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Software Release Notes

Product:	Connex CS		
Subject:	Connex CS version 1.8.7 software release notes (SRN)		
HW Version(s) Affected:	All	**SW Version(s) Affected:**	1.8, 1.8.1, 1.8.2, 1.8.3, 1.8.4, 1.8.7
Serial Numbers Affected:	N/A	**Lot or Date Code Affected:**	N/A

Classification:	Information Only		
Distribution:	☒ Customer Care	☒ Product Service	☒ Field Service
	☒ ASPs ☒ Distributors	☒ Customers	

Summary:

This document is intended for Hillrom / Welch Allyn customer consumption regarding Connex CS software release notes. Each software release will have a corresponding appendix as noted in the *Contents* section below. This document begins with software release version 1.8 and will be revised with the release of new software versions as needed.

Please direct any additional questions to your Hillrom / Welch Allyn representative / solution architect.

For product and technical support visit baxter.com or baxterhealthcare.com.au/contact-us/global-technical-services.

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Appendix A: Version 1.8 Release Notes

August 2017

Changes in this release include

- CSAS model update: CSAS (Connex Server Application Software) was introduced in version 1.7.1 as a Server Only, Episodic only, deployment on customer provided Server OS and SQL database. CS 1.8 now includes configurations for Continuous monitoring (uses Connex Central Stations). With the introduction of Connex CS 1.8 the CSAS model will be the standard for all deployment types.

NOTE At the time of this release, CS Server with remote SQL database is supported exclusively on *episodic only* systems. Continuous monitoring systems must have the SQL Server local with the Connex Server OS.

- Connex Central Stations (Continuous Monitoring):
  - PC hardware supplied by Welch Allyn or Supplied by the customer.
  - Welch Allyn supplied PCs are delivered with base OS and generic Connex software load, customer specific configurations applied during deployment.
  - Customer supplied PCs to meet all conformance check specifications prior to installation and configuration of Connex CS by Field Service.
- Supporting Server Authentication for compatible devices.
- Enhanced Installer Support: Connex CS 1.8 installer has improved its error detection, error reporting capabilities, and overall workflow.
- Added episodic encryption support (TLS 1.2) for future CVSM devices.
- Security enhancements including BitLocker support and configuration file encryption.
- Improved support for handling ADT Update messages.
- .NET 4.6.2 Framework support
- ADT Auto Discharger allowable range increased from 7 to 365 days.

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Appendix B: Version 1.8.1 Release Notes

June 2018

Summary of changes

- CS 1.8.1 introduces a new optional feature enhancement to clinical authentication, along with a few bug fixes and security improvements.
- Connex CS Integration with ConfirmID™ for Medical Devices Single Sign-On (SSO) solution from Imprivata:
- Single Sign-On removes the need to repeatedly type usernames and passwords, which improves data security into the EMR and at the devices, along with streamlining clinical workflows.
- This new SSO option can be enabled within the Connex CS Administrator tool UI. See the latest version of the Connex CS Admin Guide for configuration detail.
- The Single Sign-On (SSO) solution is only available to customers using Imprivata ConfirmID™ for Medical Devices.

Fixes / enhancements

- Connex CS is now FIPS compliant.
- Better user management, sorting ability.
- Fixed the ‘save’ feature within HL7 Outbound Vital Signs Configuration Modifiers.
- The Connex installer will complete correctly when using the default SQL instance.
- Fix to patient merge issues.
- Connex CS requires / uses the .NET 4.7.2 framework.

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Appendix C: Version 1.8.2 Release Notes

June 2019

Summary of changes

Support on Microsoft platforms:

- Windows Server 2012 R2
- Windows Server 2016 (New)
- Windows Server 2019 (New)
- SQL Server 2012
- SQL Server 2014
- SQL Server 2016 (New)
- SQL Server 2017 (New)
- SQL Express 2017 (Clients only)

Central Station PCs:

- Windows 10 (New) – No other operating systems supported with CS 1.8.2 clients

Fixes / enhancements

- Corepoint Interface Engine updated to version 7.2.0.
- Added the ability to install the software on drive letters other than “C”.
- Fixed Client tile display issue when paused device moves to another tile.
- Added login screen to access Admin Tools on CS Servers.
- Central Station hosts to run on Windows 10. All other OS support has been dropped.
- New field tool: Connex CS Win 10 Client Optimizer.
- The installer will ensure there are no ports opened and left unused by Connex CS.
- Update Connex CS to encrypt connections to the database.
- Modify DB install to use SQL-configured default file locations.
- Enable SSL certificate checking for the Imprivata server connection.
- Added support for remote SQL database connection in Continuous Monitoring deployments.
- Fix issue importing special characters in clinician names.

Other notable updates

- Microsoft SQL licensing and OEM software (sales & installation) no longer available from Welch Allyn.
- McAfee “Solidifier” whitelist solution no longer offered as an option from Welch Allyn.
- Repeater Displays: Welch Allyn will no longer support this configuration.

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Appendix D: Version 1.8.3 Release Notes

December 2019

Fixes / enhancements

- Multitenant support for locations with ambiguous patient barcodes using a Visit ID Specifier.
- Active Directory clinician authentication improvements, including support for server host name entry and SSL encryption
- Imprivata OneSign clinician authentication support for EMR identifier lookup
- Improved late ADT-linking logic so that barcode scans will return the ADT patient information
- Improved security by removing 'sysadmin' role from 'wabackup' SQL login

Additional software issues addressed

- Device Clinician Authentication UI improvement
- EPID longer than 256 characters caused ADT delete/cancel failure
- PartnerConnect functionality not working with Connex CS 1.8.2

Known Issue(s)

- Connex Admin Tool crashes when changing selected clinician authentication provider.
    - When a) the first provider configuration in the list is Connex DB type, and b) the provider is unchecked when the application loads, selecting any other provider in the list will crash the application interface.
    - *Workaround*: Add another provider and change the list order.

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Appendix E: Version 1.8.4 Release Notes

June 2020

Fixes / enhancements

- Support different auto-discharge behavior for inpatients and outpatients
  - Added outpatient variants of each of the auto-discharge settings within the Connex CS UI to allow the software to better match different customer workflows for each of these types of patients.
- Support for Device Measurement Changes

  Connex CS 1.8.4 has added support for the following device (CSM 1.51) measurement changes:

  - Patient ID max length increased to 30 characters
    - Connex patients with ID's longer than 20 characters will be excluded from unsupported device queries (CSM pre-1.51.00, all current CVSM versions).
  - RRp (Masimo pleth) source label
  - Averaged HR (and its contributing measurements)
- Active Directory (AD) Clinician Authentication:
  - Support for numeric characters in Active Directory identifier field names.
  - Fixed error when adding AD Groups to Non-SSL security providers.
- Support SQL Express local database usage on Test servers (NOT Production).
- Updated rounding logic to be consistent with connected device rounding logic.
- Support for using the device Location ID setting as the patient location in outbound ORU messages.
- Support for device query at VA facilities (Multiple Patient IDs).

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Appendix F: High Availability: Optional Integration

February 2021

Connex CS High Availability option for customer networks using SQL Always On

The current version of Connex CS software (1.8.4) will operate within most High Availability Active-Active SQL Always-On network infrastructures. Customer's High Availability networks may be complex and involve a variety of configuration possibilities for directing data. It is not possible to anticipate every configuration available; however, Hillrom is committed to support our customers as needed within the guidelines of our established processes.

The customer is responsible for the creation and maintenance of their High Availability network infrastructure.

Connex CS server integration with High Availability (HA) networks is optional and requires the purchase of an additional Connex CS Server: Part Number 106900-HA.

(See new Technical Systems Requirements Appendix C: 80024135 APPENDIX C for a sample network diagram and additional details).

About High Availability

High Availability integration is an Active-Active episodic only deployment of the Connex CS server software on multiple machines. With the use of SQL Always-On, the solution takes advantage of both Application Redundancy (CS Servers) and Data Redundancy (SQL Database).

An active-active cluster is made up of at least two nodes, both actively running the same application service simultaneously (application redundancy). The main purpose of an active-active cluster is to achieve load balancing and/or availability.

The machines are behind one or more load balancers, depending on the environment, so that traffic/load is divided for efficiency. If a Connex server is not accessible, the remaining server(s) will continue to handle the clinical workflow. The Connex CS database, which is shared by each CS application installation, utilizes SQL Always On as the means of increased availability (data redundancy). Due to Connex CS storing configuration items (Location management, Network Rendezvous, Enterprise Gateway, etc.) in the database, those settings are synchronized between the two servers.

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About SQL Always On

The Always On availability groups feature is a high-availability and disaster-recovery solution that provides an enterprise-level alternative to database mirroring. Always On availability groups maximizes the availability of a set of user databases for an enterprise. An availability group supports a failover environment for a discrete set of user databases, known as *availability databases*, that fail over together. An availability group supports a set of read-write primary databases and one to eight sets of corresponding secondary databases. Optionally, secondary databases can be made available for read-only access and/or some backup operations.

To support the High Availability option

A minimum of four machines are required to deploy Connex CS plus additional hardware or virtual machines to support load balancing: Two for the Connex CS servers and two to support the SQL Always On database cluster.

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Appendix G: Version 1.8.7 Release Notes

July 2022

- This document communicates software updates and fixes in the Connex CS 1.8.7 update.
- This document also communicates compatibility and security details (where applicable).
- There are no impacts/changes to the Hillrom/Baxter product-support materials, support agreements, processes, or structures in this release.

NOTE Although Appendix G is much more detailed than release notes for the previous versions, the previous sections are not incomplete. This upgrade has several new features and bug fixes.

Verifying the currently installed version of software

When the Admin Tool is launched, the Connex CS software version shows in the splash window. The Connex CS client or standalone workstation home page displays the version number in the bottom right corner.

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Changes

1. Support for displaying and printing ECG snapshots received from CVSM

Summary of changes

Connex CS now supports receiving ECG snapshots either captured manually or by auto captured on ECG LTA alarm events from the CVSM device in continuous profile and displays the ECG snapshot in the Connex CS under review screen for the selected patient.

Connex CS supports features such as:

- Generating ECG waveform snapshot report print for one or more ECG snapshot selected in the ECG snapshot tab.
- Allows selection of sweep speed 25 or 50 mm/s and gain either 5, 10, 20 or 40 mm/mV for ECG waveform snapshot review or printout.
- Allows to configure Electrode Labels for the Connex CS either AHA or IEC.
- Allows ECG Snapshot to be saved in database and accessible for review from other stations.

The ECG waveform snapshot view and report incorporate grid lines to scale, allowing users to make appropriate measurements.

Why the changes were made

Enhancements

Test details (includes Screenshots for new functionality)

How to test/verify that the changes were successful:

Electrode Configuration

1. Navigate to Admin tools > Settings > Stations > Vital Signs > ECG > Modifiers > Electrode labels to use AHA or IEC.

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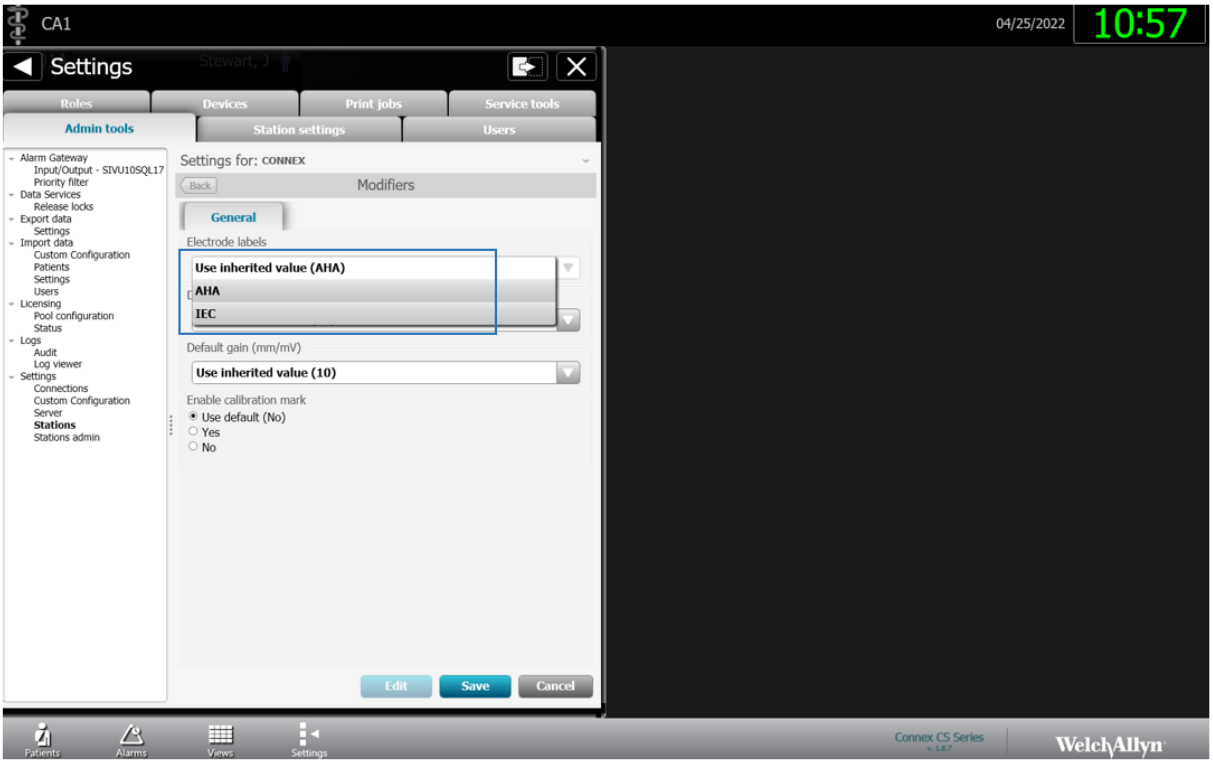

Steps to verify ECG snapshots present in Connex CS:

1. Connect Connex CS to the CVSM device with ECG module and start Continuous Monitoring.
2. Assign any patient to CVSM device who has been created in Connex CS or admitted via EMR.
3. Trigger an ECG Alarm or take a manual snapshot from CVSM Device.
4. Click the Patient tile on Connex CS which displays Device details screen. Click on Review and navigate to ECG Snapshots tab. ECG snapshots (triggered manually or by alarm) from the CVSM device are displayed on the screen.

