

# Welch Allyn Connex<sup>®</sup> Central Station

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## Directions for use

Software version 1.6X

**WelchAllyn<sup>®</sup>**

Advancing Frontline Care<sup>™</sup>

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This manual applies to REF 901066 Monitoring Station



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# Introduction

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This manual describes the capabilities and operation of the central station.

Before using the central station, read the sections of this manual that pertain to your use of the product.

## Intended use

The Connex Central Station is intended to be used by clinicians for the central monitoring of neonatal, pediatric, and adult patients in health care facilities.

In addition to the central monitoring of patient data and alarms, the Connex software can include optional modules to provide extended recording of patient data, including full disclosure.

## Related documents

The following documents contain information on monitors and devices that connect to the central station:

- Welch Allyn Connex® Vital Signs Monitor 6000 Series Directions for use and Service manual (multilingual CD)
- Welch Allyn Connex® Integrated Wall System Directions for use and Service manual (multilingual CD)
- Welch Allyn Spot Vital Signs LXi Directions for use (printed document)





# Symbols

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## Documentation symbols



**WARNING** The warning statements in this manual identify conditions or practices that could lead to illness, injury, or death.



**CAUTION** The caution statements in this manual identify conditions or practices that could result in damage to the equipment or other property, or loss of data.



Consult operating instructions/directions for use (DFU).  
A copy of the DFU is available on this website.  
A printed copy of the DFU can be ordered from Welch Allyn for delivery within 7 calendar days.

## Connectivity symbols



USB



Ethernet RJ-45










Lost outbound connection. The central station is no longer connected to the HIS or EMR.



Information status message

## Miscellaneous symbols

	Manufacturer		Authorized representative in the European Community
	Product identifier		Serial number
	Reorder number		Professional use only
	Do not dispose of this product as unsorted municipal waste		




### Window navigation symbols

	Move window left		Move window right
	Close window		

### Patient demographic symbols

	Female		Male
---	--------	---	------

### Special indicator icons

	Isolation		Fall risk
	Special diet		

## About warnings and cautions

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Warning and caution statements can appear on the central station, the packaging, the shipping container, or in this document.

The central station is safe for patients and clinicians when used in accordance with the instructions and with the warning and caution statements presented in this manual.

Before using the central station, familiarize all operating personnel with the general safety information in this summary. Specific warnings and cautions are also found throughout this manual.

- Failure to understand and observe any warning statement in this manual could lead to patient illness, injury, or death.
- Failure to understand and observe any caution statement in this manual could lead to damage to the equipment or other property, or loss of patient data.

## General warnings and cautions



**WARNING** The central station must only be used in a healthcare setting by clinical personnel who have been properly trained to the safe and efficacious use of the product.



**WARNING** False alarms may occur in some situations. You must understand and address the cause of the false alarms whenever possible to eliminate the possibility of repeated false alarms and alarm fatigue, which might result in a failure to respond to an actual alarm situation.



**WARNING** Many environmental variables, including patient physiology and clinical application, can affect the accuracy and performance of the central station. The clinician must verify all vital signs information before treating the patient. If there is any question about the accuracy of a measurement, verify the measurement using another clinically accepted method.



**WARNING** All wireless systems are prone to intermittent signal dropout. Make sure that the patient only has conditions that can tolerate intermittent monitoring interruptions. The patient monitor is the primary alarm. The central station provides a less robust additional alarm per IEC 60601-1-8. Alarm delays were measured between the central station and a patient monitor and the same alarm from the central station to a third party alarm notification system. Delays are less than 10 total seconds, not including any alarm hold-off settings set by your facility. However, network speeds vary and your performance may vary, depending on the speed of your network.



**WARNING** Alarm limits are patient- or facility-specific. The clinician must set and verify alarm limits appropriate for each patient. Each time the monitor is powered on, you must check that the alarm settings are appropriate for your patient before you start monitoring. Failure to set alarm limits properly can lead to false alarms or failure to alarm. Alarming will only work properly if set up properly.



**WARNING** Patient harm risk. Do not pause or turn off an audible alarm if patient safety might be compromised. Do not adjust a patient's alarm limits as a way to silence an alarm.



**WARNING** Use only accessories approved by Welch Allyn. The use of any other accessories can result in inaccurate patient data potentially leading to false alarms or failure to alarm, can damage the equipment, and can void your product warranty. See the accessory list or visit [www.welchallyn.com](http://www.welchallyn.com).



**WARNING** Always use accessories according to the manufacturer's directions.



**WARNING** After Welch Allyn has verified that Welch Allyn-specified network requirements for this central station have been met, altering the cabling or connecting the central station to another type of power source could damage the equipment, cause system restarts or hazardous conditions on the network, or result in gaps in patient information at the central station.



**WARNING** For maximum system performance and availability, the central station PC hardware must be replaced on a recommended preventative maintenance interval. See the service documentation for recommended intervals.



**WARNING** Do not change central station components or configuration, such as removing or adding a printer or substituting hardware, without approval by Welch Allyn. Such changes could degrade system performance and affect patient monitoring.



**WARNING** Devices connected to the central station must be certified for overall system compliance according to the IEC 60601-1 safety standard. The interconnection of any device with the central station must comply with IEC 60601-1-1. If in doubt about network connectors or devices, please consult your facility's Biomedical Engineering department or Welch Allyn Technical Support.



**WARNING** It is strongly recommended that the central station is installed with redundant power supplies. You are responsible to provide reliable power to the central station. The central station will only work with reliable AC power.



**WARNING** Central station alarms and other events can go unnoticed if clinical personnel are not present at the central station or if interruptions occur in power or system operations.



**WARNING** Ensure that no headphones or headphone adapters are connected to the headphone jack of your computer. A connection in the headphone jack of a computer will cancel speaker output for any audible alarms associated with the central station. Make this inspection on a daily basis.



**WARNING** Ensure that all audio cables are installed and connected and that the volume settings are not set too low or are not set to mute as these factors may cause you to miss audible alarms generated from the central station. Make this inspection on a daily basis.



**WARNING** Whenever possible, do not rely on visual alarm notifications alone while monitoring patients. If you must rely on visual alarm notifications, maintain a clear line of sight with the central station or the patient monitor. For audio alarm notifications, set the volume as needed considering the environment and ambient noise levels. Verify that the alarm is audible to a clinician working at the maximum distance from the central station or the patient monitor.



**WARNING** If a central station display is intentionally or inadvertently muted, alarm tones do not occur at the display. Remain aware of when audible tones are occurring. If they appear to have stopped, ensure that tones are restored.



**WARNING** If normal central processing unit (CPU) operation is interrupted, for example, during CPU maintenance, scheduled and unscheduled restarts, or power loss, central station monitoring temporarily stops. The central station cannot collect patient review data during the interruption period. That data becomes permanently unavailable. The patient monitor is the primary alarm and must be working before any monitoring is performed.



**WARNING** Auto-restarts occur and wireless connection is occasionally disrupted. During this period, the bedside monitors continue to provide their primary alarming functions. Auto-restarts occur infrequently, due to poor environmental conditions. Failure to perform preventative maintenance can increase the frequency of occurrence.



**WARNING** Whenever an interruption in the central station CPU operation occurs, ensure that your entire system has returned to normal operating condition, that the system does not require further service, and that all patient monitors are connected to the system.



**WARNING** Central monitoring is not a substitution for frequent patient assessment by attending clinicians, or a substitute for the primary alarming that occurs at the patient monitor.



**WARNING** The bedside patient monitor is the primary alarming source for the patient and the central station is a backup alarm source. The central station is only as reliable as its network and should be relied on only as a backup alarming device.



**WARNING** The electronic medical record system (EMR) is not intended to serve as a primary monitoring system for alarms or as an exclusive source for patient data in determining patient care. The central station is capable of transferring patient historical data to most customer-specified EMR systems, but the transferred historical patient data at the EMR is not a substitute for current patient data available at the primary monitoring system for clinical decisions.



**WARNING** Electric shock hazard. Do not open the central station or attempt repairs. The system has no user-serviceable internal parts. Only perform routine cleaning and maintenance procedures specifically described in this manual. Inspection and servicing of internal parts shall only be performed by qualified service personnel.



**WARNING** Electric shock hazard. Use only a Class I (grounded) AC power supply cord for powering this central station.



**WARNING** For operator and patient safety, peripheral equipment and accessories that can come in direct patient contact must comply with all applicable safety, EMC, and regulatory requirements. See IEC 60601-1, -1-2, -1-1-1.



**WARNING** Verify patient identity on the central station after manual or barcode entry and before printing or transferring patient records.



**WARNING** Risk to patient safety. Custom scores and messages serve as guides to your facility's protocols; do not substitute Custom Scores for patient physiological alarms. Appropriate alarms settings must be set and maintained to ensure patient safety.



**CAUTION** Refer to the original equipment manufacturer's documentation for the life expectancy of central station system components. Welch Allyn recommends the replacement of the keyboard and mouse annually, and the replacement of the central station display every 2 to 3 years. The actual performance of system components may vary depending on usage.



**CAUTION** To ensure the continued proper operation of the central station, check for software updates through Welch Allyn Partner Connect. Software updates should be installed as they become available.



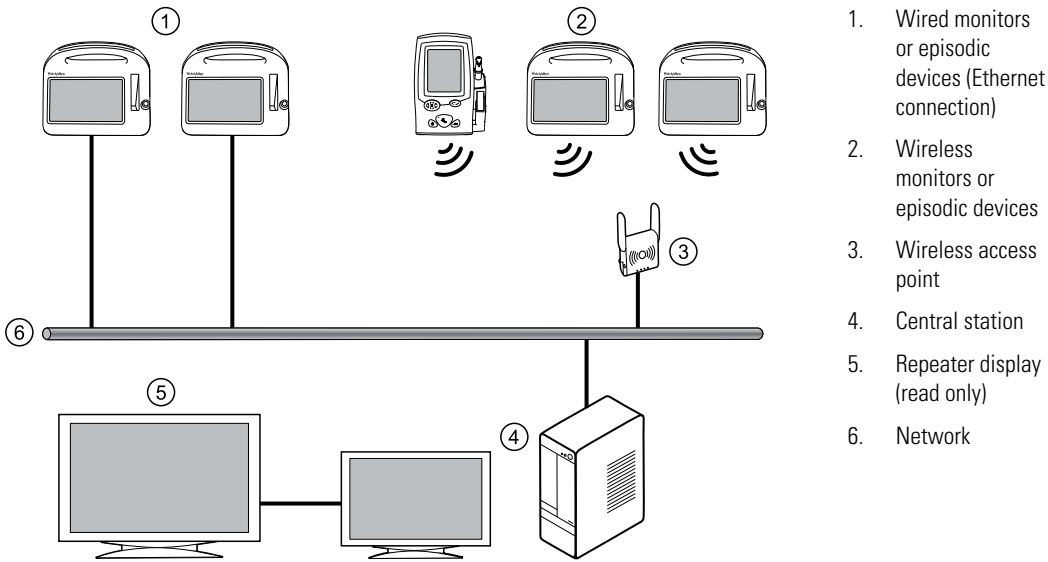
**CAUTION** Do not enable automatic updates on the central station's virus protection software. Automatic updates can impact product performance.

# System configuration

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The Connex CS system consists of a central station that receives and displays information from connected devices.

