinicians normally run this report, which is also available to supervisors. For detailed information, see [Ventilation Snapshot](#) on page 6-28.

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7 Supplementary Information

7.1 Overview

This chapter contains additional information for users of the Vital Sync™ virtual patient monitoring platform and informatics manager software.

7.2 Alarm Communication from Devices



WARNING:

The Vital Sync™ Virtual Patient Monitoring Platform and Informatics Manager is intended to supplement and not to replace any part of the facility's monitoring. Do not rely on the Vital Sync™ Virtual Patient Monitoring Platform and Informatics Manager as the sole source of alarms.

The platform is dependent upon the information it receives from connected devices. This information, as communicated to the platform from a device, may not always be consistent with what is indicated on that device. Not all alarms, notifications, and other information from a device are communicated to the platform. In these cases, the platform will not report or show this information, because it has not received it.

Devices may also continue to transmit and report alarm conditions and other status information, even if the condition or status no longer appears on the device display. For example, a low-battery alarm may have been resolved by plugging the device into AC power, and is no longer indicated on the device. However, until the battery is charged to a certain level, the low-battery condition still exists, and the device may report this to the platform.

7.3 Locations

The platform uses locations (areas and beds) to keep track of patients and devices in a facility, and to facilitate patient and device assignments and imposition of alarm rules.

7.3.1 Areas

Each area (also sometimes called an area of care or a zone) in the platform represents a portion of the facility from which data is reported to the platform. An area can correspond directly to a physical location in the facility (for example, a single general care floor), or can encompass multiple physical locations that share particular similarities (for example, all general care floors).

In addition, an area can be set up to stand alone, as a parent area with one or more subsidiary (child) areas, or as a child area that is subsidiary to another area. Depending on the physical setting and the organizational structure used at the facility, an area can be both a parent area and a child area.

7.3.2 Beds

Each bed in the platform corresponds to a specific patient bed within the facility, from which data is reported to the platform. The larger tiles in the Tile View for clinicians and supervisors each represent a single bed, and show data from all devices currently associated with the bed.

A bed typically has an assigned patient, and may have specific devices associated with it.



Note:

Each bed can only be assigned to one area, to avoid overlap or conflict of different alarm and event rules. When assigning a bed to an area, select the area that uses the rule set most specifically appropriate for this bed.

7.3.3 Use and Behavior of Locations

Patient and Device Assignment

Areas help facilitate quick assignment of patients to particular platform users. Assigning an area to a user assigns all patients in that area to that user by default.

Also, if devices are associated with specific areas, then platform users, by default, will only see those devices available in their assigned area (or areas) when they access the Tile View. Associating devices in a particular physical location with the area corresponding to that physical location can aid users in selecting an appropriately located device for linking to a patient in that area.

Alarm Rules

Areas help facilitate broad-based assignment of alarm rules across an entire facility or large portions of the facility, since any rules used by a parent area apply to its child areas unless otherwise specified.

For example, if an area is set up to represent the entire facility, with child areas representing smaller parts of the facility, assigning an alarm rule set to the area representing the entire facility automatically imposes those rules on all areas representing the smaller parts of the facility. This is useful if there are default alarm rules that the entire facility should use.

Areas representing parts of a facility can, in turn, have child areas assigned to them representing even smaller parts of the facility. For example, there could be an area for the entire facility, with child areas for each floor. Each area representing a floor could then have its own child areas, each for a portion of that floor. This is useful if a particular default alarm rule should be used only in certain parts of the facility, but not others. In this case, the user would assign the rule to an area with child areas that should use this rule, instead of to the area representing the entire facility.

As another example, an abstract area could be set up for a specific type of care, with child areas representing the specific parts of the facility where that type of care is provided. Assigning an alarm rule

set optimized for this type of care to this area automatically imposes those rules on all areas representing locations where this type of care is provided, regardless of their physical location.

The area functionality is most useful if areas are set up to include beds for which specific clinicians are responsible. These areas should, in turn, be children of a parent area assigned to the specific supervisory user overseeing those clinicians. This streamlines the process of assigning patients to users, since assigning an area to a user via the Area Assignment function automatically assigns all patients in that area to that user.

In addition, areas to which beds will be assigned should be set up to use the alarm rules best suited to those beds. This is because beds can only be assigned to a single area (in order to prevent possible alarm rule conflicts).

7.4 Alarm Functionality and Behavior

This section provides additional information on alarm functionality and behavior in the Vital Sync™ virtual patient monitoring platform and the Vital Sync™ informatics manager. Consider this information carefully when setting alarm rules, as described in [Manage Alarm, Notification, and Setting Rules](#) on page 5-31.



WARNING:

Alarm rules should adhere to facility policy, procedures, and alarm management protocols. This alarm management protocol should address alarm safety and the potential impact of alarm fatigue in all patient care areas within the facility.

7.4.1 Device Data Reporting

Connected and linked devices do not continuously report data to the platform. Instead, devices periodically communicate data to the Vital Sync™ informatics manager over the facility's data network. The communication interval, as well as the period after which a device communicating no data is considered to be disconnected, is determined by the communication protocol that the device uses. See [Table 7-1](#).

Table 7-1. Device Communication Rates and Disconnect Periods

Device Protocol	Device Communication Rate	No Data Disconnect Period
Puritan Bennett DCI	2 to 20 seconds, depending on patient's breath rate	60 seconds
Puritan Bennett Breath	2 to 20 seconds, depending on patient's breath rate	60 seconds
Newport HT70	1 second	60 seconds
Nellcor SHIP	0.3 to 2.0 seconds, depending on patient's pulse rate	15 seconds
Nellcor ASCII	2 seconds	15 seconds
Nellcor SPDOut	0.3 to 2.0 seconds, depending on patient's pulse rate	15 seconds
CS20	1 second	10 seconds

Table 7-1. Device Communication Rates and Disconnect Periods (Continued)

Device Protocol	Device Communication Rate	No Data Disconnect Period
Oridion85	1 second	5 seconds
INVOS5100C	1 second	20 seconds
BISBinary	1 second	15 seconds
HL7 Consumer	5 to 600 seconds, depending on eMR communication rate, data aggregator communication rate, or both	800 seconds

The Vital Sync™ informatics manager, in turn, periodically communicates data it has received to the platform, according to application configuration settings. The default communication interval is every 5 seconds.

Data that devices send includes parameter values and indications for alarms and notifications. These are current as of the time of the update.

The Vital Sync™ informatics manager will **not** detect an alarm that is active on a device until it receives an update indicating the alarm from the device.

**Note:**

If an alarm condition is resolved before the next update, the associated alarm will not annunciate in the platform. However, the presence and duration of the alarm condition is still reported to the platform, and can be viewed using appropriate platform functions (e.g., trend windows or reports).

7.4.2 True Alarm Duration

For an alarm to annunciate in the platform, the alarm condition **must be continuously present** for a specific time period from the time of detection on the device to the time it is detected in the platform, defined as:

(Time of Detection)+(Update Interval)+(Platform Interval)+(Delay Setting)+(Other Delay)

These factors are defined as follows:

- **Time of Detection**—The time at which the device detects the alarm condition
- **Update Interval**—The period between the time of detection and the next time the device sends updated data to the Vital Sync™ informatics manager
- **Platform Interval**: The period between the time the Vital Sync™ informatics manager receives device data and the next time it reports updated data to the platform
- **Delay Setting**—The period (set in the Rule Set screen) between when the platform receives the alarm notification and when this alarm annunciates in the platform
- **Other Delay**—Any additional delay caused by limitations of hardware or network bandwidth, or by network loading

**Note:**

If an alarm condition is no longer present before the end of the delay period (defined by the delay setting described here), **the alarm will not annunciate in the platform**, even if it annunciates on the device.

The delay setting only specifies the length of time between when the alarm is detected **in the platform** and when it annunciates **in the platform**. This length of time does not include the update interval, platform interval, or any other network or hardware-related delays.

As such, any alarm that annunciates will have been present on the device **longer than the delay interval set in the platform**.

For example, if the update interval and platform interval add up to 10 seconds, and the delay setting is 15 seconds, the alarm condition needs to be **continuously present** for up to 10 seconds (to account for the update and platform intervals), plus 15 seconds (the delay setting), plus any delay imposed by hardware or network conditions. In this case, then, at least 20 to 25 seconds will pass from the onset of the alarm condition (as detected on the device) to when the alarm annunciates in the platform.

Always use the shortest delay settings practical to reduce true nuisance alarms, to avoid undue delay in response to events that actually require clinical intervention at the bedside.

7.4.3 Alarm Escalation

If an alarm condition escalates in severity, the platform will automatically override any delay set for that alarm, causing the alarm to immediately annunciate.

**Note:**

If specific users have audible alerts disabled for them in the platform, the alarm **will not** annunciate audibly for those users, even if the alarm escalates in severity. It will annunciate visibly, however.

7.5 Alarm Rule Considerations

Appropriate delay settings for alarms may reduce the number of non-clinically significant alarms (generally referred to as “nuisance alarms”) that annunciate in the platform. They may also reduce the volume of messages to clinicians and supervisors concerning non-clinically significant alarms. This may reduce the potential for alarm fatigue.

For this purpose, nuisance alarms are defined as false alarms; alarms caused by temporary transient conditions (some of which arise from specific clinician actions); or alarms that do not require clinical intervention at the bedside.

Appropriate alarm rule settings in the Rule Set screens require careful consideration of each individual facility's hardware and networks, as well as in-depth knowledge of alarm types and conditions specific to the facility and care areas.

Specific practical considerations also apply when using the Rule Set screens; details follow.

7.5.1 Event and Delay Options

When creating rule sets, users can choose events affected by delays, as well as types of delays to impose.

Events Affected

- All events of a specific severity for all connected devices of a specific type (e.g., all low-priority ventilator alarms)
- One or more specific device events

Delay Types

- **System Delay**—The delay before the event in question annunciates visibly and audibly in the platform
- **Primary Contact Delay**—The delay before the presence of the event triggers an email or SMS message to users assigned to the affected patient as primary contacts
- **Secondary Contact Delay**—The delay before the presence of the event triggers an email or SMS message to users assigned to the affected patient as secondary contacts

7.5.2 Delay Constraints

System delays can be enabled independently, or in conjunction with contact delays.

To enable a primary contact delay, a system delay must be enabled for the same event (i.e., not set to **Off**). To enable a secondary contact delay, both a system delay and a primary contact delay must be enabled for the same event.

In addition, delay settings have the following constraints:

- If enabling a system delay, but not a primary or secondary contact delay, any available setting can be used for the system delay.
- If also enabling a primary contact delay, the system delay must be **equal to or shorter than** the primary contact delay.
- If also enabling a secondary contact delay, the primary contact delay must be **equal to or shorter than** the secondary contact delay setting.

Therefore, if enabling all delay types, set delays as follows:

System Delay ≤ Primary Contact Delay ≤ Secondary Contact Delay

7.5.3 Effects of Rule Settings

Device Types

Delays set for a device type apply to **all** alarms or notifications of the selected severity level on **any** connected device of the selected type.

For example, setting the **System Delay** field for Low Severity alarms in the Pulse Oximeters panel to 10 seconds means that **all** alarms defined as low-priority alarms on **any** connected oximeter will have a 10-second delay from when they are communicated to the platform to when they annunciate.

Areas

Rule sets can be assigned to specific areas in the facility. If an area has subsidiary (child) areas, the rule set will also apply to those areas, unless specifically set to do otherwise. (See [Manage Areas](#) on page 5-20.)

Once a rule is established for an alarm, and the associated rule set is in effect in an area, the following must occur for the alarm to annunciate in the platform for users assigned to that area, or trigger a primary or secondary contact message:

- The condition must be present long enough to be communicated to the platform.
- The condition must then remain present until the delay period has elapsed.

This also applies to notifications and reset alarms for which delays have been set.



Note:

If a device alarm escalates in severity, the platform will automatically override any delay setting for that alarm, and the alarm will annunciate immediately.

For a more detailed discussion of alarm behavior, including true alarm duration, see [Alarm Functionality and Behavior](#) on page 7-3.

Beds

To prevent possible conflicts among alarm rules, a bed can only have one area assigned to it.

When setting up areas, ensure that the rule set assigned to each area is appropriate for all beds within that area. Also, when assigning an area to a bed, if several areas could be used, select the area with the rule set most specifically applicable to the bed.

For example, if areas correspond to actual places in a facility, and child areas are increasingly smaller in size, the area to assign to a bed might be the smallest area in physical size that includes that bed. This would allow use of an alarm rule set tailored to that specific place within the facility, to account for local conditions.

(This example describes only one possible way to set up areas and assign them to beds. Variations on this example, or completely different organizational structures, may also be desirable, and may impose different requirements. Consult with Medtronic Professional Services for assistance if needed.)

7.6 Event Priority

Users of the software have access to data from multiple devices and device types, as well as derived parameter algorithms. This data includes alarms and notifications, collectively referred to as events.

Any device may have multiple active alarms or notifications. Also, patients will often have multiple devices or algorithms linked to them, and two or more of these may have alarms or notifications active simultaneously.

Where space on the screen allows only a single event to appear (e.g., in the Patient Summary screen, or in the alarm or notification menu on the common navigation bar), the platform determines the event to be shown as follows:

- If only a single event (of any kind) is active on any of the patient’s linked devices or algorithms, that event will appear.
- If multiple events are active on at least one of the patient’s linked devices or algorithms, and one of these events is an alarm, that alarm will appear, **regardless of device type**.
- If only one of the patient’s linked devices or algorithms has active alarms, and one of these alarms has a higher priority than all the other alarms, the alarm with the higher priority will appear.
- If more than one of the patient’s linked devices or algorithms has active alarms, and one of these alarms has a higher priority than all the other alarms, the alarm with the higher priority will appear, **regardless of device type**.
- If more than one of the patient’s linked devices or algorithms has active alarms, and two or more alarms with the same priority have a higher priority than all the other alarms, the alarm **from the device with the highest priority** will appear.

Reference Table 7-2 for event priority, and Table 7-3 for device priority.

Table 7-2. Event Priority Ranking

Priority Level	Event
1	High-priority alarm
2	Medium-priority alarm
3	Low-priority alarm
4	Device disconnect notification
5	Unfavorable patient event notification
6	Setting change notification or other standard notification
7	Favorable patient event notification
8	Reset alarm notification

Table 7-3. Device and Algorithm Priority Ranking

Priority Level	Device, Device Type, or Algorithm
1	Primary ventilator
2	Other ventilator (if more than one is linked)
3	Primary pulse oximeter or capnography monitor
4	Other pulse oximeter or capnography monitor (if more than one is linked)
5	Primary regional saturation monitor
6	Other regional saturation monitor
7	Primary bispectral index monitor
8	Other bispectral index monitor
9	Algorithm (any)

In general, the event with the highest priority according to Table 7-1 will appear anywhere that only a single event can be shown. If multiple events meet this criterion, the platform will show the event from the device with the highest priority, according to Table 7-2.

