

V++ 5.0 New Features

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This is a list of the important new functionality for V++ 5.0. It is not a comprehensive list and features will be added and modified from time to time – updates will be made available on the Digital Optics web site.

Features shown in italics are still in development, all others have been implemented and tested as at the date shown above.

V++ Version 5.0 is available and shipping now.

Microsoft Windows Vista

- Verified Windows Vista 32 compatibility (with Sentinel driver 7.3.3 or above)
- Verified Windows Vista 64 compatibility (with Sentinel driver 7.3.3 or above)

Multi-Level Undo and Redo

- Multi-level undo and redo system for images and spectra, with unlimited levels
- Undo capability for display settings (BCG and display mode)

Image Tools

- New Polygon ROI tool for defining arbitrary shaped regions of interest
- New Drag to Scroll tool for easy scrolling of large images
- Auto scrolling for Select ROI tool
- Multi-region statistical operations (rectangular and polygonal)
- Multi-region clipboard operations (rectangular and polygonal)
- Image tools now selectable from the menu and from VPascal

Spectroscopy

- New full-featured spectroscopy support
- Ability to handle and display data in spectrum graph format
- Spectrum aware dialogs for intensity, geometry, math, conversion and other functions
- Support for spectrometer control (RCubed Software plug-in required)

Imaging

- Shape analysis with calculation of object intensity statistics
- Geometric warp (rectification) with linear, quadratic or cubic functions
- Modified nearest and bilinear resampling code to use exact zoom ratios
- Deep threshold option (retains foreground intensity structure)
- Image auditing function, using unique ID and digital signatures
- *Extended object analysis functionality with interactive features*
- *Deep histogram with variable binning*
- Text overlay capability on images

Built-In Spreadsheet

- Built-in spreadsheet tables with formula calculation and math functions
- Compatibility with Microsoft Excel files, formulas, and functions
- Full VPascal integration and spreadsheet control

XML Support

- New XML file format for images and spectra
- New XML capability for clipboard and data exchange operations
- Extensive XML processing functions available in VPascal
- User definable XML database attached to images and spectra

User Interface

- Simplified dialog button layout available as a user-selectable option
- Overhauled display code for faster operation
- Added display smoothing option for zoom tool (using interpolation)
- Overhauled printing code to match display changes
- *Advanced sequence viewer capabilities, with time coding*
- Improved and extended operation of automatic fit to window option
- Redesigned the Options dialog box and added Undo and System tabs
- Added timer resolution control to Options dialog
- Added "Auto Zoom" command to image context menu
- Added "Paste Here" command to image context menu
- Online help completely rewritten for version 5.0 and produced in Windows CHM format

File Formats

- Extensive support for XML file output (images, spectra and custom files)
- Support for spectrum-specific file formats (DXML, TIFF, BMP and others)
- Export images and spectra as formatted text (plain or CSV)
- Support for TIFF LZW decompression
- Support for JPEG EXIF data (using XML)
- *Advanced file import capability*

Custom Data Support

- Support for attaching user-defined structured data to images and spectra (as XML)
- All built-in attachments can be accessed and extended via the XML database
- Custom data is maintained in TIFF and DXML files without affecting compatibility

Languages

- Enabled language localization functionality
- Add language switching to the Options dialog box

VPascal

- VPascal protected modules allow you to share modules without revealing source code
- VPascal undo/redo compatibility (using StoreUndoInfo function)
- Multi-dimensional SVD matrix solver
- Send menu clicks from VPascal Execute function (with full or partial matching)
- Select default printer from VPascal
- Advanced TWAIN support functions
- Support for VPascal protected modules with private source code (*.vx)
- New functions to support spectrum operations
- New functions to support plug-in architecture
- New functions for polygon handling
- New functions for chord table handling
- New functions for spreadsheet handling
- New functions for XML data manipulation, input and output
- New flow control "exit" procedure

New developer, distributor and OEM features

- Profiled build capability to produce modified and cut-down OEM versions
- Plug-in architecture implemented
- Automatic online update checking
- New advanced upgrade system for security keys (including automatic and online upgrades)
- New security key scheme for product families, master keys, sales demo keys
- Recognition of demo mode and time expiry security keys
- Ability to permanently revoke lost and stolen security keys
- VPascal protected modules for distribution without source code
- Custom XML database capabilities

Bug Fixes

- Fixed DDE execute command parsing (now accepts file names containing delimiters)
- Fixed display mode problem for FFT undo/redo cycle
- Fixed memory error caused when undo space is limited
- Fixed display error where large images are not updated
- Fixed errors on resizing to or from single pixel rows and columns
- Fixed JPEG writer error which converted monochrome images to color when saving
- Fixed JPEG writer issue that caused slow performance when saving large image files
- Fixed scroll bar range errors caused by interactions with opposite axis
- Fixed display glitches when using high display magnification
- Fixed problems when selecting auto zoom to window size
- Fixed component error on image attachments dialog box
- Fixed component ancestor errors on all affected dialog boxes
- Fixed display glitches in Help menu
- Fixed file association problems in Windows Vista
- Fixed error restoring BCG settings in VPascal undo operations
- Fixed error messages when native language file missing
- Fixed intermittent errors in relational operations between a spectrum and a constant
- Fixed round-off error in Enhance tool box Gamma bar
- Fixed module recording for Create Display Image
- Fixed Export As AVI memory management error
- Fixed problem with AuditInfo clipboard function
- Fixed hang at end of video time lapse sequence capture
- Fixed spurious update indication at startup
- Fixed problem with update prompt dialog border in Vista
- Fixed installation problem with Help menu icons in build 478
- Fixed error when loading uncalibrated spectrum files
- Fixed topic commands in main help menu
- Fixed error that allowed multiple instances of the application to run
- Fixed error with dereferencing Windows shortcuts in Open dialog box
- Fixed toolbar buttons always opening image versions of dialog boxes
- Fixed PasteFromClipboard problem with regions and chord tables
- Fixed problem with flags getting stuck in invisible mode when deleted
- Fixed problem where Save and Save As functions for spreadsheets are greyed out
- Fixed out of memory error on 4-point mapping dialog and MapQuad function
- Fixed problem with DDE server callback command syntax
- Fixed issue with unmodified DXML files opening Save As dialog box on Save command
- Fixed problem reading indexed color images from DXML files