

PCC 2.0 Release Notes

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 PHANTOM[™]
when it's too fast to see, and too important not to[®]

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MATERIALS ANALYSIS DIVISION

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Part



1 PCC 2.0 Release Notes

The Phantom Help File offers everything that the earlier versions included and much more. Many of the users' requests have been implemented and many aspects of the various Phantom applications have been improved, without sacrificing familiarity and intuitive ease of use.

The question "What's new in Phantom Help" is not so easy to answer. The quickest answer would be that many new features have been added, some of them extremely powerful. We have listened to the feedback from our users and implemented all the most frequently-requested functions, plus many that you never even thought of but will not want to do without.

However, all these changes don't mean that the Phantom applications have become unfamiliar – on the contrary. Our top design priority was to maintain the "look and feel" of the programs and their highly-intuitive interfaces so that users upgrading will feel at home immediately.

This section outlines new features and improvements introduced in the various Help Files.

1.1 Phantom (PCC) Camera Control Application - Help

The following changes have been made to the Phantom (PCC) Camera Control Application - Help (Software Version 2.0.717.0), including:

- **New: Phantom Camera Support**

Support of the following Phantom cameras has been added to the Phantom (PCC) Camera Control application; Phantom v1610, v1210, Miro-M Series, v711, v611, v311, and v211.

- **Change: Phantom (PCC) Camera Control Application Splash Screen**

The Splash Screen has been redesigned. Also, the Copyright information has been updated on the PCC splash screen to reflect the years 1992-2011.

- **Change: Phantom Camera Setting Behaviour**

The Phantom v1610, v1210, and Miro M-Series camera settings are no longer explicitly read when the PCC/Phantom software starts. . (The messages "Phantom has detected a new camera or head and is preparing it for use on this computer. Press OK to continue," "Would you like to read the settings from camera?", should not be seen anymore for these cameras).

- **New: Phantom dlls for 32-Bit or 64-Bit PCC Application**

There are now two variants of the Phantom (PCC) Camera Control application: a 32-bit version (x86) and the 64-bit version (x64). Each variation uses a different set of Phantom dlls.

Presently only the Cine RAW, Interpolated Cine, AVI, Multipage TIFF (write only), and Quick Time formats are available for cines, and TIFF (write only), RAW, DNG and DPX formats for images are available with the 64-bit version.

NOTE:

The 64 bit variant is not fully implemented at the time of this writing: the file formats supported through Leadtools and the signal acquisition functions are not available.

- **Change: Phantom (PCC) Camera Control Improved Player**

The Phantom (PCC) Camera Control player it's has been improved by optimizing image refresh.

- **Change: Phantom v10 Enhancements**

Loading of the .stg file, and saving CSR (Current Session Reference) now takes less time.

- **Change: Toolbar Options**

The Save to File and Save All Cines From This Camera Buttons have been removed from the Toolbar.

- **New: Toolbar>Batch Convert Warning Message**

During the batch convert process a warning message will be displayed if the destination folder, of the files being converted, is not empty. It warns the user that existing files may be overwritten and asks for confirmation .

Examples:

1. Saving in C:\1\Tests and C:\1\Tests is not empty and nothing is written in the destination file name text box. Then the warning is displayed.
2. Saving in C:\1\Tests and C:\1\Tests is empty and nothing is written in the destination file name text box. Then the warning is not displayed.
3. Saving in C:\1\Tests and C:\1\Tests is not empty and t@2\img!2.jpg is written in the destination file name text box. Then the warning is displayed.
4. Saving in C:\1\Tests and C:\1\Tests is empty and t@2\img!2.jpg is written in the destination file name text box. Then the warning is not displayed.

- **Change: Toolbar>Image Tools Behaviour**

Changes made to the any of Image Tool settings will be persistent between sessions.

- **New: Toolbar>Image Tools>Advanced Adjustment**

With the addition of the Advanced Adjustments options the end-user can adjust:

- Flare (%) - A Flare slider can be used to adjust the Flare video adjustment.
- Pedestal - Adjusting the pedestal values redefines separate video monitor RGB (Red, Green, Blue) brightness adjustments. The Pedestal option allows the end user to adjust a percentage of the; Red Pedestal, Green Pedestal, and Blue Pedestal.
- Gain - Adjusting the R, G, and B gains can be used to increase or decrease the individual R, G, B, levels offset the inconsistencies associated with different devices reproducing a give R, G, B value differently.
- Gamma - Can be used to adjust the R G, B, (Red, Green, Blue) gamma settings to bring out details of the images by adjusting the non-linear relationships between the R G, B, signal levels and the brightness of their output, (a small signal level change at low voltage produces a larger variation in brightness than the same change in level at high voltage).

These setting only affect the video out. It may take some experimentation to get a feel for what the right adjustments are. Access to the Advanced Adjustments are dependent on the camera model the images in the preview panel or playback panel are being generated from, not all cameras support the ability to set the following Advanced Adjustments

- **New: Toolbar>Image Tools>Color Matrix**

The associated R-G, R-B, G-R, G-B, B-R, and B-G fields are the specific color matrix variables. G-R represents green into red, B-R represents blue into red and so forth.

These setting only affect the video out. It may take some experimentation to get a feel for what the right adjustments are.

- **New: Toolbar>Image Tools>Tone**

Tone is a lookup table that is applied to all three color (R, G, B) components that allow the end-user to convert any input value to any output value to create a tone curve applied to the images being outputted from the camera. The horizontal input is on the 0x axis while the vertical input is on the 0y axis.

The feature provides the end-user with the ability to specify a few intermediate points to create a unique tone curve and will immediately update the active tone curve and provide the end-user with visual feedback of the tone curve shape.

