Release Note: OmniSense 2.3

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1. Scope

This document provides an overview of the added features and release status for Zephyr OmniSense 2.3 application software. It covers both OmniSense Live and Analysis applications and is applicable BioHarness Bluetooth Direct Systems. The additional functionality offered by v2.3 over v2.2 is not currently available to PSM Responder or PSM Defense systems.

2. 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. References

This document refers to the OmniSense Live version 2.3 and OmniSense Analysis version 2.3 software releases.

4. Definitions and Abbreviations

4.1. Abbreviations

AT	Anaerobic Threshold
BioGauge	Graphical representation of physiological parameters
BPM	Blood Pressure Meter
HR	Heart Rate
HR@AT	Heart Rate at Aerobic 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

5. Operational Requirements

5.1. Operating systems supported

Windows XP with Service Pack 3 / Windows Vista / Windows 7.

5.2. PC System requirements

512MB of memory, 100MB free disk space required, at least one USB port or serial port.

5.3. Motorola XTS Requirements

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

- Q947 – Packet Data Interface

5.4. Firmware

All hardware such as Remote Speaker Microphones (RSM), Radio Interface Devices (RIDs) & BioModules require a firmware update to integrate with this software release. Third party sensors do not require a firmware update. Firmware upgrades for existing devices are included in the supplied Zephyr installation disc.

5.4.1. Zephyr Hardware

OmniSense			Firmwares						
Official Release	Date	Installer	BioH	XTS Mic.	XTS RID	TW RID	JEM RID	MBITR RID	Harris RID
V2.3	21/Mar/2011	2.3.42	2.3.2.0	2.1.1.0	1.0.9.0	n/a	n/a	n/a	n/a

5.4.2. Third Party Hardware

- MyTech: HPL-108 USZ 1005232045.
- Nonin: 9560 Not applicable

6. New Features

In addition to the features released with OmniSense 2.2 some new features and improvements were added.
Copies of previous release notes are obtainable here:
http://www.zephyr-technology.com/support/release-notes

6.1. Radio Support.

No new radio protocols are supported, other than those already available when using OmniSense 2.2:

- ISM (some functionality not available when using ISM devices)
- Bluetooth Direct to PC
- Zephyr Z-Modem, including 802.15.4 USB receiver
- Motorola XTS (some functionality not available)
- Various military tactical radio network types (some functionality not available)

6.2. BioHarness 3.0 Support

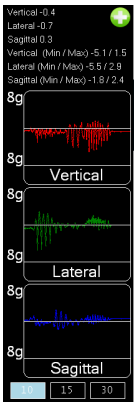
This release incorporates the changes to support the next-generation BioHarness 3.0 (Bluetooth). It continues to support BioHarness 2.0 (Bluetooth) and BioHarness 1.6 (ISM) when configured for the appropriate network type.

BioHarness 3.0 transmits the same data packet options as BioHarness 2.0. Network Type should be set to Bluetooth for use with BioHarness 3.0 devices.

6.3. Graphical User Interface (GUI) Changes in OmniSense Live

A number of GUI changes were incorporated into OmniSense Live view. Below is a list of these:

6.3.1. Accelerometer SideTab:



An 'Accel' tab is added to the Details, Comms and Sensors side tabs. The 50 Hz data packet is enabled by a button at top right in the tab. Time duration can be selected from 15, 15 & 30 second buttons. The three axes are graphed, along with instantaneous, maximum and minimum values. The data is recorded to the OmniSense database and can be displayed in Analysis.

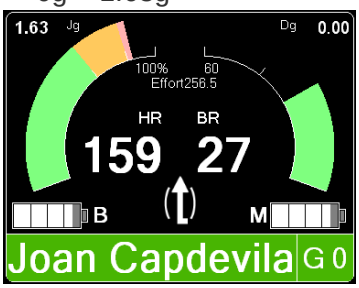
The top right button can be used to 'Pause' existing data for closer Analysis – in real-time this graph is scrolling too quickly for close inspection. Double click on any graph (sagittal/vertical/lateral) to display a larger version

6.3.2. Subject BioGauge

The subject BioGauge HRR and HR@AT updating values have been removed. HRR is now displayed in the Details side panel with other values. It replaces skin temperature. HR@AT is no longer displayed. These values have been replaced by Dg and Jg, which show peak acceleration values in events interpreted by OmniSense as 40 Yard Dash or vertical jump tests. Note that these values may be updated by events not intended as actual tests. Users need to tailor sessions specifically for these activities if test results are required.

Dg = 3.22g

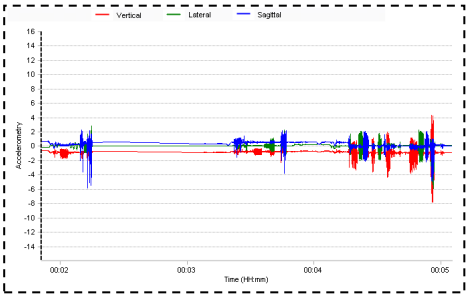
Jg = 1.63g



6.4. OmniSense Analysis Changes

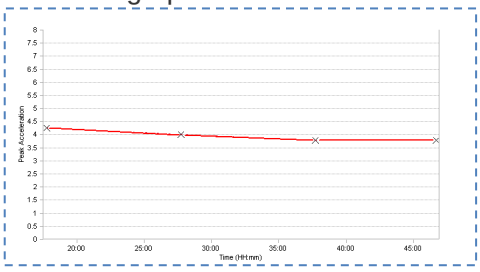
6.4.1. Accelerometer Data

‘Accelerometry’ can now be selected in the *Select Time* Variables panel. The 50Hz data can be displayed for a single device only.

