

Motion Control Release Notes

January 2010 Release

January 2010 (iVision 4.0.15):

Ludl S&F, Ludl Stage:

Returned support for 9600 baud serial speed for use with some older controllers. Default remains 19200 baud.

Ludl Stage:

Changed z limits from +/- 1000 to +/- 20000.
Added Min and Max speed for Z and XY.
Added servo delay to XY setup.
Now checks z lower limit in Piezo Auto-Step mode.
No longer changes speed when centering XY stage.

Lumencor LE:

Added support for Lumencor Light Engine.

Olympus BX, IX:

Removed a spurious shutter error message.

Zeiss AxioImager:

Added support for the AxioImager D1 model.

November 2008 (iVision 4.0.14):

Chroma Photofluor-II:

Adds support for this illuminator's filter wheel and shutter.

September 2008 (iVision 4.0.13):

CARV II:

Added an option to manually set the shutter delay time.

Virtual S&F:

The virtual shutter delay was not being used when "Wait Until Done" was set.

May 2008 (iVision 4.0.11):

Ludl Stage:

Added an additional delay time for use when the servo lock is used with the XY stage. This allows the servo adjustment to settle before a script proceeds with an image capture.

The current XY stage speed is now used for both phases of the Center command (move to limits, then move to center) rather than a hard-coded speed during the first phase.

January 2008 (iVision 4.0.9):

ASI S&F:

Updated to work with version 2.5 of the firmware for the FW-1000.

Ludl Stage:

Allows the user to set the minimum and maximum speeds for the Z and XY stages in the Device Setup dialog.

Microscope Control:

Fixed a bug in the Microscope Speed dialog that kept the current speed from being displayed when the dialog is first opened.

December 2007 (iVision 4.0.8):

ASI Stage:

Added support for the piezo Z stage.

Sutter Lambda 10-3:

Changed the default filter wheel speed from 0 to 1.

October 2007 (iVision 4.0.7):

CRI MicroColor (USB):

If you have the new USB-only model of the MicroColor filter, you must also install the "FTDIUSBSerialDriver" that comes on the CD included with the filter.

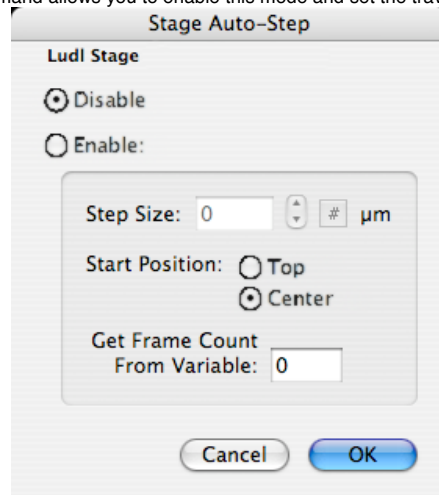
Ludl Stage:

Added support for the piezo Z stage. If used, the stage must be set to address 6, and the "Piezo" option must be selected in the Device Setup dialog.

Stage Control:

An additional command has been added for use with piezo Z-stages that are triggered by a camera exposure signal that advances the stage one

step after each exposure. The Auto-Step command allows you to enable this mode and set the travel distance for each step.



In iVision, the stage will normally be positioned at the mid-point of its travel distance. The Start Position describes where the starting focus point is: at the top of the stack, or at the center of the stack. If "Center" is selected, the stage will backup by half the given number of steps, so that the sequence starts above the focus point. Note that the number of steps must come from a variable; it is assumed that the camera command will use the same variable to set the number of frames to capture.

After the capture is complete, use the Disable option to prevent the stage from being moved by other camera exposures.

Bug fixes:

When editing a script, the Microscope Variable command's dialog will now display the scripted value, rather than the device's current value.

The Z Stage toolbar panel will now display the minimum and maximum values from the device, rather than defaulting to 10 and -10.

June 2007 (iVision 4.0.5):

Axio Observer:

Added support for the Axio Observer model to the Axio Imager Device Module.

January 2007 (iVision 4.0):

Filter Colors:

You can now use the wavelength of a filter to set the color assigned to that filter position.

Linked Devices:

The Serial Control extension can now be used to also define **Linked Devices**. As part of this, the menu command "Serial: Define Devices" has been renamed "Define User Devices".