## Stand-alone system diagram

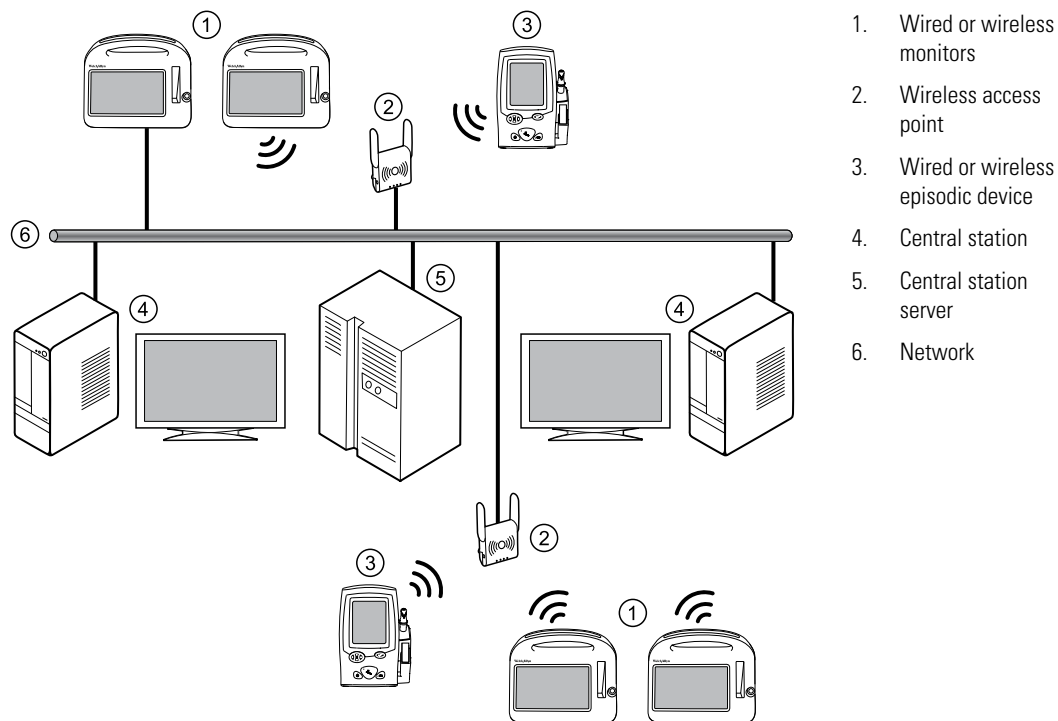


In this configuration, continuous and episodic devices communicate over the network to the central station. The central station contains all the software needed to monitor patients' continuous parameters and episodic data on a single computer.

The central station also monitors connected continuous devices for proper operation, and displays an alarm if a continuous monitor stops working or is improperly disconnected.

An optional read-only repeater display can also be connected to the central station, which displays a visual and audible duplication of the central station.

## Server-based system diagram



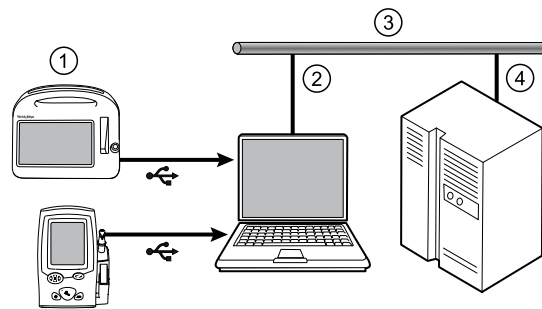
In this configuration, one or more central stations are connected to a single Connex server. The central stations share common data, such as configuration data, user definitions, and patient information by maintaining it on the Connex server.

Continuous devices communicate over the network and are routed to the central station whose coverage area includes the device's location. Episodic devices communicate over the network to the Connex server which stores all episodic data.

An optional read-only repeater display can also be connected to the central station, which displays a visual and audible duplication of the central station.



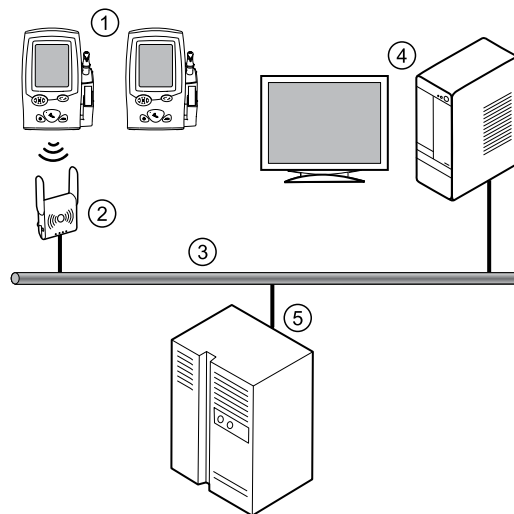
## Kiosk diagram



1. Episodic devices (USB connection)
2. Kiosk-equipped PC
3. Network
4. Server

In a Kiosk system, a server-based configuration allows for wired uploading of episodic patient data from episodic devices. After episodic tests are taken on patients, the device is connected to the Kiosk using a USB connection, and the episodic test results are uploaded. The Kiosk can be installed on any networked PC that is not acting as the Connex CS server or central station.

## Server-only system diagram



1. Episodic devices (wired or wireless)
2. Access point
3. Network
4. Customer-provided PC running Connex viewer
5. Connex server

Connex viewer is a client application that provides a means of tracking the flow of patient vital sign data from an episodic device to the Connex server and through to the Electronic Medical Record (EMR). This application displays filtered lists of patients and vital signs, and allows an administrator, biomed, or nurse manager to select what subset of data to view. This is intended to help diagnose any workflow, networking, or configuration issues that might prevent patient data from reaching the EMR.



# Screen elements

This section describes the central station screens.

## Main Monitoring screen

The Main Monitoring screen is the main screen of the central station. This screen contains patient tiles displayed in rows and columns. There may be a group of tiles overlaying the patient data area. These tiles are referred to as the Waiting area.



- System message area.** This section of the screen displays the covered location, date, time, and any patient or technical alarms.
- Patient data area.** This section of the screen displays patient tiles arranged in rows and columns.
- Navigation area.** This section of the screen displays secondary links to the patient list, alarms, view options, settings, and system notifications. Click the Welch Allyn label to display the options installed on your central station, the end user license agreement, and regulatory information.
- Waiting area.** This section of the screen displays patient tiles awaiting confirmation of patient ID or location.

### Note

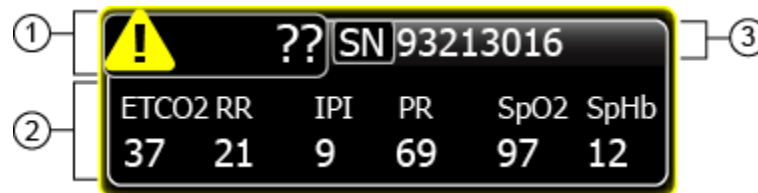
Do not leave a patient tile in the Waiting area for an extended amount of time, as patient measurements are not saved until the patient is confirmed. The waiting area is a temporary placeholder for patient tiles. Confirm the patient as soon as possible.

## Patient tiles

Patient tiles display information about a patient, the patient's location, and the device connected to the patient when the device is connected to the central station.

### Compressed tile

Compressed tiles are used in the central station Waiting area.

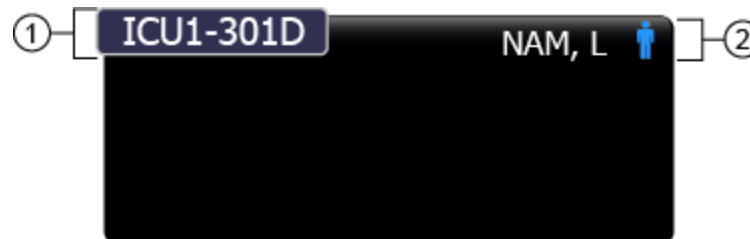


1. This area displays the patient location. The area shows an alarm icon until the patient location is verified.
2. This area displays the patient parameters.
3. This area displays the monitor information or the patient information.

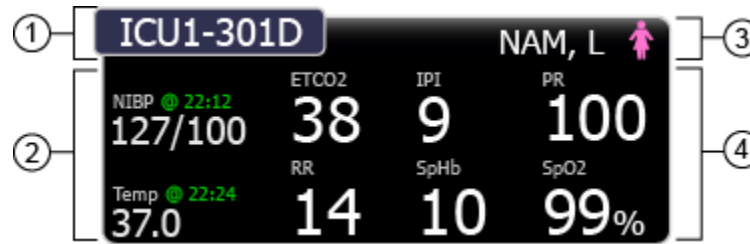
The patient's parameters can be displayed in episodic or continuous parameters.

### Pre-admitted patient tile

This tile displays the name and location of a pre-admitted patient who is not yet connected to a device.

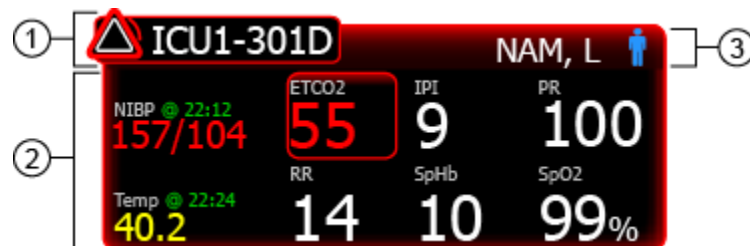


1. This area displays the patient's room number.
2. This area displays the patient's name and gender.

**Standard tile, no alarms**

1. This area displays the patient location.
2. This area displays the episodic patient parameters.
3. This area displays the patient name and gender.
4. This area displays the continuous patient parameters.

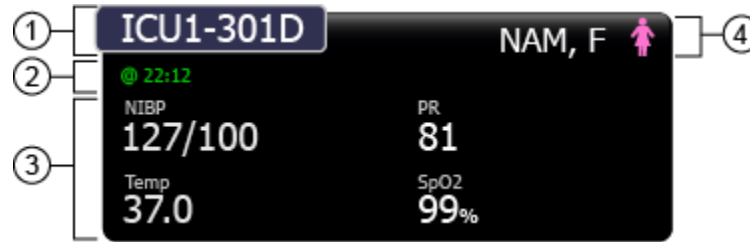
The patient's parameters can be displayed in episodic, continuous, trend, or episodic and continuous parameters.

**Standard tile, alarm state**

1. This area displays the alarm icon and the patient location.
2. This area displays the patient parameters. The alarming parameters are surrounded by a colored box.
3. This area displays the patient name and gender.

### Spot check tile

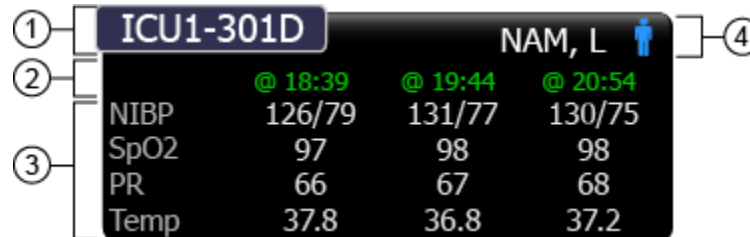
The spot check tile displays the patient's most recent episodic measurements.



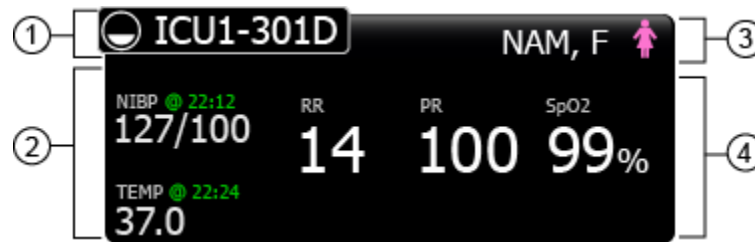
1. This area displays the patient location.
2. This area displays the time when the episodic measurements were taken.
3. This area displays the patient's episodic measurements.
4. This area displays the patient name and gender.

### Mini-trend tile

The mini-trend tile displays up to three of the patient's latest episodic measurements.



1. This area displays the patient location.
2. This area displays the time when the episodic measurements were taken.
3. This area displays a list of up to four of the patient's episodic measurements.
4. This area displays the patient name and gender.

**Patient rest mode**

1. This area displays the patient location. The symbol to the left of the room number indicates patient rest mode is active.
2. This area displays the episodic patient parameters.
3. This area displays the patient name and gender.
4. This area displays the continuous patient parameters.

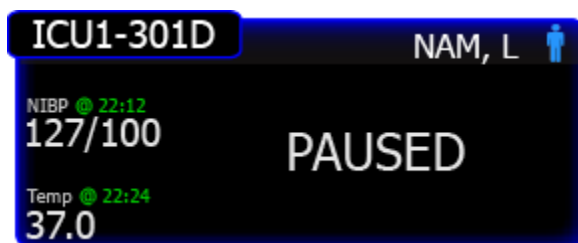
## Connectivity tiles

### Signal lost



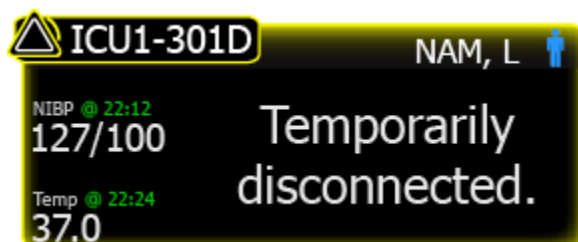
This tile is displayed when the device has been unintentionally disconnected from the central station. For information on reconnecting the device to the central station, see the device directions for use.

### Paused



This tile is displayed when continuous monitoring has been paused at the device. For information on how to resume continuous monitoring, see the device directions for use.

### Temporarily disconnected



This tile is displayed when the device has been intentionally disconnected from the central station. If reasons for disconnecting from the central station have been configured, the reason appears under the **Temporarily disconnected** message. For more information, see the device directions for use.