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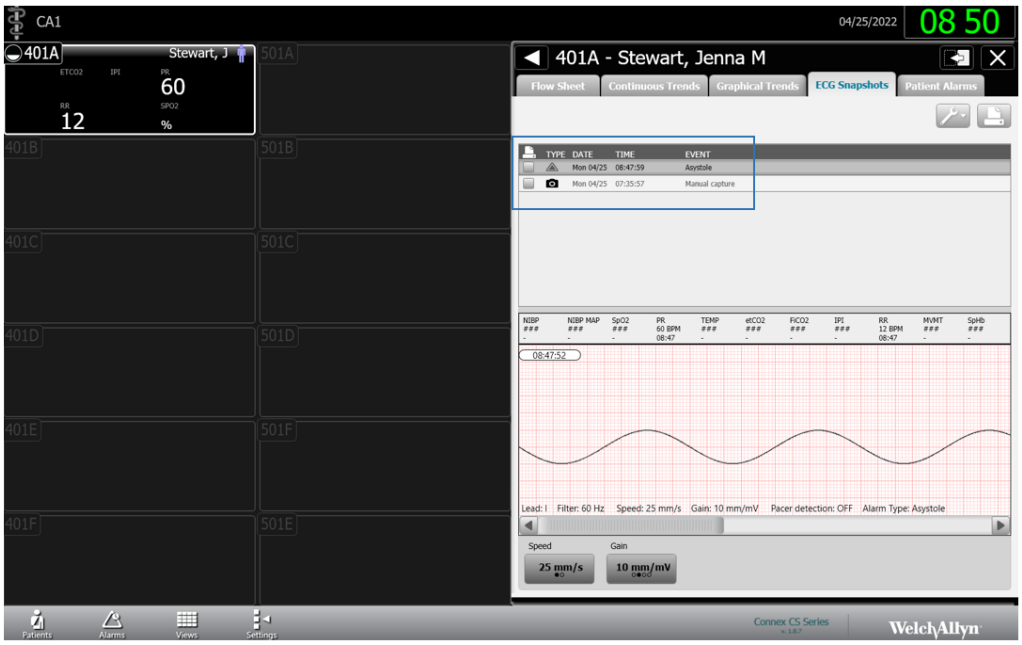
ECG Snapshots tab



5. ECG waveform printout report for one or more ECG snapshot can be generated from Connex CS application by clicking the print option.

Report Printout of ECG snapshot

2. Added support for ECG-sourced parameters and alarms

Summary of changes

- Provides a display of ECG sourced Heart Rate (HR), Respiratory Rate (RR), and alarms on the Connex CS Central Station
- Allows the sending of alarms to IHE PCD compatible alarm receiver
- Allows the sending of vital data to unconfirmed EMR interfaces
- Allows the cardiac alarm tones to be configured for ECG alarms

Why the changes were made

Enhancement to support CVSM device parameter

Test details (includes Screenshots for new functionality)

How to test/verify that the changes were successful:

1. Connect CVSM device in continuous profile with ECG module and other supported sensor.

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2. Set RR source as ECG in CVSM device and start monitoring.
3. Assign any patient to CVSM device who is admitted via EMR or created in Connex CS.
4. Trigger alarming values for ECG-sourced Pulse rate and Respiration and appropriate alarm appears on the Connex CS tiles.
5. Trigger ECG arrhythmia alarms on the device and appropriate alarm appears on the Connex CS tile, and the alarms also listed in patient alarms tab and station alarms tab.
6. Connex CS UI displays vital data and HR, RR value from ECG.
7. ECG sourced Pulse rate and Respiration values are streamed to the EMR receiver according to continuous vital signs outbound interval configured in the Connex CS.
8. ECG LTA alarms, and ECG sourced Pulse rate and Respiration alarms and other technical alarms are being sent to IHE-compliant alarm receiver.
9. Below is the list of supported ECG sensor related alarms coming from CVSM device and supported in Connex CS.

Alarm messages	Priority
Ventricular Tachycardia Detected	High
Ventricular Fibrillation Detected	High
Asystole Detected	High
ECG Not Functional. Call for Service	ECG
Cannot Measure ECG	Medium
Cannot Analyze ECG	Medium
Electrodes Off AHA electrode labels: Electrode RL Electrode LL Electrode RA Electrode LA Electrode V IEC electrode labels: Electrode N Electrode F Electrode R	Medium

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Alarm messages	Priority
Electrode L Electrode C	

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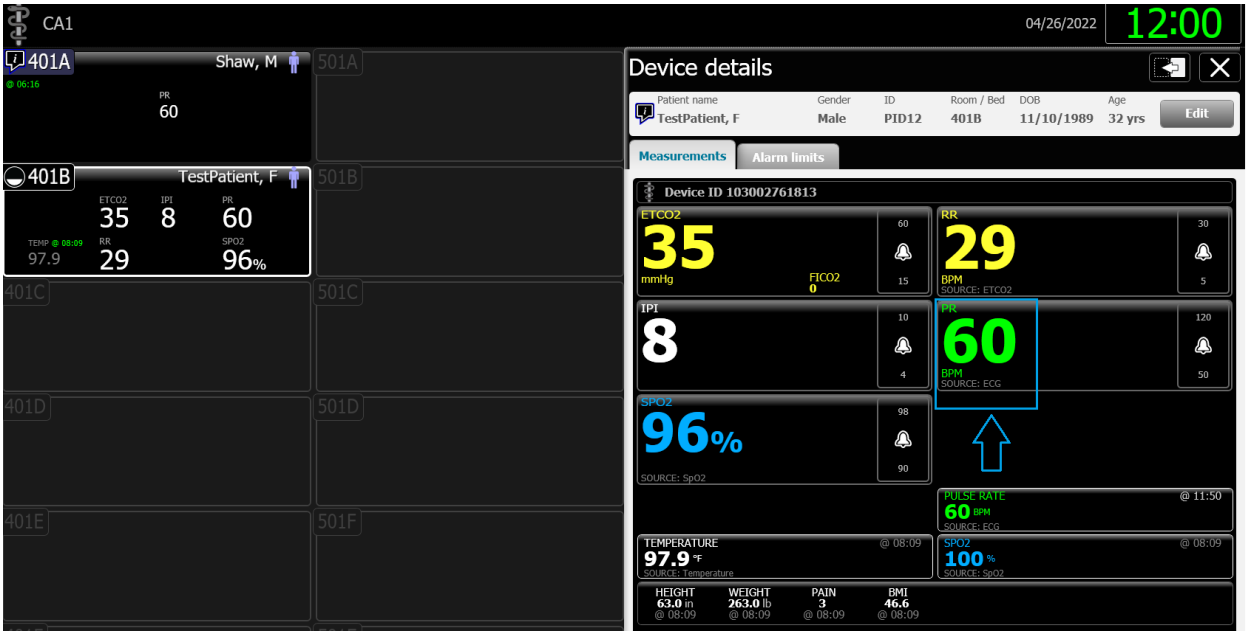
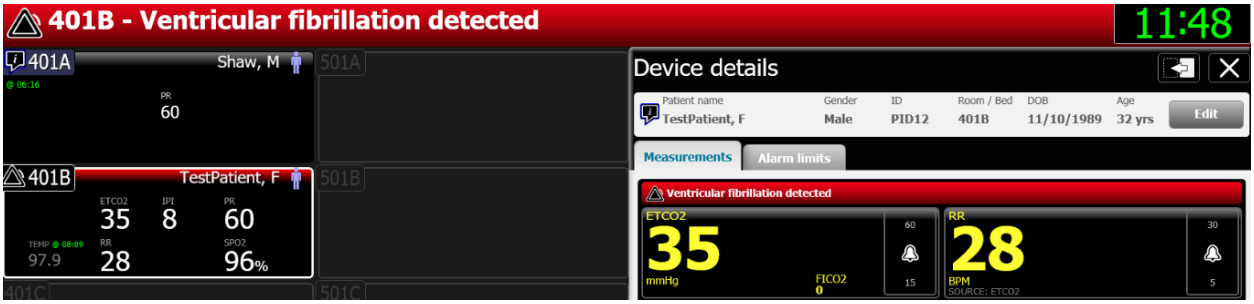
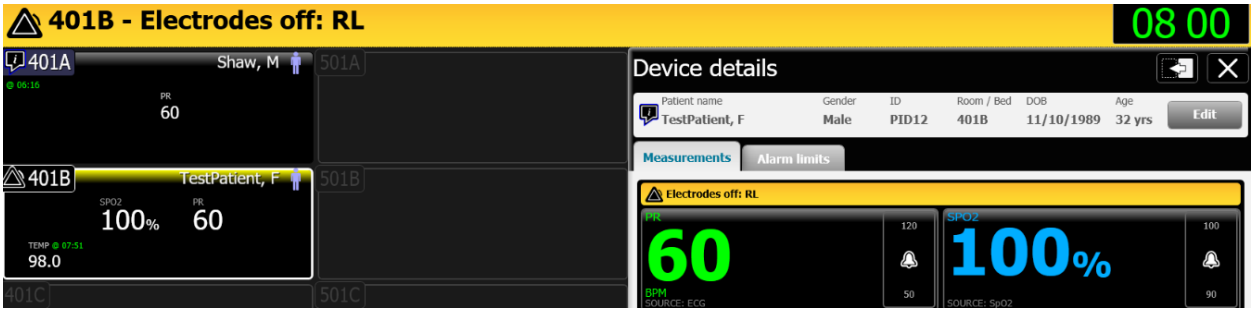
Connex CS central station tile displays RR sourced from C02, PR sourced from ECG







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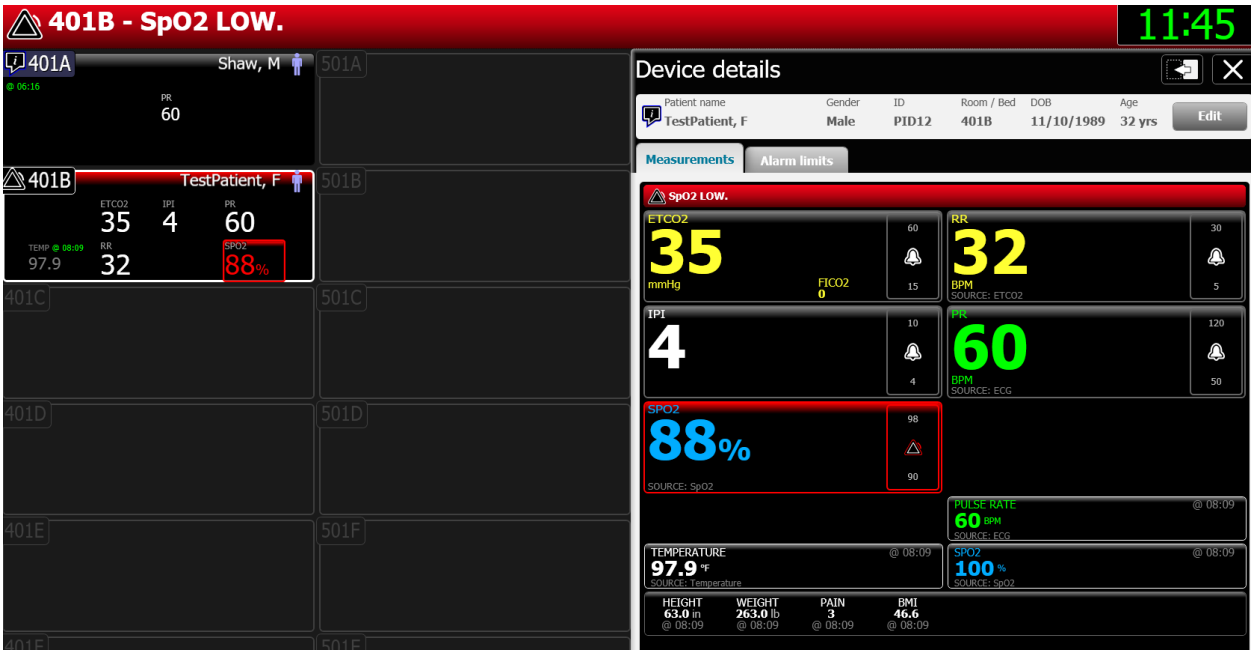

