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Brüel & Kjær

PULSE 19.0.0 Readme   *build 128*

Introduction

We are pleased to present PULSE™ 19 which includes several new applications like PULSE Small Wind Turbine Acoustic Sound Testing, PULSE Sound Power in Reverberation Rooms, PULSE Sound Power using Sound Intensity and DTS CAE Auraliser.

PULSE Reflex Core and PULSE Reflex Structural are now 64-bit applications enabling increased data capacity provided by the 64-bit native support. In addition we have added a number of new feature and improvements to the software.

The main hardware additions include GPS-sync for LAN-XI.

This Readme file includes information on Installation, describes New Features, and provides Hints and Tips, Troubleshooting guides, and a list of Resolved Problems.

System Requirements

Operating Systems

The following operating systems are supported:

- Windows® 7 (SP1) Pro, Enterprise or Ultimate (x32) and (x64)
- Windows® 8.1 Pro or Enterprise (x64)

Microsoft Office

The following versions of Microsoft® Office are supported:

- Microsoft® Office 2007 (SP2)
- Microsoft® Office 2010 (SP2) (x32)
- Microsoft® Office 2013 (x32)

Recommended PC

- Intel® Core™ i7 3 GHz processor, or better
- 16 GB RAM
- 480 GB Solid State Drive (SSD) with 20 GB of free space, or better
- DVD-RW drive
- 1 Gbit Ethernet connection
- Microsoft® Windows® Operating System
  - Windows® 7 (SP1) Pro, Enterprise or Ultimate (x64)
  - Windows® 8.1 Pro or Enterprise (x64)
- Microsoft® Office 2013
- Adobe® Reader® 11 (U.S. version is available on PULSE installation DVD)
- Microsoft® SQL Server® 2012 (Express (SP2) included in installation)
- For NVH Simulator: Dedicated graphics card with 2GB on board VRAM, or better

We strongly recommend that you update your PULSE installation to the latest major release to ensure that the latest security updates from Microsoft® are supported by your installation.

> **NOTE:**
> PULSE LabShop is 32-bit only but can take advantage of the additional RAM on a Windows® 7 or Windows® 8.1 x64 computer. PULSE LabShop can use the additional RAM as the OS can allocate up to approximately 3.3 GB RAM to the process and, for example, enable larger multibuffers to be created.

> **NOTE:**
> PULSE Reflex Core and PULSE Reflex Structural Dynamics are now native 64-bit and can make use of the full RAM available in a 64-bit OS.

> **WARNING:**
> Windows Vista® and Windows® XP are not supported.

Product Support Changes

Please note:

- PULSE 18 was the last release to support PULSE Reflex Architectural Acoustics suite
- PULSE 18 was the last release to support mixed-mode operation (LAN-XI and IDA®)
- PULSE 18 was the last release to support Windows® XP
- PULSE 19 will be the last release to support operation of PULSE Reflex on a 32-bit operating system
- PULSE 19 no longer supports IDA® Module Types 3030, 3032-A, 3032-B, 7533-001, 7533-003 and 7536

Installation

Installing PULSE

If you are installing from a DVD:

1. Insert the DVD. If the PC does not have a DVD drive, you can:
   - Copy the DVD to a network location and open the network folder on the destination computer.
   - Copy the DVD to an external hard drive or memory stick, and connect it to the destination computer.
2. If the setup screen does not automatically start, run "Setup.exe" from the DVD's top level.
3. Select **PULSE** and click **Install** to start installation.
4. Follow the on-screen instructions.

If you have downloaded PULSE:

1. Extract the zip file.
2. Run "Setup.exe" from the folder to which the data was extracted.
3. Select **PULSE** and click **Install** to start installation.
4. Follow the on-screen instructions.

The dongle should be disconnected during PULSE installation. After installing PULSE, insert the dongle. The dongle will blink for up to 30 seconds while it is updated. Once updated the dongle should light continuously. See the troubleshooting section if the dongle doesn't update correctly or stop blinking.

Installation of Databases

At start-up, a Database Engine Installer tool helps you install Microsoft® SQL Server® and set it up for use with PULSE Data Manager (PDM) and PULSE Reflex.

- This is required with PDM. You can use either SQL Server Express or SQL Server Standard edition

- This is optional with PULSE Reflex. You can use the SQLite Database Engine that is auto-installed with PULSE Reflex, but with either SQL Server Express or SQL Server Standard, the program will perform significantly better.

If you have SQL Server Standard Edition or SQL Server Express already installed, the tool will simply set these up for use with PDM and/or PULSE Reflex. If your current SQL Server Express is an older version, the tool will upgrade it to the latest supported version.

Installation of SQL Server 2012 Express (SP2)

SQL Server 2012 Express (SP2) is included in the installation. In some cases, however, you may not have the required privileges, or a reboot may be required. If this is the case, you will see a message stating:

»Privilege "xxxx" missing.«

where xxxx is one of the following:

1. PendingReboot
2. seSecurityPrivilege
3. seBackupPrivilege
4. seDebugPrivilege

For message 1: Reboot the PC.

For messages 2 to 4: The *install user* executing the SQL Server installation must be assigned the required user rights before running the installation. If the PC is a member of a domain, you should ask your IT administrator if the required user rights should be defined by group policies, or if you should define the user rights using the Local Group Policy Editor:

1. Enter *gpedit.msc* in a command prompt to open the Local Group Policy Editor.
2. Navigate to Local Computer Policy > Computer Configuration > Windows Settings > Security Settings > Local Policies > User Rights Assignment.
3. Check that the install user or a group including the install user is included in the Security Setting for these policies:
   - Manage auditing and security log - seSecurityPrivilege
   - Back up files and directories - seBackupPrivilege
   - Debug programs - seDebugPrivilege
4. If you can, double-click on the item to bring up its Properties and correct the setting. Otherwise, contact your IT administrator to obtain the necessary privileges.

Note that group policies overwrite local policies.

