PV-WAVE
by Perforce

PV-WAVE 2023.2 RELEASE NOTES

Sections

Introduction

This file contains a summary of technical changes for PV-WAVE 2023.2. For convenience, this file is provided online. A detailed list of all changes is available in the Update Notice. Documentation for the new features and keywords is available in the Online Help via the New Features link.

Note: PV-WAVE 2023.2 is a limited-platform release that targets Red Hat Enterprise Linux 8. For other platforms, continue using PV-WAVE 2023.1.

This document contains a brief overview of new features.

PV-WAVE 2023.2 New Features and Enhancements

- Red Hat Enterprise Linux 8 / GCC 8 is now supported.
- Linux: PV-WAVE is now built with GCC, removing a dependency on the Oracle Solaris Studio Runtime.
- Linux: SSL_connect now uses a local system OpenSSL library.
- Linux: Upgraded PV-WAVE Database Connection support on Linux from Oracle 11i to 19c.
- Interapp examples leverage CMake for their build infrastructure and have been reorganized to align better with the documentation.

PV-WAVE 2023.1 New Features and Enhancements

- SSL_connect was upgraded from OpenSSL 1.1.0f to 1.1.1s
- HDF4 was upgraded from HDF 4.2r0 to 4.2.15.
  - This includes updating dependent third party libraries required by the HDF4 library.
- Windows: Socket operations have been updated to leverage the winsock2 library.
- Linux: PV-WAVE now uses a local system Open Motif library.

PV-WAVE 2017.1 New Features and Enhancements

- Linux: Linked Open Motif library updated from 2.3.6 to 2.3.8
  - Improved stability.
  - Fixed segmentation faults associated with option menus or other popup windows.
  - Improved support for other Linux distributions that are based on either the 3.10 kernel and 3.12 kernel.
- Added a system variable, `!WAIT_FOR_INPUT_IDLE` to work around high CPU consumption experienced on Windows for certain intensive plotting applications.
- General Quality Improvements
  - Fix for operating system commands executed in wavewin2.exe causing PV-WAVE MFC application to stop working.
  - Fix inconsistent alignment when printing on Linux.
  - Wave home window stays open if the license is expired until the user hits any key to continue.
- Added a system variable, `!CPR_OFFSET` to fix 64-bit compiled user-written procedures and functions containing recursive calls to the EXECUTE function from crashing when called from 32-bit PV-WAVE on Windows.

PV-WAVE 2017.0 New Features and Enhancements

- Added support for Windows Gestures in the drawing area widget.
  - PV-WAVE drawing area widgets running on a Windows touch screen can intercept, interpret and implement the following gestures:
    - Panning
    - Press and Tap
    - Zoom
    - Rotate
    - Two Finger Tap
  - Example code, with comments, for using gestures can be found in `RW_DIR\wave\demo\gestures` along with a useful README file.
  - More information is available in the PV-WAVE Online Help in the Reference Guide entry for the routine `WtAddHandler`.
- "Legacy" gestures are now supported in all Windows PV-WAVE widgets.
  - "Legacy" gestures are those in which a finger touch simulates traditional mouse input. PV-WAVE GUI applications which set up event handlers for mouse actions will automatically pick up finger touches as mouse events when run on a Windows touch screen.
  - PV-WAVE widgets which automatically accept mouse input such as scroll bars, buttons, etc. automatically respond to finger touches when run on a touch screen with no event handlers required.
- New VTK7 OPI module
  - Based on the familiar API used by the VTK OPI module

    - Supported on Windows and Linux (32 and 64-bit)
    - Improved rendering engine that uses less system memory and increases performance.
    - Optimized 3D plots and improved the quality of rendering significantly.
- Added two new system variables to modify the look and feel of Windows Widgets.
    - `!WIN_FLAT` – eliminates the default 3D appearance of Windows widgets such as buttons, text fields, etc.
    - `!WIN_NO_BORDER` – Eliminates the default borders around Windows GUI elements.
    - These new system variables are used separately or together to globally transform the appearance of existing PV-WAVE Windows widget applications into the new, flat style of Windows Metro applications.
- SSL_connect OPI is now part of the general installation
    - Was previously only available by request.
    - Listed under "Optional Toolkits" in the installation.
    - See the documentation for `SSL_CONNECT_LOAD` for more information.
- General Quality Improvements
    - Includes a fix for the annoying Windows Home Window line splitting issue.
    - Updates for the `DC_READ_FREE` routine.
        - Improved accuracy of the `Nskip` and `Nrecs` keywords when used in conjunction with the `Ignore` keyword strings `$BLANK_LINES` and `$TEXT_IN_NUMERIC`. Lines which should have been ignored were included in the `Nskip` and `Nrecs` counts, leading to incorrect output.
            - Since this is a change in behavior, you must use the two new `Ignore` keyword strings `$NRECS` and `$NSKIP` to activate the new, more accurate behavior. See the online documentation for the `DC_READ_FREE` routine for more information.
        - Added some internal tests to speed up processing of files with many ignored values.