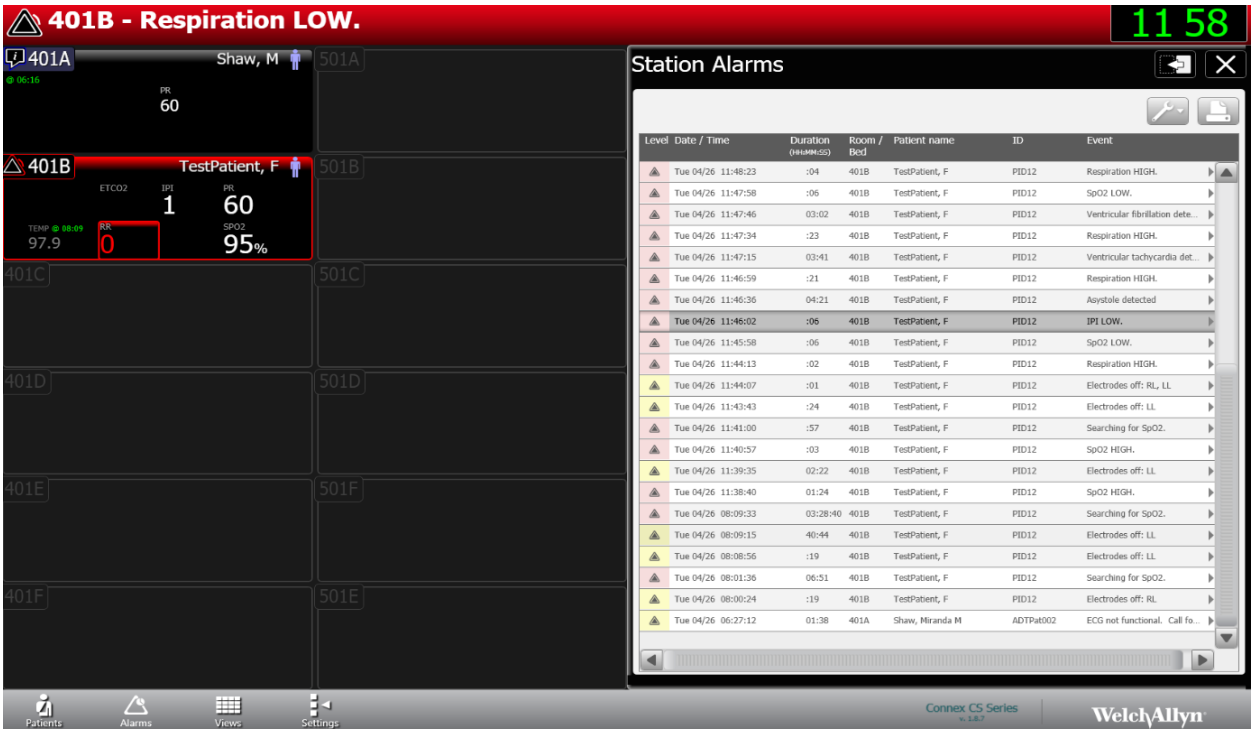

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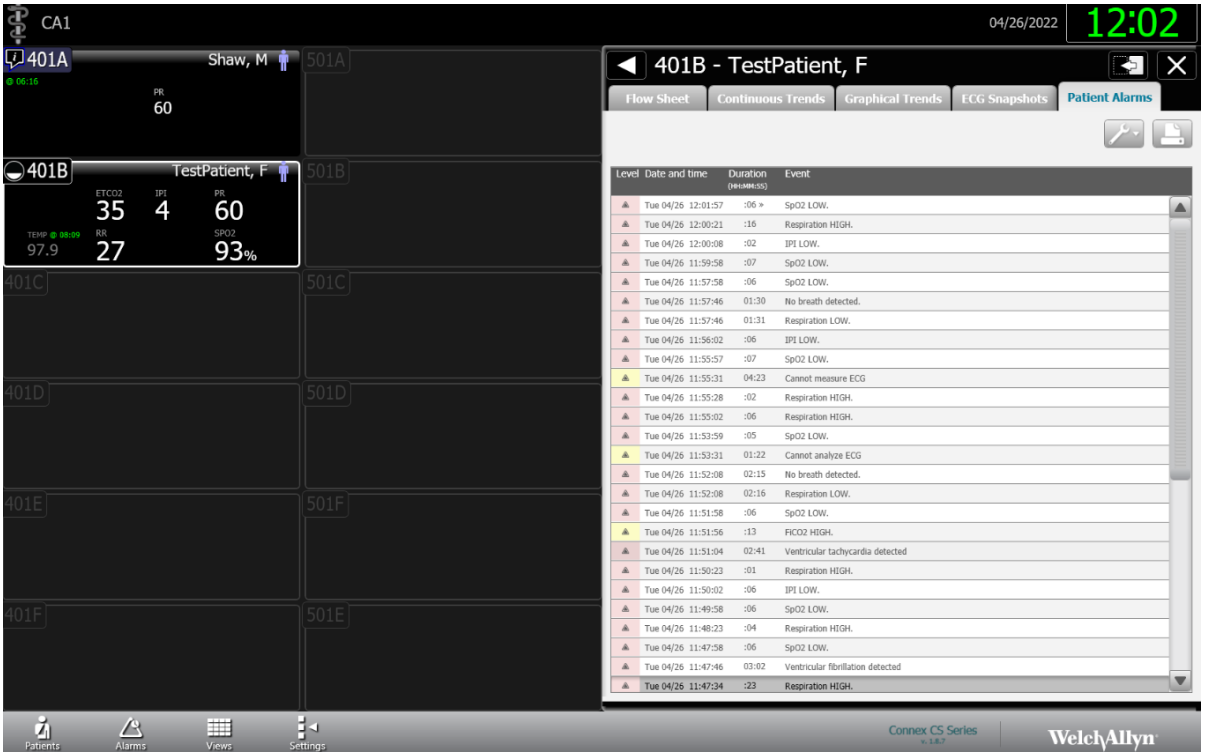

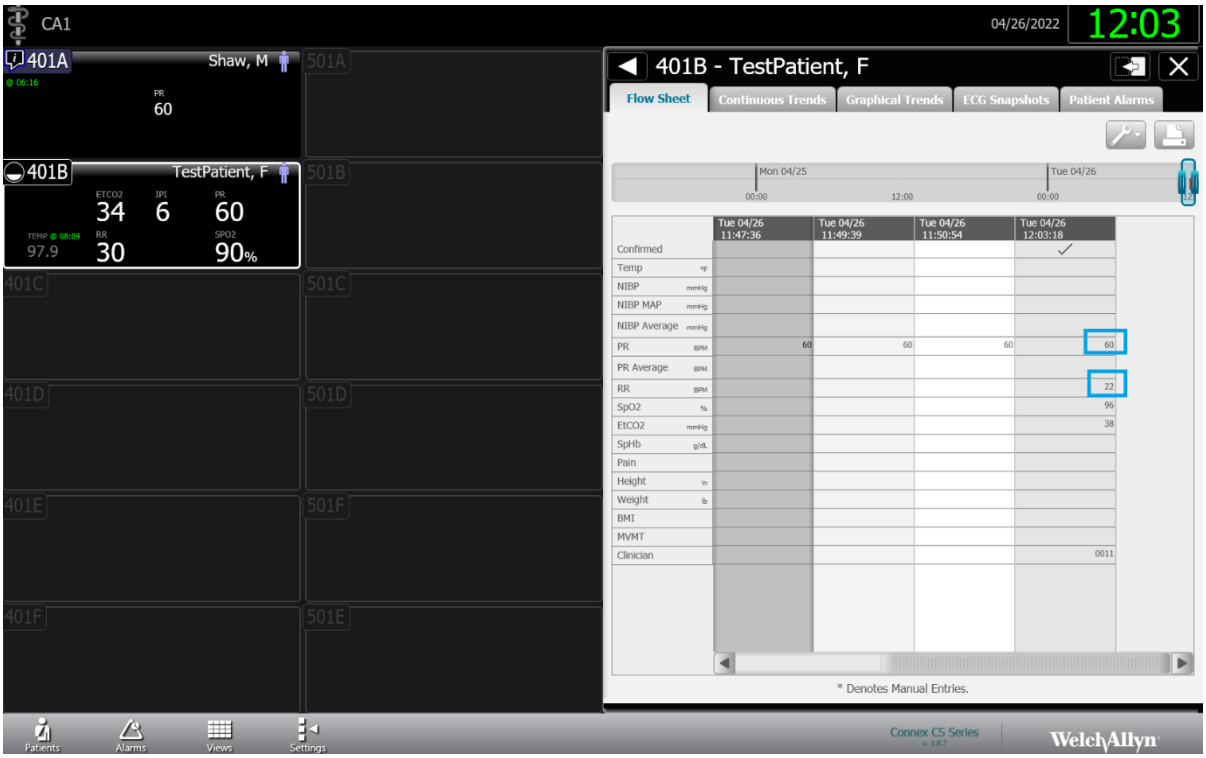

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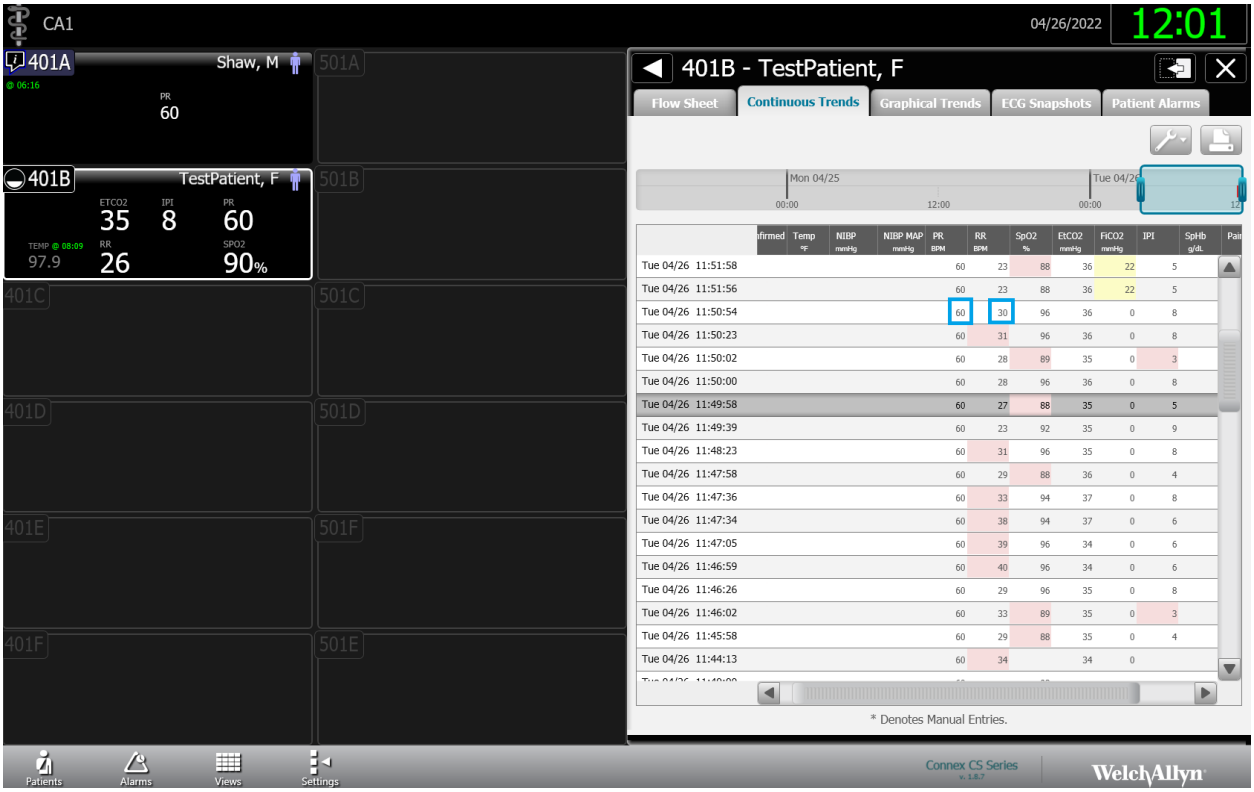

Example HL7 message sent to EMR

Continuous vital values and alarms streamed to the EMR receiver

```
MSH|^~\&|||||20220426115122||ORU^R01|FB03E8B3-2634-4276-95DB-CC04F4F731E7|P|2.5
PID|||PID12||F^TestPatient
PV1||I||||||||||||||||||vPatient
OBR||||C|||20220426115000||||||||||||||||||R
OBX|1|NM|SPO2||96|%||N|||R|||20220426115000|1030027618l3|||SpO2
OBX|2|NM|HR||60|BeatsPerMinute||N|||R|||20220426115000|1030027618l3|||ECG
OBX|3|NM|ETCO2||36|Mmhg||N|||R|||20220426115000|1030027618l3|||Unknown
OBX|4|NM|FICO2||0|Mmhg||N|||R|||20220426115000|1030027618l3|||Unknown
OBX|5|NM|IPI||8|||N|||R|||20220426115000|1030027618l3|||Unknown
OBX|6|NM|RESP||28|BPM||N|||R|||20220426115000|1030027618l3|||CO2
OBX|7|ST|ECG||VENTRICULAR_FIBRILLATION|||A|||R|||20220426115000|1030027618l3|||None
OBX|8|ST|ECG||VENTRICULAR_TACHYCARDIA|||A|||R|||20220426115000|1030027618l3|||None
OBX|9|ST|ECG||ASYSTOLE|||A|||R|||20220426115000|1030027618l3|||None
```

Respiration Low Alarm

3. Updated NRS configuration to support continuous DTLS and TLS service connections

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Summary of changes

Connex CS version 1.8.7 now supports devices to connect using a continuous DTLS connection as well as using a TLS connection to connect to the Service Monitor application. The Admin Tool settings have been updated to include additional NRS configuration options. Now, for all continuous connections, an Ordinal 11 and default Port 7751 can be added in NRS setting to support the DTLS connection between Device and Connex CS. Similarly, by adding Ordinal 15 and default Port 16283, the TLS connection between Device and Service Monitor via Connex CS can be established.

Why the changes were made

For continuous device and Service Monitor connections, Connex CS earlier versions only supported a non-encrypted connection. Security has been strengthened with the new Connex CS version 1.8.7. For continuous devices, Connex CS can now be configured to use a continuous DTLS connection, and for the Service Monitor application, it can be configured to use a TLS encrypted connection.