Installing Licenses

1. If you are using a USB dongle, instead of your network interface card's ID, mount the dongle.
2. Start PULSE. The License Manager should open automatically. If not, click **License Manager** at the bottom of the start window.
3. Click **Browse** and drag the old license file to the Archive folder.
4. Double-click the Host ID you wish to copy.
5. Go to http://license.bksv.com/ .
6. Paste the Host ID into the "Login:" box, and submit.
7. Save all available licenses to a file.

If the PC that will be running PULSE is not connected to the Internet, retrieve its Host ID and use another computer that is connected to the Internet to download the license, then transfer the ".lic" files to the computer that will be running PULSE.

> **NOTE:**
> Your Host ID can also be found on your License Authorisation Card.

Using HASP4 and HASP-HL Dongles

If the License Manager displays the text:

»Please contact your local sales representative to replace this HASP4 Dongle with a HASP-HL dongle«

for a Host ID that you wish to use, please do so. There are three reasons for replacing the dongle:

- HASP-HL keys support the use of PULSE applications via remote desktop sessions
- HASP4 keys do not support remote desktop sessions
- HASP4 keys will not be supported in future versions of PULSE

Changing Location of Databases and Filefarm During Installation

During installation of PULSE with custom settings, there is an option to change the location of the databases and the filefarms. When making changes to these settings, please keep the following in mind:

- When relocating PULSE File Farm to another folder, the newly specified folder **must** be named "BKFileFarms" in order to make it work
- Backup and remove existing databases before changing locations. Never use mixed locations for databases and filefarms. If databases are already present on the PC, make a backup of every database and then disconnect or delete the databases using PDMTools. Backups can be restored after the custom installation is completed and will be automatically updated with the new database and filefarm location upon restoring.

Installation Troubleshooting

Side-by-side 32-bit (x86) and 64-bit (x64) Installations

If you have side-by-side installations and remove one of these installations, the remaining installation must be repaired before use (reinstalls do not cause any problems).

Switching Between PULSE Reflex Versions

The database format has been upgraded so when you switch from 19.0 to a previous version, you will get an error message that the database cannot be used. Please select a compatible database and then restart Reflex.

Shortcut to Installation Log File

To view the latest PULSE installation log file, copy

```
%ALLUSERSPROFILE%\Application Data\Bruel and Kjaer\PULSE latest installation log.lnk
```

to the address line of Windows® Explorer and press **Enter**. The link works for all versions of operating system and is updated during install, uninstall, repair, etc.

Antivirus Software

If an unexpected dialog appears during installation, disconnect from the Internet and disable your antivirus software's real-time scanner. You should disconnect from the Internet before disabling part of your antivirus software to protect yourself from web-based attacks while the real-time scanning software is disabled. Your antivirus software's options can usually be displayed by clicking on its icon on the task bar.

Error "No socket connection to license server manager"

FLEXlm has been updated to support Windows Server 2008 R2 (x64). Customers using floating licenses should upgrade BKSV.exe, lmgrd.exe and lmtools.exe on their license server to avoid the error from the client software. The files can be found in "Program Files\Common Files\Bruel and Kjaer\FlexLM".

Graphics Drivers

To ensure correct operation of applications making use of 3D graphics, please make sure that you have the latest graphics drivers installed on your computer. Visit the support website of your graphics card manufacturer to download and install drivers.

Installation Troubleshooting Page

There are a number of known issues with the installation of PULSE. These have been documented and their respective solutions made available on an Installation Troubleshooting page.

New Products and Features

New Applications

PULSE Vehicle Pass-by Types 7788-G and 7788-V

With Multi-vehicle Pass-by, several vehicles can be tested on the track at the same time since the ground station, using Type 7788-G, broadcasts the data all the time and each vehicle picks up the relevant ground station data after each test run and merges them with the in-vehicle data, using Type 7788-V.

The changed design, where critical WLAN communication takes place between PCs in the vehicles and on the ground immediately after each test run, delivers a system that is very robust against WLAN dropouts.

The LAN-XI-based system supports the use of GPS sample synchronization between the Type 3660-C100 in the vehicle and the Type 3660-C-100 on the ground.

DTS CAE Auraliser Type 8601-X

As Computer Aided Engineering (CAE) tools are used extensively throughout the vehicle design process, PULSE 19 now offers a new DTS CAE Auraliser Type 8601-X feature, which enables the NVH CAE team and Test engineers to share and develop ideas together.

DTS CAE Auraliser allows users to experience the results from a CAE Analysis within a virtual vehicle, providing:

DTS CAE Auraliser Type 8601-x is an optional module for the PULSE NVH Vehicle Simulator Type 3644 system or PULSE Insight Type 8601-S Insight. Type 8601-X creates DTS or Insight projects, sound objects, car models, and car assemblies directly from CAE predicted source strengths, frequency response function or contribution data files. Contributions from the various sources can be determined experimentally using source path contribution tools.

- Realistic context, including visual representation of the road
- Presence of other sound/vibration components of the vehicle
- Interaction with vehicle controls, including accelerator pedal, gear shift and brake
- Test-based data for Hybrid Modelling
- Combined results from other CAE analysis software
- Ability to instantly compare sounds (and vibrations) back-to-back

PULSE Sound Power

- PULSE Sound Power Type 7799 has been updated to be specifically for free-field measurements including a new template for sound power determination on vacuum cleaners according to IEC 60704-2-1
- PULSE Sound Power in Reverberation Room Type 7884 is a new product for the determination of sound power in accordance with ISO 3741, ISO 3743-1 and ISO 3743-2
- PULSE Sound Power using Sound Intensity Type 7882 is a new product. It enables the determination of sound power based on standards ISO 9614-1, ISO 9614-2 and ISO 9614-3
- PULSE Small Wind Turbine Acoustic Sound Testing according to BWEA and AWEA Type 7915 is a new product

T-server Support in PULSE LabShop

T-Server support in PULSE LabShop allowing forwarding the data acquisition time data samples from a PULSE Master unit over the LAN to a subset of PULSE Clients receiving the data. For more information, please contact your local Brüel & Kjær representative.

