



PV-WAVE

Release Notes, Version 2017.1

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Introduction

This file, PV-WAVE2017.1_Release_Notes.pdf, contains a summary of technical changes that make PV-WAVE Version 2017.1 (V 13.1) different from previous versions. For convenience, this file is provided online. A detailed list of all changes is available in the Update Notice (PV-WAVE2017.1_Update_Notice.pdf). Documentation for the new features and keywords is available in the Online Help via the New Features link.

This document contains a brief overview of new features, followed by information on operating system levels and hardware requirements for this release.

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 `SIZEOF` 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 `PLOT` 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.

PV-WAVE Operating System Levels and Hardware Requirements

Operating System Levels

The following operating systems are supported for PV-WAVE 2017.1. Refer to the Supported Platforms for additional details.

Operating System Level	Platform	PV-WAVE bit-size versions
MS Windows 7 SP1 /10	x86-64 (AMD64)	64
MS Windows 7 SP1 /10	x86	32
Red Hat Enterprise Linux 7.1	x86	32
Red Hat Enterprise Linux 7.1	x86-64 (AMD64)	64
SUSE Linux Enterprise Server 12.0	x86	32
SUSE Linux Enterprise Server 12.0	x86-64 (AMD64)	64
CentOS Linux 7	x86-64 (AMD64)	64
Solaris 10	SPARC	32 and 64

PV-WAVE may operate at down level versions of these operating systems, but differences in operating system versions may cause unexpected behavior. Down-level operating system versions are not supported.

PV-WAVE, for non-Windows platforms, requires the presence of both the X11 and Motif libraries.

Note for WINDOWS: The Windows DLLs in both the PV-WAVE kernel and the options have been built with the windows subsystem using Visual Studio 2013.

Contact your account manager if you are interested in an unsupported operating system level.

Support for Optional PV-WAVE modules

The following optional PV-WAVE modules are supported for PV-WAVE 2017.1 on select

platforms. Modules not listed in the table below are supported on all current PV-WAVE supported platforms.

Operating System	PV-WAVE bit-size versions	HDF (HDF 4)	ODBC Connection Toolkit	Photo	VTK7
Windows	32	•	•		•
Windows	64		•	•	•
Linux	32	•			•
Linux	64	•		•	•
Solaris	32	•			
Solaris	64			•	

• Supported for the PV-WAVE 2017.1 release.

Disk Space Requirements

The minimum installation requires 350MB and a full installation up to 950MB. Full installation includes all components and online documentation.

Compiler Compatibility

PV-WAVE supports the following compilers.

Operating System Level	Platform	C Compiler	Fortran Compiler
Red Hat Enterprise Linux 7.1	Linux (32/64)	Oracle Solaris Studio 12.4	Oracle Solaris Studio 12.4
SUSE Linux Enterprise Server 12.0	Linux (32/64)	Oracle Solaris Studio 12.4	Oracle Solaris Studio 12.4
CentOS Linux 7	Linux (64)	Oracle Solaris Studio 12.4	Oracle Solaris Studio 12.4
Solaris 10	SPARC (32/64)	cc (Forte10 - Sun C 5.7)	f77 (Forte10 - Sun Fortran 95 8.1)
Windows 7 SP1 / 8.1 /10 (32-bit) Windows 7 SP1 / 8.1 /10 (64-bit)	Intel x86/x64	MS Visual Studio 2013	Intel Visual Fortran Composer XE 2013 SP1

If no specific linker/loader is listed, the native linker/loader provided by the compiler is used. While PV-WAVE may compile and link using other compilers and linkers/loaders, differences in implementation for additional compilers or linker/loaders may cause aberrant behavior when used with PV-WAVE. If problems do exist, contact the vendor supplying the compiler or linker/loader, or switch to one of the utilities listed above.

Database Compatibility

The PV-WAVE Database Connection is supported with the following database systems.

Platform	Operating System Level	Oracle	Sybase
SPARC	Solaris 10	ORACLE 11.2.0.1	Sybase 12.0.0 (32-bit Solaris only)
Intel /Opteron	Red Hat Enterprise Linux 7.1 SUSE Linux Enterprise Server 12.0	ORACLE 11.2.0.1	

While this version of PV-WAVE may work at different OS levels and DBMS levels, differences in implementation for a different DBMS version may cause aberrant behavior when used with PV-WAVE. If problems do exist, contact the vendor supplying the DBMS, or switch to one of the versions listed above.

Additional database management systems may be connected to PV-WAVE. For more details, contact the Rogue Wave Consulting Group or your Rogue Wave account manager.

PV-WAVE Eclipse Plug-in 3.0

The Eclipse Plug-in requires Java JDK 1.8.0 or greater, and Eclipse Neon 2 SDK 4.6 or greater.

Java can be obtained from www.java.com.

Eclipse can be obtained from www.eclipse.org.

Customer Support

If you have questions installing or using any PV-WAVE product, contact [PV-WAVE Technical Support](#).