- **Change: Manager>Camera Group Refresh Process**

The camera pool refresh process will now be suspended when:

- Saving a cine,
- Performing a CSR, (Current Session Reference),
- Erasing Flash,
- Saving to Flash,
- Loading a .stg, (Serial Tag Number) file to Flash,
- Performing an automatic White Balance calibration, or
- Saving Continuous Recording cines.

- **Change: Manager>Delete Flash Cine Behaviour**

When erasing cines from a Phantom CineFlash the software provides the end-user with the ability to delete individual cines. A dialogue box will appear where thumbnails of the cines are displayed and cines can be deleted from. The end-user can choose to:

- Delete the selected cine,
- Delete All the cines stored on the Phantom CineFlash, or
- Format the Phantom CineFlash.

- **New: Manager>File Group Pop-up Window**

A pop-up selection window will appear when you right-mouse click on the File Group or a File Sub-Group allowing the end user to:

- Show Only This

When the Show Only This command is selected all cine files listed under the selected root group, including all files in any sub-group under the selected group will be opened in a playback panel.

- Remove All Files

The Remove All File command, is only available from the root file group. When selected all the cine files listed in the Manager Control Panel will be removed.

- Convert All Files

The Convert All Files command, when selected, instructs the software to convert all open files and select manually different processing and clipping for each one.

- **New: Preferences>General>Language Options**

A language pull-down selection list has been added to the Application Preferences that changes all menu and options to the selected language. As of the time of this writing there are two supported languages, English and Japanese.

After selecting the language, the PCC application needs to be restarted for the settings to be

applied.

- **New: Preferences>Camera Tab**

The Camera Visibility options along with the Show Images during Continuous Recording enable box have been moved from the Preferences>General tab to the newly added Camera tab.

- **New: Preferences>General Tab>Logging Function**

When the logging feature is enable the end-user can modify the path of the log folder where the log file will be saved.

- **New: Preferences>Measurement Tab Option**

A Unique Scale per Application enable box has been added to the Preferences>Measurement Tab. When enables each cine being measured can have its own unique measurement scale defined.

- **Change: Image Tools>Histogram Functionality**

The Histogram control includes the transfer function graphic and the Avg pixel value has been corrected to reflect full bit depth.

- **New: Image Tools>Color Interpolation Algorithm Pull-Down Selection List Option**

The Phantom Camera Control application allows the user to choose one of five color interpolation algorithms, (Best, Good, Medium, Fast, Fastest), that can be applied to the images being displayed in the Preview and Playback Panels.

- **New: Live>Camera Settings>Lens Control Feature**

The lens settings, for an EOS lens mounts will be refreshed whenever the lens has been removed or reinstalled.

- **New: Live>Name Field**

A Name data entry field has been added to the Live>Cine Settings option. The name assigned here will be the name of the cine when the it is displayed via the Manager Control Panel.

- **Change: Live>Cine Setting>EDR Functionality**

The EDR (Extreme Dynamic Range) feature will be disabled for Phantom cameras that do not support EDR.

- **Change: Live>Flash Memory>Erase Flash Behaviour**

When erasing cines from a Phantom CineFlash the software provides the end-user with the ability to delete individual cines. A dialogue box will appear where thumbnails of the cines are displayed and cines can be deleted from. The end-user can choose to:

- Delete the selected cine,
- Delete All the cines stored on the Phantom CineFlash, or
- Format the Phantom CineFlash.

- **Change: Live>Advanced Settings>Auto Options>Last Field**

Previously the Last field specified the image count, the total number of cine images used to create the cine file to be saved or viewed, starting from the image number defined in the First image field. It now defines the last image number to be used.

- **Change: Live>Advanced Settings>External Sync>Frame Delay Option**

Previously the Frame Delay option was unavailable, (inactive), when the Sync Imaging option was set to Internal. It will now always be enabled when Internal Sync Imaging is selected.

- **Change: Live>Advanced Settings>Aux Pin Is Options**

Previously, there were two options that the end-user could select from when connected to a Phantom Miro-Series camera; Strobe or IRIG Out. These options remain as-is for these cameras, however, if the connected camera is a Mirio M-Series camera the options change to; Strobe, Event, or Memory Gate.

- **New: Live>Auto Exposure Camera Support**

The Phantom v1610, v1210 and Miro M-Series camera models have different Auto Exposure features:

- Lock at trigger is always on.
- the Auto Exposure Area can be selected from Mode list options.
- the Auto Exposure level is replaced by a Compensation value.

- **New: Live>Auto Exposure>Lock at Trigger Option**

The Lock at Trigger option when enable, (check), instructs the camera to lock or set the exposure to the exposure value determined at the time a trigger signal is detected by the camera.

- **New: Live>Frame Rate Profile Options**

The Frame Rate Profile feature can be configured to ramp or step when the camera transition from one frame rate value to another value. These shapes will also be represented in the graphic below the Frame Rate Profile table. The number of different frames rates a camera can be configured for is no longer restricted to a mere five, (depending on the camera model). The number of rate changes will be now dependent upon the amount of memory in the camera, the resolution of the frames being captured, and the number of post trigger frames available.

The Ramp function operates for cameras with firmware greater than 742, and is also available for firmware greater than 565. For a single cine, it works only for a restricted number of steps, depending on the parameter's values

- **Change: Live>Continuous Recording Functionality**

Continuous recording will no longer show save errors, instead it will log them to an errors log. The end-user can open the log file by pressing the Errors Log button in the Continuous Recording panel..

- **Change: Live>Camera Info**

Camera Model information, displayed in parenthesis of the Hardware Version field, is now read from the camera itself.

- **Change: Live>Trigger**

The triggering process has been updated so that occurs faster when a soft-trigger is applied via the Trigger button.