## Tile layout modes

There are three different modes for tile layout. To select a tile layout, or to change the current tile layout, see the Views configuration section of this manual.

### **Automatically sorted mode**

In sorted mode, tiles are displayed according to configured settings, for example, room number. New tiles are placed onto the main tile area based on the configured settings.

### **Mapped by patient location mode**

In mapped mode, tiles are mapped to a known location. If a location does not have an assigned patient or monitor, an empty room tile is displayed.

### **Manually placed in a tile location mode**

In manual mode, all new tiles appear in the waiting area and can be dragged into any available space in the patient data area.

## Tile-dragging behavior

The following table describes actions in the three tile layout modes. An empty position on the grid is a blank area with no tiles. An empty room tile represents a room that has no patient or data assigned to it.

<b>Action</b>	<b>Mapped mode</b>	<b>Manual mode</b>	<b>Automatically sorted mode</b>
Move tiles within the patient data area to an empty grid position	Not supported	Changes tile position	Not supported
Move tiles within the patient data area to an empty room tile	Assigns a monitor or a patient to the new location	Not supported. There are no empty room tiles in manual mode	Not supported. There are no empty room tiles in sorted mode.
Move tiles within the patient data area to an already-assigned tile	Assigns a monitor or a patient to the location If a previously assigned tile is connected to a continuous monitor, this action assigns the new device and patient to the location and moves the previous device and patient to the waiting area.	Not supported	Not supported
Move tiles from the waiting area to an empty position on the grid.	Not supported	The tile moves to the position	Not supported
Move tiles from the waiting area to an empty room tile	Assigns a monitor or a patient to the location	Not supported. There are no empty room tiles in manual mode	Not supported. There are no empty room tiles in sorted mode.
Move tiles from the waiting area to an already-assigned tile	Assigns a monitor or a patient to the location If a previously assigned tile is connected to a continuous monitor, this action assigns the new device and patient to the location and moves the previous device and patient to the waiting area.	Not supported	Not supported
New tile appears, known location	Tile appears in main tile area	Tile appears in waiting area	Tile appears in waiting area
New tile appears, unknown location	Tile appears in waiting area	Tile appears in waiting area	Tile appears in waiting area

## Device details

This window displays information on the monitors and measurements associated with a patient. Click a patient tile to open the Device details window.

### Measurements tab

The screenshot shows the 'Device details' window for a patient named NAM, F. The window is divided into several sections:

- 1** Patient summary: NAM, F, Male, ID 98019765, Room/Bed 314 B, DOB 12/18/1964, Age 49. Includes an 'Edit' button.
- 2** Measurements tab: Device ID: 01234567890.
- 3** Vital signs grid:
  - ETCO2: 36 mmHg (FICO2 2)
  - RR: 14 BPM (SOURCE: ETCO2)
  - IPI: 9
  - PR: 76 BPM (SOURCE: SpO2)
  - SpO2: 98% (MODE: Fast, PI 2.2)
  - SpHb: 10.9 mmol/L (MODE: Fast)
- 4** Additional measurements:
  - NIBP: 127/75 mmHg @ 18:24
  - Pulse rate: 82 BPM @ 18:24
  - Temperature: 37.0 °C @ 17:56
  - SpO2: 97% @ 18:24
- 5** Patient demographics table:
 

Height	Weight	Pain	BMI
72 in @ 14:03	177 lb @ 18:29	3 @ 18:29	24.0 @ 18:29
- 6** 'Review' button at the bottom right.

1. This area displays the patient summary.

- 
2. This area displays the device message area. This includes the device serial number, or any alarms or messages associated with the patient's connected continuous monitor.
- 
3. This area displays the continuous patient data. Click the alarm limits button to pause an alarm or adjust that parameter's alarm limits. Where applicable, the source for the parameter data is displayed in the lower left corner of the parameter tile.
- 
4. This area displays the episodic patient data.
- 
5. This area displays the manual parameters.
- 
6. Click **Edit** to open the Patient Details window and edit the patient information.
- 
7. Click this button to open the Review window.
-

## Alarm limits tab

The screenshot shows the 'Device details' window with the 'Alarm limits' tab selected. The patient summary at the top includes:

Patient name	Gender	ID	Room / Bed	DOB	Age
NAM, F	Male	98019765	314 B	12/18/1964	49

The 'Alarm limits' section contains the following parameters and their current settings:

Parameter	Current Value	High Limit	Low Limit
CO2 (ETCO2)	15	60	0
FICO2	0	8	0
RR	3	50	0
IPI	4	10	1
PR	50	120	25
SpO2	90	100	50
SpHb	7.0	17.0	1.0

Callout 1 points to the patient summary area. Callout 2 points to the alarm limit sliders and numeric boxes. Callout 3 points to the 'Edit' button in the patient summary.

1. This area displays the patient summary.
2. This area allows you to set both the high and low limits for the parameter alarm. You can adjust the limits by doing any of the following:
  - Move either end of the slider bar to the desired high or low limit.
  - Click and drag the center of the slider bar to move the entire range to the desired limits.
  - Click on the numeric boxes on either side of the parameters to manually enter a limit.

The default alarm settings are provided by the monitor. See the monitor directions for use.

3. Click **Edit** to open the Patient Details window and edit the patient information.



# Patient list

This window displays a list of patients available to the central station. Click the **Patients** icon in the Navigation area to open the Patient list.





## Current tab

This area displays names and demographics for all patients who are currently admitted or pre-admitted to your unit.

The screenshot shows the 'Patient list' window with the 'Current' tab selected. The table displays patient information, categorized into 'Unconfirmed patients' and 'Confirmed patients'. The 'Confirmed patients' section includes a checkbox in the 'Room / Bed' column for each row.

Room / Bed	Name	Gender	Patient ID	DOB
Unconfirmed patients				
	NAM, F	♂	839285243	1940/01/03
	NAM, F	♀	727653421	1940/01/03
	NAM, F	♀	009283785	1940/01/03
	NAM, F	♂	945719382	1940/01/03
	NAM, F	♂	726351532	1940/01/03
	NAM, F	♀	337195908	1940/01/03
	NAM, F	♂	132485927	1940/01/03
	NAM, F	♀	773366261	1940/01/03
Confirmed patients				
401 A	NAM, F	♂	839285243	1940/01/03
<input checked="" type="checkbox"/> 401 B	NAM, F	♂	727653421	1940/01/03
402 A	NAM, F	♀	009283785	1940/01/03
<input checked="" type="checkbox"/> 402 B	NAM, F	♂	726351532	1940/01/03
403 A	NAM, F	♀	337195908	1940/01/03
404 B	NAM, F	♂	945719382	1940/01/03
<input checked="" type="checkbox"/> 403 B	NAM, F	♀	132485927	1940/01/03
404 B	NAM, F	♂	773366261	1940/01/03
404 B	NAM, F	♂	945719382	1940/01/03
405 B	NAM, F	♀	750366331	1940/01/03
404 B	NAM, F	♂	945719382	1940/01/03
404 B	NAM, F	♀	945719382	1940/01/03
402 A	NAM, F	♂	009283785	1940/01/03

Callout 1 points to the table area. Callout 2 points to the 'Add' button at the bottom. Callout 3 points to the top right controls (list view, print, close).

- 
1. This area displays the Patient list. Patients are sorted in Unconfirmed or Confirmed lists.  
**Unconfirmed patients.** Patients in this section are unconfirmed, and are not actively being monitored by the central station.  
  
**Confirmed patients.** Patients in this section have been confirmed. Patients with the  icon are actively being monitored by the central station.
- 
2. Click **Add** to open the Patient Details screen and add a patient to the current Patient list.
- 
3. Click  for a standard view of the Patient list.  
Click  for an expanded view of the Patient list. The expanded view displays the patient's latest vital signs measurements and any special indicator icons.  
Click  to print the Patient list.
-



## Discharged tab

The screenshot shows a software interface titled "Patient list". At the top, there are three tabs: "Current", "Discharged" (which is selected), and "Search". To the right of the tabs are two icons for expanding and contracting the view. Below the tabs is a table with the following columns: Name, Gender, Patient ID, and DOB. The table contains eight rows of patient data. Below the table is a large empty area, and at the bottom left is an "Add" button. Three callouts are present: callout 1 points to the table area, callout 2 points to the "Add" button, and callout 3 points to the expand/contract icons.

Name	Gender	Patient ID	DOB
NAM, F	♀	839285243	1940/01/03
NAM, F	♀	727653421	1940/01/03
NAM, F	♀	009283785	1940/01/03
NAM, F	♀	945719382	1940/01/03
NAM, F	♀	726351532	1940/01/03
NAM, F	♀	337195908	1940/01/03
NAM, F	♀	132485927	1940/01/03
NAM, F	♀	773366261	1940/01/03

1. This area displays the list of patients who have been discharged from your unit.
2. Click **Add** to open the Patient Details screen and add a patient to the current Patient list.
3. Click these buttons to expand or contract the Patient list view.

## Search tab

This tab allows you to set criteria for searching the full Patient list.

**Patient list**

Current Discharged **Search**

Last name:  Patient ID:

First name:  DOB:

**Search** **Clear all**

Room / Bed	Name	Gender	Patient ID	DOB
2101 A	NAM, F	♀	839285243	01/03/1967

1. This area allows you to search by a patient's name, ID, or date of birth.
2. This area shows the patient list. This area is blank until you click **Search**.
3. Click **Search** to perform your search. The search results appear in the scrolling list. Click **Clear All** to clear all fields.

# Patient Details

This window displays patient demographics, visit information, and history. Click **Edit** in the Device Details window to open the Patient Details window.

## Summary tab

**1** This area displays the patient's measurements.

ETCO2	RR	IPI	SpO2	PR
37 mmHg	18 bpm	8	96 %	74 bpm

Patient name: NAM, F      Gender: Male      ID: 98019765      Room / Bed: 2314 B      DOB: 12/18/1964      Age: 49

**2** Patient Information Fields:

- Patient ID: 98019765
- Gender: Male
- Date of birth: 12/18/1964      Age: 49 yrs
- Last name: Name
- First name: First
- Middle name: [ ]
- Suffix: [ ]
- Type: Adult      IPI type: Adult

**3** Continuous devices:

- SN 8019012

**4** Action Buttons: Review, Discharge, Save, Cancel

**5** Location Fields:

- Unit: Pediatrics
- Room / Bed: 2314 B

**6** Assignment Fields:

- Nurse
- Physician

**7** Special indicators:

- ! ✂
- ☠
- 🍴

1. This area displays the patient's measurements.

---

2. This area displays patient demographics, such as name, gender, date of birth, and any special indicators applicable to the patient.

---

3. This area displays any monitors connected to the patient.

---

4. Click **Review** to open the Review Window for the listed patient.  
Click **Discharge** to discharge the patient.

**Note**            You cannot discharge a patient who is actively being monitored.

---

5. This area displays the patient's unit and room or bed.

---

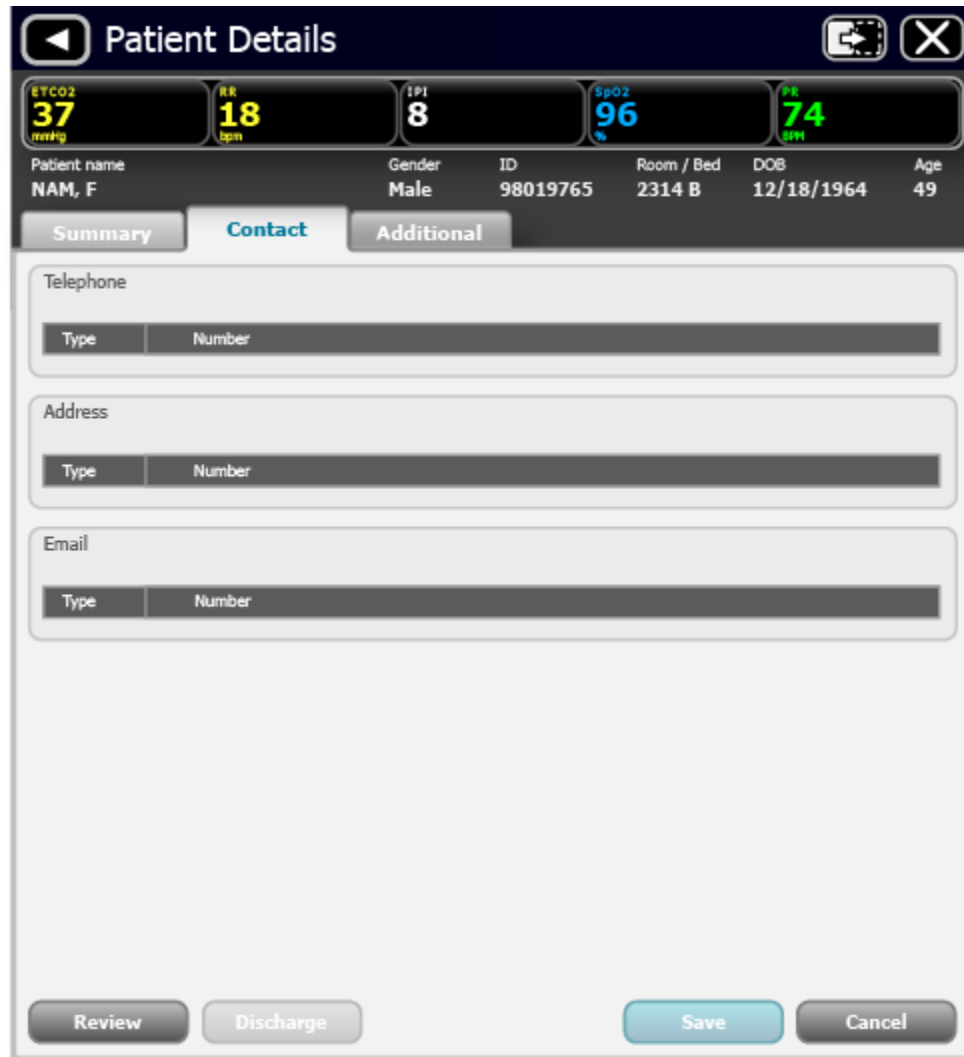
6. This area displays the nurse and physician assigned to the patient.