A linked device is a *pseudo-device* with multiple positions. Each position is composed of positions of other, real, devices. Moving to a position in a linked device will cause all of the linked devices to move to their given positions. For example, a filter cube on a microscope and a second filter wheel on an external controller can be linked so that they move together.

Once a Linked device has been defined, it is, like a serial device, accessed through the Generic S&F Device Module, which can make up to six linked or serial devices available to IPLab.

Bug fixes:

Fixed the use of variables in the Lamp Control command.
Improved the response speed of the lamp panel in the Device Toolbar.

September 2006 (iVision 3.9.6):

Bug fixes:

The Device Toolbar did not remember it's horizontal position when moved off of the main screen.
The Device Toolbar's lamp control panel has a faster response rate when opening and when changing the lamp.
The Microscope Control command's dialog no longer lists lamps in the device menu.
The Microscope Lamp command's dialog now displays the #/Var control correctly.

April 2006:

Devices:

Updated the CARV2, Generic S&F, Nikon TE2000, UniBlitz, and Virtual S&F device modules. See "Devices", below, for details.

Bug fixes:

In the Stage Control extension, the Get Position and Z-Sections Setup commands would prevent you from using variables greater than 255.

Installer:

The Ludl S&F2 and UniBlitz2 device modules were moved to a separate installation option. You only need to install these if you are connecting two separate controller boxes.

October 2005:

Devices:

Updated the Sutter Lambda and Zeiss AxioPlan device modules. See "Devices", below, for details.

Bug fixes:

The color swatches for the CRI filter positions were all gray. They now match the names (Red, Green, Blue).
A crash condition in Serial Control has been fixed.

August 2005 (IPLab 3.9.5):

Shared Device Preferences:

Device Modules now store their setup preferences (filter names, objective magnifications, z-step sizes, etc) in a separate preferences folder (IPLab 3.9 Shared User Folder) located in OS X's "Shared" user folder. This allows one setup to be accessed by all users on a multi-user system. The Enabled state of each device module and the most-recent camera settings are still maintained on a per-user basis. This folder can not be an alias.

Device Setup Dialog:

If a camera is currently in use, and the Device Setup dialog is opened, a new icon (chasing arrows) is displayed for that device. The "Serial Status" button shows the names of the first eight serial ports available on the machine. For each port you can see which device module opened it, and what it's settings are (baud, parity, etc.).

Device Select Dialog:

The available devices are listed in a column on the left. You can double click or drag a device into the list on the right, which makes it available to the rest of the device commands. A checkbox allows you to add it to the new device toolbar. You can also rename devices, and change their order in the list.

Device Toolbar palette:

Accessed from the Window menu, or with the Command-3 keys, the toolbar allows you to quickly control devices at any time, including during Live Preview. If a script is open, any toolbar actions will be recorded as the equivalent Microscope Control commands.

Device Module setup dialogs:

For Filters: you can specify the wavelength and a representative color.
For Objectives, you can specify the magnification, NA, Refractive Index, and an additional suffix.
You can also identify the XY unit calibration for the currently selected objective device in Define XY Units, and apply them in Set XY Units.

Serial Control:

This new extension lets you define devices that are controlled *via* a serial port. For each device you provide the port parameters, the type of device, and commands for up to 12 positions. A device can be defined as a shutter, filter turret, objective turret, port changer, lamp, or a simple positioner.

The "Generic S&F" device module is then used to make these definitions available to the other device commands. Up to 6 device definitions can be assigned to the module. These devices can then be accessed from the toolbar, the Multi-D acquire command, or any other device command.

● **Devices**

March 2007:

Axio Imager:

Added support for the Axio Observer model to the Axio Imager Device Module.

October 2006:

Generic S&F:

When a device definition that is in use by the Generic S&F device module is updated with the **Define User Devices** command, the Generic S&F device module will automatically update to the new definition.

April 2006:

CARV2:

Changed the method used to send Linked Wheel commands to avoid a situation where the shutter could fall out of sync with the wheel movement.

Generic S&F:

Fixed an issue where the name of a sub-device would not be set after selecting a new definition file.