- **Change: Play>Frame Info>Camera Model**

The Cine Info no longer displays the Camera Model, it still however displays the Camera Version.

- **New: Play>Save>Color Interpolation Algorithm Pull-Down Selection List Option**

The Phantom Camera Control application allows the user to choose one of five color interpolation algorithms, (Best, Good, Medium, Fast, Fastest), that can be applied during the Save Cine.. process if the file format selected is an interpolated one, that means other than a raw format.

- **Change: Play>Save Cine Option**

The software will now notify the end-use that a file being saved as a .mov (QuickTime) file will be

unusable if the end-user interrupts the saving process by continuously pressing the ESC key of the Phantom Control Unit computer.

- **Change: Play>Save Cine>Range Options**

The save file dialog window now contains a Range Option combo allowing the user to choose from:

- [Mark In, Mark Out] range
- Full range
- User defined range that allows the user to define a custom image range. the user defined image range is now described by first image number and last image number instead of first image number and image count.

- **Change: Play>Save/Convert Option**

The Save and Convert functions have been improved. If an error occurs during the save or convert processes a dialogue window will appear asking the end user to Retry or Abort the process.

- **New: Play>Frame Info>Time Option**

An SMPTE Time Code option has been added to the Frame Info>Time pull-down selection list.

Each cine stored in the camera's RAM, or from a file, contains an initial time code, that can be viewed, edited, and saved by the user, (see tables below). The RAM cines have an initial value that is read from the camera. The camera time code value is generated by an algorithm that depends on trigger time, acquisition frame rate and video playback frame rate.

The fields that compose a time code define the hour, the minute, the second and the image index in a second interval, based on the Time Code frame rate value.

Table 1: Displaying a Time Code

SOURCE	TIME CODE AVAILABILITY
Camera Cine	Always
CineMag Cine	Always
701 Cine File	Always
701 RAW Cine File	Always
701 cci (Compressed Cine) File	Always
< 701 Cine File	Always
< 701 RAW Cine File	Always
< 701 cci (Compressed Cine) File	Always
Other Supported Movie File Formats	Always
Image Files	Never

Table 2: Editing a Time Code

SOURCE	TIME CODE AVAILABILITY
Camera Cine	Always
CineMag Cine	Always
701 Cine File	Always
701 RAW Cine File	Always
701 cci (Compressed Cine) File	Always
< 701 Cine File	Always
< 701 RAW Cine File	Always
< 701 cci (Compressed Cine) File	Always
Other Supported Movie File Formats	Always
Image Files	-

Table 3: Saving an Edited Time Code

SOURCE	DESTINATION	SAVING
Camera Cine CineMag Cine 701 Cine File 701 RAW Cine File 701 cci (Compressed Cine) File	Cine, RAW Cine, cci (Compressed Cine) File	Inside the File
< 701 Cine File < 701 RAW Cine File < 701 cci (Compressed Cine) File	DPX	Inside the File
	Other Supported Movie File Formats	Inside the chd (Cine Header) File
	Other Supported Image File Formats	Inside the chd (Cine Header) File

- **New: Play>Measurements Selector Options**

There are three new buttons in the Play>Measurements>Calibration options area: Copy, Paste, and Set to All. These button can be used to copy scaling information from one cine to other cines.

- **Change: Play>Measurements>Instant Measurement Results**

The Instant Measurements results are now wrapped on two rows. The first row displays both the distance and speed measurements, while the second row displays the angle, and angular speed measurements.

- **New: Play>Image Search Selector Options**

The new Play>Image Search selector allows two searching algorithms, based on difference and on correlation. The searching results are based on the following user entered parameters:

- Threshold percentage value – the change percentage of pixels
- Changed areas percentage value – the amount of pixels that changed from the previous image

- Search Step – the image interval for the searching process
- Incremental search – if validated, the comparison is made between the current image and the previous one, and not the first one.

The search process can be started by right clicking on the Play or Rewind button and selecting Skip to image change. The Pause button stops the searching process.

- **New: Play>Save Cine>Advanced Options**

For Quick Time, *.mov destination file types, the Advanced Options button in the Save Cine dialog window allows the end-user to specify the playback rate.

- **Change: Play>Save Cine>Border Data Options for Phantom Miro 4**

Phantom Miro 4 Flash files now can be saved with border data and time stamp information.

- **Fix: Color Cine Display for Phantom v6 Camera Models**

The issue of v6 camera model color cines being displayed incorrectly has been resolved.

- **Fix: Monochrome Cine Display**

The issue monochrome cines created with software versions older than 671 being displayed incorrectly has been resolved.

- **Fix: PCC Image Quality Differences**

The PCC 2.0.714.0 x32 software produced darker images than those compared to the image be generated using PCC 2.0.714.0 x64. This issue has been resolved.

- **Fix: Aborted Recording Cine Deleted**

The issue of PCC deleting an aborted recording cine from the camera has been eliminated.

- **Fix: Automatic Camera Mode Change**

The issue of a camera exiting the recording mode, when the camera is selected in the Manager Control panel, when the camera has been set for Capture mode at camera start.

- **Fix: Auto Exposure w/Phantom 65**

The issue of Auto Exposure being disabled in a Phantom 65 camera has been resolved.

- **Fix: Auto Exposure w/Phantom HD/HD Gold**

The Auto Exposure feature will be grayed out for these camera models.

- **Fix: Converted Files Interpolated Algorithm**

The issue of the interpolation algorithm set during the Save procedures no longer persist when converting files. The interpolation algorithm defined via the Save or Convert Advance Options are now independent of one another.

Also, the issue of the selected interpolated algorithm not being persistent when selected via the conversion process has also been resolved.