---

7. Click **Save** to save any changes and return to the Main Monitoring screen.  
Click **Cancel** to discard any changes and return to the Main Monitoring screen.

---

# Contact tab



---

This window displays a read-only list of the patient's phone numbers, street addresses, and email addresses.

---

## Additional tab

The screenshot shows the 'Patient Details' window with the 'Additional' tab selected. The window displays vital signs and patient information. The 'Additional IDs' section is currently empty.

ETCO2	RR	IPI	SpO2	PR
37 mmHg	18 bpm	8	96 %	74 bpm

Patient name	Gender	ID	Room / Bed	DOB	Age
NAM, F	Male	98019765	2314 B	12/18/1964	49

Summary   Contact   **Additional**

Additional IDs

Identifier	Assigning Authority
------------	---------------------

Review   Discharge   Save   Cancel

---

This window displays other patient IDs that have been used with the patient from other institutions or other visit IDs.

---

# Patient Review

---

Click **Review** in the Patient Details window or in the Device Details window to open the Patient Review window.

## Flow Sheet tab

The Flow Sheet tab only displays historical episodic vital signs measurements. Measurements are listed with one set of vital signs per column, with time displayed on the horizontal axis.

① 309W - NAM, F

Flow Sheet | Continuous Trends | Graphical Trends | Patient Alarms

② Timeline: 10/16 12:00, 10/17 00:00, 10/18 00:00, 12:00

③ Table of episodic measurements:

	10/16 23:00:00	10/16 23:30:00	10/16 23:45:00	10/17 00:00:00	10/17 00:30:00	10/17 00:45:00	10/17 01:22:14
Confirmed	✓	✓	✓	✓	✓	✓	✓
Temp °C	37.1	37.1	37.1	37.1	37.1	37.1	37.1
NIBP mmHg	168/93	168/93	168/93	168/93	168/93	168/93	168/93
PR bpm	78	78	78	78	78	78	78
RR bpm							
SpO2 %	98	98	98	98	98	98	98
Pain	1	1	1	1	1	1	1
Weight lb	165	165	165	165	165	165	165
Height in	68.0	68.0	68.0	68.0	68.0	68.0	68.0
Clinician	Perels...	Perels...	Perels...	Perels...	Perels...	Perels...	Perels...


④ Display options and print icons


1. This area displays the patient summary.

2. This area allows you to change the duration of the displayed patient measurements and alarms.

Grab the center of the blue timeline bar and slide it left or right to select a different time interval. Grab and slide either of the endpoints to widen or narrow the time interval.

3. This area displays the history of the patient's episodic measurements.

4. Click  to open the display options window. In this window, you can choose which vital signs, modifiers and custom scores are displayed.

Click  to print the Flow Sheet.



# Continuous Trends tab

The Continuous Trends tab displays historical, continuous, and episodic vital signs measurements. Measurements are listed with a snapshot of vitals per row, with time displayed on the vertical axis.

① 309W - NAM, F

Flow Sheet **Continuous Trends** Graphical Trends Patient Alarms

② 10/16 10/17 10/18

③

Date / Time	Confirmed	Temp °C	NIBP mmHg	PR BPM	RR BPM	SpO2 %	ETCO2 mmHg	IPI	SpHb c/d	Pain
10/17 03:42				84	21	98	34	7	10.6	3
10/17 03:30				108	20	98	35	8	10.6	1
10/17 03:15				121	20	99	32	4	10.6	4
10/17 03:00				106	19	98	30	6	10.6	3
10/17 02:45		37.1	220/98	101	19	99	28	6	10.7	2
10/17 02:30				97	15	99	29	7	10.7	1
10/17 02:15				94	16	88	34	6	10.7	4
10/17 02:00				100	30	97	36	5	10.7	2
10/17 01:45				104	17	98	32	5	10.7	3
10/17 01:30				99	16	98	33	5	10.7	1
10/17 01:15		40.0	122/78	122	15	99	32	6	10.7	1
10/17 01:00				110	15	98	33	6	10.7	0
10/17 00:45				103	15	99	31	6	10.7	3
10/17 00:30				99	16	99	30	7	10.7	2
10/17 00:15				90	15	98	29	7	10.7	6
10/17 00:00				87	14	97	29	7	10.7	4
10/16 23:45		37.0	118/76	84	14	98	28	7	10.7	2
10/16 23:30				86	15	98	28	8	10.6	2
10/16 23:15				88	15	97	29	8	10.6	1
10/16 23:00				85	14	97	28	8	10.5	1
10/16 22:45				87	16	97	30	9	10.6	3

④

---

1. This area displays the patient summary.

---


2. This area allows you to change the duration of the displayed patient measurements and alarms.


Grab the center of the timeline bar and slide it left or right to select a different time interval. Grab and slide either of the endpoints to widen or narrow the time interval.

---

3. This area displays a history of the continuous and episodic measurements for the current patient. High-level alarms appear in red. Medium-level alarms appear in yellow.

---

4. Click  to open the display options window. In this window, you can choose to display vitals signs data with or without alarms, or alarms only.

Click  to print the Continuous Trends.

---

## Graphical Trends tab

The Graphical Trends tab displays and graphically trends patient vital signs measurements. Measurements are displayed by parameter in a row, and are updated in a horizontal, side-scrolling format.





1. This area displays the patient summary.

2. This area allows you to change the duration of the displayed patient measurements and alarms.

Grab the center of the blue timeline bar and slide it left or right to select a different time interval. Grab and slide either of the endpoints to widen or narrow the time interval.

3. This area displays the patient measurement trends in a graphical format. Alarms are displayed by an indicator at the peak of the waveform.

4. Click  to open the display options window. In this window, you can choose which vital signs are displayed and whether or not manual parameters are displayed.

Click  to print the Graphical Trends.

# Patient Alarms tab

The Patient Alarms tab displays a table of messages and alarms generated during the previous 12 hours. The messages and alarms are listed by time and presented vertically.

①



309W - NAM, F

Flow Sheet Continuous Trends Graphical Trends Patient Alarms

②

Level	Date / Time	Duration (HH:MM:SS)	Event
▲	10/17 10:45	02:18	SpO2 LOW.
▲	10/17 10:42	:15	SpO2 LOW.
▲	10/17 09:17	14:23	SpO2 LOW.
▲	10/17 09:10	:32	Temperature HIGH.
▲	10/17 08:45	:17	SpO2 LOW.
▲	10/17 08:21	:12	NIBP HIGH.
▲	10/17 08:05	:15	SpO2 LOW.
▲	10/17 08:01	:01	NIBP HIGH.
▲	10/17 07:45	:46	Temperature HIGH.
▲	10/17 07:33	23:09	SpO2 LOW.
▲	10/17 07:12	:06	NIBP HIGH.
▲	10/17 05:42	04:17	SpO2 LOW.
▲	10/17 04:45	01:00	NIBP HIGH.
▲	10/17 03:15	:48	SpO2 LOW.
▲	10/17 03:07	:24	SpO2 LOW.

③

- 
1. This area displays the patient summary.
- 
2. This area displays a history of messages and alarms for the current patient. High-level alarms are displayed in red. Medium-level alarms are displayed in yellow.
- 
3. Click  to open the display options window. In this window, you can determine which types of alarms are displayed.  
Click  to print the Patient Alarms.
-



# Views

This window allows you to switch your central station to one of the previously configured views. Click the **Views** icon in the Navigation area to open the Views window. If prompted, enter your user ID and password to access this window.

## View selection tab

The screenshot shows the 'Views' window with the 'View selection' tab active. The window title is 'Views'. Below the title bar are two tabs: 'View selection' and 'View configuration'. The 'View selection' tab contains a list of views with columns for 'Layout mode' and 'Tile capacity'. The '36 Mapped' view is selected. Below the list is a 'Preview' section showing a grid of data. A 'Select' button is located at the bottom right of the window.

View	Layout mode	Tile capacity	Mapped
36 Mapped	Layout mode	Tile capacity	36
24 Autogroup	Layout mode	Tile capacity	Automatic

Preview

View	Layout mode	Tile capacity	Mapped
36 Mapped	Layout mode	Tile capacity	36
24 Autogroup	Layout mode	Tile capacity	Automatic

---

1. This area indicates the list of previously configured views.

---

2. This area displays a preview of the selected view.

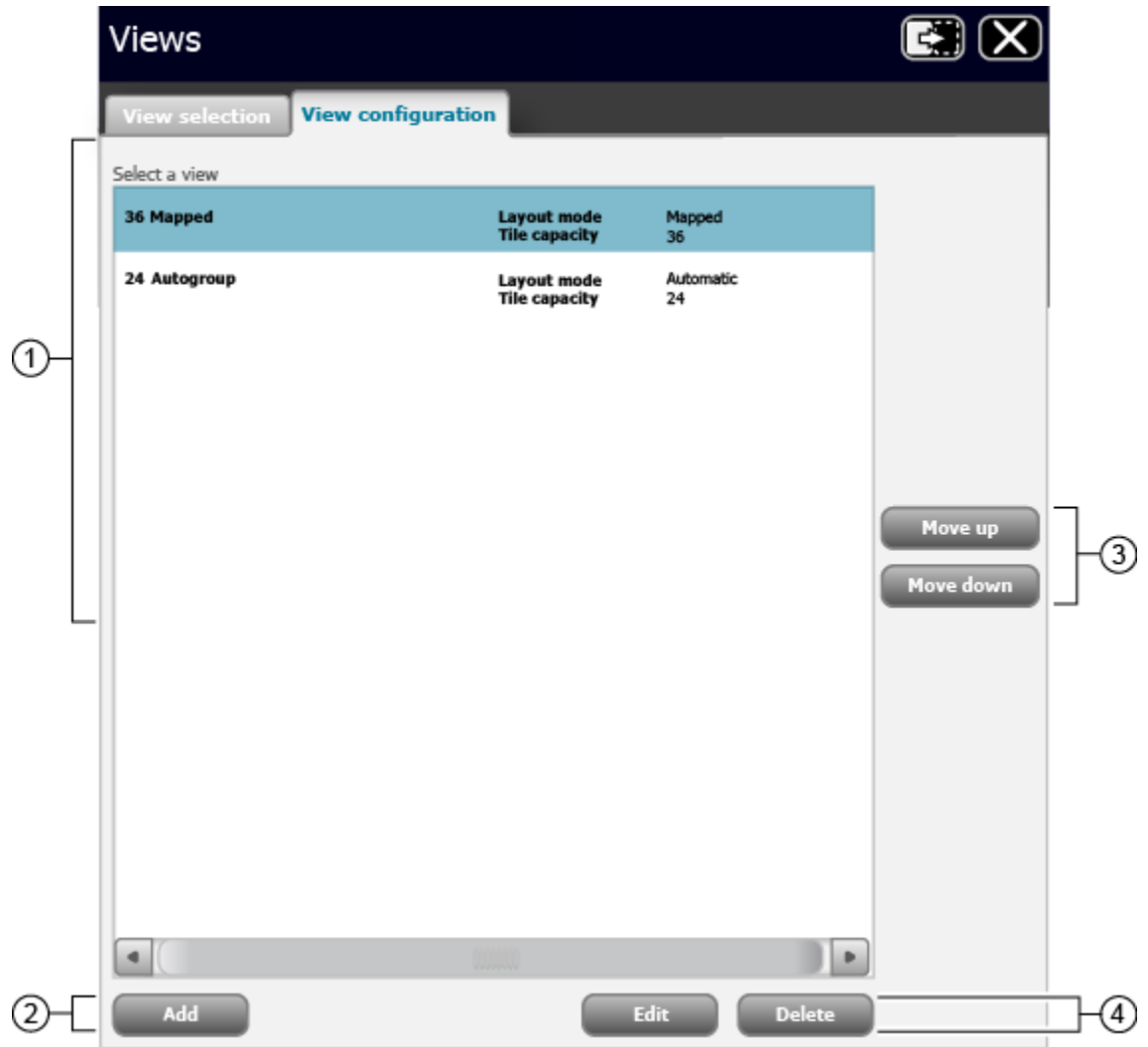
---

2. Click **Select** to activate the selected view.

---



## View configuration tab



1. This area displays the existing tile layouts.
2. Click this button to create a new layout.
3. Click these buttons to move a selected view up or down in the list.
4. Click these buttons to edit or delete existing tile layouts.