PV-WAVE 2016.1 New Features and Enhancements

- `RELEASE_NAME` tag added to `!VERSION` system variable.
    - Allows correlation of new release name format with previous releases.
- New PHOTO OPI module
    - Based on the familiar API used by the IMAGE OPI module
    - Supported on 64-bit platforms
    - Supports larger pixel data types
    - Improved performance and error checking
    - Enhanced features
        - Read Series of images
        - Specify Region of interest (ROI) during read
    - Positions PV-WAVE for future image format additions.
- Improved JWAVE connections
    - Better recovery from Java 8 and browser security interruptions.
- Switched to CLANG compiler on macOS
    - This default macOS compiler now used for all builds.
- Updated documentation, example code and interapplication demos
    - Improved accuracy
    - Documentation example code can be run unmodified at the PV-WAVE

prompt
    - Updated Interapplication demo documentation and utilities for usability and new compilers.
- Linux and macOS: Linked Motif library updated from 2.3.3 to 2.3.6
    - Improved stability and availability
    - The Linux Motif library and the source code used to create it are now included in the installation. See the *Linking External Applications* section of the **Installation Guide** for details.
- General quality improvements

PV-WAVE 12.0 New Features and Enhancements

- Changed Linux 32 and 64-bit compilers to Oracle Solaris Studio 12.4
    - Resolves floating point accuracy issues with the default GNU compiler.
    - A discussion of the system libraries required by this change is in the *Unix/Linux Installation* section of the **Installation Guide**.
    - This change required the addition of two environment variables in the `wvsetup` file. If you use a custom `wvsetup` file you must re-generate `wvsetup` using `bin/make_wvsetup` to avoid performance losses on multi-core, linux systems.
- Resolved Motif version conflicts for 64-bit Linux
    - We now statically link PV-WAVE with a custom build of OpenMotif 2.3.3
    - See the *Unix/Linux Installation* section of the **Installation Guide** or the *Interapplication Communication for UNIX* section in the **Application Developer Guide** for more details.
    - Resolved excessive refreshing of the `WwList` widget by making use of bulk changes when updating the list contents.
    - Now the default behavior of `WwSetValue` for list widgets.
    - Read the NOTE in the Online Help for `WtList` and `WwListUtils` for coding tips to avoid excessive refreshing when using these routines.
- Improved precision of the `MEDIAN` function
    - Calculations are now performed using double-precision floats.
    - Return type is converted to single-precision floats to maintain backwards compatibility with previous PV-WAVE versions. Use the `Same_type` keyword to get back different data types.
- HPGL and PCL display drivers deprecated.
    - When you use these drivers you will see a message instructing you to contact Rogue Wave support if you wish to register a request that support be continued for these drivers and to receive instructions for disabling the message.
- JWAVE Client configuration improved.
    - Better automatic discovery of server connection information.
- JWAVE Server configuration improved to allow cloud-based servers.
    - `SERVER_IP` parameter added to Manager Configuration Properties
    - Added additional, internal methods to determine correct server address.
- Promoted `SIZE0F` user library routine to standard library.
    - A handy routine to determine the size of PV-WAVE variables.
- Upgraded ImageMagick libraries used by the image module from version 3.7.3 to version 6.9.2-7.
    - Updated various embedded libraries for specific image types.
    - Improved speed when reading images.
    - Improved accuracy of color management.

    - Expanded output from `Verbose` keyword to `IMAGE_READ`.
    - The `Unmap` keyword for the `IMAGE_READ` routine is now ignored as its former behavior is now the default. See the *Deprecated Routines* section of the **New Features Guide** for more information.
    - The `Order` keyword for the `IMAGE_READ` and `DC_READ_TIFF` routines is now ignored as the proper image orientation can be determined from information contained in the image file. See the *Deprecated Routines* section of the **New Features Guide** for more information.
    - NOTE: This version of ImageMagick has been reported to contain a vulnerability related to interaction with the UNIX shell. With a fix for ImageMagick not available at this time, we disabled this functionality in the ImageMagick library used by PV-WAVE thereby eliminating the vulnerability.
- Improved handling of DICM files.
    - Improved speed when reading images.
    - Improved image tag handling.
- Improved handling of invalid data values in the PL0T commands.
    - Data ranges are correctly set.
    - Invalid values are properly ignored.
- Improved uninstaller on Windows platforms.
    - No longer requires Java installation.
    - Leaves fewer directories behind after uninstallation.
- General
    - Addressed multiple customer-related issues and improvements.
- Platform Updates
    - Added support for Windows 10.

Customer Support

If you have questions installing or using any PV-WAVE product, contact Perforce Technical Support.