Compatibility

This feature requires CVSMs that send continuous data to Connex CS have firmware 2.45.01 or newer. This feature requires CVSMs and CSMs that send device service data to Service Monitor have firmware 2.45.01 or newer for CVSMs and CSM 1.52.00 or newer. See the Welch Allyn Connex Devices Instructions for Use to configure your CVSM to use this new feature.

Test details (includes Screenshots for new functionality)

How to test/verify that the changes were successful:

10. After installing Connex CS v. 1.8.7, go to Admin Tools > Settings > Stations > Network rendezvous services > Network rendezvous services, and add the following ordinals under "Service will be resolved by DCP network rendezvous settings" to enable the new NRS service configuration for continuous host connectivity via secured DTLS connection and secured service host connectivity via TLS connection.
    - Ordinal: 11, Host: Central station's IP, default Port: 7751
    - Ordinal: 15, Host: Service host IP, default Port: 16283
11. Connect the compatible CVSM device to Connex CS via the NRS Continuous DTLS connection, start continuous monitoring, and validate the device is successfully connected.
12. Connect a compatible CVSM or CSM device to the Connex CS via NRS connection and perform a force call home operation. Confirm that the call home operation was successful.

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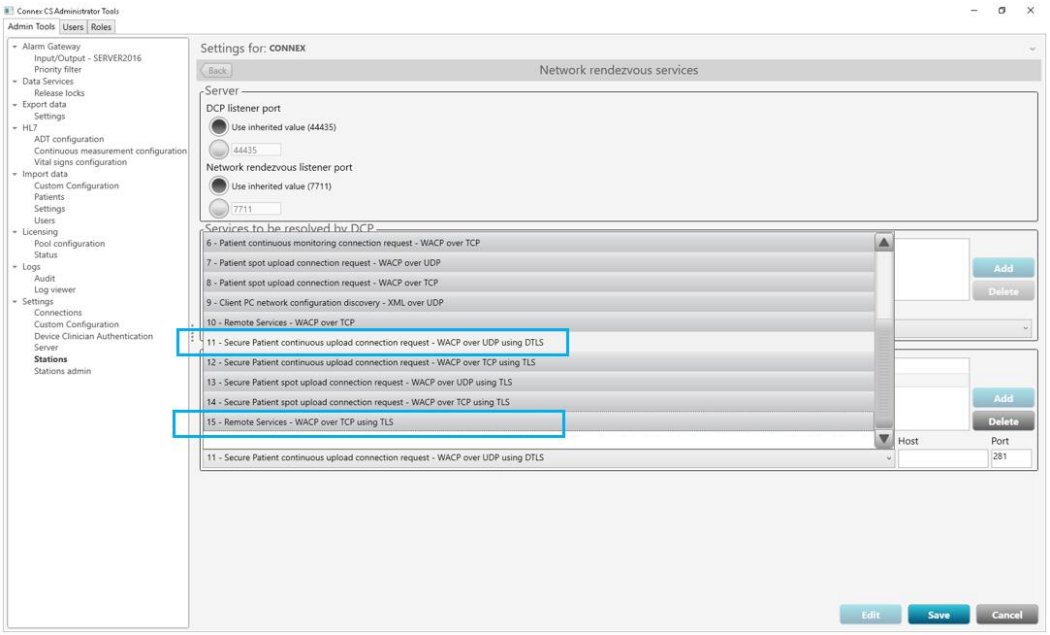
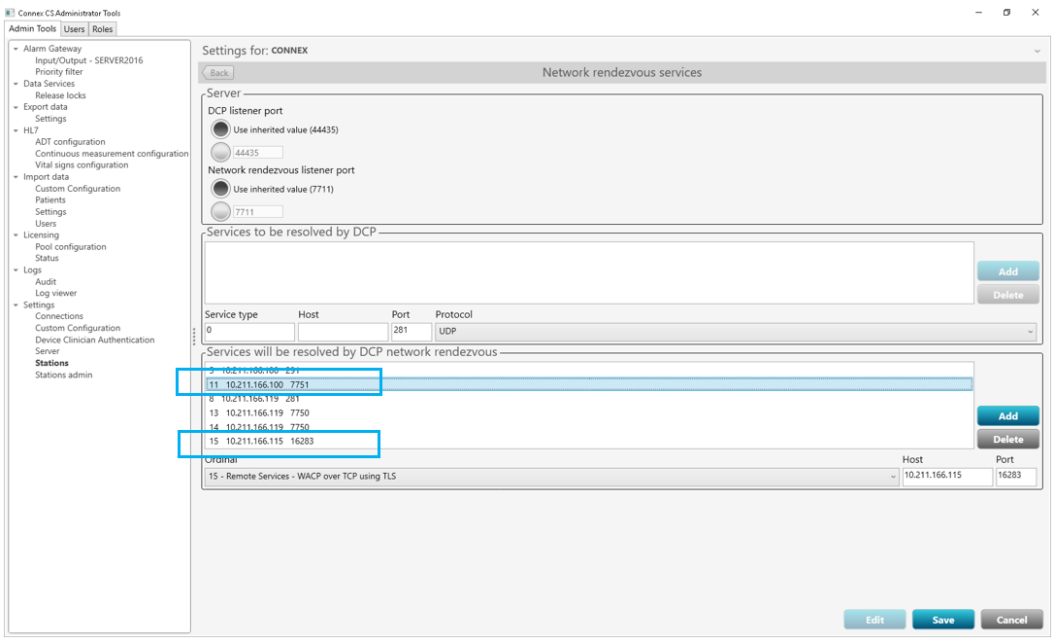
Network rendezvous service configuration - The new settings are highlighted.



Network rendezvous service - example



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4. Updated Connex CS to encrypt continuous data in transit sent over UDP

Summary of changes

Connex CS now supports server authentication and encryption of continuous monitoring communication with CVSM devices. See Compatibility section below. The steps to configure your Connex CS software to utilize this feature are described in the *Connex CS Admin Guide*.

Why the changes were made

Connex CS previous versions only provided a non-encrypted connection for continuous devices. With the new Connex CS version 1.8.7, security has been improved. Connex CS can now be configured to use continuous DTLS encryption and server authentication for continuous devices.

Compatibility

This feature requires CVSMs that send continuous data to Connex have firmware 2.45.01 or newer. See the *Welch Allyn Connex Devices Instructions for Use* to configure your CVSM to use this new feature.

Test details (includes Screenshots for new functionality)

How to test/verify that the changes were successful:

1. In Connex CS version 1.8.7, go to Advanced settings > Admin tools > settings > Connections. Select the arrow indicator next to WelchAllyn continuous Connectivity Services to expand options.
2. WACP DTLS UDP port 7751 is set to support encryption by default. Select the Server authentication certificate button, which will open a new window with certificates. Select the certificate that was created for server authentication, save the settings, and restart continuous Connectivity Services. The encryption and server authentication settings in Connex CS are shown in the screenshot.

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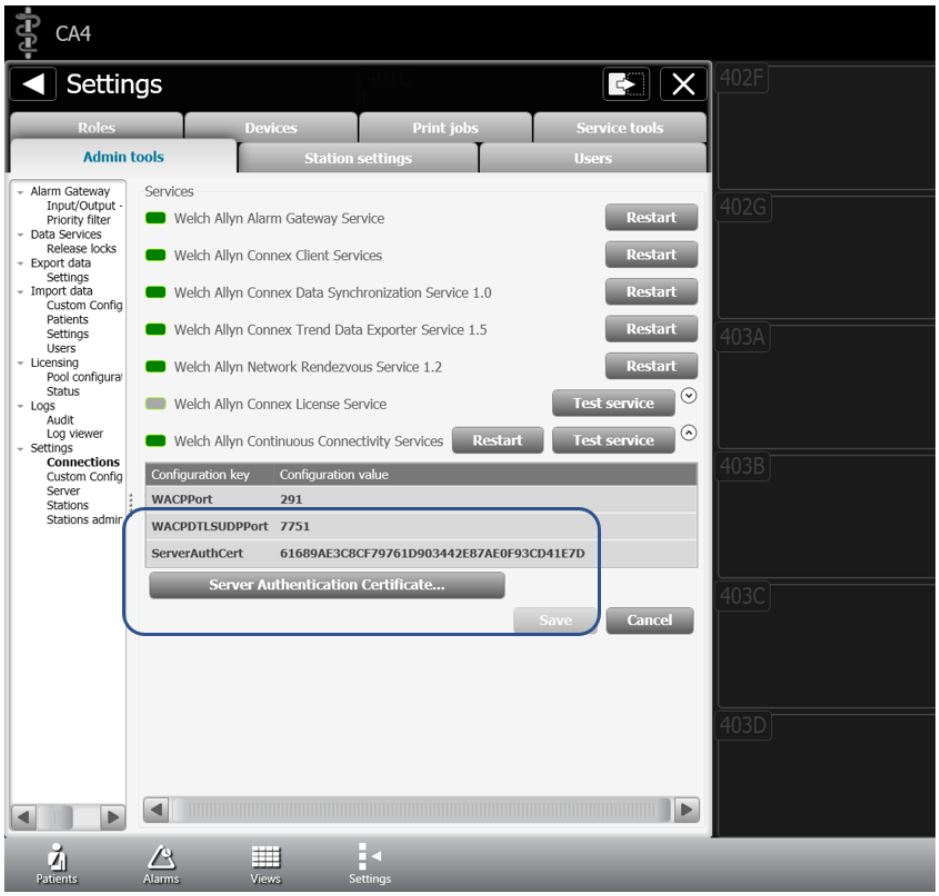

3. Use CVSM firmware 2.45.01 or newer for continuous communication, which has encryption and server authentication enabled. The encryption and server authentication of continuous monitoring communication with CVSM devices are verified by a successful connection between Connex CS and CVSM device in continuous profile.

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5. Updated CSAS to support 1 Decimal of precision on BMI from CSM

Summary of changes

Connex CS now supports 1 Decimal of precision on BMI when BMI data is received from the CSM device which supports floating point.

Why the changes were made

Enhancement

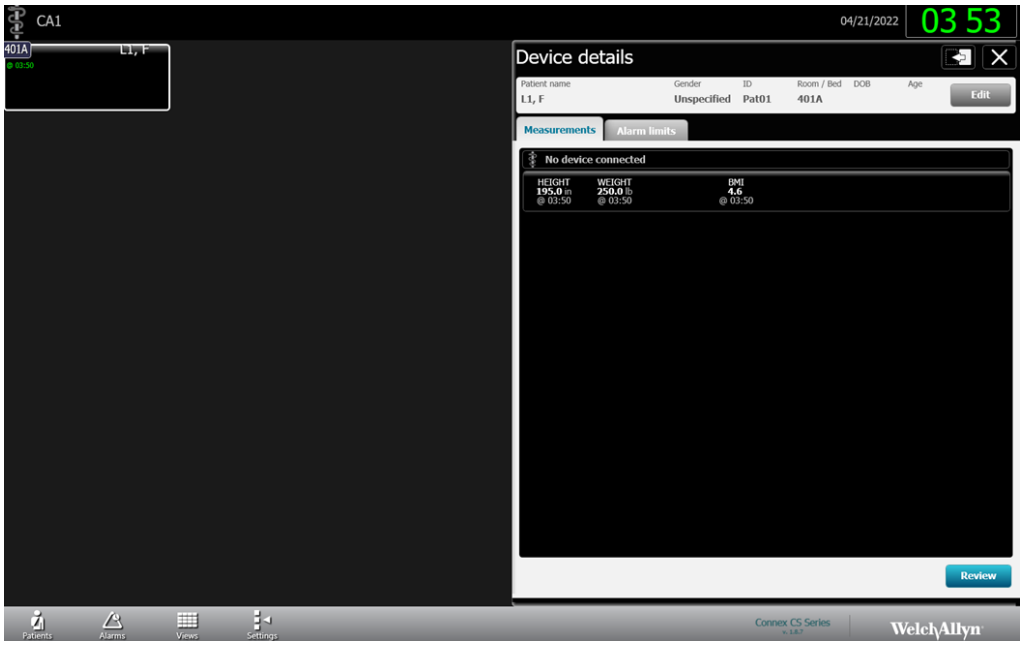
Compatibility

This feature requires Connex Spot Monitor (FW 1.51 or newer) to support BMI data with 1 Decimal of precision

Test details (includes Screenshots for new functionality)

How to test/verify that the changes were successful:

1. Create Patient with location information or admit an ADT Patient from EMR in Connex CS 1.8.7.
2. Assign the patient to CSM device, take and save manual Height and Weight values, and send the readings to Connex CS.
3. Click the Patient tile on Connex CS which is connected to CSM device.
4. Observe the BMI value now displays with 1 Decimal of precision.



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6. New auto-discharge setting for ADT-linked patients based solely on inactivity

Summary of changes

Connex CS now provides an option for settings that allows customer to automatically discharge ADT-linked patients by configuring the timer setting for periods of inactivity before automatic discharge.

Why the changes were made

Enhancement to the workflow to be able to discharge tiles automatically from the Central Station for patients that may still be in hospital, but no longer monitored as closely. This is based on feedback during COVID-19.

Test details (includes Screenshots for new functionality)

How to test/verify that the changes were successful:

The instructions below demonstrate how to test the Connex CS with Auto discharge setting:

1. In Connex CS Server, navigate to Admin tools -> Settings -> Server. In the List of Available settings enter Setting value (valid range: 0 - 10080) for Setting name AUTODISCHARGE.ADTLINKED.STALEPERIOD.MINUTES and AUTODISCHARGE.OUTPATIENT.ADTLINKED.STALEPERIOD.MINUTES and Setting value for AUTODISCHARGE.OUTPATIENT.ENABLED and AUTODISCHARGE.ENABLED should be TRUE.