Features and Enhancements

GPS Synchronization

LAN-XI frames (Types 3660-C-100 and 3660-D-100) now have a built-in Global Positioning System (GPS) receiver, enabling accurate synchronization of multiple front-end data acquisition systems. This allows engineers to distribute several data acquisition systems over a large physical area and record data, without the requirement for full data transfer capacity between stations, making it idea for applications such as:

- Fly-over acoustic testing in wireless configurations
- Helicopter ramp testing
- Explosion testing where large distances are required between measurement points
- Underwater surveillance

FIR Filters

- All LAN-XI modules are now using decimation filters based on FIR concept, instead of IIR filters used previously. As a result, the absolute phase is now linear
- All LAN-XI modules can now be used together at any bandwidth they support. Previously, with PULSE Data Recorder Type 7708 and Test for I-deas, it was not possible to go below 1600 Hz bandwidth when mixing different modules in a system
- Recordings with different sample rates from multiple, independent PULSE systems on the same PTP, or using GPS synchronization, can be analyzed in PULSE Reflex
- Cross-spectra and similar phase-sensitive analysis can be made across different acquisition systems
- Recordings made with different f_s can be compared, with cross-spectra and phase available

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NOTE:

IDA^e modules will continue to use the IIR filter topology and as a result, mixed-mode acquistion (LAN-XI/IDA^e) are no longer possible

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Orbit and Polar Plot for PULSE WT-9695

This application installation is incorporated in the standard PULSE installation.

WT-9695 consists of a collection of components based on the PULSE LabShop data acquisition platform and allows display of measured vibration on any bearing or direct shaft movements in circular plots consisting of:

- Orbit Plot: allows you to display the shaft displacement relative to its bearing using the two time signals of an X-Y proximity probe pair measured by an FFT or Order analyzer. It supports time, enhanced time and time from multi-buffer
- Polar Plot: mostly used to display a signal 1st and 2nd complex order slice during run-up/down showing amplitude and phase as a vector plot
- Shaft Centre Line Plot: shows the DC position of the geometrical centre of the shaft during run-up/coast-down. Basically, it is the proximity probe DC-component from an X-Y probe pair shown in a vector plot as a function of the RPM

Noise Source Identification Type 7752

Type 7752 has now been incorporated into Acoustic Test Consultant Type 7761.

PULSE Advanced Intensity Analysis Type 7759

Type 7759 has now been incorporated into PULSE FFT & CPB Analysis Type 7700/7770/7771.

PULSE Acoustic Test Consultant Type 7761

This now has a dedicated template for wind tunnel beamforming.

Array Acoustics Post-Processing

General improvements include calculations of 1/12th octave, predefined sound power areas and sound field exclude areas using virtual reference technique.

PULSE Sound Power

Several enhancements have been to PULSE Sound Power:

- Documentation on the Sound Power ISO 3744 application has been added
- The ISO 3745 free-field report's Sound Power sheet has been improved with color coding of columns
- The import format for sound power reverberation chamber method RT60 now supports PULSE ASCII
- The relative background noise check has been added to ISO 3744:2010

PULSE Reflex Telephone Testing Type 8770

Type 8770 is an application for audio performance testing of telephones. The following standards are supported: 3GPP2 CS.0056-0, 3GPP TS.26.132, ITU-T Rec. P.862 and ITU-T Rec. P.863.

PULSE NVH Vehicle Simulator Type 3644 system or PULSE Insight Type 8601-S

Major New Features

- **Mixed sampling rates:** DTS/Insight now supports two sampling rates: 512 Hz for vibration or low-frequency sound and 44.1 kHz. This offers an opportunity to significantly reduce the size of the models and also enables the use of fine resolution filters and real-time spectra on low-frequency/vibration data
- **Change modeller:** This tool creates a set of FIR filters as the ratio of all the common Event sound objects in two car models and applies it to the corresponding Event sound objects in a third car model. While primarily included to calculate CAE-based change models, it also has some interesting potential applications for test-only models
- **Multi-display visuals (8601-A):** This is a significant new feature which allows the user to set up multiple windows, each having its own window and visual settings. The latter includes heading, offset, pitch and roll for each camera. The number and size of the windows are only limited by the performance of the graphics card. This capability enables the user to set up scenarios that are much more realistic, both visually and for the sensation of speed. It also has built-in support for Scalable Display Manager™ from Scalable Display Technologies, which automatically warps and blends the images in a multi-projector setup to provide a highly immersive, distortion-free display with correct perspective on a curved screen
- **Multi-channel simulations:** Channel mapping is now fully supported through the application so that the standard versions of DTS/Insight can be used in a Full Vehicle Simulator setup. As well as enhanced channel mapping, new features include real-time spectra for any output channel (1 – 8), Equalisation extended from 2 to 8 channels and intelligent switching of real-time displays in the Mixer
- **Camshaft sensor signals:** DPT now has pattern recognition for using camshaft sensor signals
- **Direct import from SPC of both data and model:** DPT (NVH Simulator Data Preparation Tool Type 8601-K/L) now has direct import from SPC of both data and model

Other Enhancements

- **Hot keys (8601-A):** To control auto-steer, reset car, enable traffic, display dials on visuals
- **DOF:** Excitation and Response point DOF information is used in CAE-based models and change modelling and is stored in the metadata of each sound object
- **Crackle sound object:** A new sound object to simulate the crackle and popping of an exhaust system during overrun
- **Shift click options:** For the highlighted sound objects, the new options are: calculate the sum and store in the next level up in the tree, delete the sound objects, auto-load them into the Compare Contribution display, Export Source Strengths and FRFs
- **Visuals (8601-A):** 64-bit visuals with significant performance improvements
- **Export contributions:** Export an XML file defining the Source Strength wav files and a single universal file containing all selected FRFs
- **GUI tidy-up:** Simplified GUI and new icons in Assign Data
- **Comparative displays:** General improvements for events
- **Mixer:** Presets to allow user predefined switching of multiple sound objects

General PULSE Reflex

New Start-up Dialog

The start dialog has been redesigned to provide three options to start up: New project, Open project and Import project. The functionality is the same as the corresponding features in the main menu. You can also select a database at start up, as well as perform changes to your licenses.