## Select a tile layout

1. Click the **Views** icon on the Main Monitoring screen.  
The Views Configuration window appears.
2. Select the layout you wish to use and click **Select**.  
The Main Monitoring screen appears in the selected layout.

## Create a custom tile layout

The central station supports up to 10 custom tile layouts.

1. Click the **Views** icon on the Main Monitoring screen.  
The Views Configuration window appears.
2. Click the **View Configuration** tab.
3. Click **Add**.  
The Add/Edit a View screen appears.
4. Enter a name for the layout.
5. Select the number of patient tiles the layout will display.  
Patient tiles can be displayed in 8-, 12-, 24-, 36-, or 48-tile grids.
6. Select the way in which the patient tiles will be organized.  
There are three modes in which tiles can be organized:
  - **Automatically sorted.** Patient tiles are sorted automatically. There is no further customization.
  - **Manually placed in a tile location.** Patient tiles can flow in either a column direction - top down then left to right, or a row direction - left to right then top down.
  - **Mapped by patient location.** Patient tiles are mapped on a grid. Click on an unassigned tile to assign the highlighted room number to that location. Click on the assigned tile to remove it from that location.
7. Select any of the tile customizations you want to apply to your layout.
8. Click **Save**.  
The Main Monitoring screen appears in the new layout.

# Patient monitoring

---

For information about patient monitors and devices that are not covered in this section, see the device directions for use.

## Connect a continuous monitor to the central station

A continuous monitor must be licensed in order to connect to the central station. For more information, see the monitor directions for use.

1. Make sure that the monitor is connected to the same network as the central station.



**WARNING** Make sure that the connection between the monitor and the central station has been established before leaving the bedside monitor or the patient. See the monitor directions for use for instructions for verifying that a connection has been established.

2. Set the monitor to the **Continuous** profile. For more information, see the monitor directions for use.
3. Do one of the following at the device:
  - Select a patient.
  - Select a location.
  - Take and send an episodic reading.
  - Collect and send continuous or trend data.



**WARNING** The patient tile will not appear in the waiting area until one of these actions is completed.

The device connects to the central station, and the patient tile appears in the waiting area.

4. Admit the patient as described in the Patient data management section.  
The patient tile appears in the Main Monitoring area.

## Connect an episodic device to the central station

1. Enter the patient information at the central station.

**Note** Patient information must be entered at the central station before a patient tile appears in the Waiting area.

2. Make sure that the device is connected to the same network as the central station by checking for the radio signal strength indicator on the device. For more information, see the device directions for use.
3. Admit the patient as described in the Patient data management section.  
The patient tile appears in the Main Monitoring area.

# Patient data management

---

Patient data can be managed at the central station or at the monitor.

## Add a patient at the central station

**Note** This method is only recommended for use when your central station is not connected to an ADT.

1. Click the **Patient** icon in the Navigation area.  
The Patient List appears.
2. Click **Add**.  
The Patient Details window appears.
3. Scan the patient's barcode or use the keyboard to enter the patient's ID, name, date of birth, and other information.

**Note** The patient's first or last name can not exceed 32 characters. If the ADT system sends a first or last name longer than 32 characters, the name will be truncated, and will generate a conflict.

4. Click **Save**.  
The Confirm Changes dialog box appears.
5. Review the information in the dialog box, and if correct, click **Yes** to return to the Main Monitoring screen. If further editing is required, click **No** to return to the previous screen.

## Admit a patient from the Waiting area

1. In the Waiting area, click the patient tile you want to admit.  
The Device Detail window appears.
2. Click **Edit**.  
The Patient Details window appears.
3. Enter the patient information, choose a location for the patient, and click **Save**.  
The Confirm Changes dialog box appears.
4. Review the information in the dialog box, and if correct, click **Yes** to return to the Main Monitoring screen. If further editing is required, click **No** to return to the previous screen.

## Admit a patient from the Patient list

1. Click the **Patients** icon in the Navigation area.  
The Patient list appears.
2. In the **Unconfirmed** area, click the patient you want to admit.  
The Patient Details window appears.
3. Enter the patient location and device information. Click **Save**.  
The Confirm Changes dialog box appears.
4. Review the information in the dialog box, and if correct, click **Yes** to return to the Main Monitoring screen. If further editing is required, click **No** to return to the previous screen.

## Admit a patient from a room tile

1. Click on the patient tile in the Main Monitoring screen.  
The Patient Detail screen appears.
2. Click **Edit**.  
The Patient Details window appears.
3. Enter the patient information, choose a location for the patient and click **Save**.  
The Confirm Changes dialog box appears.
4. Review the information in the dialog box, and if correct, click **Yes** to return to the Main Monitoring screen. If further editing is required, click **No** to return to the previous screen.

## Edit patient information at the central station

1. Click on a patient tile.  
The patient's Device Details window appears.
2. Click **Edit**.  
The Patient Details window appears.
3. Edit the patient's ID, name, date of birth, and other information, and click **Save**.  
The Confirm Changes dialog box appears.
4. Review the information in the dialog box, and if correct, click **Yes** to return to the Main Monitoring screen. If further editing is required, click **No** to return to the previous screen.

## Edit patient information at the device

Patient information that is changed at the device automatically changes at the central station. See the device directions for use. Verify all entries after the changes are made.

## Move a patient

**Note** This feature is only available in a Mapped by patient location layout.

1. Click and hold on the patient tile you want to move.

2. Drag the patient tile to a new location.
3. Click **OK** at the Confirm Patient Transfer dialog box.  
The patient tile moves to the new location.

## Assign a patient to a room

**Note** This feature is only available in a Mapped by patient location layout.

1. Click and drag a patient tile from the Waiting area to the appropriate room.  
The Confirm Patient dialog box appears.
2. Click **OK** to confirm the transfer.  
The patient tile appears in the room area.
3. Click the patient tile.  
The Device Details window appears.
4. Click **Edit**.  
The Patient Details window appears.
5. Enter the patient's ID, name, date of birth, and other information.
6. Click the **Room / Bed** pull-down menu and select the appropriate room or bed.
7. Click **Save**.  
The Confirm Changes dialog box appears.
8. Review the information in the dialog box, and if correct, click **Yes** to return to the Main Monitoring screen. If further editing is required, click **No** to return to the previous screen.

## Review patient alarms

1. Click on a patient tile.  
The Device Details window appears.
2. Click **Review**.  
The Patient Review window appears.
3. Click **Patient Alarms**.  
The Patient Alarms tab appears.

**Note** If your main central station PC disconnects and is replaced with a warm spare — an additional, central station-capable PC running on the network — historical continuous data and alarms will not transfer to the new central station PC. Some continuous trend data and episodic data generated before the disconnect will show up on the new central station PC.

## Transfer a patient to a different unit covered by the same central station


1. Click on the tile of the patient you want to transfer.  
The Device Details window appears.
2. Click **Edit**.  
The Patient Details screen appears.
3. Edit the patient's new unit and bed and click **Save**.  
The Confirm Changes dialog box appears.
4. Review the information in the dialog box, and if correct, click **Yes** to return to the Main Monitoring screen. If further editing is required, click **No** to return to the previous screen.

## Transfer a patient to a different unit covered by a different central station

1. Click on the tile of the patient you want to transfer.  
The Device Details window appears.
2. Click **Edit**.  
The Patient Details screen appears.
3. Click **Discharge**.  
The patient is moved to the **Discharged** tab in the Patients List.
4. Physically move the patient to the new unit.
5. At the new unit, admit or pre-admit the patient as described.


## Resolve an information message conflict

An information message conflict occurs when the patient information at the central station does not match the patient information at the hospital information system (HIS) or electronic medical record (EMR).

1. Click on the patient tile that displays the information message icon (  ).  
The Device Details window appears.
2. Click the information message icon in the patient summary area.  
The Patient Details screen appears.
3. Click on the information message icon in the Patient Details screen.  
The information for this patient stored in the HIS or EMR is displayed.
4. Click the text in blue to change the displayed patient information to match the information stored in the HIS or EMR.  
The patient information changes.
5. Click **Save**.  
The conflict is resolved.




## Print the Patient list

1. Click the **Patients** icon in the Navigation area.  
The Patient list appears.
2. Click .  
A dialog box appears.
3. Select your printer from the printers in the dialog box.
4. Select the page size and the page orientation.
5. Click **Print**.  
The Patient list prints at the selected printer.

## End monitoring a patient

This task is performed only at the device. See the device directions for use.


## Discharge a patient at the central station

**Note** You cannot discharge a patient who is continuously sending data vital signs measurements to the central station. These patients appear in the list with the  icon.

1. Click the **Patients** icon in the Navigation area.  
The Patient list appears.
2. Click on the patient name of the patient you want to discharge. Click **Discharge**.  
The Confirm Changes dialog box appears.
3. Click **Yes** to discharge the patient.  
The Main Monitoring screen appears.

**Note** It is important to discharge patients on a regular basis in order to keep the patient list current and up to date.

## Automatic discharge

**Note** You cannot discharge a patient who is continuously sending data vital signs measurements to the central station. These patients appear in the list with the  icon.

The central station automatically discharges patients based on monitoring inactivity or events from the ADT system. Patients who were entered through an ADT system are automatically discharged only after the central station receives a discharge or transfer message.

After receipt of a discharge or transfer message, patients are automatically discharged 4 hours after the last episodic reading is taken or a monitoring session ends.

Patients that were entered into the system without an ADT feed are automatically discharged 24 hours after the last episodic reading is taken or a monitoring session ends.

**Note** This behavior can be customized, enabled, or disabled. Contact your system administrator to change or modify your settings.

## Re-admit a patient

1. Click the **Patients** icon in the Navigation area.  
The Patient list appears.
2. Click the **Discharged** tab.  
The list of discharged patients appears.
3. Click on the patient you want to re-admit.  
The Patient Details window appears.
4. Enter the new location for the patient and click **Save**.  
The Confirm Changes dialog box appears.
5. Review the information in the dialog box, and if correct, click **Yes** to return to the Main Monitoring screen. If further editing is required, click **No** to return to the previous screen.

## EarlySense sensor

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The EarlySense sensor is an option that provides patient data on the central station. See the Welch Allyn Connex® Vital Signs Monitor 6000 Series™ directions for use or the user documentation provided with the sensor for more information on the sensor, including features, setup, and use.

### Patient tiles

#### Standard tile



1. This area displays the patient location.
2. This area displays the episodic patient parameters.
3. This area displays the patient's name, and an icon indicating the patient is on a bed sensor.
4. This area displays the continuous patient parameters. The patient movement parameter measurement is displayed under the **MVMT** label.

**Note** The respiration rate (RR) and pulse rate (PR) measurements are also provided by the EarlySense sensor.

---

### Alarming tile – Patient movement



1. This area displays the alarm icon and the patient location.
2. This area displays the episodic patient parameters. Any alarming parameters are displayed in either red or yellow, depending on the alarm type.
3. This area displays the turn counter. The timer indicates the amount of time remaining before the patient's next scheduled turn.
4. This area displays the patient's name, and an icon indicating the patient is on a bed sensor.
5. This area displays the continuous patient parameters. The alarming parameters are surrounded by a colored box.