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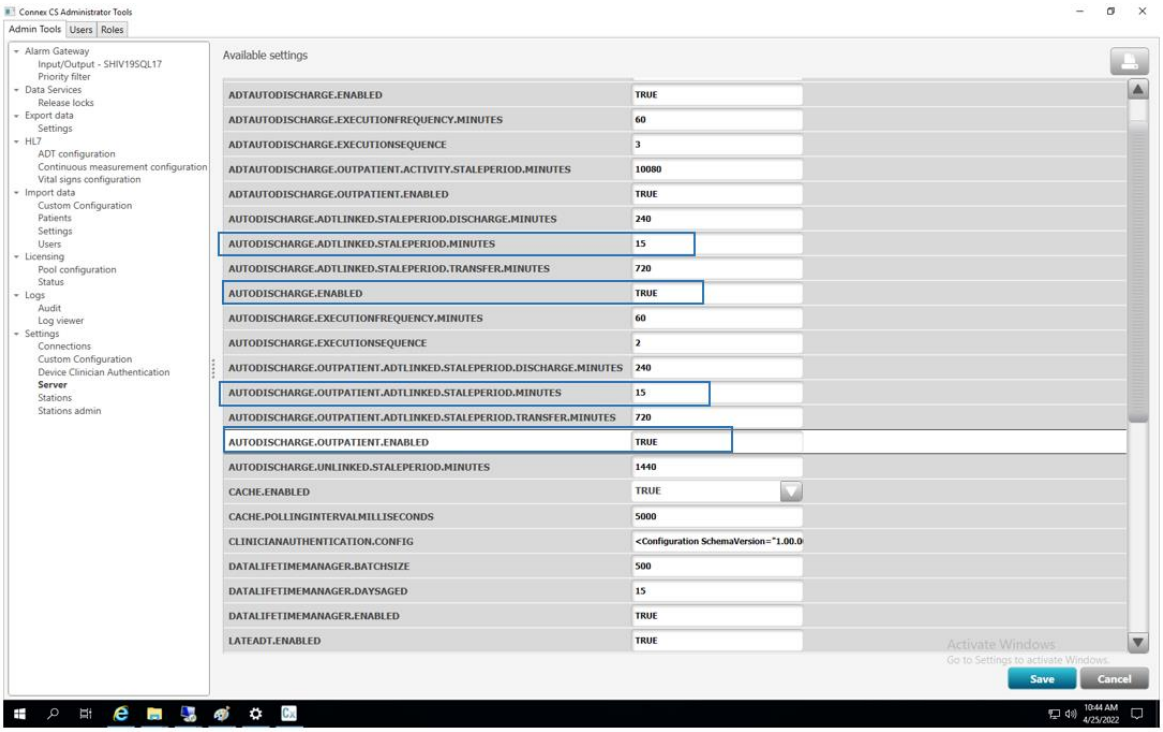

2. Restart Welch Allyn Connex Client Services.
3. Admit any ADT Patient to Connex CS, use CVSM firmware 2.45.01 or newer for continuous communication and start continuous monitoring for admitted patient.

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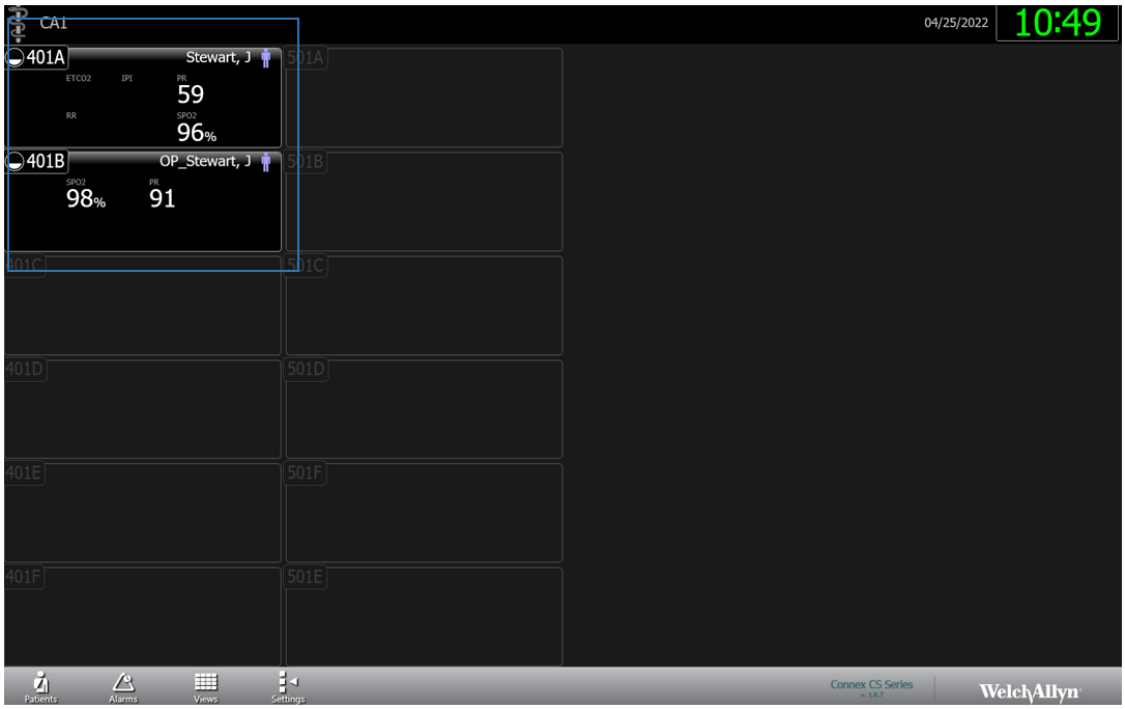

4. After a few minutes, press End Monitoring from CVSM device and wait for the period of time entered in the setting value to expire.
5. The ADT Patients admitted in Step 3 will be auto-discharged after the time mentioned in the setting value expires.

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7. Updated auto-discharge logic so that a transfer doesn't override a subsequent discharge

Summary of changes

In the Connex CS application, the patient auto-discharge logic has been updated so that a subsequent ADT discharge event replaces a previous transfer as an auto discharge event, for example, when a patient is transferred then discharged via ADT, the discharged stale time is used for the Auto discharge.

Why the changes were made

Connex CS application has two different stale periods, one for transfer and another for discharge. Any subsequent discharge event following a patient ADT transfer event did not result in the discharged stale period being applied in the prior version of Connex CS. For example, when a patient is transferred then discharged via ADT, still transferred stale time is used for the Auto discharge.

Test details (includes Screenshots for new functionality)

How to test/verify that the changes were successful:

1. In Connex CS version 1.8.7, go to Advanced settings > Admin tools > settings > Server. For the following options, set the stale period for transfer to 480 minutes.
    - AUTODISCHARGE.ADTLINKED.STALEPERIOD. TRANSFER.MINUTES
    - AUTODISCHARGE.OUTPATIENT.ADTLINKED.STALEPERIOD.TRANSFER.MINUTES

    For the choices below, set the Stall duration for discharge to 30 minutes.
    - AUTODISCHARGE.ADTLINKED.STALEPERIOD.DISCHARGE.MINUTES
    - AUTODISCHARGE.OUTPATIENT.ADTLINKED.STALEPERIOD.DISCHARGE.MINUTES
2. Process the ADT-A01 message for both inpatients and outpatients. Assign an ADT location and confirm both the patient.
3. Using an episodic device, collect a set of episodic data for both patients. Save the data and send it.
4. For both patients admitted in step 2 above, process ADT-A02 – patient transfer message.
5. For both patients admitted in step 2 above, now process ADT-A03 – patient discharge message.
6. Wait 30 minutes after processing the ADT-A03 message (as per the discharge stale period defined in step 1). Following that, wait for the Confirmed auto-discharger task to finish.
7. Confirm that both patients admitted in step 2 were discharged based on the patient discharge event stale period.

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8. Added support for receiving episodic records and authenticating clinicians while CVSM is in Continuous Profile

Summary of changes

Connex CS now supports receiving episodic tests from CVSM which include the core parameters, modifiers and custom parameters in the continuous profile. It displays the episodic tests in the review table.

Connex CS will now also support sending clinician information to the device in continuous profile following a successful clinician query. Connex CS supports authentication of a unique clinician identifier and/ or password sent from a continuous device using Connex Database, Active Directory and /or Imprivata security providers. It also communicates status (success or errors) of an authentication request back to the continuous device from which the authentication request originated.

Why the changes were made

Facilities require a confirmed set of vitals in the record at a regular interval even when a patient is being monitored continuously. This workflow is now supported without having to change profiles on the device.

Compatibility

This feature requires CVSMs (FW 2.45.01 or newer) that send confirmed episodic data in continuous profile to Connex. See the *Welch Allyn Connex Devices Instructions for Use* to configure your CVSM to use this new feature.

Test details (includes Screenshots for new functionality)

How to test/verify that the changes were successful:

1. In Connex CS, go to Admin tools -> Settings -> Device Clinician Authentication. Add one or more security providers, such as Connex Database, Active Directory, and/or Imprivata.
2. Use CVSM firmware 2.45.01 or newer for continuous communication. Set the CVSM device to a continuous profile and connect it to the Connex CS. To provide a continuous stream of trend data, connect all relevant sensors. Also capture episodic vitals for all supported episodic parameters.
3. Assign any patient to CVSM who has been created in Connex CS or admitted via EMR.
4. On the device's Home Screen, press the Save button. Enter values for all manual parameters and modifiers on the manual parameter screen.
5. On the manual parameter screen, select Next. On the screen, a confirmation dialog box is displayed. Enter the clinician's data to authenticate them using the security provider set up in Connex CS.

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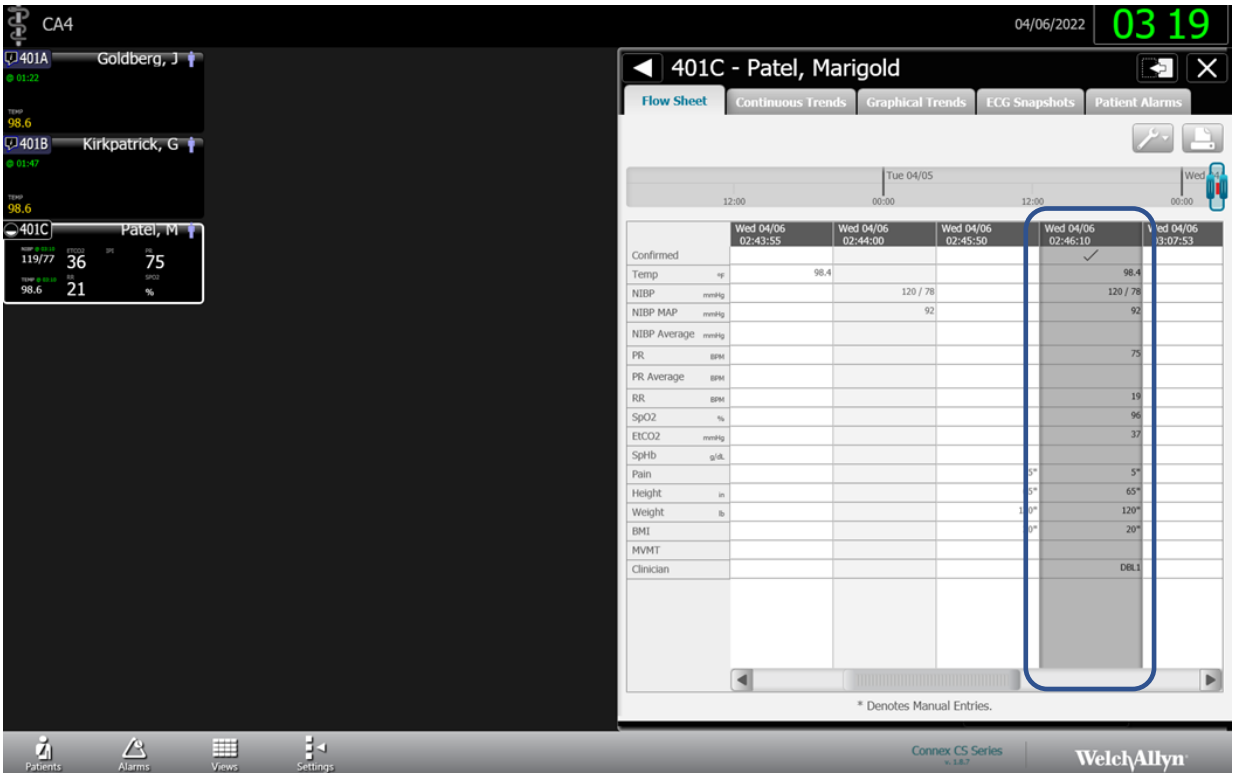
6. When clinician authentication is successful, a save successful message appears on the device, and vitals are sent to Connex CS. If clinician authentication is unsuccessful, a failure message appears on the device, and the device remains on the manual parameter screen, with the vital save operation not completed.
7. On successful save of episodic records, Click the Patient tile on Connex CS, which is used to save episodic records. Device details screen appears. Click on review to display Flow Sheet, Continuous Trends, Graphical trends, ECG snapshots and Patient alarms.
8. All supporting parameters that were collected or streaming at the time of episodic save are displayed in the Flow Sheet, Continuous Trends, and Graphical Trends. A confirmed indicator displays in the Flow Sheet and Continuous Trends for set of vitals sent in confirmed episodic save.

The Flow sheet screenshot below shows the episodic vital with confirmed indicator.