Improved Main Menu

The main menu has been slightly restructured, bundling the following functionality in one view: New Project, Add Application, Open Project, Save Project As, Export Project, Import Project and Delete Project. This brings functionality closer together, reduces clutter and shortens the number of main menu items.

- **New Project** now allows you to start new empty projects based on any desired application, not just the currently active one

- **New Project** also combines new project from standard application and new project from template. Templates are shown/grouped with related base applications. Templates based on several applications are grouped according to the application that was active when the template was saved/created
- **Add Application** is basically the functionality earlier provided by the list of applications in the main menu
- **Open Project** combines recent/pinned and open project; that is, there is now only one view to open projects. The search feature allows you to quickly pick projects from databases with many projects
- **Save As** now combines save as project under new name and save as template. Also, the view shows existing projects and templates. Previous dialogs only provided the text-box for entering the name
- **Export** and **Import** as well as **Delete** are as known, but now in this common location

Help Centre

PULSE Reflex online help is now HTML based which, not only gives it a new look, but also offers new capabilities, for example, links to videos on functions and features of PULSE Reflex applications. The new implementation gives us much greater flexibility to add new material accessible via links to web pages, which can, in future, include application notes, case studies and FAQ.

PULSE Reflex Core

Recordings from Multiple Systems

Recordings from multiple PULSE systems on the same PTP, or using GPS synchronization, can be analysed in PULSE Reflex

PULSE Reflex NASTRAN FE Interface Type 8718-A

- Possible to import MSC NASTRAN .op2 files containing a reduced mass matrix and/or stiffness matrix without containing the geometry by simultaneously importing the corresponding geometry file in .op2, .bdf, or .dat format
- Complex modes (MSC NASTRAN .op2 files) are now shown in the Project Browser and in the mode tables as one complex mode with damping instead of as two real modes
- Mode scaling is now listed in the mode tables for MSC NASTRAN .op2 files

PULSE Reflex ABAQUS FE Interface Type 8718-C

Import of force response spectra (displacement, velocity and acceleration) from .odb files

PULSE Reflex Geometry Type 8719

Move and Copy During Creation

Move (translate, rotate) and copy (linear, radial) operators for CAD shapes and meshes. The following can be moved and/or copied:

- CAD Shapes: Curves, surfaces, solids or whole compounds
- Meshes: Nodes, elements, tracelines, coordinate systems or whole meshes

Easy movement using interactive handles for translation and rotation in display. Manual translation/rotation using coordinates also possible

New CAD Curves, Surfaces and Solids Added

- New Curves: Polyline, interpolation spline and control points spline
- New Surfaces: Triangular, polygon, interpolation spline and control points spline
- New Solids: Cone and Conical frustum

New Node Creation Tools

- Dynamic insertion of nodes into tracelines
- New user interface for entering node coordinates

Arrow Animation

Arrow animation is now available for deformed/undeformed geometry, contour, wireframe, solid edge, solids. Define arrow head fill, size, colour and thickness in geometry properties.

AVI Codec Selectable

You can select your preferred codec for AVI generation (previously Cinepak codec was hard-coded). To enable selection, go to main menu > Options > Geometry Display. Under Video tick box "Show Compression Options". When an AVI is saved, a configuration dialog appears where you can select between all video for Windows (VfW) enabled codecs installed on PC. Defaults: Cinepak on x86 (32-bit) or MS Video 1 on x64 (64-bit).

> **NOTE:**
> Licensing issues prevents redistribution of alternative codecs.

Decimation Using Sensor Locations

Decimation of FE models to test models using sensor locations from the reduced mass or stiffness matrix supported

- A reduced mass matrix and/or a reduced stiffness matrix corresponding to the candidate sensor locations on the test model (A-set nodes) can be exported in .op2 format from MSC NASTRAN and imported into PULSE Reflex using FE Interfaces Type 8718-A
- In the Geometry Decimation task, the reduced mass/stiffness matrix is either dropped on the imported FE model in the display, or they are both dragged simultaneously into the display. The A-set nodes are automatically highlighted on the FE model and can be selected and connected with tracelines and/or elements for easy creation of the test geometry model

PULSE Reflex Modal Analysis Type 8720/21

Measurement Filter

If a test has been performed in Modal Test Consultant Type 7753 using several measurements, this information is now transferred to Reflex Modal Analysis 8720/21. A Measurement filter will appear in the Measurement Validation, Parameter Estimation Setup, Mode Selection and Analysis Validation tasks. For a selected measurement - or all measurement(s) - you can, for example:

- Animate the DOFs
- Examine the FRFs
- Show mode indicator functions, synthesis functions, complexity plots and AutoMAC according to selection

Improvements in Synthesis

- Addition of Annotations: Synthesized FRFs and error functions in the Project Browser now include annotations -Synth and -Error as suffixes. This facilitates easy comparision of data when shown in, for example, User-defined Layouts task
- Improved Synthesis Reporting: Reported displays now include the synthesized FRF graph (in addition to the measured one) when reporting from the Mode Selection task. Displays will also include error function, if it is shown during report generation

Improvement to Type 8721 Only

New faster, more robust and easier to maintain AFPoly^{TM} modal parameter estimation algorithm. The same algorithm is now used in PULSE Reflex and Test for I-deas (TFI) to ensure consistent results across platforms.

PULSE Reflex Correlation Analysis Type 8722

Performance Improvements

Improved bookkeeping of the time-consuming SEREP calculations to remove non-required calculations.