Nikon TE2000:

Added a slider to set the tolerance for the Z axis. **This requires that the firmware on the microscope be version 2.1 or later.**

Tolerance provides a trade-off between speed and accuracy.

From Nikon's Technical Bulletin TB04-002:

Values 0 through 5 operate in "closed loop" mode.

"Error is 0.05µm in mode 0. The step speed is slow due to accuracy. In mode 5, step speed is fast, error is less than or equal to 0.5µm."

Values 6 through 9 operate in "semi-closed loop" mode.

"Maximum Error is $\pm 0.15\mu\text{m}$ on a step size of $0.5\mu\text{m}$. The step speed for $0.5\mu\text{m}$ is 120 msec minimum."

UniBlitz:

Added support for the VMM-D3 controller by increasing the number of shutters to four and adding an "All" option.

Virtual S&F:

Improved error handling in the rare event that the sound buffers can not be allocated.

October 2005:

Sutter Lambda:

Updated to work with the Lambda SC shutter controller.

Zeiss AxioPlan:

Improved control of the Halogen lamp. The brightness (voltage) can now be controlled. For the AxioPlan this adds the complication that controlling the brightness from the computer locks out the manual brightness knob on the stand. To regain manual brightness control, use the Microscope Control command (Control menu) and choose "Lamp Manual" from the menu of position names. This will switch control of the lamp back to the stand (resetting the brightness to the current setting of the knob). This menu also provides a way to set the 3200K lamp mode.

Ludl S&F 2 and UniBlitz2:

The devices in these device modules have been renamed to help distinguish them from the devices in the "Ludl S&F" and "UniBlitz" device modules. You only need these second device modules if you have two Ludl or UniBlitz controllers.

August 2005:

CARV2:

New. Controls the BD BioSciences CARV II confocal imager.

Generic S&F:

New. Allows control of devices connected to a serial port with user-defined commands. The Serial Control extension is used to define the port attributes (baud, parity, etc.), the type of device (filter, shutter, objective, etc.) and the commands to send for each of up to 12 positions. The Generic S&F device module then makes up to 6 of these devices available to the device toolbar and all other device control extensions.

Leica DM6000:

New. Controls the Leica DM6000, DM5000, and DM4000 series of microscopes.

Nikon Remote Focus:

Renamed from "Nikon Focus Motor". This controls the "Nikon Remote Focus Accessory", add-on Z motor.

PI-662

Renamed from "PIFOC" to distinguish from newer "PI-665" device module.

PI-665

New. Controls the Physik Intrumente model 665 piezo z-stage controller..

Sutter Lambda:

Renamed from "Sutter 10-2". Now includes control of the 10-3 controller. The third filter wheel on the 10-3 is supported. The 10-3's Smart Shutter can be set to Fast or Slow mode. The "Neutral Density" feature of the smart shutter is also supported, allowing you to open the shutter a variable amount.

Virtual S&F:

This device module now includes virtual objective turret, lamp, port selector, macro lens, aperture and zoom devices.

Yokogawa CSU-22:

New. Controls the Yokogawa CSU-22 confocal scanner unit.

Zeiss AxioImager:

New. Controls the Zeiss AxioImager series of microscopes.

April 2005:

Nikon Focus Motor:

A bug fix for the model selection change made in March.

March 2005:

ASI S&F:

A new device module for use with the Shutter and Filter controller manufactured by Applied Scientific Instrumentation, Inc.

ASI Stage:

Added an option to use the "B" syntax instead of the "Z" syntax for the Z drive.

Nikon Focus Motor:

Updated to work with newer models that report in decimal microns ("10.3") vs tenths of microns ("103") for older models.

Olympus BX, JX:

Added support for the DSU (spinning disk unit).

Sutter 10-2:

Added support for wheel "C" on the 10-3 model.

December 2004:

Ludl Stage:

Added a "Stage Lock" command (Control Menu => Device Specific) for use with stages with encoders. The stage lock counteracts drift by actively re-positioning the stage when the encoder shows a drift of more than a given distance.

ASI Stage:

This is a new device module for use with Z and XY stages manufactured by Applied Scientific Instrumentation, Inc.

May 2004:

Zeiss AxioPlan:

Added support for the z-drive on Axioskop 2 Mot models.