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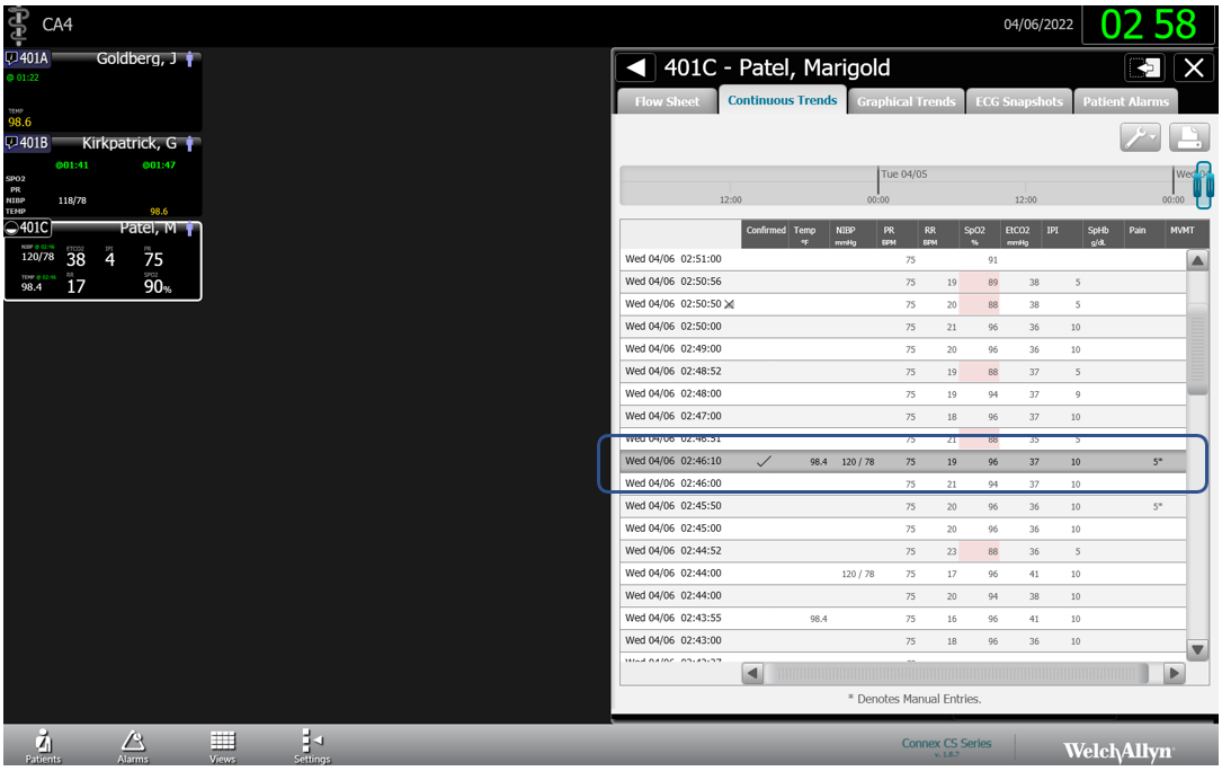
The Continuous Trends screenshot below shows the episodic vital with confirmed indicator.



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9. Support for SQL Server 2019

Summary of changes

Connex CS 1.8.7 enables the use of Corepoint software release 7.4.4 with SQL 2019 support

Why the changes were made

The previous version of Connex CS 1.8.4 supported Corepoint version 7.2.0. Corepoint released version 7.4.4 with support for SQL 2019.

Compatibility

- Corepoint 7.4.4 is not currently supported on versions of Connex CS older than 1.8.7.
- The 7.4.4 installer contains Corepoint Integration Engine and Corepoint Community Exchange.
- Corepoint Community Exchange components and release notes will only be present on the shortcut menu.
- Corepoint website: https://www.lyniate.com

Tech Specs

Corepoint Integration Engine 7.4.4 Supported Configurations

Release	Operating System (Applications)	Operating System (Remote Database)	SQL Server Version	SQL Server Edition
7.4	Windows Server 2019 Windows Server 2016 Windows Server 2012 R2 ‡Windows Server 2012 *Windows 10 *††Windows 8.1 (64-bit)	Windows Server 2019 Windows Server 2016 Windows Server 2012 R2 ‡Windows Server 2012	SQL Server 2019, RTM CU13 SQL Server 2017, RTM CU26 SQL Server 2016, SP3 †SQL Server 2014, SP3 CU4 ††SQL Server 2012, SP4-GDR	Same as 7.3
7.2	Windows Server 2012 R2 Windows Server 2012 *Windows 10 *Windows 8.1 (64-bit)	Windows Server 2012 R2 Windows Server 2012	SQL Server 2016, SP2 CU4 SQL Server 2014, SP3 SQL Server 2012, SP4	

Virtualization

Corepoint Integration Engine is supported on VMware and Hyper-V environments. No known issues have been reported on other hypervisors.

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Supported Operating Systems

Corepoint Integration Engine requires one of the following 64-bit Windows operating systems (configured to use “United States” and “English” in the Windows Regional and Language Options):

- Windows 8.1 (64-bit) (Internet connection required during installation)
- Windows 10 (Pro and Enterprise editions) (Internet connection required during installation)
- Windows Server 2012*
- Windows Server 2016
- Windows Server 2019

NOTE It is recommended that you set your operating system to utilize TLS version 1.2 by default.

For information, consult your operating system documentation or Lyniate Customer Support.

* Disabling certain Windows Server 2012 R2 SSL ciphers will prevent Monitor from launching.

Supported Browsers

Google Chrome and Chromium Edge are the recommended browsers for use with Corepoint

Integration Engine Monitor and the Corepoint product help. Non-Chromium browsers, such as Internet Explorer, may not function properly or may produce inconsistent results and are therefore not recommended.

NOTE If you are using Chrome on an operating system older than Windows 2012, opening the Monitor in more than three tabs at one time could cause considerable performance issues. Similarly, viewing multiple charts simultaneously on the Metrics page may compromise performance.

Minimum Display Resolution

Corepoint products require a minimum display resolution of 1024x768.

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Database Requirements

Corepoint Integration Engine release 7.4.4 on premises installation requires one of the following locally or remotely installed editions of SQL Server:

- SQL Server 2012 (SP4-GDR) (KB4583465)–11.0.7507.2 (X64)*
- SQL Server 2014 (SP3-CU4-GDR) (KB4583462)–12.0.6433.1*
- SQL Server 2016 (SP3) (KB5003279)–13.0.6300.2 (X64)
- SQL Server 2017 (RTM-CU26) (KB5005226)–14.0.03411.3 (X64)
- SQL Server 2019 (RTM-CU13) (KB5005679)–15.0.4178.1 (X64)

* SQL Server 2012 and SQL Server 2014 are not supported for AWS or Azure installations.

NOTE The Enterprise Edition and Standard Editions are suitable for local or remote installation and the Express Edition is suitable for local installation only.

Important: SQL Server Basic Availability Groups (introduced in SQL Server 2016 and available with SQL Server Standard Edition) are not supported for use with Corepoint Integration Engine because Basic Availability Groups can only contain one database at a time and the engine utilizes multiple Corepoint databases. "Availability Groups," not "Basic Availability Groups," are required by Corepoint Integration Engine.

Test details (includes Screenshots for new functionality)

How to test/verify that the changes were successful:

As with all Connex CS software installs, the Baxter Field Engineer will verify the system is functioning as expected before go-live. It is a recommended best practice for customers to deploy any new changes to a test system before releasing to the production environment.

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10. Modified EGS to ensure that sent Tests have at least one measurement

Summary of changes

Add a check to make sure that tests being sent to Corepoint have at least one measurement. If no measurement is found, then Episodic vitals may not process following CIE log maintenance and/or CIE restart.

Why the changes were made

To ensure that Episodic vitals process after CIE log maintenance and/or CIE restart.

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Issues fixed

1. Save button is enabled on Patient details screen after clearing the patient information

Summary of changes

On the Patient details screen, the Save button is now disabled after clearing the patient information.

Issue that was fixed

In previous versions of Connex CS, in the Patient details screen, the Save button is enabled after clearing the Patient selection. Pressing the button did nothing, but the button is now disabled after the patient information is cleared to avoid user confusion.

Test details (includes Screenshots for new functionality)

How to test/verify that the changes were successful:

1. After installing the Connex CS 1.8.7, create Patient with location information.
2. Connect a CVSM, initiate monitoring and select the tile with continuous monitoring data. Then, navigate to the Patient details screen.
3. Using “Choose from list,” select the previously created patient.
4. The Save button is enabled when the Patient is selected from the list. (See below).

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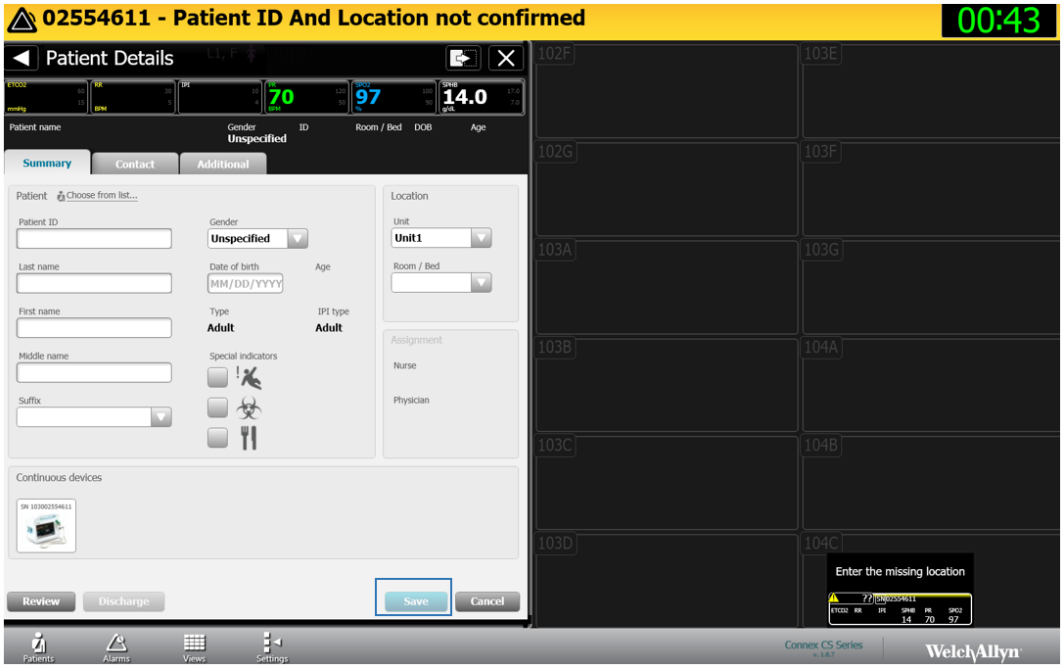
5. Select the Clear patient data option.
6. Observe (below) that the Save button is disabled after clearing the patient information.



2. Clear string is incorrectly translated as 'Aufhe' on CS and 'Aufheb' on admin tools launcher instead of 'Aufheben' on both CS and admin tools launcher, when language is configured as German.

Summary of changes

Connex CS 1.8.7 now translates 'Clear' as 'Aufheben' in both CS and Admin tools launcher when language is configured as German.

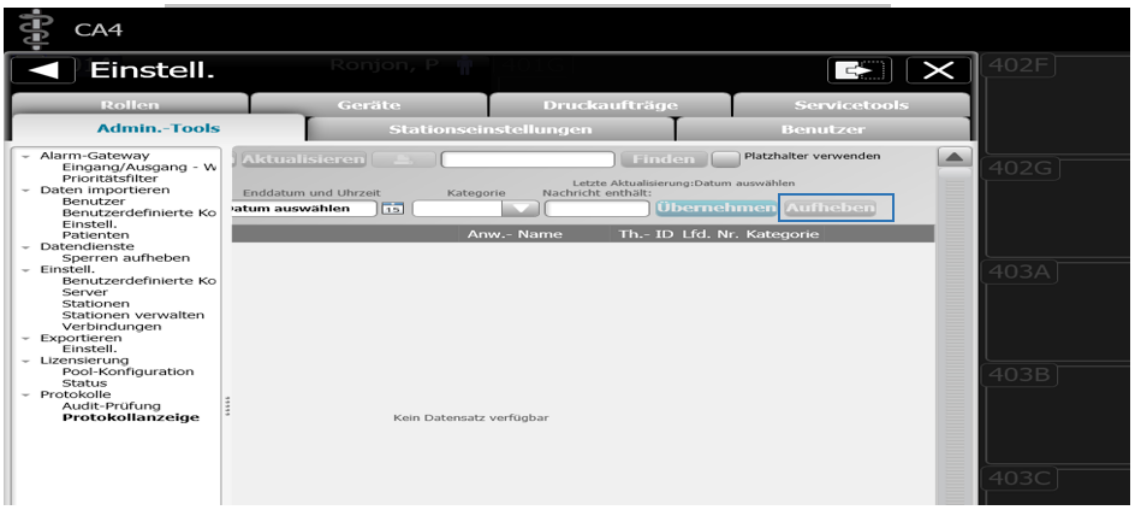
Issue that was fixed

The previous versions of Connex CS incorrectly translated the Clear label on the Log Viewer Clear button as 'Aufhe' on Connex CS and 'Aufheb' on Admin tools launcher when the language is configured as German. The string is now correctly translated as 'Aufheben' on both applications.

Test details (includes Screenshots for new functionality)

How to test/verify that the changes were successful:

1. After installing the Connex CS v. 1.8.7, navigate to Station settings -> Display and Sounds -> Language and select German in the Admin tools launcher. Reboot both server and client.
2. On Connex CS, log into Settings and navigate to Admin tools -> Logs -> Log viewer and expand the screen. 'Clear' is translated as 'Aufheben'. See below.