PULSE Reflex ODS Analysis

- Support of order spectra in spectral ODS
- New unique ODS icons in user interface, for quick identification of ODS projects and tasks

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Tips and Troubleshooting

General PULSE

Objects in the PULSE user interface are not sized correctly

Windows® allows you to increase the size of user interface elements (text and other items) to make it easier to read items on the screen. This is not supported by PULSE. For Windows® 7 or 8, open the Display control panel and select **Smaller - 100%**.

Computer with Radeon graphics card freezes

Open the Catalyst Control Center by right-clicking on your desktop. Then select **Crossfire** and uncheck **Enable CrossFire**.

Settings are changed when old files are loaded into PULSE Reflex

Some settings may be lost when loading files created in PULSE Reflex 14.1.

HASP dongle flashing

The LED blinking might be caused by the firmware upgrade that is automatically performed by the driver when you plug the key in the first time.

If, after 20 to 30 seconds, the dongle doesn't stop blinking, then there is a problem with the dongle's firmware update. To fix the problem:

- Make sure that the PC has an Internet Connection
- Plug the key into an another USB port

If that doesn't help you can:

1. Unplug the Key
2. Go into Services (Open the Control Panel via the Start Menu, then open Administrative Tools>Services)
3. Restart the "Sentinel HASP Business Studio Server" and "Sentinel HASP License Manager" services
4. After restarting the services, plug the Dongle into the USB-Port and check ACC to see if the dongle has been recognized. To check ACC, open http://localhost:1947 and click *HASP Keys*. If your key has been recognized it should be in the list with a location marked as *Local*.

Migration of PULSE Databases when upgrading from 14.0 or older

On the SQL Installation Troubleshooting page of the Brüel & Kjær support site, you can find information and troubleshooting on the installation and migration of PULSE Databases.

Performance decrease while using a processor with Hyper Threading enabled

Some computers using Intel Hyper Threading (HT) technology might feature lower than expected performance. This may be caused by the overhead induced by the virtualization involved in HT and can be solved by disabling this feature; usually in the computer BIOS.

"Object library invalid or contains references to object definitions that could not be found" message appears while using Microsoft® Office

The problem is with VBA when automating Microsoft® Office applications and can be introduced after upgrading to a newer Office version or through a Windows® security update. Affected applications, such as PULSE Balancing Consultant and Sound Power, that use VBA to generate reports will fail to do so. To correct the problem, we suggest that you follow the instructions given here: MS08-070: Vulnerabilities in Visual Basic 6.0 Runtime Extended Files (ActiveX Controls) could allow remote code execution

If you are using Office Visual Basic for Applications, you may also need to delete the cached versions of the control type libraries. To do this, search your hard drive for ".exd," and delete all the .exd files. The .exd files will be re-created automatically using the new controls the next time that you use VBA.

OLE dispatch error while putting a graph into 64-bit Microsoft® Office 2010

PULSE cannot make reports including Modern Displays (GCX) when using 64-bit Office 2010.

Anti-virus program issues

Warnings Appearing when Using PULSE

A computer security program, like F-Secure®, Norton™ AntiVirus or Symantec™ Endpoint Protection, may report a malicious program attack while PULSE is running. The computer security program is interpreting PULSE's attempts to access system parameters as malicious activity. The computer security program should be configured to ignore these attempts. This is usually achieved by adding the specific PULSE application program to the security program's trusted programs list, or by clicking the **Always allow** checkbox in the malicious activity report.

Unexpected Program HALT

Some security programs can interrupt the normal operation of PULSE, causing an unexpected HALT. The security program can, in some cases, even take charge of your computer's CPU process priority, interrupting the running of a PULSE measurement. We recommend to first try the above-mentioned solution or stopping the security program. If nothing else works, you may have to uninstall the security program completely.

Performance Degradation

Anti-virus programs with built-in firewall functionality that scan network packages may cause performance problems affecting network throughput and latency. If the network scan program is required, you may want to detach the PC from the network while running PULSE and use only standard Windows® protection.

Communication error with front end: "Samples lost in input module"

In the event of communication error with the front-end, ensure that the netcard in the PC is set to "100 Mbps Full Duplex" instead of "Auto Negotiate" (Link Speed under Advanced Properties).

If this does not solve the problem, try rolling back the driver to an earlier version.

NOTAR: SD card formatting

Before making any recordings with a new SD card, it is strongly recommended that you format the SD card using the SD Formatter application provided by the SD Association.

Cards formatted in other devices, including Windows PCs, may not perform well enough to be used with NOTAR, and data loss may occur as a result. NOTAR will indicate this by aborting the recording and displaying **Slow SD card** and/or Error 402 under Status on the Recorder control page.

PULSE LabShop

SSR Analyzer error in Difference Distortion Mode

Generator level is incorrect in the first measurement after switching to Difference Distortion Mode.

Japanese characters

Certain Japanese characters (オッケイウス) might not be treated correctly in Signal Names.

No data from CAN logger visible

Depending on access rights (no full administrator), CAN BOX installation fails to install in the right locations.

Workaround:

With Windows® 7, 32-bit:

1. Start command prompt with administrative permissions: Start menu > Command prompt (right-click) > Run as administrator.
2. Enter the following command: *Reg.exe FLAGS "HKLM\Software\CANbox" SET DONT_VIRTUALIZE*.
3. Reboot the computer.
4. Setup the CANbox IP address in the control panel.
5. Setup CAN Logger: Start menu > PULSE > Applications > CAN > Can logger.

With Windows® 7, 64-bit:

1. Start command prompt with administrative permissions: Start menu > Command prompt (right-click) > Run as administrator.

2. Enter the following command: *Reg.exe FLAGS "HKLM\Software\Wow6432Node\CANbox" SET DONT_VIRTUALIZE*.
3. Reboot the computer.
4. Setup the CANbox IP address in the control panel.
5. Setup CAN Logger: Start menu > PULSE > Applications > CAN > Can logger.

When installing a new PULSE version, new firmware might have been installed for the CAN BOX. This firmware has to be loaded into the CAN BOX. Open the CANbox configuration by double-clicking on the CANbox icon in the control panel. If new firmware is available, this will be shown as a tickmark on the *General* tab.