- **Fix: DPX Data Packing**

The issue of not being able to change the DPX data packing option has been resolved.

- **Fix: Exposure Value Less Than 1µs**

The issue of not being able to access exposure values less the 1 microsecond has been resolved.

- **Fix: Exposure Time Enabled While in PIV Mode**

The issue of the Exposure Time entry field being enabled when the Advanced Settings>Cine Advanced>Exposure in PIV Mode option is enabled.

- **Fix: File Conversions via Save Cine**

When converting files via the Save Cine button, in the Play Control Panel, the issue of the "Converting" message and progress bar continuing to be displayed after the conversion process has finished has been resolved.

- **Fix: Frame Rate Profile with Miro HD Cameras**

The issue of the Frame Rate Profile feature being disabled, on Phantom Miro HD cameras, has been resolved.

- **Fix: GUI Issue**

The issue of the images being displayed as monochrome images when the Image Tools dialogue window had been accessed has been resolved.

- **Fix: Image Processing Effects Issues Associated**

The issue of various image processing techniques, such as, flip, rotate, and filtering, not being applied to cines generated from a Phantom v1610, v1210m or any of the M-Series cameras have been resolved.

- **Fix: Image Tools Black and White Default Parameter Error**

The issue of black and white default image parameters error in Image Tools has been resolved.

- **Fix: Image Tools>Color Interpolation Algorithm**

Selecting "None" as the demosaicing algorithm will no longer disable the Automatic White Balance process anymore.

- **Fix: Incorrect Save File Size Estimation**

Incorrect file size estimation, for large image ranges, when saving to the Cine Raw, Cine, Cine JPEG, AVI, Multipage TIFF, or Quick Time file formats has been resolved.

- **Fix: Interpolated File Size Estimation**

The issue of an incorrectly estimating the file size, when saving to interpolated cine file type, TIFF12, TIFF16, DNG, DPX. has been resolved.

- **Fix: Invalid Save Image Range**

The issue of incorrectly saving the proper image range via the "Save All From Flash" or "Save All From Ram" commands, sometimes creating partially saved cine files, has been corrected.

- **Fix: Language Issue associated with the Phantom Miro M-series Cameras**

The Japanese language problem associated with the Phantom Miro M-series cameras has been resolved.

- **Fix: Live>Camera Settings>Lens Control Slider**

The issue of the EOS lens focus slider not working has been resolved.

- **Fix: Live>Frame Rate Profile Functionality**

Frame Rate Profile will be disabled for camera model that do not support it.

- **Fix: Live>Camera Settings>Set Time**

The issue of PCC displaying the incorrect time zone in the set Time dialogue window has been corrected.

- **Fix: Maximum PPS (Pictures-Per-Second) Available Issue**

The issues with the software not recalculating the maximum pps (picture-per-second) when a change was made to the resolution setting has been resolved.

- **Fix: Opening DNG Files in Photoshop**

The issue of not being able to correctly open DNG files in Photoshop has been resolved.

- **Fix: Overwriting an Open AVI File**

A message box displaying a "File in Use" error will be displayed when trying to overwrite an open AVI file.

- **Fix: PCC Application Stability**

The issues associated with the PCC (Phantom Camera Control) application crashing when an image filter is applied, or when using the Load Setting feature under certain conditions, via the Live>Advance Settings selector has been resolved.

- **Fix: Phantom Miro HD Related Issues**

The issue the CSR (Current Session Reference) button being disabled with the Phantom Miro HD camera series, has been resolved.

- **Fix: Quick Time Save**

The issue of the software interrupting the save process when saving to the Quick Time format has been resolved.

- **Fix: Saving/Converting Cines with Thumbnails Enabled**

The issue of the Phantom Camera Control Unit, laptop/PC, hanging when saving/converting a cine file if the Save dialogue box had thumbnails enabled has been resolved.

- **Fix: SDK (System Developer Kit) Compatibility**

Fixes in old SDK (System Developer Kit) functions in order to maintain correct backward compatibility.

- **Fix: Simultaneously Using EDR and Auto Exposure**

EDR (Extreme Dynamic Range) and Auto Exposure are no longer available at the same time. An error occurs when Auto Exposure was enabled and EDR was not zero.

- **Fix: Trigger Function Resolved**

The issue of not being able to supply a soft trigger to a camera set to use an external sync clock source has been resolved.

- **Fix: Update Raw File Metadata Issue**

Updated Raw File Metadata was not updating specific image processing parameters from a Phantom v1610, v1210, or any of the Phantom Miro M-Series camera models. These issues have been resolved.

- **Fix: Use of Phantom File Naming Convention Symbols**

When converting multiple cine files, the issue of using a combination of Phantom File Naming Convention symbols, such as "c:\cine@2\imag!4" has been resolved.

(See example No. 3 in http://www.visionresearch.com/uploads/docs/TechNotes/NOTES_WEB-File%20Naming%20Conv.pdf).

1.2 Phantom Camera Control Application

The following changes have been made to the Phantom (Phantom) Camera Control Application - Help (Software Version 12.0.716.0-C), including:

- **New: Phantom dlls for 32-Bit or 64-Bit PCC Application**

There are now two variants of the Phantom (Phantom) Camera Control software: a 32-bit version (x86) and the 64-bit version (x64). Each variation uses a different set of Phantom dlls.

Presently only the Cine RAW, Interpolated Cine, AVI, Multipage TIFF (write only), and Quick Time formats are available for cines, and TIFF (write only), RAW, DNG and DPX formats for images are available with the 64-bit version.

NOTE:

The 64 bit variant is not fully implemented at the time of this writing: the file formats supported through Leadtools and the signal acquisition functions are not available.