### Alarming tile – Patient exit



1. This area displays the alarm icon and the patient location.
2. This area displays the patient exit alarm.
3. This area displays the patient's name, and an icon indicating the patient is on a bed sensor.

**Alarming tile – Patient turn**

- 
1. This area displays the alarm icon and the patient location.
  2. This area displays the episodic patient parameters.
  3. This area displays the patient turn alarm, and the amount of time elapsed since the patient's last scheduled turn.
  4. This area displays the patient's name, and an icon indicating the patient is on a bed sensor.
  5. This area displays the continuous patient parameters.
-

## Device details – Measurements tab

This window displays information on the devices and measurements associated with a patient. Click a patient tile to open the Device details window.

The screenshot shows the 'Device details' window with the following data:

Parameter	Value	Source	Alarm Limits
RR	14	Bed	30 (high), 10 (low)
PR	76	Bed	200 (high), 50 (low)
SpO2	98%	Bed	95 (low)
MOVEMENT	L	Bed	Exit sensitivity, TURN: 0:51
NIBP	127/75 mmHg	Bed	@ 18:24
Pulse rate	82 BPM	Bed	@ 18:24
Temperature	37.0 °C (98.6 °F)	Bed	@ 17:56
SpO2	97%	Bed	@ 18:24
Height	72 in	Manual	@ 14:03
Weight	177 lb	Manual	@ 18:29
Pain	3	Manual	@ 18:29
BMI	24.0	Manual	@ 18:29

1. This area displays the patient summary.
2. This area displays the device message area. This includes the device serial number, or any alarms or messages associated with the patient's connected continuous monitor.
3. This area displays the continuous patient data. Click the alarm limits button to pause an alarm or adjust that parameter's alarm limits.  
Where applicable, the source for the parameter data is displayed in the lower left corner of the parameter tile.
4. This area displays the episodic patient data.
5. This area displays the manual parameters.
6. Click **Edit** to open the Patient Details window and edit the patient information.

---

7. This area displays the EarlySense sensor data.

**Note** Alarm limits for the EarlySense sensor are set at the device. The alarm can only be dismissed at the device. See the device directions for use.

- The EarlySense measurement displayed under the **MOVEMENT** tile will be one of the following:
  - 0 – No motion
  - L – Low
  - M – Medium
  - H – High
  - EH – Extremely high
- The **Exit sensitivity** graph indicates the bed exit sensitivity setting. This setting is controlled at the device. See the device directions for use.
- The **SOURCE:** label indicates the EarlySense source.
- The timer next to the **TURN:** indicates the amount of time remaining before the patient's next scheduled turn.

**Note** If the patient turn reminder is active, the timer counts down to zero and then displays a reminder in the System message area to perform and log a patient turn. If a scheduled patient turn remains overdue, an alarm message appears in the System message area.

---

8. Click this button to open the Review window.

---

## Device details – Alarms tab

**Note** The bed or chair exit, motion alarm, and patient turn settings for the EarlySense sensor are controlled at the monitor. For more information, see the monitor directions for use.

The screenshot displays the 'Device details' window with the 'Alarm limits' tab selected. The patient information section includes:

Patient name	Gender	ID	Room / Bed	DOB	Age
NAM, F	Male	98019765	314 B	12/18/1964	49

The 'Alarm limits' section shows the following settings:

- CO2:** ETCO2 alarm limit is 15 (range 0-60), FICO2 alarm limit is 8 (range 0-150).
- RR (Respiratory Rate):** Alarm limit is 3 (range 0-150).
- PR (Pulse Rate):** Alarm limit is 50 (range 25-300).
- SpO2 (Oxygen Saturation):** Alarm limit is 90 (range 50-100).
- Bed Exit Sensitivity:** Alarm limit is 3 (range 1-6).
- Chair exit sensitivity:** Alarm limit is 3 (range 1-6).

Annotations in the image indicate: 1. Patient summary area; 2. Alarm settings area; 3. Edit button.

1. This area displays the patient summary.

2. This area displays the alarm settings for the EarlySense sensor. The settings are provided by the device. See the device directions for use.

3. Click **Edit** to open the Patient Details window and edit the patient information.



# Alarms

---

The central station presents physiological alarms and technical alarms.

## Alarm types

Type	Priority	Color	Alarm audio tone <sup>1</sup>
High-priority alarms are defined by the device. See the device directions for use.	High	Red	10-pulse tone.
Central station-generated alarms based on loss of connection with any patient monitor due to a low or depleted battery.	High	Red	10-pulse tone.
EarlySense-generated alarm caused by a patient exiting the bed	High	Red	Alternate 10-pulse tone.
Medium-priority alarms are defined by the device. See the device directions for use.	Medium	Yellow	3-pulse tone.
Low-priority alarms defined by the central station include technical alarms. Other low-priority alarms are defined by the device. See the device directions for use.	Low	Yellow	1-pulse tone.
Very-low priority alarms are technical alarms that do not impact patient safety. To view these alarms, do the following: <ol style="list-style-type: none"> <li>1. Click on the alarming patient tile.</li> <li>2. Click <b>Device Details</b>.</li> <li>3. View the alarm in the Device Message Area.</li> </ol>	Very low	Cyan	None.

<sup>1</sup> The minimum alarm sound pressure level for all alarms is greater than or equal to 45 dB, and the maximum alarm sound pressure level is less than or equal to 67 dB.




**WARNING** Whenever possible, do not rely on visual alarm notifications alone while monitoring patients. If you must rely on visual alarm notifications, maintain a clear line of sight with the central station or the patient monitor. For audio alarm notifications, set the volume as needed considering the environment and ambient noise levels. Verify that the alarm is audible to a clinician working at the maximum distance from the central station or the patient monitor.

# Alarm locations

## Physiological alarms

Physiological alarms occur when a patient's vital sign measurements fall outside of set alarm limits.


The screenshot shows a grid of patient tiles. At the top, a red banner displays the message "201A - SpO2 LOW." and the time "14:24". Below the banner, there are multiple patient tiles, each showing vital signs for a specific patient (e.g., 200A, 203A, 206A, 209A, 212A, 200B, 203B, 206B, 209B, 212B, 201A, 204A, 207A, 210A, 213A, 201B, 204B, 207B, 210B, 213B, 202A, 205A, 208A, 211A, 202B, 205B, 208B, 211B). The tile for patient 201A is highlighted with a red border, and its SpO2 value of 85% is also highlighted with a red border. A callout box with a circled "1" points to the top banner, and another callout box with a circled "2" points to the highlighted patient tile.

1. **System message area.** If multiple alarms are active, click  to cycle through the messages for each active alarm.
2. **Patient tile.** If a patient tile is in a physiological alarm state, the border around the tile changes color, and a colored border appears around the alarming parameter.

### Technical alarms

Technical alarms occur when a problem occurs with such things as the patient device, the patient location or ID, an accessory connected to the patient device, or the network.



1. **System message area.** If multiple alarms are active, click  to cycle through the messages for each active alarm.
2. **Patient tile.** If a patient tile is in a technical alarm state, the border around the tile changes to a color relative to the level of the alarm. No colored borders appear around the patient's parameters.







### Main Monitoring screen notifications

Notification	Description
System message area	The area changes color and displays a message with an accompanying status icon or button. If multiple alarms and information messages are active, the System message area shows the highest priority alarm. If the alarms are equal in priority, the most recent alarm message appears. You can cycle through the messages for each active alarm.
Patient tile	The border color changes. Click the alarming tile to pause an alarm audio tone. Visual indicators persist during an audio-paused condition.

### Alarm icons in the Measurements tab

The icons in the parameter frames indicate alarm notification settings. When alarm limits are on, the icons are black and white until an alarm occurs. Then, the icons change color to indicate the priority of the alarm. Red icons represent high priority alarms, and yellow icons represent medium or low priority alarms.

#### Icons in the Measurements tab

Icon	Name and status
	Alarm active. One or more alarms are active. Click this icon within the parameter frame to pause the audio tone.
	Alarm on. Visual and audio alarms will occur for this parameter.
	Alarm off. No visual or audio alarms will occur for this parameter.
	Alarm audio off. Only visual notifications will occur. This functionality only occurs at the device. See the device directions for use.
	Alarm audio paused. The audio tone is paused at the device and the central station. The duration of the pause is set at the device. See the device directions for use.
	Information status message. This icon is displayed with messages that are unrelated to physiological alarms.





### Alarm icons in the System message area

The icons in the System message area change colors to indicate the alarm priority. Messages accompany these icons.

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#### Icons in the System message area

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Icon	Name and status
	Alarm active. One or more alarms are active. Click the System message area to pause the audio tone or acknowledge the alarm depending on the given alarm.
	Alarm audio off. Audio signals are disabled, but alarm limits and visual alarm signals remain active. A reminder signal periodically occurs.
	Multiple alarms notification. Click this icon to cycle through the messages for the active alarm priority level.
	Alarm audio paused. The audio tone is paused at the device and the central station. The duration of the pause is set at the device. See the device directions for use.

---

## Pause an alarm at the central station


### Audio alarm characteristics


- After you pause an alarm, the alarm returns after a pause interval if the condition that caused the alarm persists.
- If a new alarm condition occurs during a pause interval, a new audio tone occurs.

1. Click  in the System message area.

The alarm is paused. Visual indications remain in the patient tile until the condition is corrected or until the next measurement is taken.

2. If multiple alarms are active, a multiple alarms notification appears in the System message area. Respond to multiple alarms as follows:

- a. Click  in the System message area. (See note below.)
- b. Read the alarm message for the second alarm.

- c. Click .
- d. Continue to click the multiple alarms notification and reset tones until you have read all of the messages.

**Note** The multiple alarms notification button displays the number of active alarms inside the alarm icon. A set of dots appears below the icon. These dots indicate the display order of alarms in sequential order of occurrence.

## Pause an alarm at the device

Patient alarms can be paused at the patient device. For instructions on pausing the alarm, see the device directions for use

## Adjust patient alarm limits at the central station

**Note** Alarm limits that are adjusted at the central station are also adjusted at the device. If power is lost at the central station, the current alarm limits from the patient monitor will be used when the central station reconnects to the network.

1. Click on a patient tile.  
The Device Details window appears.
2. Confirm that the alarm is on.
3. Select the Alarms tab.  
The Alarms tab appears.
4. You can manually enter upper and lower parameter alarm limits by entering a value in the numeric boxes on the left and right side.
5. You can adjust the range of the parameter alarm by clicking and dragging the left or right side of the slider bar.

6. You can adjust the overall range of the parameter alarm by clicking and dragging the center of the slider bar.

7. Click .

The Main Monitoring screen appears. The alarm limits are adjusted at the central station and at the monitor.

## Adjust patient alarm limits at the device

**Note** Alarm limits that are adjusted at the device are also adjusted at the central station.

Alarm limits can be adjusted at the patient device. For instructions on adjusting the alarm limits, see the device directions for use.

## Test the central station alarms

1. Locate a device that is not connected to a patient, and connect the device to the network.

For instructions, see the device directions for use.

2. Set the device into demo or simulation mode.

For instructions, see the device directions for use.

3. At the central station, click on the patient tile associated with the demo or simulation device.

The Measurements tab appears.

4. Click the Alarms tab.

The Alarms tab appears.

5. Verify that the alarms are on for the parameter you want to test.

6. Verify that the alarms are functional by setting the high and low parameter alarm limits beyond the simulated readings.

7. Verify that the parameter audio alarm sounds, the System message area flashes, and a colored border appears around the alarming parameter.

8. Repeat this procedure for the remaining monitored parameters.

If these alarm test results do not occur, contact Welch Allyn technical service.

## Alarm messages and priorities

The following section lists the physiological and technical alarm messages and their priority.

### Physiological alarms

For a list of physiological alarms, see the device directions for use.

### Technical alarms

For additional technical alarms, see the device directions for use. Very low alarms appear in cyan and are only displayed in the Device Details tab.

Alarm messages	Priority
Low battery. Lost connection.	High
Location conflict.	Low
Patient ID and location not confirmed.	Low
Patient ID not confirmed.	Low
Location not confirmed.	Low
Unknown Patient ID.	Low
Wireless connection lost.	Low
Wired connection lost.	Low
Too many monitors.	Low
Unknown parameter.	Low



**WARNING** Patients must be intentionally disconnected from continuous monitoring at the patient device or a high-priority Device communication lost error occurs.




# Station Alarms

This window displays all of the central station messages and patient alarms generated during the previous 12 hours. Click the **Alarms** icon in the Navigation area to open the Station Alarms window.