Priority for events may be further determined by the priority and ranking set for them in the Manage Alerts screen. This functionality allows users to define the default priority of specific events differently in the platform, and to rank events of the same priority relative to each other. See [Manage Alerts](#) on page 5-42 for details.

**WARNING:**

The Vital Sync™ Virtual Patient Monitoring Platform and Informatics Manager is intended to supplement and not to replace any part of the facility's monitoring. Do not rely on the Vital Sync™ Virtual Patient Monitoring Platform and Informatics Manager as the sole source of alarms.

In order to assure a timely response to device alarms, a clinician (not necessarily the clinician viewing data in the platform) must be within visual and/or audible range of the alarming device. In order to provide medical intervention, a clinician must interact with the device at the bedside.

7.7 Default Alarm Priority by Device

The default reported priority of alarm conditions is established on each individual device. Different device models in the same device category may have different default priority levels for the same alarm condition. This is because applicable standards governing particular device types only establish minimum priority levels for alarms. Therefore, some devices may have alarm priorities that meet the applicable standard, while others of the same type may have alarm priorities that exceed the standard.

The platform uses the alarm priority established on or normalized for each connected device, within limits imposed by communication protocols or other device settings.

The platform does not provide the ability to change priorities of alarms on any connected device, nor the ability to change settings of alarms, except as specified for certain devices.

However, users can normalize alarm priority levels within the platform itself, in cases where different device models of the same device type (e.g., two different models of pulse oximeter) have different default priorities for the same alarm.

For a list of default priorities for all currently supported alarms, run the Alarm Normalization Report. See [Alarm Normalization Report](#) on page 6-7 for details.

For instructions for normalizing alarm priorities in the platform, see [Manage Alerts](#) on page 5-42. For more information on normalization, consult with Medtronic Professional Services.

**WARNING:**

Alarm priority normalization and ranking functionality within the platform is intended to supplement and not replace any part of the facility's monitoring. Do not rely on the platform as the sole source of alarms.

**WARNING:**

The default alarm priority is determined by the connected device, and cannot be changed on the device itself. The same alarm condition may be reported with a *different* priority on *different* device models. Carefully review the Alarm Normalization Report for default alarm priorities for each connected device model.

**WARNING:**

Alarm priorities in the platform should not be set to be lower than those on the actual device. Use caution if changing the priority of a device alarm in the platform to a different level than is indicated on the actual device, especially for devices that are life-sustaining.

**WARNING:**

When setting alarm rules and priorities in the platform for any device, consult the operator's manual for the device in question for default priority levels of device alarms, and for a description of each device alarm. Obtain a detailed understanding of the patient or device conditions that trigger any alarm before creating an alarm rule or adjusting the alarm's priority in the platform.

**WARNING:**

Alarms from connected devices should not be set as notifications in the platform, especially for devices that are life-sustaining. Because notifications do not audibly annunciate, setting an alarm as a notification may cause users to not respond or delay in responding to a clinically significant event.

**WARNING:**

Notifications from connected devices should not be set as alarms in the platform, especially for events not requiring clinical intervention. Setting a notification as an alarm may create nuisance audible alerts that are not clinically significant.

**Note:**

The Alarm Normalization Report shows all alarms currently supported in the platform. See [Alarm Normalization Report](#) on page 6-7 for details on running this report. Also refer to the operator's manual for any individual device for more information on default alarm priorities on that device.

**Note:**

Derived parameter algorithms may have associated alarms or notifications. Consult the user manual for the platform-related application that uses the algorithm (if available), or consult with Medtronic Professional Services for more information on alarms or notifications associated with derived parameter algorithms.

7.8 Audible Alert Tones

If audible alerts are available for use and enabled for this user, an alert tone will sound on the user's computer or mobile device whenever a device or algorithm linked to any of this user's assigned patients enters an alarm state, and once any delay interval before annunciation passes.

**Note:**

Audible alerts only sound to indicate alarms on devices or algorithms linked to patients. Audible alerts do **not** sound for notifications.

**Note:**

Some mobile devices do not support the sounding of audible alerts from the platform due to device limitations. Make sure to test audible alert capability on any mobile device to be used.

7.8.1 Alert Tone Types

The type of alert tone that sounds for a user depends on the audible alert setting chosen at the time of user record setup in the platform.

Tones are summarized in Table 8-4 on page 8-3, and are described in detail in this section.

Single-Tone

A user set up to hear single-tone alerts will hear a general alert tone when any alarms are annunciating in the platform for any of the user's assigned patients, regardless of the priority level of the alarm.

If no alarms are annunciating in the platform for any assigned patient, **no alert tone will sound**. This is true even if one or more filtered alarms is active, or if any notification is active and visibly annunciating in the platform.

Multi-Tone

A user set up to hear multi-tone alerts will hear one of three distinct alert tones when one or more alarms is annunciating in the platform for any assigned patient:

- If any of the annunciating alarms is a high-priority alarm, the user will hear the high-priority alert tone.
- If no high-priority alarm is annunciating, but any medium-priority alarm is annunciating, the user will hear the medium-priority alert tone.

- If no high-priority or medium-priority alarms are annunciating, but any low-priority alarm is annunciating, the user will hear the low-priority alert tone.
- If no alarms are annunciating, **no alert tone will sound**. This is true even if one or more filtered alarms is active, or if any notification is active and visibly annunciating in the platform.

Additional Tones

In addition to the default tones included in the platform, tones compliant with the requirements of the ISO/IEC 60601-1-8 standard are available. Consult Medtronic Professional Services for details.

For information on configuration options for alert tones, including tones used and silencing options, contact Medtronic Professional Services.

Tones and Devices

By default, any alert tones used are the same for a specific priority level for all supported devices and algorithms. Tones are not specific to any device type.

7.8.2 Alert Silencing and Device Alarms

Silencing alert tones in the platform does **not** pause or silence corresponding alarms on any device.

By default, pausing or silencing audible alarms on a device does **not** silence the corresponding audible alert in the platform.

It is possible to configure the software so that pausing or silencing audible alarms on a device will silence the corresponding audible alert in the platform. Consult with Medtronic Professional Services for details.

7.9 Device Auto-Reconnection

The platform supports automatic reconnection for devices that lose communication for some reason. Since many losses of communication are brief and transitory in nature, this prevents users from having to manually reconnect any device for which such a loss occurs.

Automatic reconnection is allowed for devices that have not been out of communication for a longer period of time than the automatic reconnection interval set in the platform. This interval can be the same for all devices, or can be specific to device types. Table 7-4 shows default intervals; consult with Medtronic Professional Services for more information on use and configuration.

Table 7-4. Default Automatic Reconnection Intervals

Device or Device Type	Reconnection Interval
General (if not using type-specific interval)	5 minutes
Capnography device	45 minutes

Table 7-4. Default Automatic Reconnection Intervals

Device or Device Type	Reconnection Interval
Pulse oximeter	45 minutes
Ventilator	120 minutes (2 hours)

If a device is out of communication for longer than the automatic reconnection interval, users wanting to reconnect it will need to do so manually. See [Device Connection Functions](#) on page 4-39.

7.10 Device Data Handling After Unlinking

When using the Unlink Device function to break the link between a patient and a device, the device returns to the pool of available devices, and can then be used with another patient. How the platform handles the data collected on the device while linked to the previous patient varies according to how long the device was linked to that patient.

A device must be linked to a patient for a certain minimum period of time before data collected on that device becomes part of that patient's record. This "grace period" is designed to help prevent data confusion in the event that the wrong device is inadvertently linked to a patient in the platform.

This works as follows:

- If a device is unlinked from a patient after a time period equal to or greater than the grace period set in the platform, data collected on that device will become part of this patient's record, and the monitoring session for the device is considered to be complete.
- If a device is unlinked from a patient before the grace period is complete, data collected on that device will be deleted from the patient's record. The data will, however, stay with the device.

The default grace period is 15 minutes. If needing to set a shorter grace period, consult with Medtronic Professional Services.



Note:

If a device becomes disconnected, its data is handled as if the device were unlinked; the data becomes part of the patient's record, unless the device became disconnected before the grace period was complete. However, a disconnected device does not return to the pool of available devices until the issue causing the disconnection is resolved.

7.11 Web API Functionality

Support for Web API services is available in the platform. Contact Medtronic Professional Services for more information.

7.12 Relevant Standards

Table 7-5. Harmonized Standards

Standard Number / Revision	Description
EN ISO 13485:2012 + AC:2012	Medical devices Quality Management Systems Requirements for regulatory purposes (ISO 13485:2003)
EN ISO 14971:2012	Medical Devices – Application of Risk Management to Medical Devices
EN 980:2003	Graphical Symbols for Use in the Labeling of Medical Devices
EN 1041:1998 + A1:2013	Information Supplied by the Manufacturer with Medical Devices
IEC 62304:2006-05 + AMD1:2015-06	Medical Device Software – Software Life Cycle Processes
IEC 62366-1:2015	Medical Devices – Part 1: Application of Usability Engineering to Medical Devices
IEC/EN 60601-1-8:2007 + A1:2012	Medical electrical equipment. Part 1-8: General requirements for basic safety and essential performance

Table 7-6. Non-Harmonized Standards

Standard Number / Revision	Description
ISO 15223-1:2012	Medical Devices – Symbols to be used with medical device labels, labeling and information to be supplied – Part 1: General Requirements

7.13 Functionality Summary

This section provides a general listing of platform functions (and how to access them) for users in each role.

7.13.1 Clinicians

This section lists how clinicians navigate the user interface to perform common platform functions. See Chapter 4 for more detailed information.

- **View summary information for all assigned patients**—Navigation bar > User function menu > Tile View (bed tiles)
- **View summary information for all unassigned devices**—Navigation bar > User function menu > Tile View (device tiles)
- **Sort bed tiles**—Navigation bar > User function menu > Tile View submenu > Sort By Name (sorts bed tiles alphabetically by patient name), or Sort By Location (sorts bed tiles alphanumerically by patient location)
- **Show device identifiers on Tile View bed tiles**—Navigation bar > User function menu > Tile View submenu > Show Device ID

- **Hide device identifiers on Tile View bed tiles**—Navigation bar > User function menu > Tile View submenu > Hide Device ID
- **Show tiles for all available devices regardless of area assignment**—Navigation bar > User function menu > Tile View submenu > Show All Available Devices
- **Show tiles only for available devices assigned to a user's assigned areas**—Navigation bar > User function menu > Tile View submenu > Show My Available Devices
- **View detailed device information**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail (> Patient header > Device tab for the desired device, if not currently shown); or Navigation bar > Alarm menu or Notification menu (desired patient) > Device Detail (> Patient header > Device tab for the desired device, if not currently shown)
- **View detailed patient information**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Patient header > Patient Detail tab; or Navigation bar > Alarm menu or Notification menu (desired patient) > Device Detail > Patient header > Patient Detail tab
- **View detailed information for a patient's device with the highest-priority active alarm**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail; or Navigation bar > Alarm menu (desired patient) > Device Detail
- **View detailed information for a patient's device with a lower-priority active alarm**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Patient header > Device tab for the desired device; or Navigation bar > Alarm menu (desired patient) > Device Detail > Patient header > Device tab for the desired device
- **View detailed information for active non-filtered alarms**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Event panel > Alarm Information window; or Navigation bar > Alarm menu (desired patient) > Device Detail > Event panel > Alarm Information window
- **View detailed information for active filtered alarms**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Event panel > Filtered Out Alarm information window; or Navigation bar > Alarm menu (desired patient) > Device Detail > Event panel > Filtered Out Alarm Information window
- **Silence audible alert for a currently active alarm**—Navigation bar > User function menu > Tile View (desired bed tile showing alarm) > Device Detail (> Patient header > Device tab for desired device with active alarm, if not currently shown) > Silence button; or Navigation bar > Alarm menu (desired patient) > Device tab for desired device with active alarm (if needed) > Silence button
- **View detailed information for a device with a notification**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail (> Patient header > Device tab for the desired device, if not currently shown); or Navigation Bar > Notification menu (desired patient) > Device Detail (> Patient header > Device tab for the desired device, if not currently shown)
- **View and acknowledge setting changes**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Event panel > Unacknowledged Setting Changes window; or Navigation bar > Notification menu (desired patient) > Device Detail > Event panel > Unacknowledged Setting Changes window
- **View alert thresholds for devices and algorithms**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Event panel (settings icon) > Rules and Settings dialog

- **Change alert thresholds for algorithms**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Event panel (settings icon) > Rules and Settings dialog
- **View parameter trends**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Parameter panel (desired parameter tile) > Trend window; or Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail (desired pulse oximetry or capnography device) > Trend panel (for general trend data) > Trend window (for detailed trend data); or Navigation Bar > Alarm or Notification menu (desired patient) > Device Detail > Parameter panel (desired parameter tile) > Trend window; or Navigation Bar > Alarm or Notification menu (desired patient) > Device Detail (desired pulse oximetry or capnography device) > Trend panel (for general trend data) > Trend window (for detailed trend data)
- **View waveform detail**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Waveform panel > Waveform Detail window; or Navigation bar > Alarm or Notification menu (desired patient) > Device Detail > Waveform panel > Waveform Detail window
- **Add a new patient and link a device to this patient**—Navigation bar > User function menu > Admit Patient; or Navigation Bar > User function menu > Tile View > Bed tile with no patient; or Navigation Bar > User function menu > Tile View > Admit Patient link (if this user has no monitored patients); or Navigation Bar > Device menu (desired device) > Admit Patient (links the device selected from the Device menu)
- **Link a device to a patient already in the platform**—Navigation bar > User function menu > Admit Patient; or Navigation bar > Device menu (desired device) > Admit Patient (links the device selected from the Device menu); or Navigation bar > User function menu > Tile View (desired device tile) > Admit Patient; or Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Patient header > Link New Device/Algorithm button > Link New Device/Algorithm window; or Navigation bar > User function menu > Tile View (drag and drop desired device tile onto desired bed tile)
- **Relink a device that has lost communication with the platform**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Device header menu > Relink Device; or Navigation bar > User function menu > Tile View (drag and drop tile for device ready for reconnection onto bed tile showing same device)
- **Unlink a linked device**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Device header menu > Unlink Device
- **Change a patient's location**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Patient header > Patient Detail tab > Location edit icon > Update Patient Location window
- **Change a patient's identifying information**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Patient header > Patient Detail tab > Name or ID edit icon > Update Patient Information window
- **Discharge a patient**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Patient header > Patient Detail tab (Discharge Patient from System button); or Navigation bar > User function menu > Tile View (desired bed tile) > Patient Detail tab (Discharge Patient from System button) (for patients with no linked devices)
- **View or change user's own patient assignments**—Navigation bar > User function menu > Patient Assignment
- **View user's own patient assignments by shift**—Navigation bar > User function menu > Patient Assignment > drop-down menu at top of screen (select desired shift)

- **View unassigned patients**—Navigation bar > User function menu > Patient Assignment > drop-down menu at top of right column (select **Unassigned Patients**)
- **View or change user's own area assignments**—Navigation bar > User function menu > Area Assignment
- **View user's own area assignments by shift**—Navigation bar > User function menu > Area Assignment > drop-down menu at top of screen (select desired shift)
- **View unassigned areas**—Navigation bar > User function menu > Area Assignment > drop-down menu at top of right column (select **Unassigned Areas**)
- **Run a report**—Navigation bar > User function menu > Reports > desired report in drop-down menu > Report parameter panel; or Navigation bar > User function menu > Tile View bed tile > Device Detail > Patient header > Patient Reports tab > desired report in drop-down menu > Report parameter panel
- **Enable or disable user's own audible alerts**—Navigation bar > User function menu > Audible Alerts > Enable or Disable buttons (dialog available only if audible alerts are turned on for this user)
- **Test user's own audible alerts**—Navigation bar > User function menu > Audible Alerts > Test buttons in High Priority, Medium Priority, and Low Priority fields (dialog available only if audible alerts are turned on for this user)
- **Change user's own password**—Navigation bar > User function menu > Change Password
- **Access this manual within the browser**—Navigation bar > User function menu > Help
- **Show software version information**—Navigation bar > User function menu > About
- **Log out of the platform**—Navigation bar > User function menu > Log Out

7.13.2 Supervisors

This section lists how supervisors navigate the user interface to perform common platform functions. Reference Chapter 4 for more detailed information.