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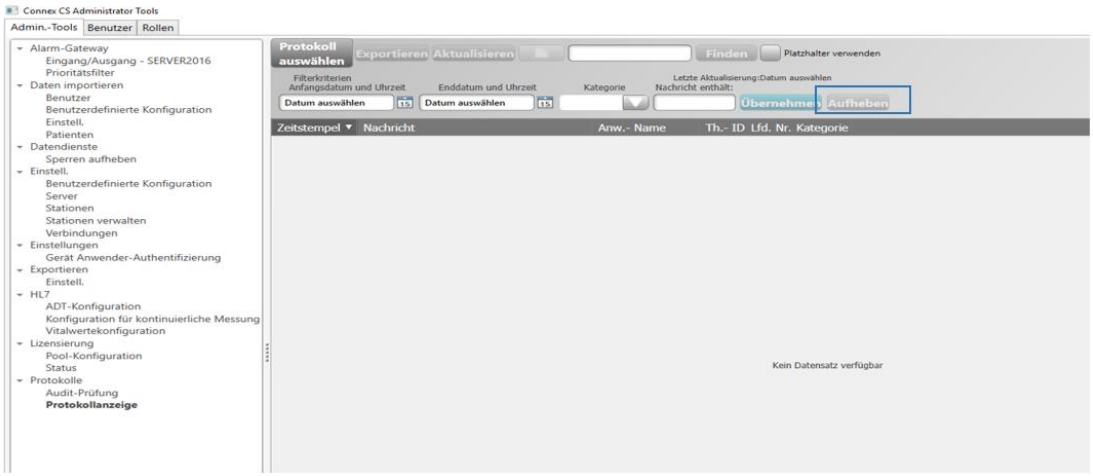
3. On the Admin tools launcher, navigate to Admin tools > Logs > Log viewer and expand the screen. ‘Clear’ is translated as ‘Aufheben’. See below.



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3. Pulse rate value from continuous device is not displayed in Patient Review Screen

Summary of changes

Connex CS enables display of the Pulse rate value from continuous device in Patient Review Screen.

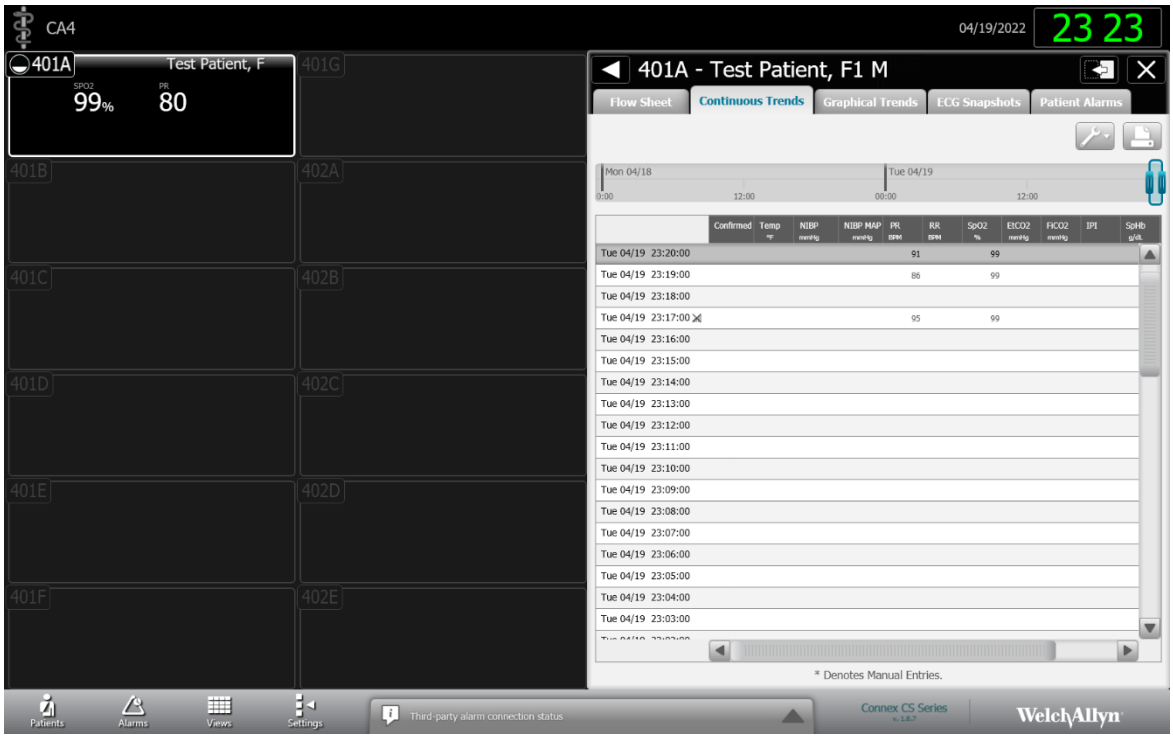
Issue that was fixed

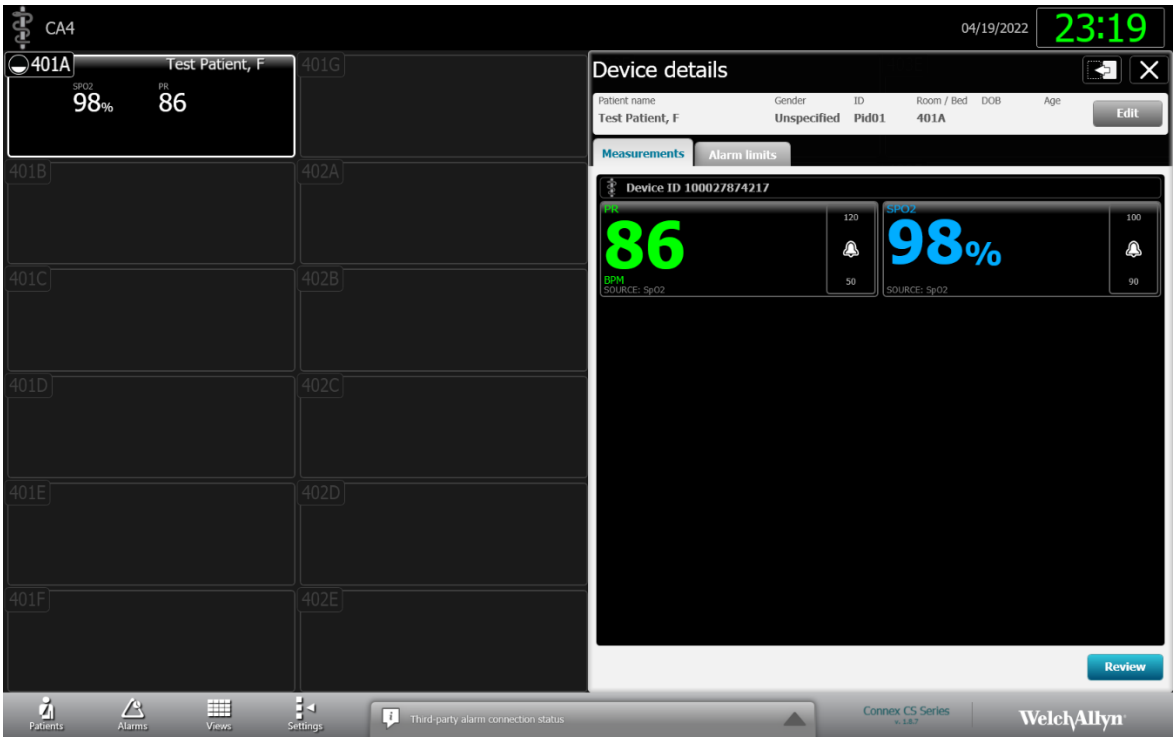
The Pulse Rate value from a continuous device is supposed to be displayed in the patient review screen. This has been corrected.

Test details (includes Screenshots for new functionality)

How to test/verify that the changes were successful:

1. After installing the Connex CS version 1.8.7, Connect a continuous device to Connex CS and assign a patient to the device tile on Connex CS.
2. Connect a simulator to the device to stream SpO2 and Pulse Rate vitals data.
3. Pulse Rate value streamed continuously from the continuous device should be displayed in Patient Review Screen - Continuous Trends review.





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4. HIM messages are not localized to the Central Station's assigned language

Summary of changes

Connex CS enables the Host-Initiated Messages (HIM) localization to the Central Station's assigned language.

Issue that was fixed

In the previous version of Connex CS, the HIMs were not localized to the Central Station's assigned language. English messages were shown instead when the Central Station was configured for a non-English language.

Test details (includes Screenshots for new functionality)

How to test/verify that the changes were successful:

- Host-Initiated Messages (HIM) appear in the Central Station's assigned language.

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5. Continuous trend review does not update properly after a disconnected device reconnects

Summary of changes

Connex CS 1.8.7 now updates the Continuous trend tab with Continuous data when the device reconnects after the disconnection.

Issue that was fixed

When the device reconnects after a disconnection due to network dropout, the Continuous trend tab in prior versions of Connex CS was not updated with Continuous data from the device. Data was always stored and available for review at the device.

After reconnection, the Continuous trend tab in Connex CS version 1.8.7 now updates with offline Continuous data received from the device.

Test details (includes Screenshots for new functionality)

How to test/verify that the changes were successful:

1. Start continuous data streaming by connecting the CVSM device via Ethernet cable to Connex CS in continuous profile.
2. Allow the device to deliver continuous data for a few minutes, then go to the review page -> Continuous trends tab, where the data will be loaded.
3. Disconnect the Ethernet cable from the device and wait a few minutes for it to collect offline continuous trends data.
4. Re-connect the Ethernet cable to the device. Close and reopen the continuous trends page in the Review screen to confirm the data acquired during disconnected time is displayed.

As shown in the screenshot below, Connex CS can now receive offline continuous trends data and display it in Continuous Trends with an offline indicator.

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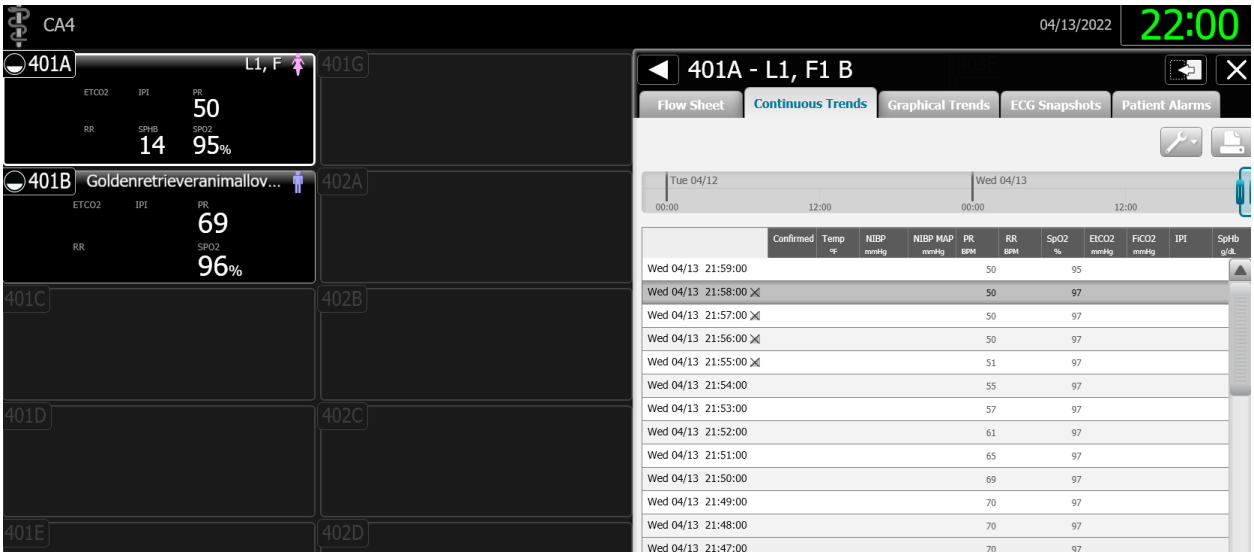

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6. Patient Review - MVMT measurements are not shown in either Flow Sheet or ECG Snapshot review

Summary of changes

Connex CS enables display of Movement measurements data in Connex CS Patient Review Flowsheet tab.