## Station Alarms window

Level	Date / Time	Duration (HH:MM:SS)	Room / Bed	Patient name	Event
▲	10/17 10:45:44	02:18	407B	NAM, F	SpO2 LOW.
▲	10/17 10:42:31	:15	407B	NAM, F	SpO2 LOW.
▲	10/17 09:17:09	14:23	407B	NAM, F	SpO2 LOW.
▲	10/17 09:10:11	:32	407B	NAM, F	Temperature HIGH.
▲	10/17 08:45:27	:17	409B	NAM, F	SpO2 LOW.
▲	10/17 08:21:19	:12	409B	NAM, F	NIBP HIGH.
▲	10/17 08:05:03	:15	409B	NAM, F	SpO2 LOW.
▲	10/17 08:01:44	:01	409B	NAM, F	NIBP HIGH.
▲	10/17 07:45:81	:46	413B	NAM, F	Temperature HIGH.
▲	10/17 07:33:26	23:09	413B	NAM, F	SpO2 LOW.
▲	10/17 07:12:15	:06	413B	NAM, F	NIBP HIGH.
▲	10/17 05:42:11	04:17	413B	NAM, F	SpO2 LOW.
▲	10/17 04:45:11	01:00	409B	NAM, F	NIBP HIGH.
▲	10/17 03:15:45	:48	409B	NAM, F	SpO2 LOW.
▲	10/17 03:07:51	:24	409B	NAM, F	SpO2 LOW.
▲	10/17 03:01:20	:32	407B	NAM, F	NIBP HIGH.
▲	10/17 02:57:44	:17	407B	NAM, F	Temperature HIGH.
▲	10/17 02:49:51	:12	409B	NAM, F	SpO2 LOW.
▲	10/17 02:41:01	:15	409B	NAM, F	NIBP HIGH.
▲	10/17 02:37:55	:01	409B	NAM, F	SpO2 LOW.
▲	10/17 03:37:02	:46	409B	NAM, F	NIBP HIGH.
▲	10/17 03:25:37	1:15	413B	NAM, F	SpO2 LOW.
▲	10/17 03:17:59	7:04	413B	NAM, F	SpO2 LOW.

- 
1. This area displays a list of all central station messages and patient alarms that have occurred over the last 12 hours. Double-click an entry to open the alarm in the Review window.
- 

2. Click  to open the display options window. In this window, you can determine which types of alarms are displayed.

Click  to print the Patient Alarms.

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# Settings

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The main areas of the Settings window are a password-protected. These areas provide customization of the system. For access information, contact your system administrator.

## Patient rest mode



### WARNING

Risk to patient safety. Set the volume as needed on the central station considering the environment and ambient noise levels. When patient rest mode is activated, the central station is the only source of audible alarms. Verify that the alarm is audible to a clinician working at the maximum distance from the central station.

The patient rest mode enables you to turn the audio off at the device when continuous monitoring is enabled and the device is communicating with a central station.

Patient rest mode can be enabled and disabled from the central station or from the device. If patient rest mode is initiated at the central station, the mode can be disabled at the central station or at the device. If patient rest mode is initiated from the device, it must be disabled at the device.

## Turn on patient rest mode for a covered area

1. Click the **Settings** icon in the Navigation area.
2. Click **On**.
3. Click **OK**.

The patient rest mode is activated on all devices in the covered area.

## Turn off patient rest mode for a covered area

1. Click the **Settings** icon in the Navigation area.
2. Click **Off**.
3. Click **OK**.

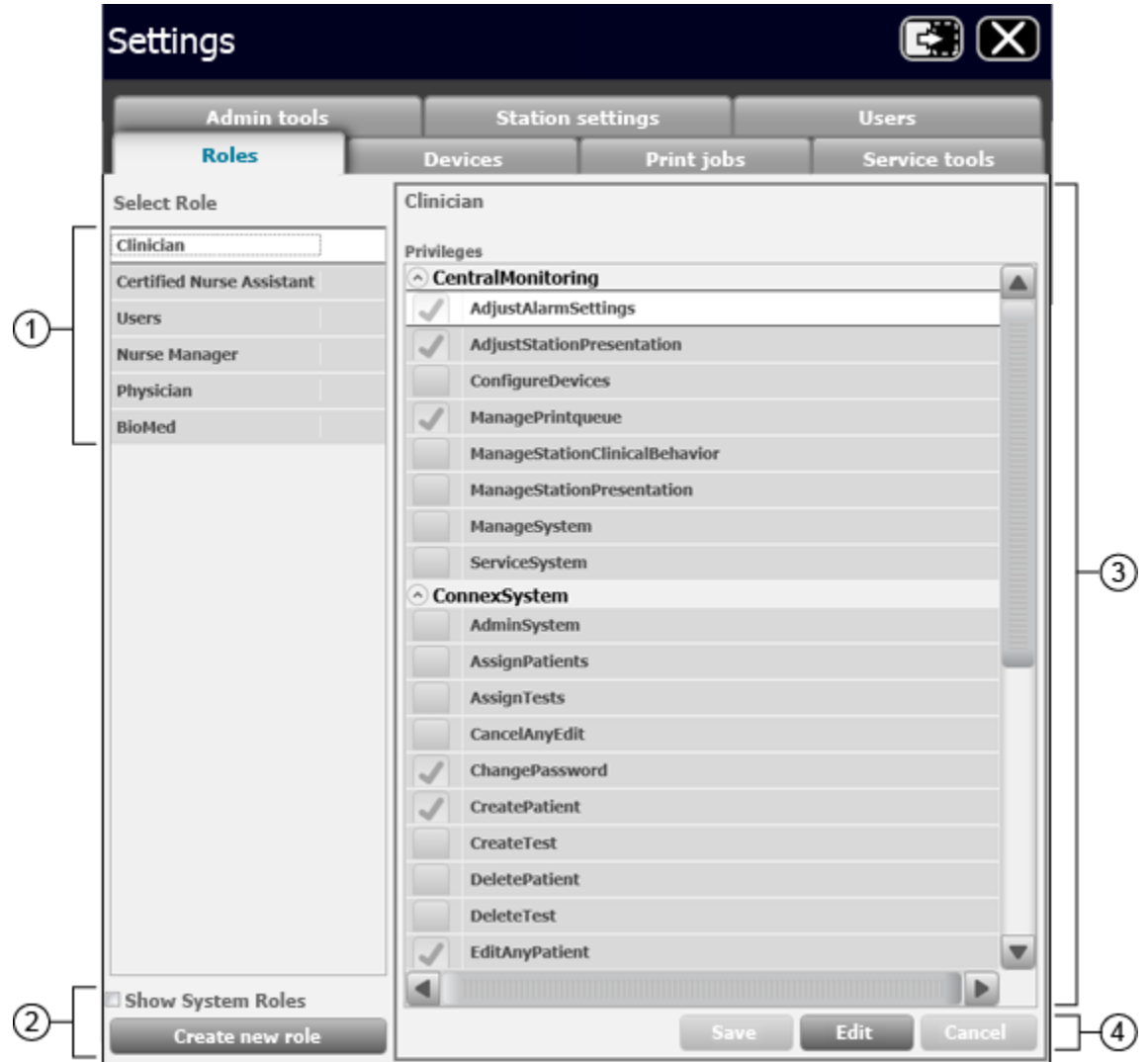
The patient rest mode is deactivated on all devices in the covered area.

## Turn on or turn off patient rest mode for an individual device

Patient rest mode for individual devices is controlled at the device. See the device directions for use.

## Roles tab

The Roles tab allows you to assign privileges to predefined roles, and create, modify, and assign privileges to new roles.



1. This area displays the list of roles currently defined in your system.
2. Click **Create new role** to create a new role in the system.
3. Click a checkbox to assign a privilege to the selected role.
4. Click **Save** to save any changes.  
Click **Edit** to edit the selected role.  
Click **Cancel** to clear any changes.

## Devices tab

The Devices tab allows you to identify the devices that are accepted for a covered area and assign those devices to a location. Devices are listed by serial number.

Model name	Model number	Serial number	Location	Assigned
PMP	VSM 6000 Series	103000651112		
SimulatedDevice	SD1	120727003		
SimulatedDevice	SD1	120727007		
PMP	VSM 6000 Series	103000291111		
SimulatedDevice	SD1	120727006		
PMP	VSM 6000 Series	103000661112		
SimulatedDevice	SD1	120727001		
SimulatedDevice	SD1	120727005		
SimulatedDevice	SD1	120727008		
PMP	VSM 6000 Series	103000182811		
PMP	VSM 6000 Series	103001163311		
PMP	65MTPX	10300063112		
SimulatedDevice	SD1	120727002		
PMP	VSM 6000 Series	103000172811		
SimulatedDevice	SD1	120727004		

Device configuration

Edit Save Cancel

1. This area displays the devices available in the covered area. Devices with the icon are actively being monitored by the central station.
2. This area displays the configuration of the selected device.
3. Click **Edit** to edit a device.  
Click **Save** to save any changes.  
Click **Cancel** to clear any changes.

## Edit a device

1. Click **Edit**.

The list of available devices is active.

2. Click on a device.

**Note** You cannot select a device that is actively monitoring a patient.

3. Use the pull-down menu under Location to select a unit, room, or bed.

You can also check the **Is Bolted** box to permanently assign the device to the location.

4. Review your changes, and if correct, click **Save**.

A confirmation window appears.

5. Click **Cancel** to return the Device tab to an inactive screen.

## Print jobs tab

The Print jobs tab allows you to view active print requests.

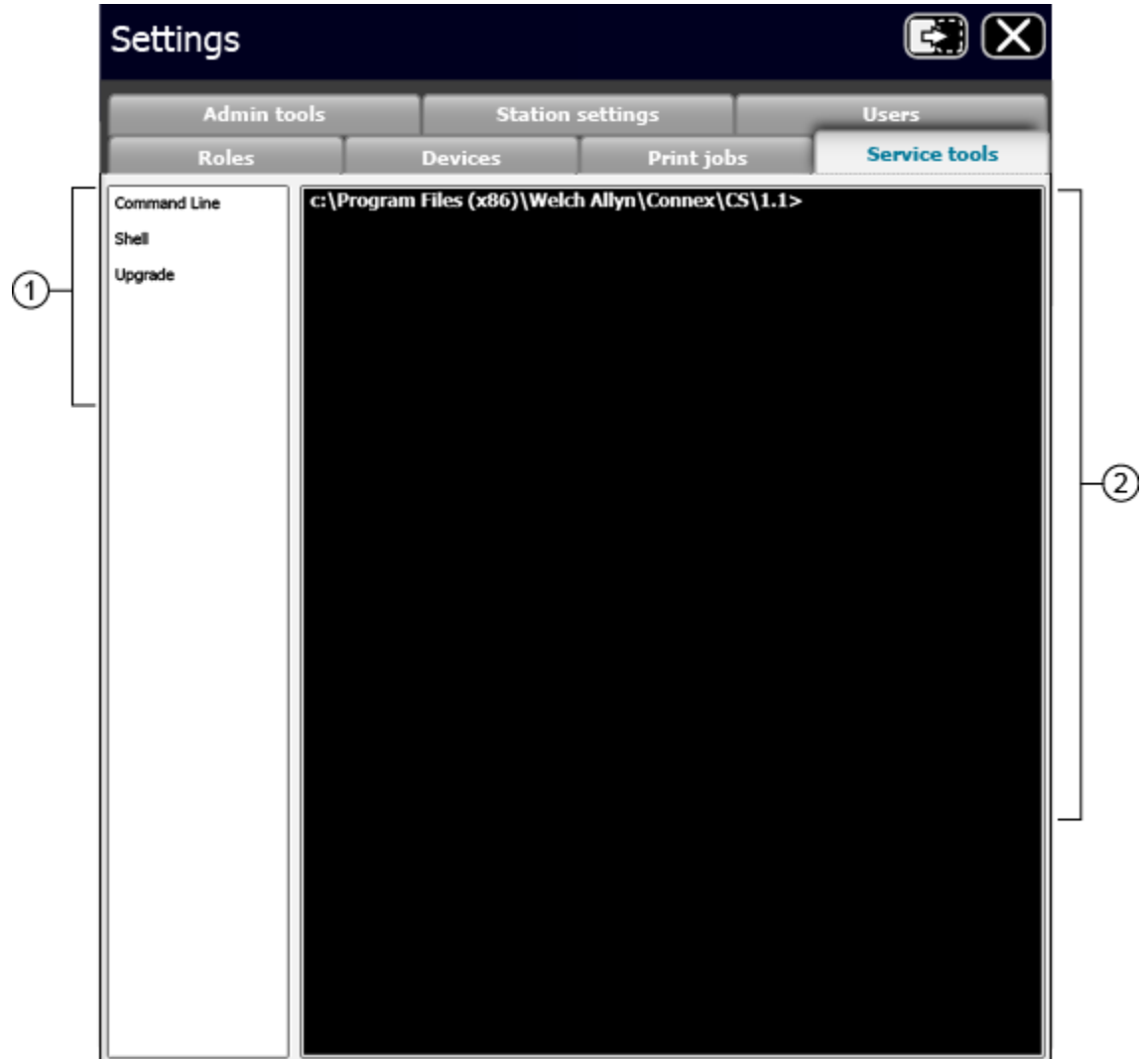


1. This area displays a list of active print jobs.
2. Click **Pause** to pause the selected print job.  
Click **Resume** to resume the selected print job.  
Click **Restart** to restart the selected print job.  
Click **Cancel** to cancel the selected print job.