- **View summary information for all patients**—Navigation bar > User function menu > Tile View > (bed tiles)
- **View summary information for all unassigned devices**—Navigation bar > User function menu > Tile View (device tiles)
- **Sort bed tiles**—Navigation bar > User function menu > Tile View submenu > Sort By Name (sorts bed tiles alphabetically by patient name), or Sort By Location (sorts bed tiles alphanumerically by patient location)
- **Show device identifiers on Tile View bed tiles**—Navigation bar > User function menu > Tile View submenu > Show Device ID
- **Hide device identifiers on Tile View bed tiles**—Navigation bar > User function menu > Tile View submenu > Hide Device ID
- **Show tiles for all available devices regardless of area assignment**—Navigation bar > User function menu > Tile View submenu > Show All Available Devices

- **Show tiles only for available devices assigned to a user's assigned areas**—Navigation bar > User function menu > Tile View submenu > Show My Available Devices
- **View detailed device information**—Navigation bar > User function menu > Tile View (desired bed tile), or All Patients and Devices (desired patient) > Device Detail (> Patient header > Device tab for the desired device, if not currently shown), or Navigation Bar > Alarm menu or Notification menu (desired patient) > Device Detail (> Patient header > Device tab for the desired device, if not currently shown)
- **View detailed patient information**—Navigation bar > User function menu > Tile View (desired bed tile), or All Patients and Devices (desired patient) > Device Detail > Patient header > Patient Detail tab; or Navigation bar > Alarm menu or Notification menu (desired patient) > Device Detail > Patient header > Patient Detail tab
- **View detailed information for a patient's device with the highest-priority active alarm**—Navigation bar > User function menu > Tile View (desired bed tile), or All Patients and Devices (desired patient) > Device Detail; or Navigation bar > Alarm menu (desired patient) > Device Detail
- **View detailed information for a patient's device with a lower-priority active alarm**—Navigation bar > User function menu > Tile View (desired bed tile), or All Patients and Devices (desired patient) > Device Detail > Patient header > Device tab for the desired device; or Navigation bar > Alarm menu (desired patient) > Device Detail > Patient header > Device tab for the desired device
- **View detailed information for active non-filtered alarms**—Navigation bar > User function menu > Tile View (desired bed tile), or All Patients and Devices (desired patient) > Device Detail > Event panel > Alarm Information window; or Navigation bar > Alarm menu (desired patient) > Device Detail > Event panel > Alarm Information window
- **View detailed information for active filtered alarms**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Event panel > Filtered Out Alarm information window; or All Patients and Devices (desired patient) > Device Detail > Event panel > Filtered Out Alarm Information window; or Navigation bar > Alarm menu (desired patient) > Device Detail > Event panel > Filtered Out Alarm Information window
- **Silence audible alert for a currently active alarm**—Navigation bar > User function menu > Tile View (desired bed tile showing alarm), or All Patients and Devices (desired patient) > Device Detail (> Patient header > Device tab for desired device with active alarm, if not currently shown) > Silence button; or Navigation bar > Alarm menu (desired patient) > Device tab for desired device with active alarm (if needed) > Silence button
- **View detailed information for a device with a notification**—Navigation bar > User function menu > Tile View (desired bed tile) or All Patients and Devices (desired patient) > Device Detail (> Patient header > Device tab for the desired device, if not currently shown); or Navigation bar > Notification menu (desired patient) > Device Detail (> Patient header > Device tab for the desired device, if not currently shown)
- **View and acknowledge setting changes**—Navigation bar > User function menu > Tile View (desired bed tile), or All Patients and Devices (desired patient) > Device Detail > Event panel > Unacknowledged Setting Changes window; Navigation bar > Notification menu (desired patient) > Device Detail > Event panel > Unacknowledged Setting Changes window
- **View alert thresholds for devices and algorithms**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Event panel (settings icon) > Rules and Settings dialog, or All Patients and Devices (desired patient) > Device Detail > Event panel (settings icon) > Rules and Settings dialog

- **Change alert thresholds for algorithms**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Event panel (settings icon) > Rules and Settings Dialog, or All Patients and Devices (desired patient) > Device Detail > Event panel (settings icon) > Rules and Settings dialog
- **View parameter trends**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Parameter panel (desired parameter tile) > Trend window; or Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail (desired pulse oximetry or capnography device) > Trend panel (for general trend data) > Trend window (for detailed trend data); or All Patients and Devices (desired patient) > Device Detail > Parameter panel (desired parameter tile) > Trend window; or All Patients and Devices (desired patient) > Device Detail (desired pulse oximetry or capnography device) > Trend panel (for general trend data) > Trend window (for detailed trend data); or Navigation Bar > Alarm or Notification menu (desired patient) > Device Detail > Parameter panel (desired parameter tile) > Trend window; or Navigation Bar > Alarm or Notification menu (desired patient) > Device Detail (desired pulse oximetry or capnography device) > Trend panel (for general trend data) > Trend window (for detailed trend data)
- **View waveform detail**—Navigation bar > User function menu > Tile View (desired bed tile), or All Patients and Devices (desired patient) > Device Detail > Waveform panel > Waveform Detail window; or Navigation bar > Alarm or Notification menu (desired patient) > Device Detail > Waveform panel > Waveform Detail window
- **Add a new patient and link a device to this patient**—Navigation bar > User function menu > Admit Patient; or Navigation Bar > User function menu > Tile View > Bed tile with no patient; or Navigation Bar > User function menu > Tile View > Admit Patient link (if this user has no monitored patients); or Navigation Bar > Device menu (desired device) > Admit Patient (links the device selected from the Device menu)
- **Add a new patient and link a device to this patient**—Navigation bar > User function menu > Admit Patient; or Navigation Bar > User function menu > Tile View > Bed tile with no patient; or Navigation Bar > User function menu > Tile View > Admit Patient link (if this user has no monitored patients); or Navigation Bar > Device menu (desired device) > Admit Patient (links the device selected from the Device menu)
- **Link a device to a patient already in the platform**—Navigation bar > User function menu > Admit Patient; or Navigation bar > Device menu (desired device) > Admit Patient; or Navigation bar > User function menu > Tile View (desired device tile) > Admit Patient; or Navigation bar > User function menu > Tile View (desired bed tile), or All Patients and Devices (desired patient) > Device Detail > Patient header > Link New Device/Algorithm button > Link New Device/Algorithm window; or Navigation bar > User function menu > Tile View (drag and drop desired device tile onto desired bed tile)
- **Relink a device that has lost communication with the platform**—Navigation bar > User function menu > Tile View (desired bed tile), or All Patients and Devices (desired patient) > Device Detail > Device header menu > Relink Device; or Navigation bar > User function menu > Tile View (drag and drop tile for device ready for reconnection onto bed tile showing same device)
- **Unlink a linked device**—Navigation bar > User function menu > Tile View (desired bed tile), or All Patients and Devices (desired patient) > Device Detail > Device header menu > Unlink Device
- **Change a patient's location**—Navigation bar > User function menu > Tile View (desired bed tile), or All Patients and Devices (desired patient) > Device Detail > Patient header > Patient Detail tab > Location edit icon > Update Patient Location window
- **Change a patient's identifying information**—Navigation bar > User function menu > Tile View (desired bed tile), or All Patients and Devices (desired patient) > Device Detail > Patient header > Patient Detail tab > Name or ID edit icon > Update Patient Information window

- **Discharge a patient**—Navigation bar > User function menu > Tile View (desired bed tile) > Device Detail > Patient header > Patient Detail tab > Discharge Patient from System button, or Navigation bar > User function menu > Tile View (desired bed tile) > Patient Detail tab (Discharge Patient from System button) (for patients with no linked devices)
- **View summary information for all patients and all devices**—Navigation bar > User function menu > All Patients and Devices
- **List unassigned patients**—Navigation bar > User function menu > All Patients and Devices > drop-down menu at top of screen (select **Unassigned Patients**)
- **List unassigned devices**—Navigation bar > User function menu > All Patients and Devices > drop-down menu at top of screen (select **Unassigned Devices**)
- **View or change user's own patient assignments**—Navigation bar > User function menu > Patient Assignment > drop-down menu at top of left column (select **My Assignments**)
- **View or change another user's patient assignments**—Navigation Bar > User Function Menu > Patient Assignments (desired clinician's assignments selected in panel on left)
- **View or change user's own area assignments**—Navigation Bar > User Function Menu > Area Assignments ("My Assignments" selected in panel on left)
- **View or change another user's area assignments**—Navigation Bar > User Function Menu > Area Assignments (desired clinician's assignments selected in panel on left)
- **Run a supervisor report**—Navigation bar > User function menu > Reports > desired report in drop-down menu > Report Parameters panel
- **Run a clinician report**—Patient Summary > Device Detail > Patient Header > Patient Reports tab > desired report in drop-down menu > Report Parameters panel
- **Access a clinical user's functions**—Navigation bar > User function menu > Select User > User submenu
- **View platform events**—Navigation bar > User function menu > Event List
- **Change user's own password**—Navigation bar > User function menu > Change Password
- **Enable or disable user's own audible alerts**—Navigation bar > User function menu > Audible Alerts > Enable or Disable buttons (dialog available only if audible alerts are turned on for this user)
- **Test user's own audible alerts**—Navigation bar > User function menu > Audible Alerts > Test buttons in High Priority, Medium Priority, and Low Priority fields (dialog available only if audible alerts are turned on for this user)
- **Access this manual within the browser**—Navigation bar > User function menu > Help
- **Show software information**—Navigation bar > User function menu > About
- **Log out of the platform**—Navigation Bar > User Function Menu > Log Out

7.13.3 Administrators

This section lists how administrators access various common software functions. Reference Chapter 5 for more detailed information.

- **View all currently active users**—Home > Users tab > Manage Users
- **View all currently inactive users**—Home > Users tab > Manage Users > Inactive Users tab
- **Add a user**—Home > Users tile > Manage Users > Create User
- **Edit a user**—Home > Users tile > Manage Users > Name of desired user > Edit User
- **Enable audible alerts for a user**—Home > Users tile > Create User > Multi-Tone or Single Tone selection in **Audible Alerts** field; or Home > Users tile > Manage Users > Name of desired user > Edit User > Multi-Tone or Single Tone selection in **Audible Alerts** field
- **Deactivate a user**—Home > Users tile > Manage Users > Deactivate link for desired user
- **Reactivate a user**—Home > Users tile > Manage Users > Inactive Users tab > Reactivate link for desired user
- **Reset another user's password**—Home > Users tile > Manage Users > Reset Password link for desired user
- **Unlock a user**—Home > Users tile > Manage Users > Unlock link for desired user (available only for users who are locked out of the platform)
- **Delete a user**—Home > Users tile > Manage Users > Delete link for desired user (available only for users who have never logged in)
- **Add a work shift**—Home > Users tile > Manage Shifts > Add Shift
- **Edit a work shift**—Home > Users tile > Manage Shifts > Name of desired shift > Edit Shift
- **Delete a work shift**—Home > Users tile > Manage Shifts > Delete link for desired shift (available only for shifts with no associated patients or areas; may not be allowed, depending on facility data retention rules)
- **View all currently active bedside unit users**—Home > Bedside Displays tile > Manage Bedside Display Users
- **View all currently inactive bedside unit users**—Home > Bedside Displays tile > Manage Bedside Display Users > Inactive Users tab
- **Edit a bedside unit user's bed assignment**—Home > Bedside Displays tile > Manage Bedside Display Users > Edit Bedside Monitoring Station Assignment
- **Deactivate a bedside unit user**—Home > Bedside Displays tile > Manage Bedside Display Users > Deactivate link for desired user
- **Reactivate a bedside unit user**—Home > Bedside Displays tile > Manage Bedside Display Users > Inactive Users tab > Reactivate link for desired user
- **Add an area**—Home > Areas & Beds tile > Manage Areas > Add Area

- **Edit an area**—Home > Areas & Beds tile > Manage Areas > Name of desired area > Edit Area
- **Delete an area**—Home > Areas & Beds tile > Manage Areas > Delete link for desired area (available only for areas with no associated beds and no assigned users)
- **Add a bed**—Home > Areas & Beds tile > Manage Beds > Add Bed
- **Edit a bed**—Home > Areas & Beds tile > Manage Beds > Name of desired bed > Edit Bed
- **Delete a bed**—Home > Areas & Beds tile > Manage Beds > Delete link for desired bed (available only for beds with no patients or associated devices and no assigned users)
- **Add a device**—Home > Devices tile > Manage Device Inventory > Add Device
- **Edit a device**—Home > Devices tile > Manage Device Inventory > Name of desired device > Edit Device
- **Delete a device**—Home > Devices tile > Manage Device Inventory > Delete link for desired device (available only for devices that have never been linked to a patient currently present in the platform)
- **View general status of all devices**—Home > Devices tile > Device Status
- **Check detailed status of a specific device**—Home > Devices tile > Device Status > Name or address of desired device
- **View existing alarm and notification (event) rule sets**—Home > Alarms tile > Rule Sets > Manage Rule Sets
- **Add alarm rules for a new event rule set**—Home > Alarms tile > Rule Sets > Manage Rule Sets > Add Rule Set > Alarm Rules tab
- **Add a custom event rule**—Home > Alarms tile > Rule Sets > Manage Rule Sets > Add Rule Set > Alarm Rules tab > Add button on panel for desired device type
- **Establish settings rules for a new event rule set**—Home > Alarms tile > Rule Sets > Manage Rule Sets > Add Rule Set > Settings Rules tab
- **Edit an event rule set**—Home > Alarms tile > Rule Sets > Manage Rule Sets > Name of desired rule set > Edit Rule Set
- **Edit a setting rule**—Home > Alarms tile > Rule Sets > Manage Rule Sets > Edit Rule Sets > Setting Rules Tab
- **Delete a custom event rule**—Home > Alarms tile > Rule Sets > Name of desired rule set > Delete button for desired rule
- **Delete a custom event rule set**—Home > Alarms tile > Rule Sets > Delete link for desired rule set
- **Run a utilization report**—Home > Users tile > Utilization Reports > desired report in drop-down menu > Report Parameters panel
- **Run a system status report**—Home > System tile > System Status Reports > desired report in drop-down menu > Report Parameters panel

- **Access this manual within the browser**—Top of any screen > Help (manual appears in a new browser tab)
- **Show software information**—Top of any screen > About
- **Change own password**—Top of any screen > Change Password
- **Log out of the platform**—Top of any screen > Log Out

7.13.4 Other Roles

Users in other roles access and use the software in much the same way as clinicians, supervisors, and administrators do. However, available functionality for these users is more narrowly focused on specific functions those users perform, or determined from where users are accessing the software.