Changing the transducer in a project might lead to a wrong unit in your data

When changing the transducer on an input in the configuration organiser, the unit might change to V. To avoid this problem you can either change the transducer in the Hardware Table or change the transducer in the Configuration Organiser by removing the current transducer and adding the new transducer.

PULSE LabShop misses first part of recording

The PULSE LabShop recorder misses first part of recording when started with signal trigger on 30+ channel systems

Symptom: When using a signal trigger to start a recording with the recorder, some data is missing at the beginning of the recording. This has only been seen on systems with more than 30 channels, but could happen on lower channel systems too.

Solution: The channel used for the signal trigger should be the lowest possible channel according to the Harwdare Setup table or Configuration Organiser.

Analyzing recordings at maximum speed

On some systems and project configurations, an overrun (CPB) or failed overlap (FFT) might occur when analysing data recordings at maximum speed.

To check for these failures you can look in different places:

• In the Measurement Organiser, the analyzer icon will turn grey
• In Classic Display, "Overrun" or "Overlap Failed" will be displayed in the readout pane
• In the Modern Display, if the "overrun" or "overlapFailed" attributes are added to the readout of Modern Display they will display "yes"

PULSE LabShop Applications

Sound Power: SP Directive 2000-14 EC

In some cases the Directive 2000 sound power template opens but when you try to open the Excel workbook, nothing happens. This may be because a "restriction policy" on ActiveX controls has prevented the execution of the MSComDlg.CommonDialog - the control that is used to show the Open File dialog. To solve this problem you need to modify the registry:

1. Run Regedit.exe.
2. Backup the registry settings using **File > Export** before making any modifications.
3. In the registry, find HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Internet Explorer\ActiveX Compatibility\ {F9043C85-F6F2-101A-A3C9-08002B2F49FB}.
4. Right-click on Compatibility Flags.
5. Set *Value data* to 000 (hexadecimal) and click **OK**.

If you cannot find the registry key (perhaps be because you do not have access), please contact your administrator.

See http://support2.microsoft.com/kb/240797 for more information.

PULSE Data Recorder

Maximum Track Length

The maximum track length for recording is 2^31/(sample rate) seconds (for example, 8192 seconds at 262,144 Hz sample rate) **Workaround:** Divide the recording into more tracks.

Problems starting PULSE Front-end Setup

It is possible to start the PULSE Front-end Setup from inside Time Data Recorder. However, you are limited to the type of hardware you can switch between. So when using IDA^e frames, you can only change to another IDA^e configuration, and when using LAN-XI modules, you can only change to another LAN-XI configuration.

PULSE Data Manager: crash in Word 2013

When reporting in Word 2013, manipulating PULSE Data Manager tables may cause Word to crash.

Array Acoustics Post-processing: zoom errors

Manually zooming (Alt + Ctrl + Shift + Left Mouse + Move down) on result maps may cause data points, mesh lines and sound power areas to disappear from the maps.

Workaround: Zoom by right-clicking in the map, selecting **Decoration** and using the **Zoom** slider.

Psychoacoustic Test Bench BZ-5301: wav file playback button greyed out

While setting up or performing a paired comparison or semantic differential session in Psychoacoustic Test Bench BZ-5301, the buttons for playing the ".wav" files in the playlist may be greyed out.To fix, open the playlist file manually using **Jury Test**, found in Sound Quality Type 7698's **Tools** menu, and perform the playback from there.The name and location of the playlist file are found in the Perform Session dialog.

BZ-5828 VoIP Interface software: performance is outside specification

When using Windows® generic sound card driver the default settings of the volume for USB Sound Card ZE-0948 are insufficient for the application. As a consequence the VoIP Interface software is unable to provide the performance as specified, even though the information provided via the user interface would indicate that everything is working according to specifications.

General PULSE Reflex

HBM SoMat File Format

Import of *.sie files is only supported in 32-bit Reflex because the import library is only available in a 32-bit version. This also applies to â€œConvert and Importâ€ and the formats supported by that

Metadata

Metadata that only differs in upper/lower case text or trailing spaces in the name causes an error during save

Settings are changed when old files are loaded into PULSE Reflex

Some settings may be lost when loading files created in PULSE Reflex 14.1.

PULSE Reflex Telephone Testing

Executing the first test case

Before executing the first test case, please make sure that all test signals have been successfully calibrated. This is accomplished by performing the Electrical Calibration.

Error Message: Unexpected error while trying to remove equalization curves from data base

Under very rare circumstance a user might be confronted with this error message while performing mouth calibration. This error is caused by a corrupted PULSE transducer database (C:\ProgramData\Bruel and Kjaer\PULSE\Access\xducbase.mdb). The database, however, can be repaired using Microsoft Access or the ODBC Data Source Administrator (for further information see: http://support.office.microsoft.com/client/Compact-and-repair-database-files... .

In Access:

1. Open the transducer database - C:\ProgramData\Bruel and Kjaer\PULSE\Access\xducbase.mdb.
2. Go to the *Database Tools* tab and select **Compact and Repair Database Tools**.

In the ODBC Data Source Administrator:

1. Go to the *System DSN* tab and select the PULSE Transducer Database.
2. Click **Configure**.
3. Make sure that the *Data Source Name* is correct (PULSE Transducer Database).
4. Click **Repair**.

Windows®

Windows 8

PULSE Shortcut Menu

Over the years of PULSE, we have added many different applications, templates and tools to the shortcut menu. Unfortunately, the layout of the Windows® 8 Metro GUI displays all shortcuts simultaneously, making it very difficult to find the correct shortcut. To help fight this problem we have taken the following actions:

- Clean-up of Shortcuts: we have in general taken a hard look at the existing shortcuts and moved some to a dedicated tools group and, in a few cases, removed the shortcut completely (so the tool needs to be run directly from the hard drive)
- All shortcuts have been prefixed with a logical three-letter mnemonic sorting them in Windows® 8 and allowing the use of filtering in the shortcuts via the keyboard (key in the three letters and you only see these shortcuts)
- Individual applications can be pinned to/unpinned from the Start menu on the Windows® 8 desktop for easy access. Your selection is remembered for future PULSE software upgrades/reinstallations.