## Service tools tab

The Service tools tab provides command line access and allows for upgrade, backup, restore, and revert to a previous version of the system.



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1. This area displays the list of available Service tool options.

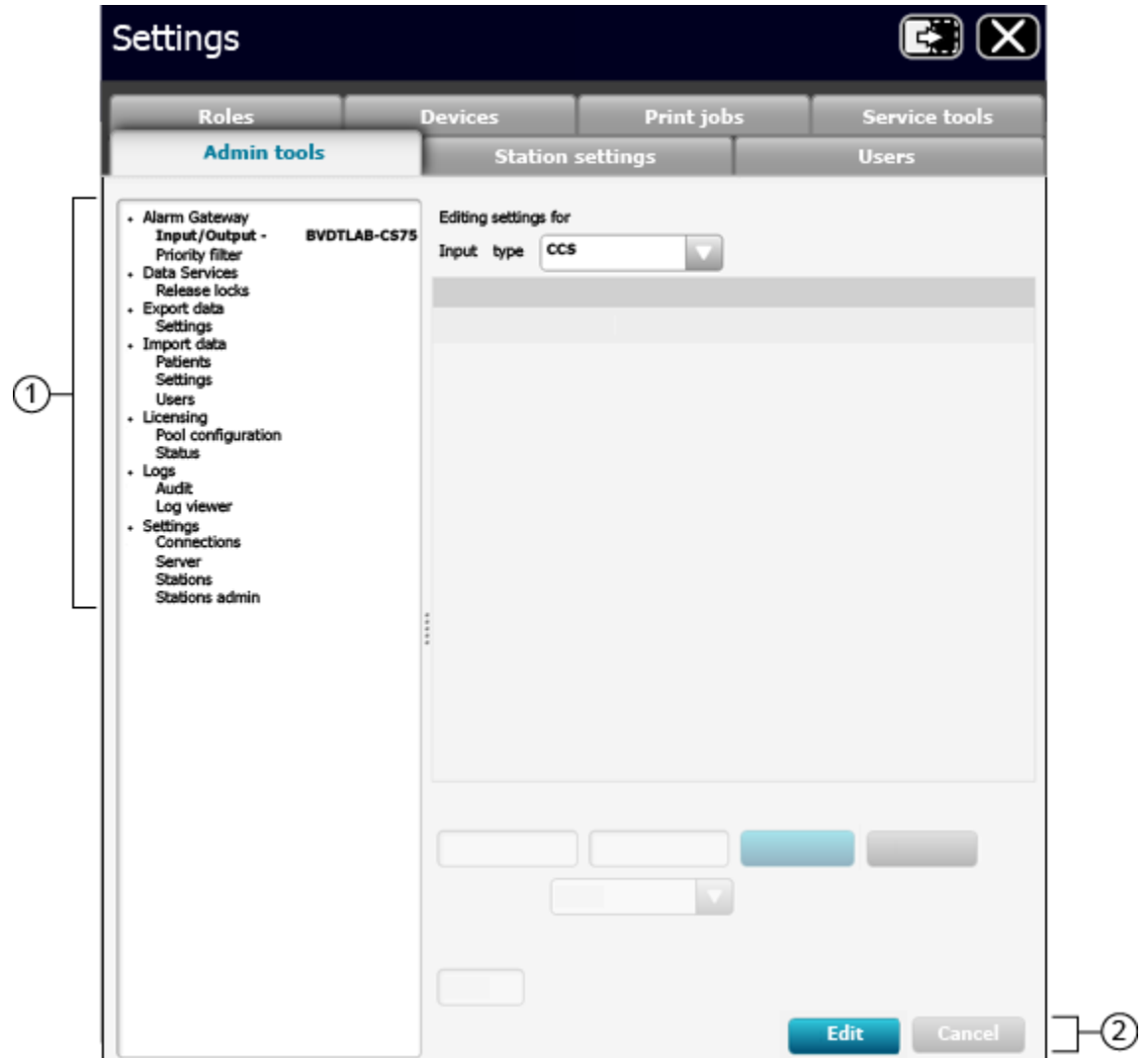
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2. This area displays detail of the selected option.

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## Admin tools tab

The Admin tools tab allows you to change central station settings including third-party alarms, vital signs modifiers, master bed lists, covered locations, preferred parameter units, display and print formats, password and password validation rules, and others.



1. This area displays a list of tools used to adjust or change certain settings of the central station.

2. Click **Edit** to edit the selected item.  
Click **Cancel** to cancel any changes made to the selected item.

## Station settings tab

The Station settings tab allows you to change certain settings of the central station including alarm holdoff, available patient indicators, the display and format of patient names, and HL7 data exporting criteria, among others.



1. This area allows you to adjust station settings.
2. Click **Edit** to edit the selected item.  
Click **Save** to save any changes to the selected item.  
Click **Cancel** to cancel any changes made to the selected item.

## Alarm holdoff



1. This area allows you to adjust the alarm holdoff settings. Move the slider bars to adjust the value.

**Note** The visual alarms on patient tiles are still real-time alarms. However, alarm notification in the System message area and any audible alarms will be held off for the duration set on this screen.

2. Click **Edit** to edit the alarm holdoff settings.  
Click **Save** to save any changes.  
Click **Cancel** to cancel any changes made.

## Users tab

The Users tab allows you to create and maintain users and user data, including password settings.

The screenshot shows the 'Settings' application window with the 'Users' tab selected. The interface includes a navigation bar with tabs for 'Roles', 'Devices', 'Print jobs', 'Service tools', 'Admin tools', 'Station settings', and 'Users'. The 'Users' tab is active, displaying the 'Account details' section. This section contains input fields for 'User ID' (marked with a red asterisk), 'Clinician ID', and two checkboxes. Below these are two empty text boxes. The 'Clinician name' section includes fields for 'Title', 'First name', 'Middle name', 'Last name', and 'Suffix'. The 'User roles' section (marked with a red asterisk) shows a list of roles with a scroll bar. At the bottom right, there are 'Edit' and 'Cancel' buttons. Three numbered callouts are present: 1 points to the 'Account details' section, 2 points to the 'User roles' list, and 3 points to the 'Edit' and 'Cancel' buttons.

1. This area displays a list of central station users.
2. This area displays a list of user roles.
3. Click **Edit** to edit a user.  
Click **Cancel** to cancel any changes made to the selected item.



# General maintenance

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Make sure that you routinely perform general maintenance and equipment safety checks on your central station.

## Central station general maintenance

General preventive maintenance consists of basic cleaning of equipment, inspection, and verification of the equipment and system operation. Only a trained biomedical engineer should perform these tasks.

Perform general preventative maintenance according to the following schedules:

Service activity	Frequency	Component	Action
Cleaning and maintenance	Annually	CPU	<ul style="list-style-type: none"> <li>Power down the CPU.</li> <li>Open the CPU case and remove any dust build up.</li> </ul>
		Display	<ul style="list-style-type: none"> <li>Power down the display.</li> <li>Clean the display and the control buttons.</li> </ul>
		Keyboard	General cleaning.
		Mouse	<ul style="list-style-type: none"> <li>Disassemble the mouse.</li> <li>Remove any dust or debris build up.</li> <li>General cleaning.</li> </ul>
		Printers	<ul style="list-style-type: none"> <li>Clean external cooling vents.</li> <li>Refer to the printer directions for use for additional cleaning and maintenance information.</li> </ul>

**Note** Use only approved cleaning solutions according to your facility's guidelines and the manufacturer's recommendations.



Service activity	Frequency	Component	Action
Inspection	Bi-annually	CPU	Visually inspect cables, connectors, and indicators.
		Display	<ul style="list-style-type: none"> <li>• Visually inspect cables, connectors, and indicators.</li> <li>• Inspect display quality and settings, such as brightness and contrast.</li> </ul>
		Keyboard	Visually inspect.
		Mouse	Test the function of rollers and control buttons.
		Printers	<ul style="list-style-type: none"> <li>• Run the on-board print quality tests.</li> <li>• Visually inspect display LEDs, connector cables, and controls.</li> </ul>

## Equipment disposal



Do not dispose of this product as unsorted municipal waste. Prepare this product for reuse or separate collection as specified by Directive 2002/96/EC of the European Parliament and the Council of the European Union on Waste Electronic and Electrical Equipment (WEEE). If this product is contaminated, this directive does not apply.

For more specific disposal information, see [www.welchallyn.com/weee](http://www.welchallyn.com/weee), or go to [www.welchallyn.com/about/company/locations.htm](http://www.welchallyn.com/about/company/locations.htm).



# Troubleshooting

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This section presents tables of information to help you troubleshoot issues on the monitor.

To use these tables, locate the specific problem with your central station in the left column of the table. The remainder of the row explains possible causes and suggests actions that can resolve the issue.

## Display

Issue	Possible cause	Suggested action
The central station display is blank	The cable for the display is not connected	Connect the monitor display cables.
	The display is not powered on	Power on the display.

## Audio

Issue	Possible cause	Suggested action
No audible alarm tones are coming from the central station display	The display is muted	Look for a mute button on the display and press it to restore sound.
	The audio cables are disconnected	Connect the audio cables.
	Headphones are connected to the PC headphone jack	Disconnect the headphones.

## Connectivity

Issue	Possible cause	Suggested action
A patient device does not appear in the central station Waiting area	The device is not connected to the network	See the device directions for use.
	Network or wireless connection issues	Contact your network administrator.
	The device is no longer working	See the device directions for use.
Communication between the device and the central station has been lost	The device is not connected to the network	See the device directions for use.
	The device is no longer working	See the device directions for use.
	Network or wireless connection issues	Contact your network administrator.
	The central station is not connected to the network	Contact your network administrator.

## Software

Issue	Possible cause	Suggested action
The central station is not responding or is not running properly	Software issues	Contact your biomedical engineer to discuss a potential system restart to resolve the issue.
	Power loss	Wait for the system to automatically restart. Contact your biomedical engineer.
	Software restart	Contact your biomedical engineer.

# Guidance and manufacturer's declaration

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## EMC compliance

Special precautions concerning electromagnetic compatibility (EMC) must be taken for all medical electrical equipment. This device complies with IEC EN 60601-1-2:2007.

- All medical electrical equipment must be installed and put into service in accordance with the EMC information provided in this document, the *Welch Allyn Connex® Vital Signs Monitor 6000 Series Directions for use*, the *Welch Allyn Connex® Integrated Wall System Directions for use*, and the *Welch Allyn Spot Vital Signs® LXi Directions for use*.
- Portable and mobile RF communications equipment can affect the behavior of medical electrical equipment.

The central station complies with all applicable and required standards for electromagnetic interference.

- It does not normally affect nearby equipment and devices.
- It is not normally affected by nearby equipment and devices.
- It is not safe to operate the central station in the presence of high-frequency surgical equipment.
- However, it is good practice to avoid using the central station in extremely close proximity to other equipment.

## Emissions and immunity information

For information about electromagnetic compatibility (EMC), see the Welch Allyn website:

[http://www.welchallyn.com/apps/products/product\\_category.jsp?catcode=PMS](http://www.welchallyn.com/apps/products/product_category.jsp?catcode=PMS)



# Software license agreement

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This license is between Welch Allyn, Inc. (Welch Allyn) and the Customer that purchases the Connex Product, and it governs the Connex software program, including any embedded third party software.

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1. Welch Allyn will use commercially reasonable efforts to deliver and install the Connex Software in accordance with an agreed-upon implementation schedule. Installation of the Connex Software will be complete when testing demonstrates that the Connex Software operates on customer's local area network(s) in accordance with the specifications published for the Connex Software and any other acceptance criteria that are agreed upon in writing by the parties.

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