This section lists available functions for users in other roles.

Link Managers

Link managers have access to the following screens and platform functions:

- All Patients and Devices
- Device Detail
 - View device settings and information
 - Modify device settings (for certain derived parameter algorithms)
 - Edit patient details or patient location
 - Discharge a patient
 - View and run reports
 - Link or unlink devices or algorithms
- Admit Patient screen (all functions)
- Reports
- Change Password dialog
- Help
- About dialog
- Log Out

For details on accessing functions, refer to *Clinicians* on page 7-14, or *Supervisors* on page 7-17. Refer to Chapter 4 for more information on how to use available functionality.

Clinical Administrators

Clinical administrators have access to the following screens and software functions:

- Administrator Home screen
- Manage Rule Sets
 - Add Rule Sets screen (all functions)
 - Edit Rule Sets screen (all functions)
- Manage Alerts screen (all functions)
- Manage Parameters screen (all functions)
- Manage Algorithms screen (all functions)
- Reports (system status reports only)
- Change Password dialog
- Help
- About dialog
- Log Out

For details on accessing functions, refer to [Administrators](#) on page 7-21. Refer to Chapter 5 for more information on how to use available functionality.

Central Monitoring Station Users

Central monitoring station users have access to the following screens and platform functions:

- Tile View (sorted by name, location, or device ID)
- Device Detail
 - View device settings and information
 - Modify device settings (for certain derived parameter algorithms)
 - Edit patient details or patient location
 - Discharge a patient
 - View and run reports
 - Link or unlink devices or algorithms
- Patient Assignment screen (all functions)

- Area Assignment screen (all functions)
- Admit Patient screen (all functions)
- Reports
- Audible Alerts dialog
- Help
- About dialog

For details on accessing functions, refer to [Clinicians](#) on page 7-14, or [Supervisors](#) on page 7-17. Refer to Chapter 4 for more information on how to use available functionality.

Bedside Unit Users

Users of dedicated bedside display units have access to the following screens and platform functions:

- Tile View (shows only the bed associated with the dedicated bedside display unit)
- Device Detail
 - View device settings and information (for the associated bed only)
- Audible Alerts dialog
- About dialog

For details on accessing functions, refer to [Clinicians](#) on page 7-14. Refer to Chapter 4 for more information on how to use available functionality.

External Services Users

External services users manage and configure interfaces between the platform and various external application services. Consult Medtronic Professional Services for more information.

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8 Alarms

8.1 Overview

This chapter provides both summary and detailed information on alarm functionality in the Vital Sync™ virtual patient monitoring platform and informatics manager software.

8.2 Summary of Alarm Indicators










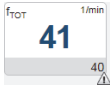

8.2.1 Visual Indicators

When a device or algorithm linked to a patient in the platform has an active alarm, visual indicators (including colors and symbols) will appear in several locations in the platform. See Table 8-1.

Table 8-1. Visual Alarm Indicators (Normal Alarms)

Location	Alarm Priority		
	High	Medium	Low
Tile View Bed Tile			
Patient Header			
Parameter Tile			
Event Panel			
Common Navigation Bar			

Table 8-2. Visual Alarm Indicators (Filtered or Silenced Alarms)

Location	Filtered Alarm	Alert Silenced in the Platform	Alarm Paused or Silenced on the Device
Tile View Bed Tile	<div><p>The icon above appears on the bed tile next to the icon for any device with one or more filtered alarms.</p><p>If the filtered alarm is the only active event for the patient, the bed tile will be white, as shown.</p></div>	<div><p>The icon above appears in the upper right corner of the bed tile when audible alerts are silenced for this patient in the platform.</p><p>Silencing alerts does not change the bed tile color.</p></div>	<div><p>The icon above appears on the bed tile next to the icon for the affected device when audible alerts are paused or silenced on the device itself.</p><p>Pausing or silencing alarms does not change the bed tile color.</p></div>
Patient Header			
Parameter Tile		None	None
Event Panel		None	None
Common Navigation Bar	None (additionally, if the filtered alarm is the only active alarm for the affected patient, the patient will not be included in the number of patients with alarms, shown on the alarm button)	None	None

In places where only a single alarm can be shown, the alarm with the highest priority on the device or algorithm with the highest priority will appear. See [Event Priority](#) on page 8-14 for details.

Alarm severity is denoted using specific colors, as shown in Table 8-2.

Table 8-3. Alarm Colors

High-Priority Alarm	Medium-Priority Alarm	Low-Priority Alarm
Red	Yellow*	Yellow*

* Use the icon on the tile to distinguish between priorities (two exclamation points indicates a medium-priority alarm, one exclamation point indicates a low-priority alarm).

8.2.2 Audible Indicators

If audible alerts are available for use and enabled for this user, an alert tone will sound on the user's PC or mobile device whenever a device or algorithm linked to any of this user's assigned patients enters an alarm state. The platform supports single-tone and multi-tone alerts.

If this user is set up to hear single-tone alarms, the same alert tone will sound when any alarm is active for any of this user's assigned patients, regardless of its priority.

If this user is set up to hear multi-tone alarms, the alert tone that sounds when any alarm is active for any of this user's assigned patients indicates the priority of the highest-priority active alarm. Refer to Table 8-4 for default alert tones.

Table 8-4. Audible Alert Tones (Default)

Alert	High	Medium	Low
Multi-Tone	Triple beep	Double beep	Single beep
Single-Tone	Single beep	Single beep	Single beep

See [Audible Alert Tones](#) on page 7-11 for additional information.

If alarms are active on multiple devices or for multiple algorithms, the alert tone in the platform will correspond to the severity of the alarm with the highest priority in the platform. See [Event Priority](#) on page 8-14.

If an alarm is active on a device, but the device's audible alarm tone has been paused or silenced at the bedside, an audible alert will (by default) still sound in the platform to denote that the alarm is active. See [Alert Silencing and Device Alarms](#) on page 7-12 for additional information.



WARNING:

It is possible for the platform's audible alert tone to be confused with audible alarm tones from connected devices when in close physical proximity. Users should carefully attend to all audible indicators when within audible range of connected devices.



WARNING:

If using audible alerts, ensure the sound volume of the PC or mobile device on which the software is used is sufficient for alerts to be heard and recognized.



Note:

If viewing the Device Detail screen, an audible alert tone currently sounding may be for an alarm on a different device than is currently selected. If the alert tone currently sounding does not correspond to the severity of any alarms shown for the current device, access the Tile View to see the highest-priority alarms active for all currently assigned patients.



Note:

Some mobile devices do not support the sounding of audible alerts from the platform due to device limitations. Make sure to test audible alert capability on any mobile device to be used.

**Note:**

Audible alerts only sound to indicate alarms on devices linked to patients. Audible alerts do **not** sound for notifications.

**Note:**

The platform's audible alert tones are not specific to any device type.

**Note:**

The platform's audible alert tones and alert tone behavior relating to alarms paused or silenced on devices are configurable. Consult with Medtronic Professional Services for details.

8.3 Clear Alarm Indicators

To clear device alarm indicators appearing in the platform, **first attend to the patient and clear the alarm on the device itself**.

Indicators for specific device alarms will continue to appear in the platform until the alarm in question is cleared on the device, and for a short period of time afterward (until the platform receives data from the device showing that the alarm is no longer active).

Indicators for specific algorithm alarms cannot be cleared, but will continue to appear in the platform until the algorithm no longer indicates the presence of an alarm state.

**Note:**

The platform does **not** provide any means of clearing alarms remotely. Alarms on devices must be attended to at the bedside.

8.4 Audible Alerts and Alarms

The platform allows temporary silencing of audible alerts indicating an active alarm for a patient, and also provides visual indicators when the audible alarm on certain devices has been paused or silenced at the bedside.

8.4.1 Silence Audible Alerts in the Platform

To silence audible alerts currently sounding in the platform for a specific patient, click the silence button in the patient header in the Device Detail screen for that patient.

Figure 8-1. Silence Button



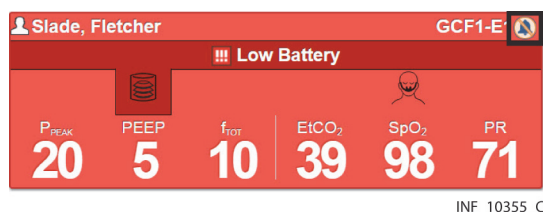
Once clicked, the silence button will change color to grey to indicate alerts have been silenced for this patient.

Figure 8-2. Silence Button (alerts silenced)



In addition, the alert silence icon will appear in the upper right corner of the bed tile for the duration of the alert silence period.

Figure 8-3. Bed Tile (platform alert silence indicated)



Silencing affects only alert tones triggered by current device or algorithm alarms for the selected patient; it does not affect alert tones triggered by alarms for other patients.

If other alarms are triggered, or if an existing alarm increases in priority, alert tones will sound again for this patient, and the silence button will change back to its normal color. Click the silence button again to silence alerts again.

Once all alarms are cleared for the patient, the patient header will no longer show a color indicating an alarm, and the silence button will no longer be present.



Note:

If an alert sounds while audible alerts are silenced for the current patient, this means that alarms are active for a different patient. Check other patients for alarm conditions.



Note:

The default alert silence configuration is two minutes.

For details on configuring the silence period, consult Medtronic or your local Medtronic representative.



Note:

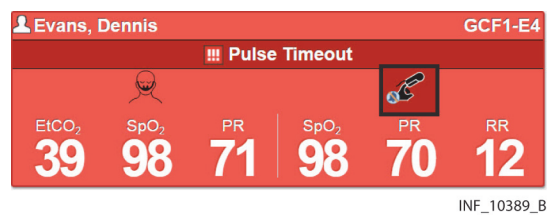
Silencing alert tones in the platform does not pause or silence corresponding alarms on any device.

8.4.2 Paused or Silenced Device Alarm Indicators

When alarms are paused or silenced on certain devices, visual indicators that this has occurred will appear in the platform.

In the Tile View, the device alarm silence icon will appear next to the icon for the affected device.

Figure 8-4. Bed Tile (device alarm pause or silence indicated)



In the patient header in the Device Detail screen, the device alarm silence icon will appear on the tab for the affected device, next to the device icon.

Figure 8-5. Patient Header Panel (device alarm pause or silence indicated)



Note:
Not all devices support visual alarm pause or silencing indicators in the platform. Visual indicators of audible alarm status on a device are only available for devices that send audible alarm status information to the software. Consult Medtronic Professional Services for more information.



Note:
By default, pausing or silencing audible alarms on a device does not silence the corresponding audible alert in the platform. For other options, consult with Medtronic Professional Services.

8.5 View Alarm Information



WARNING:
The Vital Sync™ Virtual Patient Monitoring Platform and Informatics Manager is intended to supplement and not to replace any part of the facility’s monitoring. Do not rely on the Vital Sync™ Virtual Patient Monitoring Platform and Informatics Manager as the sole source of alarms.

In order to assure a timely response to device alarms, a clinician (not necessarily the clinician viewing data in the platform) must be within visual and/or audible range of the alarming device. In order to provide medical intervention, a clinician must interact with the device at the bedside.

Alarm indicators appear in several locations in the platform. Users may directly access more detailed alarm information from any of these locations.



Note:
Before acting on information shown in the platform, check the patient at the bedside.

8.5.1 Common Navigation Bar

If any of the current user's assigned patients has any active device or algorithm alarms, the alarm button icon will change color to red, and will show how many of those patients have active alarms.

Figure 8-6. Common Navigation Bar (alarms indicated)

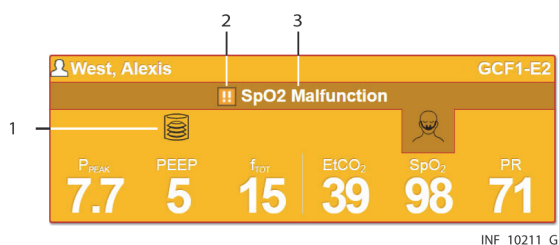


Hover over the alarm button to show patients assigned to this user who have active alarms; click on any patient in the list to open the Device Detail screen for that patient.

8.5.2 Bed Tiles

If a patient has alarms active on a linked device or for an algorithm, the Tile View bed tile will change color to denote the severity of the alarm with the highest priority, and will show information for the device or algorithm involved and for the alarm.

Figure 8-7. Bed Tile (alarm indicated)

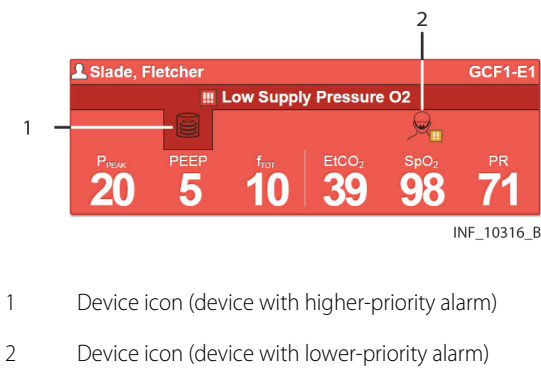


- 1 Device icon (affected device highlighted)
- 2 Alarm severity icon
- 3 Alarm message (also current alarm duration if greater than 2 minutes)

To access detail for the device or algorithm with the highest-priority active alarm, click on the bed tile. The Device Detail screen will appear, with that device or algorithm selected. For devices, tiles for parameters in an alarm state will be yellow or red, and will show an alarm icon. For algorithms, the current algorithm value will be highlighted in yellow or red, with a descriptive message. The event panel will also show all active alarms and their current durations.

If an alarm is also present on another linked device or for an algorithm, but is of lower priority than the alarm currently shown on the Tile View bed tile, an icon indicating the priority of the other alarm will appear next to the icon for that device or algorithm on the bed tile.