- **Change: Help>About**

Camera Model information is now read from the camera itself.

- **Change: Restore NVMemory Button Disabled**

The Phantom>Acquisition> Restore NVMemory will be disabled for the Phantom v1610, v1210, or Miro M-Series camera.

1.3 Phantom CineMag - Help File

The following change has been made to the Phantom CineMag - Help File:

- **Change: Viewing a Cine File Stored in Phantom CineMag**

The following note has been added. "If a cine is stored in a CineMag it can only read it from one source.

Example: If you have cine F1 cued up in the play window you will not be able to play it or any other stored cine back in PVP until you close the window in Play. This also works the other way, if you have F1 open in PVP you cannot open it in Play to view. The CineMag only allows one operation at a time. What the software does is revert to a live image if you attempt to do this."

1.4 Phantom Flex, v641, and v341 Control via "On-Camera" Control Buttons

The following change has been made to the Phantom Flex, v641, and v341 Control via "On-Camera" Control Buttons - Help File:

- **Change: On-Camera Control Buttons>Play/Pause a Recorded Cine**

The following note has been added. "If a cine is stored in a CineMag it can only read it from one source.

Example: If you have cine F1 cued up in the play window you will not be able to play it or any

other stored cine back in PVP until you close the window in Play. This also works the other way, if you have F1 open in PVP you cannot open it in Play to view. The CineMag only allows one operation at a time. What the software does is revert to a live image if you attempt to do this."

1.5 Phantom CineViewer

An all new Phantom CineView application has been added as part of the PCC Installation. This application can be used to play and save cines. It offers the same play, save and measurement options on cine files as in the Phantom (PCC) Camera Control application.

1.6 Phantom Remote Control Unit - Help

The following additions and changes have been made to the Phantom Remote Control Unit - Help (Firmware Version 4.0), including:

- **New: RCU2 Hardware Compatibility**

Remote Control Unit Firmware Version 4.0 will support the new RCU2 hardware.

- **New: Character Based Text Fields**

An Remote Control Unit end-user now has the capability to input or edit character based text fields.

- **New: Individual Cine Deletion**

An end-user can now delete individual cines from the attached Phantom camera.

- **Change: Trigger Button Functionality**

The Remote Control Unit's trigger button can now be used in any menu to begin a recording when waiting for pre-trigger. In run/stop mode, the button is used as a run/stop button.

- **New: Jog Wheel Functionality**

Holding the video button and scrolling with the inner jog-wheel will zoom video in and out.

- **New: Status Information**

When pressing the Video button, the video state is now indicated in the status bar.

- **Enhancement: Improved MultiCine Capabilities**

- **Enhancement: Improved Compatibility with Phantom (PCC and Legacy) Camera Control Applications**

- **Enhancement: Improved Graphical Display**

The graphical display has been improved with new, easier to read text, along with the ability to drag the displayed video off-screen.

- **Enhancement: Increased Power Saving in Sleep Mode**

- **Change: MultiCine Operation>Deleting MultiCine Files**

A correction was made to the statement that read, "Individual MultiCine files can be deleted from the camera or an attached Phantom CineMag at any time" to "Individual MultiCine files can be deleted from the camera, or all cine files from an attached Phantom CineMag at any time.."

- **New: Setup>Acquisition>Cine Field**

The Cine field allows you to select which MultiCine partition you want to change the acquisition parameters for when in the camera is in MultiCine mode.

Selecting a cine other than Preview begins recording that cine.

This field also allows you to view the acquisition parameters of cines which have already been recorded, however you cannot edit their parameters.

- **Change: Setup>Acquisition>Aspect Ratio**

Aspect ratio has been repositioned to be next to resolution.

- **New: Setup>Acquisition>Lock Buttons**

The Lock buttons can be used to lock the frame rate and exposure fields to have priority over the other acquisition parameters. Locking to a resolution mimics the default behavior of the camera.

- **New: Cine Mangement>Cine/CineMag Erase Button**

The Cine/CineMag Erase button can be used to delete individual cines from the camera's memory or purge all cines stored in the attached Phantom CineMag. When initiated the the erasing progress of the Phantom CineMag will be displayed on the screen.

- **New: Tools>Program**

The Program options have been changed with the following options:

- A and B Program selection pull-down lists that allow you to select from a list of stored programs to be run when the A or B buttons are pressed.
- A and B Enable pull-down selection list that allow you to enable or disable the use of the selected program that is associated with the A and B buttons.

- **New: Tools>Program>Edit**

- An Edit button, when selected, displays the Edit Programs display window, including:
 - A Program Name field used to create or edit the name of the program associated with the A and B buttons.
 - A Program List field used to create a list of programs that are associated with the A and B buttons.
 - A Learn enable box, when checked, allows the creation of the operations that the A and B buttons will perform when pressed.
 - And a Delete button, when selected, deletes programs from the list.

- **New: Tools>Firmware Options**

- Two new Tools>Firmware options have been added, an:
 - Upgrade pull-down selection list used to select the desired device to upgrade the firmware for the Remote Control Unit or an attached Break-out-Box.
 - Upgrade Button, when selected, is used to start the firmware upgrade process of the selected device, (displays confirmation first).

- **New: Tools>Settings Options (Requires >689 firmware)**

The Settings options mimic the User Settings of cameras that support the On Camera Control display, including a:

- User pull-down selection list used to select on of six user settings slots.
- Save Button to save the camera's current settings into the selected slot number.

- Load Button used to load the contents of a user setting slot as the current camera's settings.
- Erase Button used to erase the contents of a user settings slot.
- Factory Reset Button resets the camera's settings to the factory defaults.

