Release Note: OmniSense 4.2

1 Scope

This document provides an overview of improvements and added for OmniSense 4.2.4 when upgrading from OmniSense 4.1.6. For more specific information about new features, refer to the New Features page and OmniSense Analysis and Live Help guides.

2 New Features

2.1 OmniSense Live and Analysis

2.1.1 Improved Download Reliability

Updated downloader to eliminate cases causing download failures.

2.1.2 15x1.25 Accel API ECHO Mode

A new modes has been added to provide the following Live monitoring options:
ECHO 15x1.25 will provide a 1.25 second update rate for 15 subjects while streaming 20 Hz (0.125g resolution) Accel waveform data to the Live screen as well as the API pipe for all 15 subjects simultaneously all the time.

2.1.3 Updated firmware to Auto-Detect between BioHarness or BioPatch HP modes of operation (for BioPatch HP specific firmware is now obsolete).

2.1.4 Expanded Live API which now supports all data captured via OmniSense Live including streaming Accelerometry waveforms.

2.1.5 Updated language files for French, Italian, and Russian.

3 Operational Requirements

3.1 PC System Requirements

PC Operating System:	Windows 7, 8.1, 10 .NET 4.0 framework required
PC Processor:	32 or 64 bit Dual core or higher, 1.7 GHz or higher
PC RAM:	8GB or higher
PC Memory:	250GB (Solid State HD recommended)
Connectivity:	USB
Graphics Card:	NVIDIA or Radeon recommended
Screen Resolution:	1024 x 768 Touchscreen recommended
Bluetooth:	Default Microsoft Windows Bluetooth stack. This may not be the case for all PCs with built-in Bluetooth. (Not required

unless using BT Direct or GPS)

3.2 Firmware

Zephyr™ BioModules require firmware upgrades for use with this application release, as stated in the table below.

Firmware upgrades for existing devices are included in the supplied Zephyr™ installation disc or root directory.

3.2.1 Hardware

A new hardware version of the Zephyr™ BioModule is required to support the Pebble™ watch. This version has new Bluetooth module that supports Bluetooth classic and Bluetooth modes, while also retaining the support for ECHO. It can transmit over both Bluetooth and ECHO protocols simultaneously.

Zephyr™ BioModule Part No.	Radio Protocol Supported
9800.0153 (1G)	Bluetooth only (current version 1G_1.5.10.0)
9800.0189v6-v9g (2G)	Bluetooth + ECHO (current version 2G_1.5.10.0)
9800.0189v9k (3G)	Bluetooth + ECHO + Bluetooth Low Energy (current version 3G_1. 5.10.0)

3.2.2 Firmware Versions

Upgrades to the following firmware is required to access new functionality.

System	Firmware	Additional Components
OmniSense ECHO	1.5.10.0	ECHO Gateway
OmniSense w/GPS	1.5.10.0	Qstarz™ 818XT and 1300ST GPS (supported live and logging)
OmniSense Bluetooth Direct	1.5.10.0	Bluetooth with Windows Drivers
OmniSense Responder	1.5.10.0	XTS Mic. 2.1.1.0 , XTS RID 1.0.15.0
OmniSense Defense	1.5.10.0	Various RID firmware updates – confirm with Zephyr. For correct hardware firmware components..

3.2.3 Third Party Hardware

(no firmware upgrades required, supported with OmniSense Live in Responder, Defense and Bluetooth Direct modes)

- MyTech: HPL-108 USZ 1005232045.
- Nonin: 9560 Not applicable
- Qstarz™: 818XT and 1300ST GPS (Live tracking supported in ECHO, Responder, and Defense radio networks only, excluding MBITR)

3.2.4 Motorola™ XTS Requirements

The following feature sets must be installed on the XTS Motorola™ radios:

- Q947 – Packet Data Interface

4 Fixes and Corrections

4.1 Various bug fixes

- Minor bug fixes have also been resolved.

Please contact zephyrperformancesupport@medtronic.com to report any issues encountered.

5 Dropped Features

- Single device BioHarness Log Downloader removed form package due to obsolescence by Zephyr Downloader (multi-download tool)

6 Known Issues, Limitations and Restrictions

6.1 Known Issues

6.1.1 Installation and Upgrade

- A pre-configured database will be supplied with the system if the software is purchased as a 10, 30, or 50 Subject Advantage Pack with or without GPS components. This will be installed automatically with all hardware prepopulated into the database if the installation PC has never had OmniSense previously installed. If upgrading from a previous installation, it is recommended to contact Zephyr™ support for assistance in the upgrade to ensure the system is properly configured.
- For updating a system, be sure to perform the update when you have time to **update firmware on all Zephyr™ BioModules**. The system will not connect via live until firmware is updated (after installing the new OmniSense software).
- For updating a system that previously had GPS units paired directly to Zephyr™ BioModules, there is a significant amount of work required to add GPS units to the system and assign them to personnel to restore full functionality. Updating without performing this step will effectively un-pair GPS units from devices deployed in live mode. **Do NOT perform this update unless you have time to complete the process. Updating a 50 man system with GPS units could take as much as 2-4 hours.** If you would like onsite support to perform the update, contact your Zephyr™ Performance Systems sales representative. Keep in mind that this is an optional update, so if you do not have time or do not see that the new features add sufficient value, please wait to update.