Figure 8-8. Bed Tile (secondary alarm indicator shown)



Note: When accessing alarm detail, make sure to attend to all active alarms on the device currently selected, and also to active alarms of lower priority on other linked devices and for linked algorithms. The presence of any such alarms is indicated on tabs for other devices in the patient header, and on icons next to other devices on the bed tile.

8.5.3 Device Detail Screen (Patient Header)

In the patient header, an alarm icon indicating alarm severity will appear on the tab for any device or algorithm with active alarms. To access alarm detail, click on the device tab.

Figure 8-9. Patient Header (active alarm indicated on device)

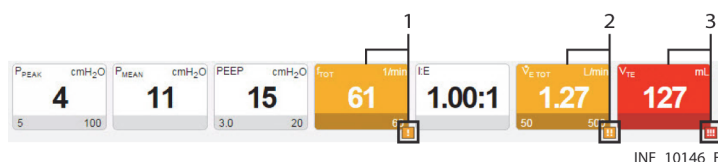


As shown in Figure 8-9, the entire patient header also changes color to denote the severity of the alarm with the highest priority among all devices and algorithms, exactly as the bed tile in the Tile View does. The silence button will also be present.

8.5.4 Device Detail Screen (Parameter Panel)

In the parameter panel, tiles for parameters in an alarm condition will change color to red (for high-priority alarms) or yellow (for medium-priority or low-priority alarms), and an icon showing alarm severity will also appear near the lower right corner of the tile.

Figure 8-10. Parameter Panel (alarm indicators shown)

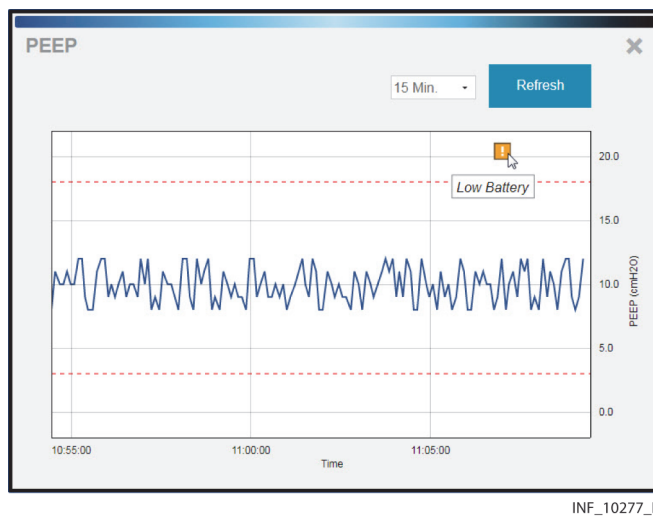


- 1 Low-priority alarm indicators
- 2 Medium-priority alarm indicators
- 3 High-priority alarm indicators

8.5.5 Device Detail Screen (Parameter Trend Window)

In the parameter trend window, alarm severity icons indicate the onset time in the platform for a particular alarm. Click on any alarm severity icon to show the associated alarm message.

Figure 8-11. Parameter Trend Window (alarm message shown)



Note:

All alarms occurring on the selected device during the selected timeframe appear in the window, including alarms not directly related to the parameter shown in the window, as well as alarms set to never annunciate in the platform.

8.5.6 Device Detail Screen (Event Panel)

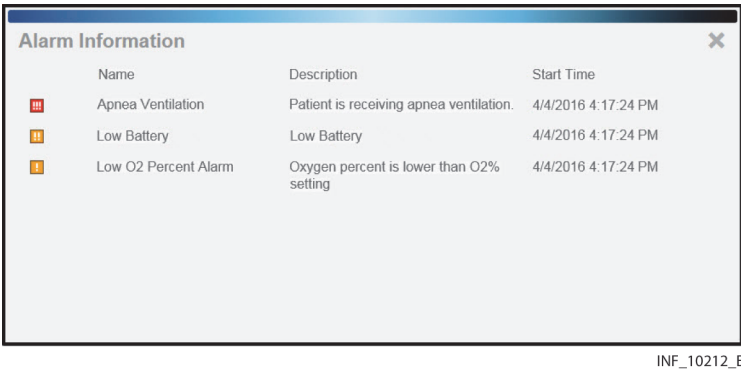
In the event panel, all active alarms from the selected device or algorithm will appear, along with the current duration of the alarm since it was first detected in the platform.

Figure 8-12. Event Panel (alarms and durations shown)



To access detail for all active alarms, click on any alarm in the panel to open the Alarm Information window.

Figure 8-13. Alarm Information Window



Information shown in this window includes:

- **Name**—The alarm name, as defined on the device
- **Description**—A brief description of the alarm
- **Start Time**—The onset time for the alarm

After viewing details, click the **X** at upper right to close the window.



Note:

Alarm indicators will continue to appear in the platform until cleared on the device, or until the algorithm no longer indicates the presence of an alarm condition.



Note:

When accessing alarm detail, make sure to attend to all active alarms on the device currently selected, and also to active alarms of lower priority on other linked devices (the presence of any such alarms is indicated on device tabs in the patient header, and next to device icons on the bed tile).

8.6 Filtered Alarms

Administrative users can set rules in the software to turn off or delay visible and audible alarm annunciation in the platform when particular alarms are present on a linked device. This is used to reduce the incidence of nuisance alarms. See [Manage Alarm, Notification, and Setting Rules](#) on page 5-31.

If a filtered alarm is present on a device, visual indicators will appear in various locations in the platform during the delay interval (that is, after the platform receives notice of the alarm, but before the set delay period has elapsed). Users may directly access more detailed alarm information from any of these locations.



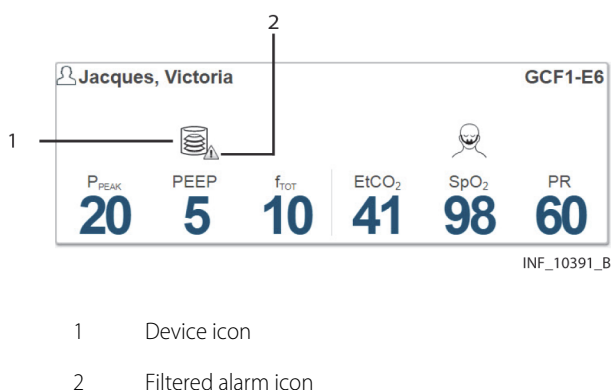
Note:

Before acting on information shown in the platform, check the patient at the bedside.

8.6.1 Bed Tiles

If a patient has one or more filtered alarms active on a linked device or for an algorithm, an icon indicating the presence of filtered alarms will appear on the bed tile next to the icon for the affected device or algorithm.

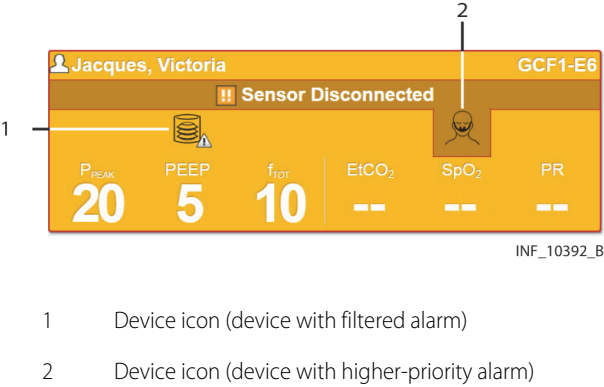
Figure 8-14. Bed Tile (filtered alarm indicated)



To access detail for the device or algorithm with filtered alarms, click on the bed tile. The Device Detail screen will appear; if no other alarms are active on devices linked to this patient, the device or algorithm with filtered alarms will be selected.

If an alarm is active on a linked device or for an algorithm and is currently annunciating in the platform, but one or more filtered alarms are active for another device or algorithm linked to the same patient, an icon indicating the presence of filtered alarms will appear next to the icon for the affected device or algorithm on the bed tile.

Figure 8-15. Bed Tile (secondary alarm indicator shown for filtered alarm)



Note: When accessing alarm detail, make sure to attend to all active alarms on the device currently selected, and also to active alarms of lower priority on other linked devices and for linked algorithms. The presence of any such alarms is indicated on tabs for other devices in the patient header, and on icons next to other devices on the bed tile.

8.6.2 Device Detail Screen (Patient Header)

In the patient header, an icon indicating the presence of filtered alarms will appear on the tab for any device or algorithm with one or more active filtered alarms. To access alarm detail, click on the device tab.

Figure 8-16. Patient Header (filtered alarm indicated on device)

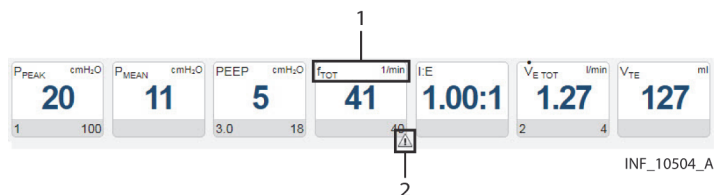


Note: The patient header will not change color to indicate a filtered alarm until the annunciation delay interval set for the alarm has elapsed. If the patient header does change color before the delay interval has elapsed, it is due to the presence of a different, non-filtered alarm.

8.6.3 Device Detail Screen (Parameter Tile)

In the parameter panel, an icon indicating the presence of a filtered alarm will appear near the lower right corner of the parameter tile if the alarm is associated with that parameter.

Figure 8-17. Parameter Panel (filtered alarm indicated for parameter)

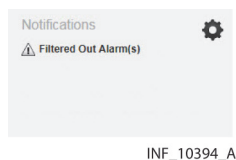


- 1 Parameter name
- 2 Filtered alarm icon

8.6.4 Device Detail Screen (Event Panel)

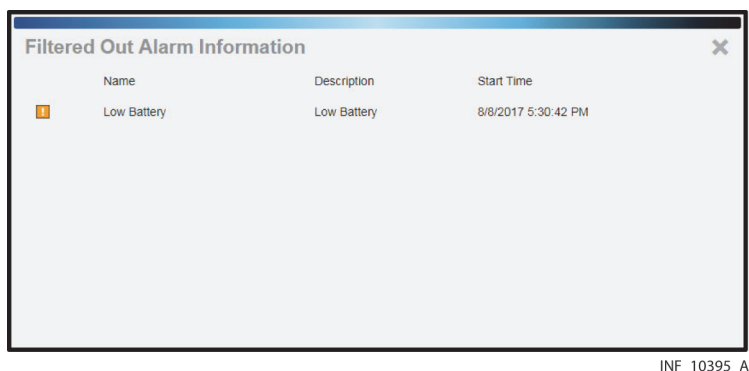
In the event panel, a message indicating that one or more filtered alarms is active on the selected device will appear during the delay interval set for the device.

Figure 8-18. Event Panel (filtered alarm message shown)



To access detail for filtered alarms, click on the message to open the Filtered Out Alarm Information window.

Figure 8-19. Filtered Out Alarm Information Window



Information shown in this window includes:

- **Name**—The alarm name, as defined on the device

- **Description**—A brief description of the alarm
- **Start Time**—The onset time for the alarm

After viewing details, click the **X** at upper right to close the window.



Note:

Filtered alarm indicators will continue to appear in the platform until the delay period (if any) set for the alarm expires, or until the alarm condition no longer exists.



Note:

When accessing alarm detail, make sure to attend to all active alarms on the device currently selected, and also to active alarms of lower priority on other linked devices (the presence of any such alarms is indicated on device tabs in the patient header, and next to device icons on the bed tile).

8.6.5 Other Locations

Filtered alarms are not visibly indicated on the alarm button on the common navigation bar or in the alarm button menu. Alarms are only visibly indicated in these locations when they are actually annunciating.

8.7 Event Priority

The platform shows alarms and notifications (also referred to as events) from multiple devices and device types. Built-in priority rules for event types and device types govern how the platform shows events, especially in places where only a single event may be shown.

For a more detailed explanation of these criteria, see [Event Priority](#) on page 7-8.

For a list of default priority levels for specific alarms, as defined on individual devices, see [Default Alarm Priority by Device](#) on page 7-9.

For information on normalizing priorities for specific alarms in the platform, see [Manage Alerts](#) on page 5-42.



WARNING:

Alarm priority normalization and ranking functionality within the platform is intended to supplement and not replace any part of the facility's monitoring. Do not rely on the platform as the sole source of alarms.



WARNING:

Alarm priorities in the platform should not be set to be lower than those on the actual device. Use caution if changing the priority of a device alarm in the platform to a different level than is indicated on the actual device, especially for devices that are life-sustaining.

**WARNING:**

Alarms from connected devices should not be set as notifications in the platform, especially for devices that are life-sustaining. Because notifications do not audibly annunciate, setting an alarm as a notification may cause users to not respond or delay in responding to a clinically significant event.

**WARNING:**

Notifications from connected devices should not be set as alarms in the platform, especially for events not requiring clinical intervention. Setting a notification as an alarm may create nuisance audible alerts that are not clinically significant.

8.8 Alarm Behavior in the Platform

Appropriate alarm rule settings in the Rule Set screens and appropriate priority settings in the Manage Alert screens require careful consideration of each individual facility's hardware and networks, as well as in-depth knowledge of each alarm type, and of conditions specific to the facility and care areas.

For a more detailed explanation of how alarms behave in the platform, see [Alarm Functionality and Behavior](#) on page 7-3. Consider this carefully when setting alarm rules (as described in [Manage Alarm, Notification, and Setting Rules](#) on page 5-31) and when setting alarm priorities in the platform (as described in [Manage Alerts](#) on page 5-42).

**WARNING:**

Alarm rules should adhere to facility policy, procedures, and alarm management protocols. This alarm management protocol should address alarm safety and the potential impact of alarm fatigue in all patient care areas within the facility.

**WARNING:**

Alarm priority normalization and ranking functionality within the platform is intended to supplement and not replace any part of the facility's monitoring. Do not rely on the platform as the sole source of alarms.

**WARNING:**

When setting alarm rules and priorities in the platform for any device, consult the operator's manual for the device in question for default priority levels of device alarms, and for a description of each device alarm. Obtain a detailed understanding of the patient or device conditions that trigger any alarm before creating an alarm rule or adjusting the alarm's priority in the platform.

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9 Notifications

9.1 Overview

This chapter provides summary and detailed information on notification (non-alarm event) functionality in the Vital Sync™ virtual patient monitoring platform and informatics manager software.

9.2 Summary of Notification Indicators

9.2.1 Visual Indicators

When any device or algorithm linked to a patient in the platform has an active notification, visual indicators of the notification (including colors and symbols) will appear in several locations in the platform, as shown in Table 9-1.