- **Change: Tools>Bluetooth Functionality**

When a camera attached to a Bluetooth device (dongle or Break-Out-Box) is changed, the camera information in the Bluetooth list is updated the first time the Remote Control Unit communicates with the new camera without having to perform another Bluetooth Search.

- **Change: Tools>Presets (Requires >730 firmware)**

The presets menu has been redesigned for compatibility with the user settings slots within the cameras and includes a:

- Preset pull-down selection list slots that allows the end-user to select one of six preset files on the Remote Control Unit, The slots are labeled A through F.
- Preset Info Indicator displays basic information about the settings the preset contains.
- More Info Button used to display detailed information about the settings the preset contains.
- Camera User pull-down selection list allows the end-user to select the settings slot within the camera.
- Save Button used to save the user settings in the camera from a selected slot (1-6) into the selected preset (A-F).
- Load Button used to load the contents of the selected preset (A-F) into the selected user settings slot (1-6) of the camera. These settings are also applied to the current settings of the camera simultaneously.
- USB

Camera settings stored in the Remote Control Unit's presets can be imported/exported to a USB flash drive to exchange with another Remote Control Unit. In the future, we are working to also have PCC generate these files.

Each preset (A-F) is made up of two files preset#.cfg and preset#.b64 (where # is the letter of the preset). These files are both necessary. The user may change the letter of the preset (A-F) if he wishes to store it in another slot.

- USB Import Button used to import the selected preset (A-F) from a USB flash drive.
- USB Export Button used to export the selected preset (A-F) from the Remote Control Unit onto a USB flash drive flash drive.

- **New: Tools>Display>Language Pull-Down Selection List**

The Remote Control Unit is now capable of displaying multiple languages. Presently only English and Japanese are available. Plans are in place to include Spanish, French, and Chinese.

- **New: Video>Adjust>Flare**

A Flare slider has been added to adjust the Flare video adjustment.

- **Change: Video>Matrix**

Four color matrices can now be created or edited via the Remote Control Unit. Furthermore, the matrix name field can also be created or edited.

- **New: Advanced>Advanced Acquisitions>Apply Changes to All Cines Option**

The Apply Changes to All Cines Option allows you to copy all future changes in acquisition parameters to all cines.

- **Change: Capture>Stop/Preview Button Functionality**

When in 'waiting for pre-trigger' mode the Stop Button is disabled.

When in 'waiting for trigger' or 'triggered' modes, the Stop button will stop the recording and return the camera to 'waiting for pre-trigger' mode. Any already recorded cines are preserved.

When in 'all stored' mode, the button becomes the Preview button. Pressing this button will delete all stored cines and return the camera to 'waiting for pre-trigger' mode. Alternatively, pressing the Record button will delete all cines and begin a new recording.

1.7 Phantom Nucleus - Help

The following change has been made to the Phantom Nucleus Application - Help (Software Version 2.0.717.0):

- **New: 10g FPGA Upload Files Button**

A 10g FPGA (Field Programmable Gate Array) button has been added to the Upload Files tab, in the Phantom Nucleus application.

- **New: .BIN File Browsing**

Nucleus can browse for *.BIN.* files.

- **New: Camera Support**

The Phantom 161, 1210, and Miro-M Series cameras are now supported in Nucleus.

- **Change: Button Behaviour**

Buttons will be enabled according to the selected camera version.

- **Fix: x.bin* File Load**

The issue of x.bin.* files not loading when using the 'All in one' option has been resolved.

1.8 Phantom Video Player - Help

The following addition and change has been made to the Phantom Video Player - Help (Software Version 2.0.717.0), including:

- **Change: Phantom (PVP) Video Player Application Splash Screen**

The Splash Screen has been redesigned

- **New: Capture and Trigger Buttons**

The end-user can now place a user selected camera into the recording mode by selecting the Capture button, then apply a soft trigger to the camera by clicking on the Trigger button.

- **New: Record Button**

PVP will display a Record button when camera is in Direct Recording mode.

- **New: Play Mode>Play All Buttons**

A Play All feature has been added to the Play Mode options. PVP will automatically play all cines from RAM or All Cines from Flash/Cinemas when the Play All Ram or Play All Flash buttons are selected, respectively

- **New: Play Mode>Play All Buttons**

A Play All feature has been added to the Play Mode options. PVP will automatically play all cines from RAM or All Cines from Flash/Cinemas when the Play All Ram or Play All Flash buttons is selected, respectively.

- **New: Preferences Button**

A language pull-down selection list has been added under Preferences that changes all menus and options to the selected language. As of the time of this writing there are two supported languages, English and Japanese.

After selecting the language, the PVP application needs to be restarted for the settings to be applied.

- **New: Production Area Rectangle**

A Production Area rectangle has been added on the video out image, configured from PVP>Settings: size and offset.

- **Change: Save/Convert Option**

The Save and Convert functions have been improved. If an error occurs during the save or convert processes a dialogue window will appear asking the end user to Retry or Abort the process.

- **Fix: Application Crash**

PVP no longer crashes when launched when an offline camera is selected via PCC.

- **Fix: Erasing Flash**

The issue associated with erasing all Flash cines has been resolved.

- **Fix: Large Font in Setting Dialogue Window**

The large font issue associated with the Settings dialogue window has been resolved.

- **Fix: Mark-In and Mark-Out Inconsistencies**

The issue of the Mark-In and Mark-Out save range being inconsistent has been resolved.

1.9 Connector and Indicators

The following additions and changes have been made to Connectors and Indicators:

- **Change: Connectors and Indicators Module**

The Connectors and Indicators Module has been redesigned to reflex the Current, Discontinued, Obsolete camera model's connectors, on-camera controls, and indicators. The module also incorporates the connector reference, control buttons, and indicators of a variety of peripherals.