For Windows 8, we have a shortcut to an Explorer with the old Start Menu, making it easy for customers to re-find their shortcuts as in Windows XP and Windows 7 if this is preferred.

Windows 7

Unable to open saved PULSE project with large multibuffers

This applies to 64-bit Windows 7 (SP1) operating systems.

Occasionally, a PULSE project with large multibuffers that was created with an earlier version of PULSE cannot be opened. This can occur for projects with large memory usage because of a problem with address-conversion routines for 32-bit applications running on 64-bit operating systems.

Further details and a Microsoft® hotfix for the problem can be found by going to http://support.microsoft.com/kb/2588507 .

Using USB License Dongle with Remote Desktop Connection

When using a USB License Dongle on a PC that is connected to via Remote Desktop Connection, the Dongle will not be recognised by PULSE. This only applies to Remote PCs running Windows 7. To resolve this problem you should use a license locked to your PC. To rehost your license, please contact your local support representative.

> **HINT:**
> Using remote control software like Radmin (http://www.radmin.com/) can in many cases be a good solution to this problem.

Saved Files Disappear

Files saved in some folders, like the "Program Files" folder, may disappear. As a security precaution, Windows® 7 does not allow files to be saved under some folders. Even when the save seems to be completed, the file does not exist. Save the document to another folder.

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Resolved Problems

Application	Change Number	Version	Description
PULSE Reflex, Structural	STRUCT-3186	19.0.0	

Application	Change Number	Version	Description
			Fixed issue where multiple clicks were required to select a check box in the Function Selector.
PULSE Reflex, Structural	STRUCT-3183	19.0.0	Resolved issue where selection of rows, columns and the upper left corner of the Function Selector was not working properly.
PULSE Reflex, Structural	STRUCT-3180	19.0.0	Improved NASTRAN import to read some sparse matrices that failed previously.
PULSE Reflex, Structural	STRUCT-3130	19.0.0	Fixed some cases of Correlation crash when saving a project.
PULSE Reflex, Structural	STRUCT-3114	19.0.0	Fixed occasional crash when saving mode table after normalizing the mode shapes.
PULSE Reflex, Structural	STRUCT-3050	19.0.0	Resolved issues where animating a deflection shape of a 3D display did not match the animation of the 2D harmonic by making corrections to the 3D animation.
PULSE Reflex, Structural	STRUCT-3032	19.0.0	Corrected order, frequency and RPM information stored with deflection shapes sliced from order data.
PULSE Reflex, Structural	STRUCT-2955	19.0.0	Some linking errors in the help file have been corrected.
PULSE Reflex, Structural	STRUCT-2892	19.0.0	Import of Vibrant data is only supported for 32-bit versions of PULSE Reflex. It has been removed from the 64-bit application.
PULSE Reflex, Structural	STRUCT-	19.0.0	Internal format for geometry now stores large models more efficiently.
Sound Power	SP-759	19.0.0	The Sound Power for ISO 3743-2 is now reported correctly.
Sound Power	SP-699	19.0.0	The Directive 2000 template now opens correctly.
Sound Power	SP-681	19.0.0	Resolved format issues in Free field with emission - discrete tones.
Sound Power	SP-679	19.0.0	For the reverberation room method, the calibration and instrumentation are now included in the report.
Sound Power	SP-672	19.0.0	Sound power at reference conditions is now calculated correctly.
Sound Power	SP-669	19.0.0	In ISO 3744, the dB limit for additional points is now set to equal the number of measurement microphones.
Sound Power	SP-637, SP-655	19.0.0	Resolved issues concerning implementation of ISO 3744.
Sound Power	SP-615	19.0.0	Resolved issues concerning reference values in certain displays.
Sound Power	SP-604	19.0.0	Resolved issue of incorrect values of Lw(A)ref.atm and Lwref.atm in the Excel measurement report.
Sound Power	SP-578	19.0.0	Measurements in third octaves from 50 Hz to 10 kHz are now allowed.
Sound Power	SP-574	19.0.0	In ISO3744, one can now select ten additional microphones.
Sound Power	SP-556	19.0.0	Resolved issues with Tacho setup in EN 60704.
Sound Power	SP-554	19.0.0	The difference in the Reference report and the DUT report for ISO 3745 has been corrected.
Structural Dynamics	SD-1481	19.0.0	Resolved issue of square matrices being incorrectly identified with reference and response