Table 9-1. Visual Notification Indicators (Device-Related)


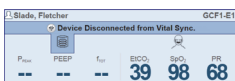
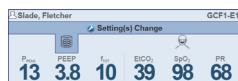



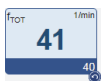





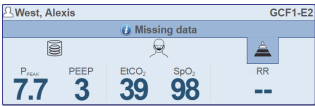

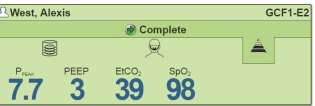







	Notification Type		
Location	Reset Alarm	Device Disconnect	Setting Change
Tile View (Bed Tile)			
Device Detail (Patient Header)			
Device Detail (Parameter Tile)		 (across entire screen)	None
Device Detail (Event Panel)			
Device Detail (Settings Panel)	None		
Common Navigation Bar			

Table 9-2. Visual Notification Indicators (Informational)

	Notification Type		
Location	Standard Informational	Unfavorable Patient Event	Favorable Patient Event
Tile View (Bed Tile)			
Device Detail (Patient Header)			
Device Detail (Event Panel)			
Common Navigation Bar			

In places where only a single notification can be shown, the notification on the device or algorithm with the highest priority will appear. See [Event Priority](#) on page 8-14 for details.

The notification type is denoted using specific colors, as shown in Table 9-3.

Table 9-3. Notification Colors

Device-Related or Standard Informational Notification	Unfavorable Patient Event Notification	Favorable Patient Event Notification
Blue	Light yellow	Green



Note: Illustrations showing derived parameter algorithms in this chapter include generic algorithm icons and data. Each individual algorithm will have its own parameters, and may have its own specific icon, not shown here. Basic notification behavior described here is the same for all algorithms.

9.2.2 Audible Indicators

The platform does **not** sound audible alerts for notifications. Audible alerts (if enabled) only sound when an alarm is active.

9.3 View Notification Information

Notifications appear in several locations in the platform. Users may directly access more detailed event information from any of these locations.



Note:

Before acting on information shown in the platform, check the patient at the bedside.

9.3.1 Common Navigation Bar

If any patient assigned to the current user has device disconnect alarms, reset alarms, unacknowledged setting change notifications, patient event notifications, or other standard notifications, the notification button icon will change color to blue, and will show how many of the current user's assigned patients have notifications.

Figure 9-1. Common Navigation Bar (notifications indicated)

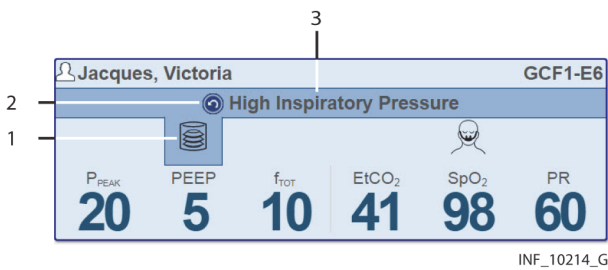


Hover over the notification button to show patients assigned to this user who have active notifications; click on any patient in the list to open the Device Detail screen for that patient.

9.3.2 Bed Tiles

If a patient has reset alarms on a linked device, and no other active alarms, the Tile View bed tile will change color to blue. It will also show a reset alarm icon and message, with the affected device highlighted.

Figure 9-2. Bed Tile (reset alarm indicated)

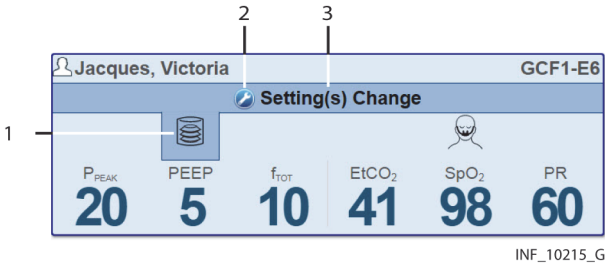


- 1 Icon for affected device (highlighted)
- 2 Reset alarm icon
- 3 Reset alarm message

To access detail for the device with one or more reset alarms, click on the bed tile. The Device Detail screen will appear, with that device selected. Tiles for any affected parameters will have the reset alarm icon next to them; the event panel will also show reset alarms.

If a patient has unacknowledged setting change notifications on a linked device, and no active alarms, the Tile View bed tile will change color to blue. It will also show a notification icon and message, with the affected device highlighted.

Figure 9-3. Bed Tile (setting change indicated)

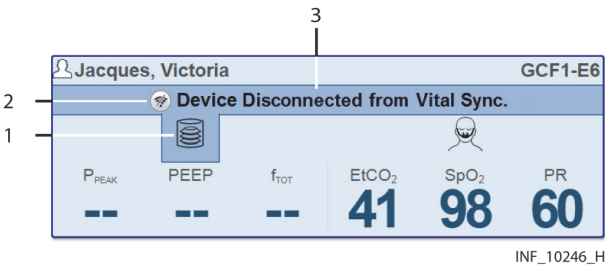


- 1 Icon for affected device (highlighted)
- 2 Notification icon
- 3 Setting change message

To access detail for the device with setting changes, click on the bed tile. The Device Detail screen will appear, with that device selected. Tiles for any affected settings will be outlined in blue; the event panel will also show a single indicator for setting changes, followed by the number of currently unacknowledged setting changes.

If a patient has linked devices that have lost communication with the platform, and no active alarms, the Tile View bed tile will change color to blue. It will also show a device disconnection icon and message, with the affected device highlighted.

Figure 9-4. Bed Tile (device disconnection indicated)

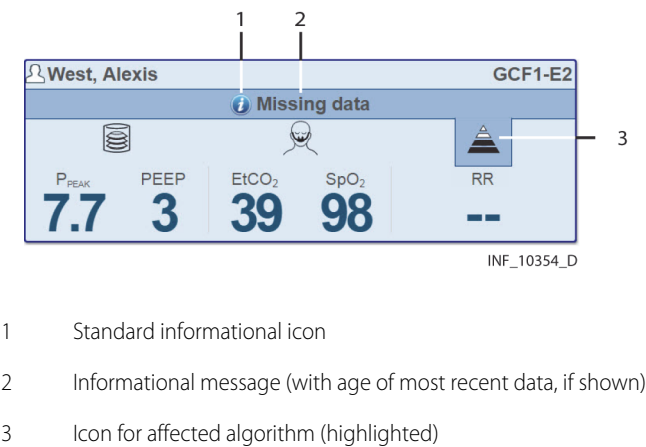


- 1 Icon for affected device (highlighted)
- 2 Device disconnection icon
- 3 Disconnection message

To show the disconnected device, click on the bed tile. The Device Detail screen will appear, showing a large disconnection icon in place of device detail. To reconnect or replace the device, access connection functions. See [Device Connection Functions](#) on page 4-39.

If a patient has a linked algorithm for which there is an informational notification, and no active alarms, the Tile View bed tile will change color to blue. It will also show a standard informational icon and message, with the affected algorithm highlighted.

Figure 9-5. Bed Tile (informational notification indicated)



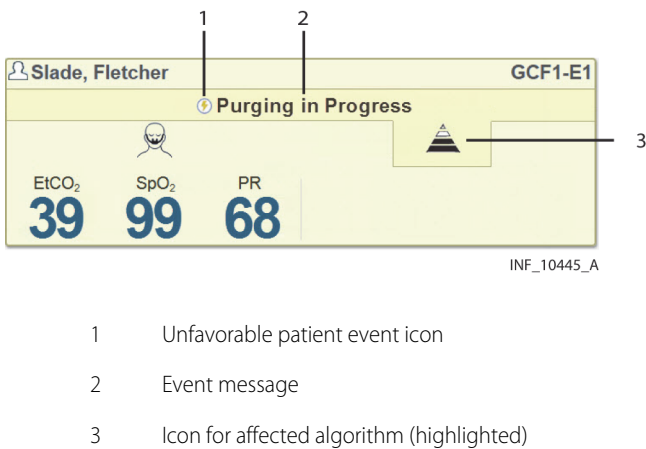
Note:

The message text and the associated parameter and value shown are specific to the algorithm.

To show the algorithm with the informational notification, click on the bed tile. The Device Detail screen will appear, with that algorithm selected. The most current parameter data will be shown. See [Manual Parameter Entry](#) on page 4-42 for more information.

If a patient has a linked algorithm for which an unfavorable patient event has occurred, and no active alarms, the Tile View bed tile will change color to light yellow. It will also show an unfavorable patient event icon and message, with the affected device or algorithm highlighted.

Figure 9-6. Bed Tile (unfavorable patient event indicated)



To show the device or algorithm with the event, click on the bed tile. The Device Detail screen will appear, with that device or algorithm selected. The event panel will show the notification.



Note:

An unfavorable patient event notification indicates the potential for a problem with the patient. This requires prompt attention from the clinician or supervisor.

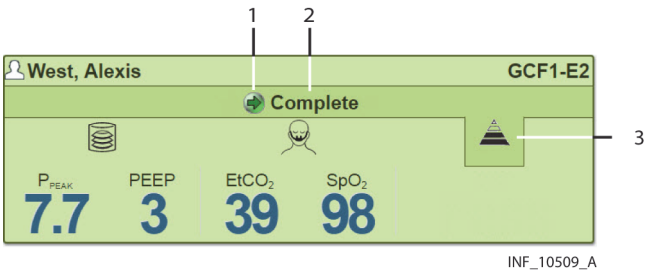


Note:

The message text and the associated parameter and value shown are specific to the algorithm.

If a patient has a linked algorithm for which a favorable patient event has occurred, and no active alarms, the Tile View bed tile will change color to green. It will also show a favorable patient event icon and message, with the affected device or algorithm highlighted.

Figure 9-7. Bed Tile (favorable patient event indicated)



- | | | | |
|---|------------------------------|---|---|
| 1 | Favorable patient event icon | 3 | Icon for affected algorithm (highlighted) |
| 2 | Event message | | |

To show the device or algorithm with the event, click on the bed tile. The Device Detail screen will appear, with that device or algorithm selected. The event panel will show the notification.



Note:

The message text and the associated parameter and value shown are specific to the algorithm.

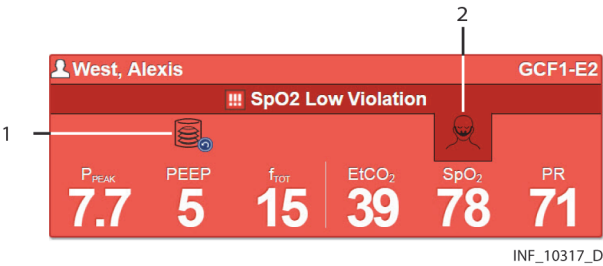


Note:

Each individual algorithm has specified circumstances under which a notification will be indicated as a standard notification, an unfavorable event, or a favorable event. Consult Medtronic for further information.

If a notification of any kind is active for a linked device or algorithm, but an event of higher priority is currently shown on the Tile View bed tile, an appropriate notification icon will appear next to the icon for the device or algorithm on the bed tile.

Figure 9-8. Bed Tile (secondary notification indicator shown)



- | | |
|---|---|
| 1 | Device or algorithm icon (device or algorithm with active notification) |
| 2 | Device or algorithm icon (device or algorithm with higher-priority event) |

9.3.3 Device Detail Screen (Patient Header)

If a standard notification is active, a notification, disconnection, reset alarm, or setting change icon will appear on the tab for the device or algorithm with notifications.

If there are no active events of higher priority for the patient, the patient header will also change color to blue.

Figure 9-9. Patient Header (standard notification indicated)



If an unfavorable patient event notification is active, the unfavorable event icon will appear on the tab for the associated algorithm.

If there are no active events of higher priority for the patient, the patient header will also change color to light yellow.

Figure 9-10. Patient Header (unfavorable patient event indicated)



If a favorable patient event notification is active, the favorable event icon will appear on the tab for the associated algorithm.

If there are no active events of higher priority for the patient, the patient header will also change color to green.

Figure 9-11. Patient Header (favorable patient event indicated)



To access detail for any notification, click on the device icon.

9.3.4 Device Detail Screen (Parameter Panel)

In the parameter panel, tiles for parameters with reset alarms will change color to blue, and a reset alarm icon will appear near the lower right corner of the tile.

Figure 9-12. Parameter Panel (reset alarm indicator shown)



Click the parameter tile to view trend data. Alarm periods will appear in red, with a reset alarm icon indicating the time of each reset alarm.

9.3.5 Device Detail Screen (Event Panel)

In the event panel, active reset alarms, standard notifications, favorable event notifications, and unfavorable event notifications will appear, along with the number of unacknowledged setting changes.

To view notification details:

- 1. Click on any notification in the event panel. The Alarm Information window will appear. See [Figure 8-13](#).
- 2. When done viewing detail, click the **X** at upper right to close the window.



Note: Within a short time (typically no more than five seconds), any reset alarms just viewed will disappear from the event panel; the indicators for these reset alarms elsewhere in the platform will also disappear. However, missing data notifications will remain in the event panel until there is no longer missing data for the algorithm in question.



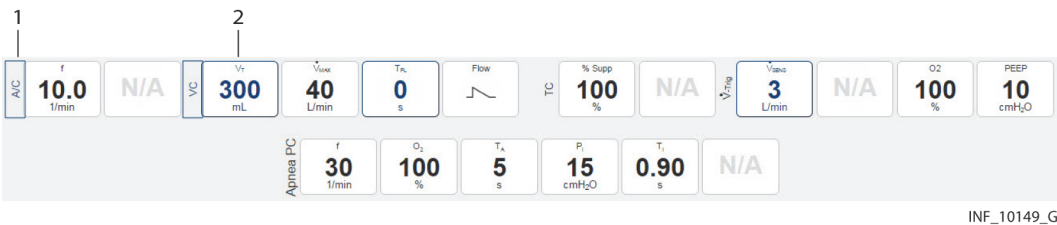
Note: While reset alarm notifications will no longer appear in the platform after they are viewed in the event panel, check the device to see if there is a problem if particular reset alarms continue to recur.

For information on viewing setting change detail and acknowledging setting changes, see [View and Acknowledge Setting Changes](#) on page 9-9.

9.3.6 Device Detail Screen (Settings Panel)

In the settings panel, tiles and device mode labels for settings with unacknowledged changes will be outlined in blue.

Figure 9-13. Settings Panel (changed settings shown)



- 1 Device mode label (setting changed)
- 2 Settings tile (setting changed)

INF_10149_G

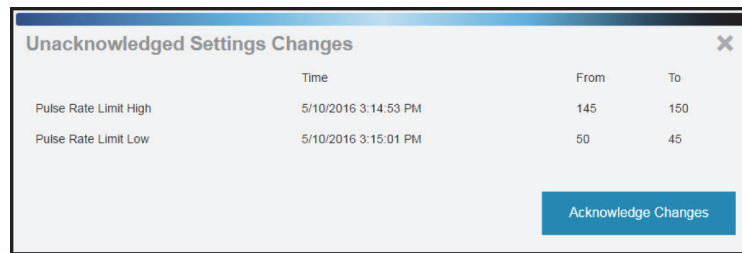
9.4 View and Acknowledge Setting Changes

Setting change notifications are slightly different from other notifications, because they must be acknowledged in order to clear them in the platform. Users can acknowledge setting changes individually, or can set them up to be automatically acknowledged in the platform after a certain period of time.