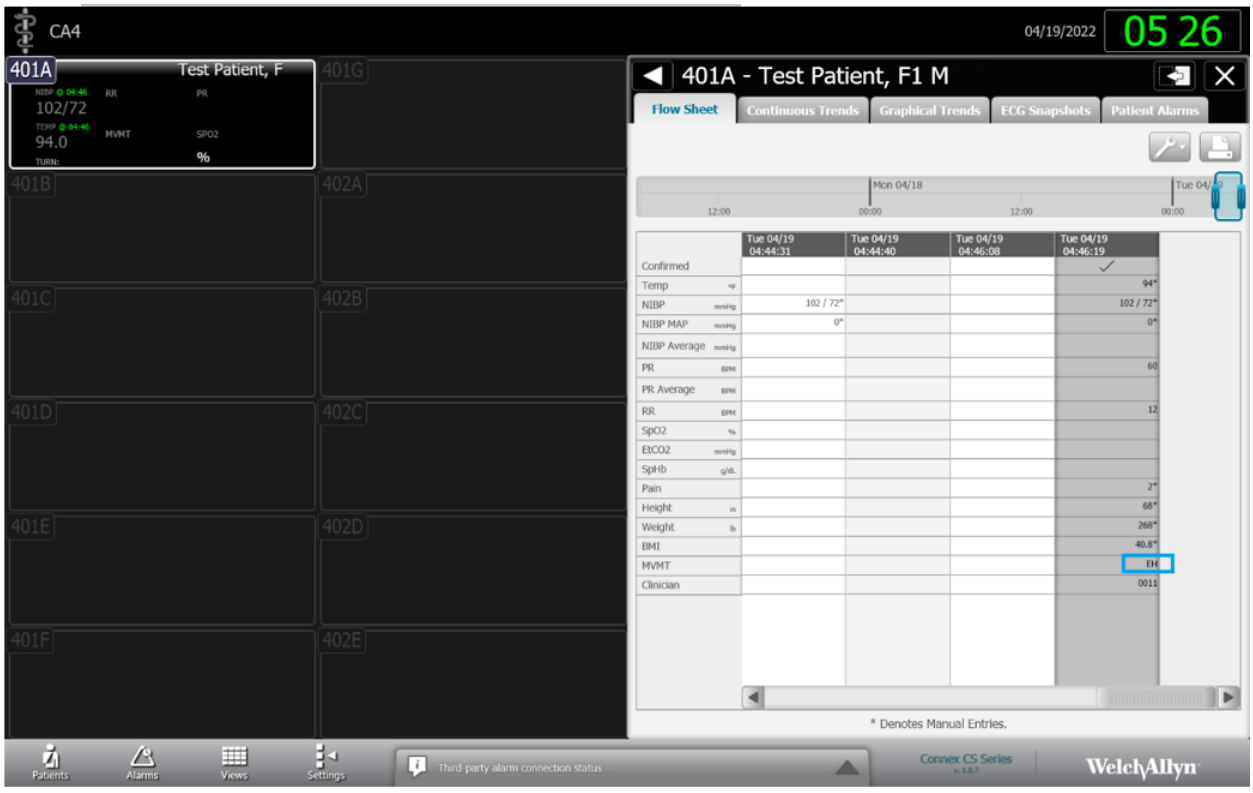
Issue that was fixed

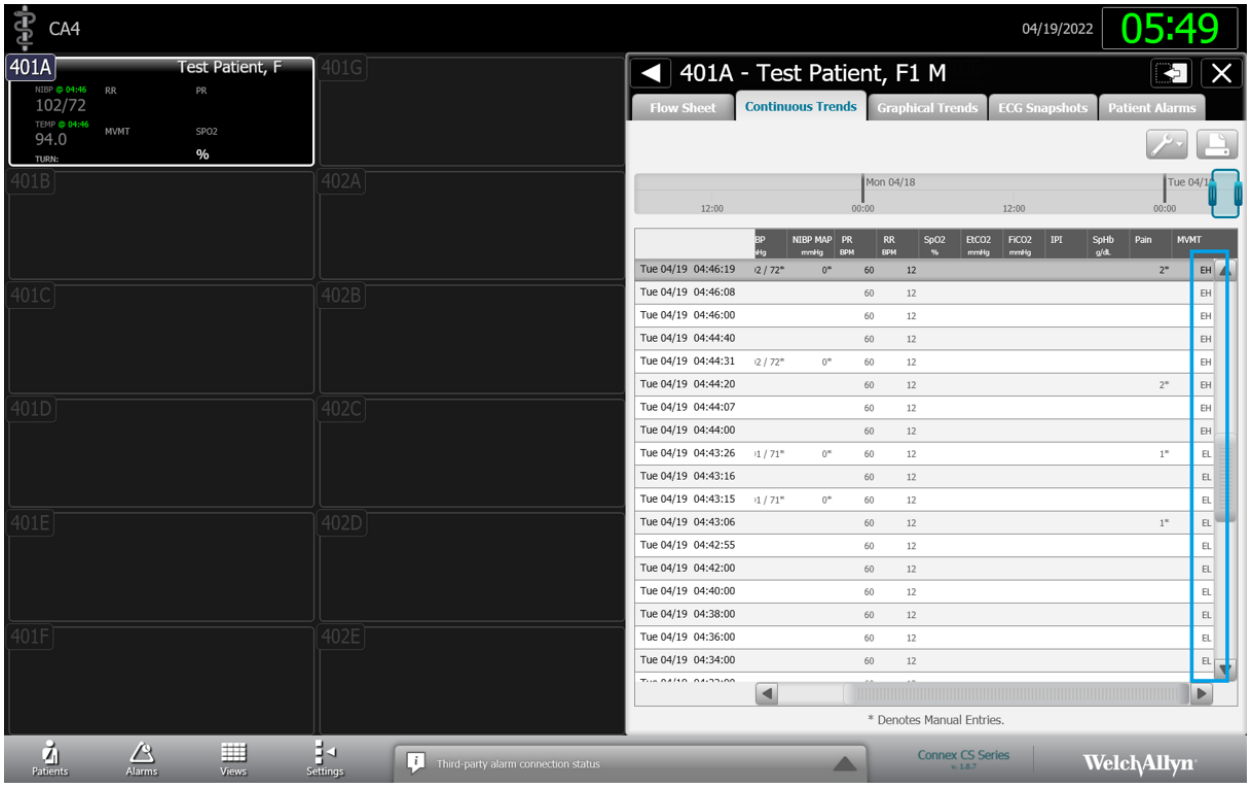
MVMT measurements were not shown in Flow Sheet Tab. Connex 1.8.7 corrects this issue.

Test details (includes Screenshots for new functionality)

How to test/verify that the changes were successful:

After installing Connex CS, connect a CVSM with Early Sense sensor. Capture patient movement data on device. See that the Flowsheet and continuous trends tab in Patient Review is displaying patient movement data.





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7. Respiration Rate unit is not properly localized in French and Spanish

Summary of changes

Connex CS 1.8.7 now translates the Respiration rate unit “BPM” as "RPM" in French and "LPM" in Spanish when respective languages are configured.

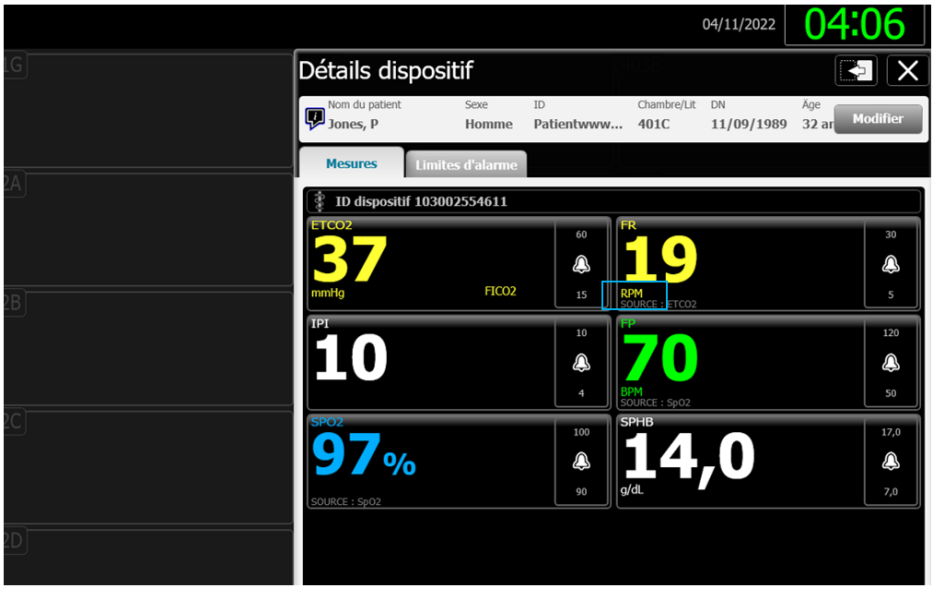
Issue that was fixed

In previous version of Connex CS, Respiration Rate unit “BPM” was incorrectly displayed as “BPM” when the language is configured as French or Spanish. Connex CS now displays "BPM" as ”RPM” in French and ”LPM“ in Spanish.

Test details (includes Screenshots for new functionality)

How to test/verify that the changes were successful:

1. After installing the Connex CS v. 1.8.7, navigate to Station settings->Display and Sounds->Language and select French Language in admin tools launcher. Reboot both server and client.
2. Connect a Continuous device with CO2 and initiate monitoring.
3. Choose the tile with the continuous monitoring data and observe the Respiration Rate unit which will now display "RPM" in French.



4. On admin tools launcher, navigate to Station settings > Display and Sounds > Language and select Spanish language. Reboot both server and client.

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5. Connect a Continuous device with CO2 and initiate monitoring.
6. Choose the tile with the continuous monitoring data and observe the Respiration Rate unit which will now display “LPM” in Spanish.
7. Perform similar steps to verify the correction in French.

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8. Patient Type is sometimes not displayed in Connex CS

Summary of changes

Connex CS corrected the inconsistent displaying of patient type correctly in the Connex CS patient information tab.

Issue that was fixed

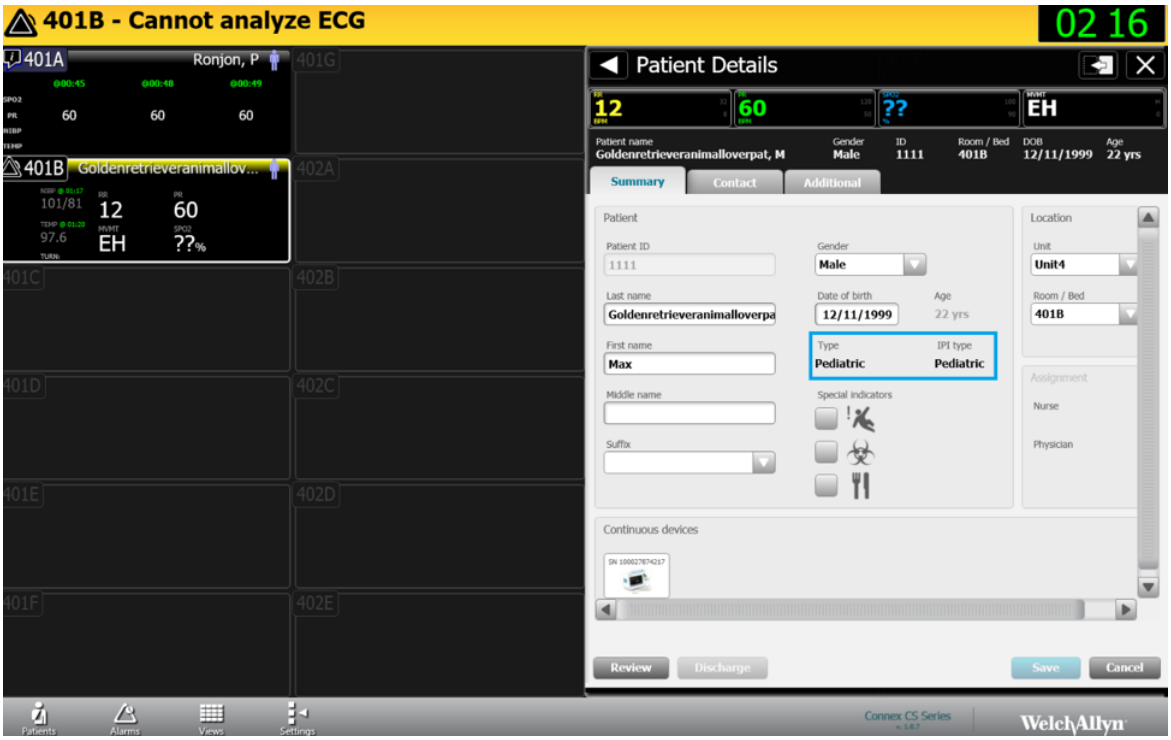
In the previous version of Connex CS, the patient type details were not displaying in the patient review tab when a patient with a different age type was connected to a CVSM device.

Test details (includes Screenshots for new functionality)

How to test/verify that the changes were successful:

1. Connect CVSM to Connex CS and add a patient. Change the patient type, i.e.: Adult, Pediatric, Neonate on device. How do they verify the change?
2. After connecting CVSM device with Connex CS, add different patient type from CVSM device, verify that patient type in patient review tab in Connex CS is displayed correctly.

Example - Patient Type display in **Patient Details > Summary** *tab*



Technical Specification Document Updates

Appendix A and C: Server section

- Updated to specify that servers running local DBs require 12 GB RAM
- Changed minimum hard drive from 1 TB to 256 GB

Network Section

- Added port 7751, 16283 (Secure data connections)
- Noted ability to disable ports

Database Section

- Added SQL Server 2019

Associated Software

- Updated Corepoint version to 2.4.4

Compatibility table

- Added row: ECG snapshot row
- Added row: Manual save while in continuous

Upgrading to Connex CS 1.8.7

For an upgrade to Connex CS 1.8.7, please contact your Hillrom Sales Representative or follow the link below:

https://www.hillrom.com/en/products/connex-central-monitoring-station/

Associated Documents

The following document changes have been updated and released to support this release.

80024135: CONNEX CS TECHNICAL SYSTEM REQUIREMENTS

80018210: Admin Guide, Connex CS, EN

80028031: IFU, Connex CS 1.8.7, EN

80018284: Connex CS HL7 Interface Guide

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Version	Sec, Pg, Para Changed	Change Made	Date Version Created	Version Created By (initials)
A	N/A	Initial Release	2018-12-05	DCS
B	Appendix C	Appendix C added for the CS 1.8.2 software release.	2019-05-29	DCS
C	Appendix D	Appendix D added for the CS 1.8.3 software release.	2019-12-10	DCS
D	Appendix E	Appendix E added for the CS 1.8.4 software release.	2020-05-20	DCS
E	Appendix F	Appendix F added for the CS High Availability option	2021-02-03	DCS
F	Appendix G	Appendix G added for the CS 1.8.7 software release.	2022-07-01	DCS

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