Application	Change Number	Version	Description
			inverted. The user can now select any DOF as the reference.
PULSE LabShop	LAB-3742	19.0.0	Fixed issue with display of Level Statistics for more than one channel in the Overall Analyzer.
PULSE LabShop	LAB-3722	19.0.0	Fixed issue with wrong file length being shown in PULSE Time Edit.
LAN-XI Software/Firmware	LXISW-352	19.0.0	Resolved performance issues with multi-channel configurations.
PULSE LabShop	LAB-3813	19.0.0	Resolved issue of PTI files from 7701 sometimes containing incorrect sample frequency when opened in Pulse Time.
PULSE LabShop	LAB-3744	19.0.0	Resolved issue with limited bandwidth on large IDAe systems.
PULSE LabShop	LAB-3461	18.1.1	Resolved issue of incorrect $1/jw^2$ weighting in modern (GCX) displays.
Array Acoustics Suite	AAS-2190	19.0.0	Resolved issue of incorrect time annotations in Array Acoustics post-processing caused by the addition of a tachometer to array measurements.
PULSE LabShop, Material Testing	MT-175	19.0.0	Material testing is now in complete compliance with section 8.6 of ASTM E1050-12, the estimation of 1/3- and 1/1-octave results.
PULSE Reflex, Structural	STRUCT-2545	18.5.0	Geometry node IDs are now shown in all views.
PULSE Reflex, Structural	STRUCT-2659	18.5.0	Reporting of synthesis now includes synthesized FRFs and Error functions in addition to the measured FRFs.
PULSE Reflex, Structural	STRUCT-2712	18.5.0	Decimation of FE model to test model now serializes its state, so you can save and re-open a project and continue decimation.
Front-end Drivers	FED-84	18.1.1	Resolved issue of availability of IDAe driver for Test for I-deas 6.4.
PULSE LabShop	LAB-3819	18.1.1	Resolved problem with mixed-mode operation using LAN-XI/IDAᵉ hardware configuration.
PULSE LabShop	LAB-3750	18.1.1	Resolved issue with channel drop-out.
PULSE LabShop	LAB-3744	18.1.1	Resolved issue with limited bandwidth on large IDAe systems.
Array Acoustics Suite	AAS-2263	18.1.1	In Spherical Beamforming (FAS), the cause for error code -200 has been removed.
Array Acoustics Suite	AAS-2262	18.1.1	Instabilities in the mapping software, including crashes when using several displays or several results to the same display, has been resolved by upgrading our graphical library (Windows XP not supported).
Array Acoustics Suite	AAS-2190	18.1.1	Wrong time annotations in Array Acoustics post-processing due to the addition of a tachometer to array measurements has been corrected.
PULSE LabShop	LAB-3682	18.1.1	Fixed issue with support of CAN and GADI drivers.
PULSE LabShop	LAB-3670	18.1.1	Resolved issues with simultaneous firmware update of many modules.
LAN-XI Hardware/Front-end Setup	LXISW-352	18.1.1	Resolved performance issues with multi-channel configurations.
LAN-XI Software/Firmware	LXISW-2029	18.1.1	The software will now automatically detect when to invert the signal.
PULSE LabShop	LAB-2459	18.1.1	The fan battery control can now control multiple LAN-XI frames

Application	Change Number	Version	Description
PULSE Time Data Recorder (Type 7708)	PLT-3644	18.1.1	Fixed issue with bad *.pti files with 12-channel IDAe modules
PULSE Reflex Core	CORE-4063	18.1.1	Fixed issue of incorrect levels in TDF files exported from Type 7708 and imported to PULSE Reflex
PULSE LabShop	LAB-3489	18.1.1	Fixed dropouts caused by radar repair in field pass-by
PULSE LabShop, DAQ-H	LAB-3555	18.1.1	Fixed broken T-Pulse Remote in DAQ-H (Data Acquisition and Handling Software)
LAN-XI Software/Firmware	LXISW-1988	18.1.1	Issue fixed: New LAN-XI hardware requires a software inversion of the signal indicating the presence of an SD card
PULSE LabShop	LAB-3407	18.1.1	All parameters for non-standard transducer types are updated correctly in the Transducer database
PULSE LabShop	LAB-3502	18.1.1	Fixed issue of Dyn-X modules inadvertently being set to 16-bit operation by Smart Start
PULSE LabShop	LAB-3408, LAB-3495	18.1.1	Fixed issues with invalid dates in .PTI-files generated by 7701 in multiple recorder mode, meaning they could not be read from PULSE LabShop or PULSE Reflex
PULSE LabShop, Configuration Organiser	LAB-3479, LAB-3499	18.1.1	Fixed issue with support of mixed-mode operation (LAN-XI + IDAe)
PULSE Apps, LAN-XI Front-end Driver for I-deas	VLIB-54	18.1.1	Fixed issue when using .NET 4.5 with Test for I-deas
PULSE Apps, GCX	LAB-3461	18.1.1	Fixed issue with calculation and display of $1/jw^2$
PULSE Reflex Core	PLT-3562	18.1.1	Fixed issue where for Chinese localization the default project naming was wrong and caused crashes
PULSE Reflex Core	PLT-3561	18.1.1	Fixed issue where pti files generated by PULSE Labshop could not be imported into PULSE Reflex with some regional settings
PULSE Licensing	PD-247	18.1.1	Fixed issue with the use of floating licenses: borrowed licenses now work correctly when the PC is disconnected from the floating license server
PULSE Installation	PD-243	18.1.1	Fixed issue with missing MSVCP110.dll (a prerequisite for PULSE)
PULSE Licensing	PD-237	18.1.1	Fixed issue of use of HASP4 dongles. See HASP4 and HASP-HL Dongles
PULSE Reflex Modal Analysis, Parameter Estimation Setup	STRUCT-2699	18.1.1	Fixed issue with crash on some PCs using Reflex Modal Analysis Type 8720 without Reflex Advanced Modal Analysis Type 8721. This could happen using PULSE 18.0 or 18.1, when going from the Measurement Validation task to the Parameter Estimation task
PULSE Modal Test Consultant	SD-1450	18.1.0	Resolved issue on Z-axis not being aligned between Short-time FFT displays in MTC-OMA
PULSE Reflex Modal Analysis	STRUCT-2642	18.1.0	Resolved issue of Reflex crashing if a Shape Table that was in use was deleted from the Project Browser
PULSE Reflex Modal Analysis	STRUCT-2637	18.1.0	Resolved issue of occasional bad results if a global solve was used before a local solve
PULSE Reflex Reporting	STRUCT-2553	18.1.0	Resolved issue of empty plots when reporting stacked displays
PULSE Reflex Reporting	STRUCT-2551	18.1.0	Resolved issue of reporting Stability Diagram when using metafile format

Application	Change Number	Version	Description
PULSE Reflex Reporting	STRUCT-2552	18.1.0	Resolved issue of reporting Complexity Diagram when using metafile format
PULSE Reflex Geometry	STRUCT-2573	18.1.0	Added support of Windows$^®$ 8 default media player for Geometry AVI files
PULSE Reflex Geometry	STRUCT-2638	18.1.0	Resolved issue with incorrect transfer of equations in BKG files into Reflex

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