To view setting change details and acknowledge setting changes:

1. Click on the **Setting Change** message in the event panel to open the Unacknowledged Settings Changes window.

Figure 9-14. Unacknowledged Settings Changes Window



	Time	From	To
Pulse Rate Limit High	5/10/2016 3:14:53 PM	145	150
Pulse Rate Limit Low	5/10/2016 3:15:01 PM	50	45

INF_10216_E

Information shown in this window includes:

- The setting name, as defined on the device
 - **From**—The previous value for this setting
 - **To**—The new value for this setting
2. When finished viewing setting change detail, click **Acknowledge Changes** to close the window. The setting change message and indicators elsewhere in the platform will disappear after a few seconds.



Note:

If new changes to settings occur before the setting change message in the events panel disappears, the setting change message will remain visible, and the number will change to show the new number of unacknowledged setting changes.

Depending on the nature and volume of setting change messages, it may be preferable to enable automatic acknowledgment in the platform, so as not to overburden individual users with unnecessary acknowledgments. Refer to [Add or Edit a Rule Set](#) on page 5-33 for details.

9.5 Event Priority

The platform shows alarms and notifications (also referred to as events) from multiple devices and device types. Built-in priority rules for event types and device types govern how the platform shows events, especially in places where only a single event may be shown.

For a more detailed explanation of these criteria, see [Event Priority](#) on page 8-14.

For a list of default priority levels for specific alarms, as defined on individual devices, see [Default Alarm Priority by Device](#) on page 7-9.

For information on normalizing priorities for specific alarms in the platform, see [Manage Alerts](#) on page 5-42.



WARNING:

Alarm priority normalization and ranking functionality within the platform is intended to supplement and not replace any part of the facility's monitoring. Do not rely on the platform as the sole source of alarms.



WARNING:

Alarms from connected devices should not be set as notifications in the platform, especially for devices that are life-sustaining. Because notifications do not audibly annunciate, setting an alarm as a notification may cause users to not respond or delay in responding to a clinically significant event.



WARNING:

Notifications from connected devices should not be set as alarms in the platform, especially for events not requiring clinical intervention. Setting a notification as an alarm may create nuisance audible alerts that are not clinically significant.

Index

A

- About dialog (version information)
 - Administrators and clinical administrators 5-50
 - Clinicians, supervisors, and link managers 4-65
- Access
 - Admit Patient screen 4-35
 - Alarm, notification, and setting rules 5-32
 - Reports 6-1
 - Software 3-2
- Acknowledge setting changes 9-9
- Activate
 - Bedside unit user 5-17
 - User 5-11
- Add
 - Algorithms (DPA) 5-47
 - Areas 5-21
 - Beds 5-25
 - Devices 5-27
 - Parameters 5-46
 - Patient data (Admit Patient screen) 4-37
 - Rule sets 5-33
 - Shifts 5-19
 - Users 5-8
- Administrator operation
 - Alarm, notification, and setting rule management 5-31
 - Basic user interface 5-1
 - Change password 5-14
 - Device status 5-29
 - Help 5-49
 - Home screen 5-4
 - Manage alerts 5-42
 - Manage algorithms 5-47
 - Manage bedside unit users 5-15
 - Manage device inventory 5-26
 - Manage locations
 - Areas 5-20
 - Beds 5-24
 - Manage parameters 5-45
 - Manage shifts 5-18
 - Manage users 5-6
 - Navigation 5-1
 - Platform logout 5-50
 - Reports 5-49, 6-7
 - Reset a password 5-13
 - Software access 3-2
 - Software login 3-2
 - View version information (About dialog) 5-50
- Admit Patient screen
 - Access 4-35
 - Add or edit patient data 4-37
 - Availability 4-34
 - Device connection functions
 - Relink a device 4-40
 - Unlink a device 4-41
 - Link a device 4-37
 - Link additional devices 4-38
 - Manage primary devices 4-38
- Alarm button menu 4-4
- Alarm Duration by Time of Day report 6-30
- Alarm escalation 7-5
- Alarm Normalization Report 6-7
- Alarm Occurrence Pareto chart 6-31
- Alarm Rule Set Report 6-8
- Alarm symbols 2-5
- Alarm Threshold Analysis 6-17
- Alarms
 - Alarm behavior
 - Alarm escalation 7-5
 - Device data reporting 7-3
 - True alarm duration 7-4
 - Alarm communication from devices 7-1
 - Alarm indicators
 - Audible 8-3
 - Visual 8-1
 - Alarm rule considerations
 - Delay constraints 7-6
 - Effects of rule settings 7-7
 - Event and delay options 7-6
 - Alarm, notification, and setting rule management 5-31
 - Alert information (Manage Alerts screen) 5-43
 - Annunciating
 - Secondary indicator on bed tile 8-7
 - View information
 - In bed tile 8-7
 - In common navigation bar 8-7
 - In event panel 8-10
 - In parameter panel 8-9
 - In parameter trend window 8-9
 - In patient header 8-8
 - Secondary indicator n bed tile 8-7
 - Audible alerts
 - Enable or disable 4-65, 5-9
 - Lock or unlock user control 5-9
 - Tones 7-11
 - Clear alarms
 - From algorithms 8-4
 - From devices 8-4
 - Default alarm priority by device 7-9
 - Edit a device alert 5-43
 - Event (alarm and notification) priority 7-8
 - Filtered
 - Secondary indicator on bed tile 8-11
 - View information
 - In bed tile 8-11
 - In event panel 8-13
 - In other locations 8-14
 - In patient header 8-12
 - On parameter tile 8-13
 - Paused or silenced device alarm indicators 8-5
- Reports
 - Alarm Duration by Time of Day 6-30
 - Alarm Normalization Report 6-7
 - Alarm Rule Set Report 6-8
 - Alarm Threshold Analysis 6-17
 - Silence audible alerts 8-4
- Alarms and notifications (general description) 4-1
- Algorithms (DPA)
 - Activate an algorithm 5-48
 - Add an algorithm 5-47
 - Deactivate an algorithm 5-48
 - Information 5-47
 - Manual parameter entry 4-42
 - Use and behavior 5-48

Index

All Patients and Devices screen	
Additional view options	4-33
Availability	4-32
Information shown	4-32
View assignments	4-34
View device detail	4-33
Application event information (Event List)	4-61
Application Event Log	6-10
Area Assignment screen	
Availability	4-53
Change assignments	4-56
Layout	4-53
Show assignments by work shift	4-55
Show other user's assignments	4-54
Show unassigned areas	4-54
Areas	
Add	5-21
Delete	5-23
Edit	5-22
Explanation of functionality	7-1
Information	5-21
Assignments by work shift	
Area Assignment screen	4-55
Patient Assignment screen	4-48
Audible alerts	
Access to settings	4-63
Enable or disable	
For self	4-65
For user	5-9
Lock out or unlock user control	5-9
Paused or silenced device alarm indicators	8-5
Silence alerts	8-4
Silencing on platform and on device	7-12
Test alert tones	4-64
Tones	8-3
Additional tones	7-12
Multi-tone	7-11
Single-tone	7-11
Tones and devices	7-12
Auto-reconnection for devices	7-12
Availability by user role	
Add Area screen	5-21
Add Bed screen	5-24
Add Device screen	5-26
Add Rule Set screen	5-32
Add Shift screen	5-18
Admit Patient screen	4-34
All Patients and Devices screen	4-32
Area Assignment screen	4-53
Create User screen	5-6
Device Detail screen	4-12
Device Status screen	5-29
Edit Area screen	5-21
Edit Bed screen	5-24
Edit Bedside Display Bed Assignment screen	5-15
Edit Device screen	5-26
Edit Rule Set screen	5-32
Edit Shift screen	5-18
Edit User screen	5-6
Event List	4-60
Manage Alerts screen	5-43
Manage Algorithms screen	5-47
Manage Areas screen	5-21

Manage Beds screen	5-24
Manage Bedside Display Users screen	5-15
Manage Device Inventory screen	5-26
Manage Parameters screen	5-45
Manage Rule Sets screen	5-32
Manage Shifts screen	5-18
Manage Users screen	5-6
Patient Assignment screen	4-46
Patient Overview screen (Tile View)	4-8
Select User mode	4-59
Upload Algorithms screen	5-47
Upload Parameter Definitions screen	5-45

B

Basic application functions	2-2
Basic device data (Device Status screen)	5-29
Basic user interface	
Administrators and clinical administrators	
Deletion of field text	5-3
Multi-page lists	5-2
Save and Cancel functions	5-3
Screen links	5-2
Sort function	5-3
System messages	5-2
Clinicians, supervisors, and link managers	
Common navigation bar	4-2
Function drop-down menus	4-5
Multi-page lists	4-5
System messages	4-5
Tool tips	4-6
Bed tile	
Colors	4-9
Detail	4-7
Information	4-8
Patient Overview Screen	
View alarm information (annunciating alarm)	8-7
View alarm information (filtered alarm)	8-11
View notification information	9-3
Beds	
Add	5-25
Delete	5-26
Edit	5-25
Explanation of functionality	7-2
Information	5-24
Bedside unit users	
Activate	5-17
Deactivate	5-17
Information	5-15
User status	5-16

C

Cancel function (administrator and clinical administrator screens)	5-3
Cautions	1-5
Change assignments	
Area Assignment screen	
Assign to a user	4-56
Change assignment type	4-57
Remove assignments	4-57
Patient Assignment screen	
Assign to a user	4-49
Change assignment type	4-50
Remove assignments	4-50

Index

Change password	
Administrators	5-14
Clinicians and supervisors	4-62
Change patient location	4-29
Change user status	
Activate a bedside unit user	5-17
Activate a user	5-11
Deactivate a bedside unit user	5-17
Deactivate a user	5-11
Delete a user	5-12
Clear alarms	
From algorithms	8-4
From devices	8-4
Clinical administrator operation	
Alarm, notification, and setting rule management	5-31
Basic user interface	5-1
Help	5-49
Manage alerts	5-42
Manage algorithms	5-47
Manage parameters	5-45
Navigation	5-1
Platform logout	5-50
Reports	5-49
Software access	3-2
View version information (About dialog)	5-50
Clinician operation	
Alarms and notifications	4-1
Area assignments	4-52
Audible alerts	4-63
Basic user interface	4-2
Change password	4-62
Device Detail screen	4-12
Discharge (remove) a patient	4-43
Help	4-65
Manual parameter entry	4-42
Navigation	4-2
Patient and device links	4-34
Patient assignments	4-45
Platform login	3-2
Platform logout	4-66
Reports	6-17
Software access	3-2
Tile View (Patient Overview screen)	4-6
View version information (About dialog)	4-65
Color	
Alarms	8-2
Notifications	9-2
On bed tiles	4-9
On parameter tiles	4-20
On setting tiles	4-22
Common navigation bar	
Alarm button menu	4-4
Description	4-2
Device button menu	4-4
Function menu	4-3
Notification button menu	4-4
View alarm information	8-7
View notification information	9-3
Comprehensive Oximetry and Capnography	6-20
Connectivity Details Report	6-11
Connectivity Summary Report	6-12
Conventions (text & terminology)	1-1
D	
Deactivate	
Bedside unit user	5-17
User	5-11
Default alarm priority by device	7-9
Delay constraints (alarms and notifications)	7-6
Delay types (alarms and notifications)	7-6
Delete	
Areas	5-23
Beds	5-26
Devices	5-29
Field text (administrator and clinical administrator screens)	5-3
Rule sets	
Custom event rules	5-40
Entire rule sets	5-41
Shifts	5-20
Users	5-12
Derived parameter algorithms	
Activate	5-48
Add	5-47
Deactivate	5-48
Information	5-47
Manual parameter entry	4-42
Use and behavior	5-48
Device button menu	4-4
Device connection functions	
Auto-reconnection	7-12
Relink a device	4-40
Unlink a device	4-41
Device data handling after unlinking	7-13
Device data reporting	7-3
Device detail (Device Status screen)	
General	5-30
Support	5-31
Device Detail screen	
Alarms (annunciating)	
In event panel	8-10
In parameter panel	8-9
In parameter trend window	8-9
In patient header	8-8
Alarms (filtered)	
In event panel	8-13
In other locations	8-14
In patient header	8-12
On parameter tile	8-13
Availability	4-12
Layout (general)	
Capnography monitors	4-14
Derived parameter algorithms	4-14
Pulse oximeters	4-14
Ventilators	4-13
Layout (panels)	
Device header	
Capnography monitor	4-16
Pulse oximeter	4-16
Regional saturation monitor	4-16
Ventilator	4-16
Event panel	4-23
Parameter panel	
Bispectral index monitor	4-19
Capnography monitor	4-18

Index

Pulse oximeter	4-18
Regional saturation monitor (four-channel)	4-19
Regional saturation monitor (two-channel)	4-19
Ventilator	4-17
Patient header panel	4-15
Settings panel	4-21
Trend panel	4-22
Waveform panel	4-20
Manage device connections	4-23
Manage patient details	4-27
Manage settings	4-30
Notifications	
In event panel	9-8
In parameter panel	9-7
In patient header	
Favorable patient event	9-7
Standard	9-7
Unfavorable patient event	9-7
In settings panel	9-8
Select a device	4-23
View event rules	4-30
View parameter trend data	4-24
View waveform detail	4-26
Device header panel (Device Detail screen)	
Capnography monitor	4-16
Pulse oximeter	4-16
Regional saturation monitor	4-16
Ventilator	4-16
Device priority ranking	7-9
Device Status screen	
Basic device data	5-29
Device detail	
General	5-30
Support	5-31
Device symbols	2-5
Device tile	
Detail	4-8
Information	4-8
Device types supported	2-10
Device Usage Hours Per Patient	6-23
Device Utilization Report	6-32
Devices	
Add	5-27
Delete	5-29
Edit	5-27
Information	5-27
Disable audible alerts	
For another user	5-9
For self	4-65
Discharge (remove) a patient	4-43
Discharge a patient	
From bed with associated devices	4-43
From bed with no associated devices	4-43
Disconnected device	
Notification	9-4
Relink device	4-40
Unlink device	4-41
DPA Usage Summary Report	6-14

E

Edit	
Areas	5-22
Beds	5-25
Bedside unit bed assignment	5-16
Device alerts	5-43
Devices	5-27
Patient data (Admit Patient screen)	4-37
Rule sets	5-34
Shifts	5-19
Edit Bedside Display Bed Assignment screen	
Access	5-16
Availability	5-15
Field entry	5-17
Edit patient information	4-28
Enable audible alerts	
For another user	5-9
For self	4-65
Event List	
Availability	4-60
Event information	4-61
Lock event display	4-61
Specify events per page	4-61
Specify sort order for events	4-61
Event panel (Device Detail screen)	4-23
Event priority	7-8
Event priority ranking	7-8
Events per page (Event List)	4-61
Export	
Parameters	5-46
Report data	6-6