- **Change: Phantom Capture Connector (Revision 3)**

Pin -N of the 19-pin Capture cable has been changed to support the Auto-Trigger Output signal. This signal is useful when external control of the auto-trigger is desired, for instance, it is required that the auto-trigger feature is disabled for some known transient event. The auto-trigger signal from the camera will be routed through some external device and back into the trigger input of the camera.

1.10 Functional Descriptions

The following change has been made to Functional Descriptions:

- **Change: Burst Mode Acquisition**

The Burst Mode Acquisition functional description has been re-written.

1.11 Firmware Requirements

The Firmware Requirements has been updated to reflect:

- **Change: Current Production Firmware**

The [Current Production Firmware](#) dated 20-DEC-2011 Rev.A.

- **New: Discontinued Camera Models**

On 7 August 2011, the Phantom v210, v310, v12.1, v710 products will be discontinued — meaning Vision Research will no longer manufacture or sell these models. The cameras will be in the “discontinued” state for a period of 5 years. During that time, they will be fully supported. After 5 years, they will be obsoleted and supported on a “best effort” basis.

Firmware updates are not provided for discontinued cameras. Once discontinued, the firmware for a product is “locked” and not modified.

We will occasionally update our camera control software (PCC only) to fix defects, add new features, and add support for new cameras. New versions of software will always be compatible with currently shipping / active products. We strive to have any new release of camera control software support all cameras that are in the discontinued state. There may be times when a new release of software cannot be made compatible with a camera that is discontinued. In this case, a compatible version of the software will be available for download on the web site.

- **New: Obsoleted Camera Models**

As of 31-March-2011, the Phantom 4.2, and v4.3 products have been obsoleted.

A product is typically obsoleted five years after discontinuance. Obsolete products are supported on a “best effort” basis. There is no commitment to maintain or make available a version of software compatible with obsolete products.

Part



2 Firmware Requirements

CAUTION

Before installing this new software version, you must verify the firmware version currently installed in your camera.

Below are the steps necessary to find the cameras installed firmware.

STEP-BY-STEP PROCEDURES

▼ Via Phantom Camera Control (PCC) Application

1. Connect the camera; Open the current version of the Phantom software.
2. Click on the Camera Info Selector, in the Live Control Panel.
3. If the firmware version reported is an earlier version than the one listed above the firmware must be upgraded before using this new software. Please contact Technical Support for assistance.

▼ Via Phantom Camera Control (Legacy) Software

1. Connect the camera; Open the current version of the Phantom software.
2. Open the Help>About menu.
3. If the firmware version reported is an earlier version than the one listed above the firmware must be upgraded before using this new software. Please contact Technical Support for assistance.

▼ Via Phantom Remote Control Unit

1. Connect the camera; Start the Phantom Remote Control Unit.
2. Gently press Setup>Tools>About.
3. If the firmware version reported is an earlier version than the one listed above the firmware must be upgraded before using this new software. Please contact Technical Support for assistance.

▼ Via Phantom MultiCam Application

1. Connect the camera; Open the current version of the Phantom MultiCam application.
2. Click on the Cameras Tab.
3. If the firmware version reported is an earlier version than the one listed above the firmware must be upgraded before using this new software. Please contact Technical Support for assistance.

▼ **Via Phantom Nucleus Application**

1. Connect the camera; Open the current version of the Phantom Nucleus application.
2. Click the down-arrow to the right of the Select Camera>Camera field, then
3. Select the camera firmware is being verified for.
4. Note the Camera Info display fields, if the firmware version reported is an earlier version than the one listed above the firmware must be upgraded before using this new software. Please contact Technical Support for assistance.

2.1 Current Cameras

CAUTION

Before installing this new software version, you must verify the firmware version currently installed in your camera.

The minimum firmware required for cameras currently in production, as of 20-DEC-2011 Rev.A, is:

CAMERA	DESIGNATOR	FIRMWARE		FPGA (PH.BIN)	KERNEL	RELEASED PCC SOFTWARE	RELEASED LEGACY SOFTWARE	DISCONTINUED DATE	OBSOLETE DATE
		PH7	PH16						
v1610	16001		4256	426447	1016	PCC 2.0.713.0	Phantom 713		
v1210	16002		4683	500476	1016	PCC 2.0.713.0	Phantom 713		
v211	120	761		596240	16140	PCC 1.3.697.0	Phantom 697		
v311	120	761		596240	16140	PCC 1.3.697.0	Phantom 697		
v611	120	756		596240	16140	PCC 1.3.697.0	Phantom 697		
v711	120	756		596240	16140	PCC 1.3.697.0	Phantom 697		
v341	132	760		578252	16140	PCC 1.3.697.0	Phantom 697		
v641	131	763		578252	16140	PCC 1.3.697.0	Phantom 697		
Flex	135	763		573244	16140	PCC 1.3.697.0	Phantom 697		
v7.3	73	730		74062	16053	PCC 1.3.697.0	Phantom 697		
v9.1	91	725		343058	16053	PCC 1.3.697.0	Phantom 697		
v10 enhanced	101	725		34058	16053	PCC 1.3.697.0	Phantom 697		
v10 standard	10	725		343058	16053	PCC 1.3.697.0	Phantom 697		
Miro M310	8001	-	4323	708	392	PCC 2.0.713.0	Phantom 713		
Miro M110	8002	-	4323	708	392	PCC 2.0.713.0	Phantom 713		
Miro M120	8012	-	4323	707	392	PCC 2.0.713.0	Phantom 713		
Miro eX2	82	670		1246	1578	PCC 1.3.697.0	Phantom 697		
Miro 3 (800x600)	83	670		1110	1578	PCC 1.3.697.0	Phantom 697		
Miro 3 (512x512)	83	543		1068	916	PCC 1.3.697.0	Phantom 697		