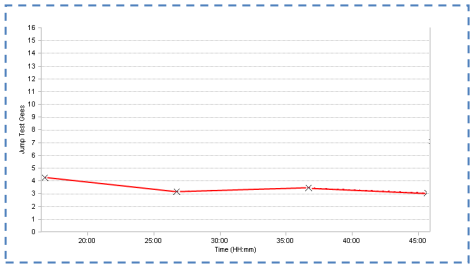


6.4.2. Jump and Dash Test Graphs

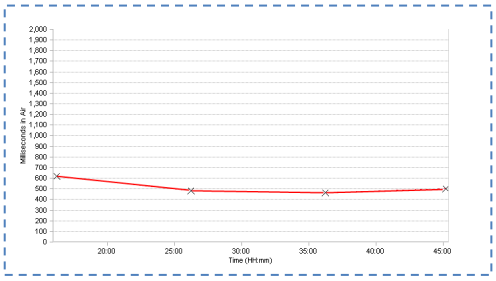
Four new graphs are available



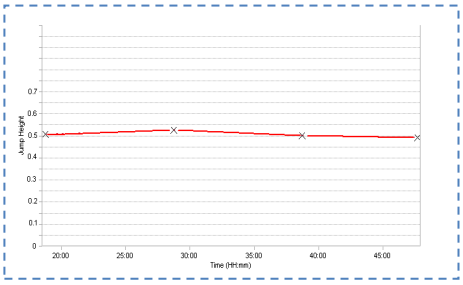
Dash g – Peak g during first 2 s Of Dash event



Jump g – peak vertical g



Jump time in Air



Jump height

Max/Min/Avg summary graphs of these parameters are also available.
Note that ‘phantom’ Dash and Jump events are likely to be generated during similar impulsive activities. Users need to be aware when the relevant tests have occurred (use Markers), or take steps to avoid generating phantom events where practicable

7. Fixes and Corrections

7.1. Customer-Reported Issues

The following customer-reported issues have been fixed for this release:

- No known issues

7.2. Various minor bug fixes.

Various minor bugs that do not affect system performance or user interfaces were rectified to enable a more reliable product.

8. Dropped Features

8.1. HR@AT.

This value is no longer displayed as a numerical value on the subject BioGauge if Dg and Jg values are displayed. HRR display hsa been moved to the details side panel, replacing Skin Temperature.

9. Known Issues, Limitations and Restrictions

9.1. Known Issues

9.1.1. Installation/ Upgrade

- No known issues

9.1.2. OmniSense configuration

- No known issues

9.1.3. Windows Related

- No known issues

9.1.4. Operational

- Bluetooth data bandwidth may be exceeded if too many devices are enabled to transmit 50Hz accelerometer packets at the same time. 'Too many' may depend on the Bluetooth hardware being used. The Zephyr legacy CNet Bluetooth dongle has allowed data from 7 BioHarness modules to be received simultaneously, but other models of dongle have dropped connections and reconnected without Acclerometer data when 3 or 4 devices have been enabled for this data.
- If *Network Type* is changed while Demo mode is enabled, Demo mode will no longer populate with data when *Network Type* is Bluetooth or Z-Modem. Always deactivate Demo mode when changing Network Type
- If a Blood Pressure Sensor is active, then BP and Dg text and value will superimpose on each other in the subject BioGauge

9.2. Limitations

- Any existing Zephyr hardware must have a firmware upgrade as set out below.

OmniSense			Firmwares						
Official Release	Date	Installer	BioH	XTS Mic.	XTS RID	TW RID	JEM RID	MBITR RID	Harris RID
V2.3	21/Mar/2011	2.3.42	2.3.2.0	2.1.1.0	1.0.9.0	n/a	n/a	n/a	n/a

- New Firmware is shipped with this release. Hardware shipped with this release does not require a firmware upgrade.
- Hibernation should always be disabled when using OmniSense.

9.3. Restrictions

- The accelerometer, jump and dash test data is restricted to systems using Bluetooth direct-to-PC RF communications. The data is not available for XTS systems or ISM systems. The Accel side panel will not be visible when Network Type is set to XTS or ISM
- Tactical radio Network Types are not available in *Network Type*
- Bug fixes for Z-Modem systems which were incorporated into later versions of OmniSense v2.2 have not been incorporated into v2.3
- In the Analysis Module, Jump and Dash parameters are visible but data is not available when XTS and ISM systems are used.

10. Related Documentation

All product documentation is contained on the OmniSense installer CD under the "Documentation" folder.

Application notes on how to get the most benefit from the Group Report functionality is available on

http://www.zephyr-technology.com/resources/whitepapers