F

Favorable patient event notification	9-6
Field entry (administrative)	
Add Area screen	5-22
Add Bed screen	5-25
Add Device screen	5-28
Add Rule Set screen	5-36
Add Shift screen	5-20
Create User screen	5-9
Edit Area screen	5-22
Edit Bed screen	5-25
Edit Bedside Display Bed Assignment screen	5-17
Edit Device screen	5-28
Edit Rule Set screen	5-36
Edit Shift screen	5-20
Edit User screen	5-9
Function drop-down menus	4-5
Function menu	
Bedside unit users	4-3
Central monitoring station users	4-3
Clinicians, supervisors, and link managers	4-3
Functionality summary	
Administrators	7-21
Bedside unit users	7-25
Central monitoring station users	7-24
Clinical administrators	7-24
Clinicians	7-14
External services users	7-25
Link managers	7-23
Supervisors	7-17

Index

H

Help	
Administrators and clinical administrators	5-49
Clinician, supervisor, and link manager	4-65
Hide empty bed tiles (Tile View)	4-11
Hide patient names (Tile View)	4-11
Highest Frequency Setting Changes Report	6-34
HIPAA disclaimer	1-7
Historical Performance Log	6-15
Home screen	
Administrators	5-4
Clinical administrators	5-4
Clinicians and supervisors	4-6
Link managers	4-32

I

Indicators	
Audible (alarm)	8-3
Audible (notification)	9-2
Visual (alarm)	8-1
Visual (notification)	9-1
Installation	
Process	3-1
System requirements	3-1
Intended use statement	2-1

L

Labeling symbols	1-2
Licensing information	1-7
Link a device (Admit Patient screen)	4-37
Link manager operation	
Alarms and notifications	4-1
All Patients and Devices screen	4-32
Basic user interface	4-2
Device Detail screen	4-12
Help	4-65
Navigation	4-2
Patient and device links	4-34
Platform login	3-2
Platform logout	4-66
Reports	6-29
Software access	3-2
View version information (About dialog)	4-65
Link patient and device	
Access	4-35
Add or edit patient data	4-37
Device connection functions	4-39
Field entry	4-36
Link a device	4-37
Link additional devices	4-38
Manage primary devices	4-38
Locations	
Areas (explanation)	7-1
Beds (explanation)	7-2
Manage areas	5-20
Manage beds	5-24
Use and behavior in the platform	7-2
Lock Event List display	4-61
Lock out user control of audible alerts	5-9

M

Magnification (zoom) in reports	6-6
Manage alarm, notification, and setting rules	
Access rule sets	5-32
Add Rule Set screen	
Access	5-33
Access (Settings Rules)	5-34
Field entry	5-36
Define rules	
Custom event rules	5-38
General event rules	5-37
Setting rules	5-40
Delay constraints (explanation)	7-6
Delay types (explanation)	7-6
Delete rules	
Custom event rules	5-40
Entire rule sets	5-41
Edit Rule Set screen	
Access	5-34
Access (Settings Rules)	5-35
Field entry	5-36
Effects of rule settings (explanation)	7-7
Events affected (explanation)	7-6
Rule set information	5-33
Manage alerts	
Alert information	5-43
Edit a device alert	5-43
Manage algorithms (DPA)	
Activate an algorithm	5-48
Add an algorithm	5-47
Algorithm information	5-47
Deactivate an algorithm	5-48
Manage Bedside Display Users screen	
Availability	5-15
Information	5-15
Manage bedside unit users	
Edit Bedside Display Bed Assignment screen	
Access	5-16
Field entry	5-17
User information	5-15
User status display	5-16
Manage device inventory	
Add Device screen	
Access	5-27
Field entry	5-28
Delete devices	5-29
Device information	5-27
Edit Device screen	
Access	5-27
Field entry	5-28
Manage locations	
Add Area screen	
Access	5-21
Field entry	5-22
Add Bed screen	
Access	5-25
Field entry	5-25
Areas	
Area information	5-21
Delete an area	5-23

Index

Beds	
Bed information	5-24
Delete a bed	5-26
Edit Area screen	
Access	5-22
Field entry	5-22
Edit Bed screen	
Access	5-25
Field entry	5-25
Manage parameters	
Add a parameter	5-46
Export a parameter	5-46
Parameter information	5-45
Manage patient detail	
Change patient location	4-29
Edit patient information	4-28
Manage primary devices	4-38
Manage settings (Device Detail screen)	4-30
Manage shifts	
Add Shift screen	
Access	5-19
Field entry	5-20
Delete a shift	5-20
Edit Shift screen	
Access	5-19
Field entry	5-20
Shift information	5-18
Manage users	
Change user status	5-11
Create User screen	
Access	5-8
Field entry	5-9
Edit User screen	
Access	5-8
Field entry	5-9
Manage passwords	5-13
Unlock a user	5-12
User information	5-6
User status	5-7
Manual parameter entry (derived parameter algorithms)	4-42
Miscellaneous symbols	2-9
Monitored Patients Per Day report	6-35
Multi-page list navigation	
Administrators and clinical administrators	5-2
Clinicians, supervisors, and link managers	4-5

N

Navigation	
Administrators and clinical administrators	
Multi-page lists	5-2
Screen links	5-2
System messages	5-2
Clinicians, supervisors, and link managers	
Common navigation bar	4-2
Function drop-down menus	4-5
Multi-page lists	4-5
Reports	
Within a report	6-5
Notes	1-5
Notification button menu	4-4
Notifications	
Acknowledge setting changes	9-9
Details	9-8

Favorable patient event	
View information	
From patient header	9-7
Notification indicators	
Audible	9-2
Visual	9-1
Patient event	
Favorable	9-6
Unfavorable	9-5
Reset alarms	9-8
Secondary indicator on bed tile	9-6
Standard	
View information	
From patient header	9-7
Standard informational	9-4
Unfavorable patient event	
View information	
From patient header	9-7
View information	
From bed tile	9-3
From common navigation bar	9-3
From event panel	9-8
From parameter panel	9-7

O

Obtaining technical assistance	
Related documents	1-6
Technical Services	1-6
Other user's assignments	
Area Assignment screen	4-54
Patient Assignment screen	4-47
Oxygenation Snapshot Report	6-24

P

Parameter panel (Device Detail screen)	
Bispectral index monitor	4-19
Capnography monitor	4-18
Pulse oximeter	4-18
Regional saturation monitor	
Four-channel	4-19
Two-channel	4-19
Ventilator	4-17
Parameter trend data	
Additional view options	
Alarms and setting changes	4-25
Specific data point	4-25
Default data	4-24
Parameters	
Add a parameter	5-46
Export a parameter	5-46
Information	5-45
Passwords	
Change	
Administrator	5-14
Clinicians and supervisors	4-62
Reset for other user	5-13
Set up for user	5-10
Patient and device information	
All Patients and Devices screen	4-32
Patient and device links	
Add or edit patient data (Admit Patient screen)	4-37
Device connection functions	4-39

Index

Link additional devices	4-38
Link patient and device (Admit Patient screen)	4-35
Manage primary devices	4-38
Patient Assignment screen	
Availability	4-46
Change assignments	4-49
Layout	4-46
Show assignments by work shift	4-48
Show other user's assignments	4-47
Show unassigned patients	4-47
Patient event notification	
Favorable	9-6
Unfavorable	9-5
Patient header panel (Device Detail screen)	4-15
Patient information	
Edit in Device Detail screen	4-28
Patient Assignment screen	4-46
Tile View (Patient Overview screen)	4-6
Patient tile	
Assignment List screen	4-53
Patient Assignment screen	4-46
Paused device alarm indicators	8-5
Platform login	3-2
Platform logout	
Administrators and clinical administrators	5-50
Clinicians, supervisors, and link managers	4-66
Print a report	6-6
Product overview	
Device types supported	2-10
Intended use	2-1
User interface overview	2-2
User interface symbols	2-5

R

Related documents	1-6
Relevant standards	
Harmonized	7-14
Non-harmonized	7-14
Relink a device	4-40
Reported Apneas Per Hour	6-26
Reports	
Access	
Administrator	
System status	6-1
Utilization	6-1
Clinical administrator	
System status	6-1
Clinician	
From Device Detail screen	6-2
From other screens	6-2
Link manager	6-2
Supervisor	
From Device Detail screen	6-2
From other screens	6-2
Administrator	
Access	5-49
Alarm Normalization Report	6-7
Alarm Rule Set Report	6-8
Application Event Log	6-10
Connectivity Details Report	6-11
Connectivity Summary Report	6-12
DPA Usage Summary Report	6-14

Historical Performance Log	6-15
Users by Time of Day	6-16
Alarms	
Alarm Duration by Time of Day	6-30
Alarm Normalization Report	6-7
Alarm Rule Set Report	6-8
Alarm Threshold Analysis	6-17
Clinical administrator	
Alarm Normalization Report	6-7, 6-10
Alarm Rule Set Report	6-8
Historical Performance Log	6-15
Clinician	
Access	4-62
Alarm Threshold Analysis	6-17
Comprehensive Oximetry and Capnography	6-20
Device Usage Hours Per Patient	6-23
Oxygenation Snapshot	6-24
Reported Apneas Per Hour	6-26
Ventilation Snapshot	6-28
Report data functions	
Export report data	6-6
Save report data	6-6
Reports screen	
Layout	6-2
Magnification (zoom)	6-6
Navigate within current report	6-5
Print a report	6-6
Refresh	6-5
Select report output	6-3
Supervisor and link manager	
Access	4-62
Alarm Duration by Time of Day	6-30
Alarm Occurrence Pareto Chart	6-31
Alarm Threshold Analysis	6-32
Comprehensive Oximetry and Capnography	6-32
Device Usage Hours Per Patient	6-32
Device Utilization Report	6-32
Highest Frequency Setting Changes	6-34
Monitored Patients Per Day	6-35
Oxygenation Snapshot	6-36
Setting Change Acknowledgement Time	6-36
Subscription Utilization	6-38
Ventilation Snapshot	6-39
Reset alarm	
Details	9-8
Notification	9-3
Roles in application	2-3
Rule sets	
Access	5-32
Add	5-33
Define custom event rules	5-38
Define general rules	5-37
Define setting rules	5-40
Delete	
Custom event rules	5-40
Entire rule sets	5-41
Edit	5-34
Effects	
Areas	7-7
Beds	7-7
Device types	7-7
Event and delay options (explanation)	7-6
Information	5-33

Index

S

Safety information	
Cautions	1-5
Notes	1-5
Safety symbols	1-2
Warnings	1-3
Save function (administrator and clinical administrator screens)	5-3
Save report data	6-6
Screen links (administrator screens)	5-2
Secondary visual indicator	
Alarm (annunciating)	8-7
Alarm (filtered)	8-11
Notification	9-6
Select a device	4-23
Select report output	6-3
Select report timeframe and output	6-3
Select User mode	4-59
Entering	4-59
Exiting	4-60
Operation	4-59
Setting Change Acknowledgement Time Report	6-36
Setting changes	
Acknowledge changes	9-9
Notification	9-4
View details	9-9
Settings panel (Device Detail screen)	4-21
Shifts	
Add	5-19
Delete	5-20
Edit	5-19
Information	5-18
Show empty bed tiles (Tile View)	4-11
Show patient names (Tile View)	4-11
Silence audible alerts	8-4
Silenced device alarm indicators	8-5
Sort function (administrator and clinical administrator screens)	5-3
Sort order (Event List)	4-61
Sort order (Tile View)	4-10
Status symbols	2-5
Subscription Utilization report	6-38
Supervisor operation	
Alarms and notifications	4-1
All Patients and Devices screen	4-32
Area assignments	4-52
Audible alerts	4-63
Basic user interface	4-2
Change password	4-62
Device Detail screen	4-12
Discharge (remove) a patient	4-43
Event list	4-60
Help	4-65
Manual parameter entry	4-42
Navigation	4-2
Patient and device links	4-34
Patient assignments	4-45
Platform login	3-2
Platform logout	4-66
Reports	6-29
Select User mode	4-59
Software access	3-2
Tile View (Patient Overview screen)	4-6
View version information (About dialog)	4-65

Supplementary information

Alarm behavior	7-3
Alarm communication from devices	7-1
Default alarm priority by device	7-9
Device auto-reconnection	7-12
Device data handling after unlinking	7-13
Event priority	7-8
Functionality summary	7-14
Locations (explanation)	7-1
Relevant standards	7-14
Web API functionality	7-13

Symbols

Labeling	1-2
Safety	1-2
User interface	
Alarm	2-5
Device	2-5
Miscellaneous	2-9
Status	2-5

System messages

Administrators and clinical administrators	5-2
Clinicians, supervisors, and link managers	4-5

T

Technical Services, contacting	1-6
Test audible alert tones	4-64
Text and terminology conventions	1-1
Tile information	
Area Assignment screen	4-53
Patient Assignment screen	4-46
Tile View (Patient Overview screen)	
Additional functions	
Available device view options	4-10
Hide or show empty bed tiles	4-11
Hide or show patient names	4-11
Show or hide device identifiers	4-10
Sort order	4-10
Availability	4-8
Bed tile colors	4-9
Tile information	4-8
Bed tile	4-8
Device tile	4-8
Tool tips	4-6
Trend panel (Device Detail screen)	4-22
True alarm duration	7-4

U

Unassigned areas (Area Assignment screen)	4-54
Unassigned patients (Patient Assignment screen)	4-47
Unfavorable patient event notification	9-5
Unlink a device	4-41
Unlock a user	5-12
Unlock user control of audible alerts	5-9
User information	5-6
User interface overview	
Basic functions	2-2
User roles	2-3
Users	
Activate	5-11
Add	5-8
Deactivate	5-11
Delete	5-12

Index

Edit	5-8
Information	5-6
Unlock	5-12
User status	5-7
Users by Time of Day report	6-16

V

Ventilation Snapshot Report	6-28
Version information	
Administrators and clinical administrators	5-50
Clinicians, supervisors, and link managers	4-65
View alarm information	
Annunciating alarms	
In bed tile	
Primary alarm	8-7
Secondary indicator	8-7
In common navigation bar	8-7
In event panel	8-10
In parameter panel	8-9
In parameter trend window	8-9
In patient header	8-8
Filtered alarms	
In bed tile	
Primary alarm	8-11
Secondary indicator	8-11
In event panel	8-13
In other locations	8-14
In patient header	8-12
On parameter tile	8-13
View assignments	
All Patients and Devices screen	4-34
Area Assignment screen	4-53
Patient Assignment screen	4-46
View device detail	4-12, 4-33
View event rules (Device Detail screen)	4-30
View notification information	
From bed tile	9-3
From common navigation bar	9-3
From event panel	9-8
From parameter panel	9-7
From patient header	
Favorable patient event	9-7
Standard notification	9-7
Unfavorable patient event	9-7

W

Warnings	1-3
Warranty information	1-6
Waveform detail	
Additional view options	
Specific data point (multiple waveforms)	4-27
Specific data point (single waveform)	4-26
Default data	4-26
Waveform panel (Device Detail screen)	
Capnography monitor data	4-21
Pulse oximeter data	4-21
Ventilator data	4-20
Web API functionality	7-13

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