Miro eX4	84	670		1246	1578	PCC 1.3.697.0	Phantom 697		
Miro AB	84	670		1246	1578	PCC 1.3.697.0	Phantom 697		
Miro HD 512M Nand	802	737		1127	1586	PCC 1.3.697.0	Phantom 697		
Miro HD 1Gig Nand	802	737		1127	1578	PCC 1.3.697.0	Phantom 697		
HD	660	744		857066	16092	PCC 1.3.697.0	Phantom 697		
P65	650	752		866084	16092	PCC 1.3.697.0	Phantom 697		
CineStation	-	756		50179	16140				

2.2 Discontinued Cameras

CAUTION

Before installing this new software version, you must verify the firmware version currently installed in your camera.

The minimum firmware required, for discontinued camera models, (firmware is fixed however Phantom support for five years), as of 28-Nov-2011 Rev.B, is:

CAMERA	DESIGNATOR	FIRMWARE		FPGA (PH.BIN)	KERNEL	RELEASED PCC SOFTWARE	RELEASED LEGACY SOFTWARE	DISCONTINUED DATE	OBSOLETE DATE
		PH7	PH16						
v5.1	50	502		14842	757		Phantom 663	19-Feb-2008	20-Feb-2013
v5.2	52	655		343058	16503		Phantom 675.2	22-Aug-2009	22-Aug-2014
v7.1	7	381		6758	757		Phantom 663	27-May-2007	26-May-2012
v7.2	72	486		47549	757		Phantom 663	27-May-2007	26-May-2012
v9.0	9	381b		34842	757		Phantom 663	27-May-2007	26-May-2012
v12.0 / 8G	120	567		47805	-		Phantom 663	23-Dec-2008	30-Dec-2011
v12.0 /16G	120	567		47805	-		Phantom 663	23-Dec-2008	30-Dec-2011
v12.0 /32G	120	567		47805	-		Phantom 663	23-Dec-2008	30-Dec-2011
v12.1	120	748		596240	16092	PCC 1.3.697.0	Phantom 697	07-Sep-2011	07-Sep-2016
Miro 1	81	670		1246	1578	PCC 1.3.697.0	Phantom 697	09-Feb-2010	09-Feb-2015
Miro 2	82	670		1246	1578	PCC 1.3.697.0	Phantom 697	09-Feb-2010	09-Feb-2015
Miro 4	84	670		1246	1578	PCC 1.3.697.0	Phantom 697	09-Feb-2010	09-Feb-2015
Miro eX1	81	670		1246	1578	PCC 1.3.697.0	Phantom 697	14-Nov-2011	14-Nov-2016
Image3/v7.2	n/a	313		11095	-		Phantom 663	25-Jan-2010	25-Jan-2013
Image3/v9.0	39	354		11093	-		Phantom 663	25-Jan-2010	25-Jan-2013
Image3.v7.3	39	437		V73.11097	-		Phantom 663	25-Jan-2010	25-Jan-2013

Image3/v9.1	n/a	437		V10.10100	-		Phantom 663	25-Jan-2010	25-Jan-2013
Image3/v10	31	437		V10.10100	-		Phantom 663	25-Jan-2010	25-Jan-2013
v210	126	761		596240	16140	PCC 1.3.697.0	Phantom 697	07-Sep-2011	07-Sep-2016
v310	125	761		596240	16140	PCC 1.3.697.0	Phantom 697	07-Sep-2011	07-Sep-2016
v640	120	756		390253	16140	PCC 1.3.697.0	Phantom 697	07-Sep-2011	07-Sep-2016
v710	122	756		596240	16140	PCC 1.3.697.0	Phantom 697	07-Sep-2011	07-Sep-2016

2.3 Obsolete Cameras

CAUTION

Before installing this new software version, you must verify the firmware version currently installed in your camera.

The minimum firmware required, for obsolete camera models, (no more development, firmware is fixed), as of 28-Nov-2011 Rev.B, is:

CAMERA	DESIGNATOR	FIRMWARE		FPGA (PH.BIN)	KERNEL	RELEASED PCC SOFTWARE	RELEASED LEGACY SOFTWARE	DISCONTINUED DATE	OBSOLETE DATE
		PH7	PH1 6						
v4.0	4	-		-	-		-	19-Jun-2007	18-Jun-2010
v4.1	4	-		-	-		Phantom 607	19-Jun-2007	18-Jun-2010
v4.2	42	502		6749	757		Phantom 663	01-Apr-2008	31-Mar-2011
v4.3	43	502		6749	757		Phantom 663	01-Apr-2008	31-Mar-2011
v5.0	5	-		-	-		Phantom 607	19-Jun-2007	18-Jun-2010
v6.1	6	-		-	-		Phantom 607	24-Oct-2007	23-Oct-2010
v6.2	62	322		23836	757		Phantom 663	24-Oct-2007	23-Oct-2010
v6.2	62	322		24844	757		Phantom 663	24-Oct-2007	23-Oct-2010
v7.0g	7	381		6749	757		Phantom 663	27-May-2007	26-May-2010

2.4 Peripherals

CAUTION

Before installing this new software version, you must verify the firmware version currently installed.

The minimum firmware required for these peripherals that are currently in production, as of 28-Nov-2011 Rev.B, is:

PERIPHERAL	FIRMWARE			DISCONTINUED DATE	OBSOLETE DATE
ABOB	2.0.0				
RCU	4.00				
12 Series Canon Mount	2.02				
V-Shutter	2.02				

Part



3 Vision Research Service Centers



Updated: 2/11/2011

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