6.2 Limitations

- Zephyr™ BioModule 3 modules PN 9800.0189v6-v9 (2G) must be used for an ECHO system.
- Zephyr™ BioModule 3 modules PN 9800.0189v9k (3G) must be used for Bluetooth Low Energy compatibility with custom Pebble™ watch (contact Zephyr™ sales department)

- Pebble™ watch requires custom Zephyr™ supplied firmware and should not be connected with Pebble™ Android or iOS smart phone app to avoid automatic update of Pebble™ firmware to an incompatible open market version.
- Zephyr™ BioModule Firmware upgrades are required, as outlined in above.
- Current Zephyr™ BioModule Firmware is shipped with this release.
- PC hibernation should always be disabled when using OmniSense.
- OmniSense Live Bluetooth Direct is no longer supplied as a standard configuration for OmniSense. Bluetooth continues to be supported. Zephyr™ professional customers are being directed to the ECHO system as having several advantages. Notable are increased range, and a device limit of 100 per system, as well as reducing driver compatibility related issues.

6.3 Restrictions

- The accelerometer, jump and dash test data is restricted to systems using Bluetooth Direct, or ECHO communications. The data is not available for XTS systems. The Accel side panel will not be visible when Network Type is set to XTS.
- In the Analysis Module, Jump and Dash parameters are visible but data is not available when XTS is used.
- In OmniSense Analysis, Accelerometry waveform data (as opposed to Peak Accelerations), can only be accessed if streaming accelerometry data has been activated in the Live module at the time of session recording. This is restricted to a single device per system, and is only supported by Bluetooth Direct and ECHO communications.

7 Related Documentation

All product documentation is contained on the OmniSense Install Package under the “Documentation” folder.

8 Definitions and Abbreviations

8.1 Abbreviations

AT	Anaerobic Threshold
BioGauge	Graphical representation of physiological parameters
ECHO	Zephyr™ 802.15.4 - 2.4GHz radio network type
HR	Heart Rate
HR@AT	Heart Rate at Anaerobic Threshold
PSM	Physiological Status Monitoring
RID	Radio Interface Device
RSM	Remote Speaker Microphone
SCL	Skin Conductance Level

SpO_2	Pulse Oximeter (% dissolved blood oxygen)
USB	Universal Serial Bus

9 Document Version Control

Version	Description
1.1	First Release
1.2	Updated Release to fix minor issues in Version 1.1
2.0	Updated to support more radios, new features and modified GUI, added restrictions on Blood Pressure and SpO^2 devices
2.1	Updated to include the Z-Modem, Beep Test, Physiology Normative comparison report, Various RIDs, Various new software features and bug fixes
2.2	Updated to include Bluetooth direct to the PC
2.3	Support for additional accelerometer data in Live; support for next-generation BioHarness devices. Jump and Dash Test peak acceleration values added [for BT systems].
3.0	Updated to describe Bluetooth Access Point systems using BioHarness 3 devices, & Bluetooth Direct Systems using Zephyr™ Straps
3.2	Internal release only Load parameters replace Effort, functional changes to Analysis module; support for 802.15.4 systems when available
3.3	BioGauge updates, Downloader Install integration
3.4	ECHO system, initial GPS support, revised ROG, Z-Modem & tactical RID support
3.5	Live Training & workout tabs, more GPS support, increased variety of Training reports – not released
3.6	Includes all changes from 3.5 with Bug fixes and updated Intensity and Load algorithms
3.7	Updated for support with Windows 8, performance improvements and bug fixes. Improved GPS support. Windows Security Certificates updated. Multi-language support updates. Added Impact Processing tool in Analysis
3.8	Training Limits, Archiving (to zsf), Custom Intensity ranges, Auto calibration of time over ECHO, Accel Processor (from summary and waveform logs), Markers (single, team, all), Subsession creation wizard, selectable Training Zone model
3.9	Support for Live GPS data feed over ECHO, Integrated GPS assignment and auto-pairing via ECHO, Data Management Enhancements in OmniSense Analysis, New optional add-ons for Barcode Rapid Allocation Tool and Pebble™ Watch Interface, Support for Wireless Download via Bluetooth
4.0	ECHO Modes, Google™ Maps, Embedded Accelerometry Algorithms, Improved HRV Algorithm, Data Filters, Readiness, Workouts text to speech, Time Shift sessions, Merge sessions, Marker controls in Analysis, User Defined Summary Graph scales, Updated Pebble™ Watch App, support of small Qstarz™ 1300ST GPS
4.1	Readiness mobile apps are added, improved total downloading, language translations added, minor bug fixes and improvements
4.2	ECHO mode 15x1.25 Accel API, Auto-detect BioPatch HP vs BioHarness firmware, and downloader improvements, Live API enhancements, updated language files for French, German, Italian, and Russian