



**PV-WAVE**

**Release Notes, Version 2017.0**

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## Introduction

This file, PV-WAVE2017.0\_Release\_Notes.pdf, contains a summary of technical changes that make PV-WAVE Version 2017.0 (V 13.0) different from previous versions. For convenience, this file is provided online. A detailed list of all changes is available in the Update Notice (PV-WAVE2017.0\_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 2017.0 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 2017.0. 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 2017.0 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 2017.0 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

*\* Indicates an updated Operating System and/or Compiler for the PV-WAVE 2017.0 release*

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	

*\* Indicates an update for the PV-WAVE 2017.0 release*

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](http://www.java.com).

Eclipse can be obtained from [www.eclipse.org](http://www.eclipse.org).

## Customer Support

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