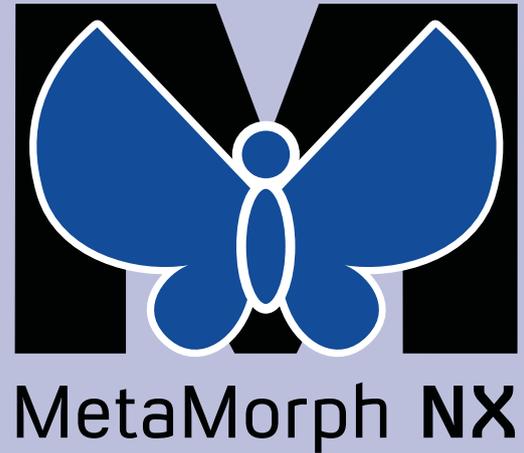# Molecular Devices

MetaMorph NX Microscopy Automation and Image Acquisition Software

MetaMorph NX

For nearly 25 years, MetaMorph® Software has given microscopists the means to gain extraordinary insight into cell morphology, function, and behavior. Researchers have relied on MetaMorph Software's myriad options for microscope component integration, task automation, image acquisition using a variety of illumination and collection methods, and thorough data analysis. MetaMorph Software pioneered the bioresearch imaging industry and, with unsurpassed power and flexibility, it continues to be the best in its class.

Introducing MetaMorph NX Software – The Best Gets Better

MetaMorph NX Software, the next generation of MetaMorph Software, reflects our commitment to ensuring that our customers' experience is the best it can be. Without diminishing any of the features that facilitate comprehensive image acquisition and analysis, MetaMorph NX Software streamlines the workflow for all tasks and provides an entirely new user-centered interface. With one-click access to features, integrated hardware setup, and synchronized, unobstructed views of your data, you can become an imaging expert in minutes.

Organized Workspace Coupled With A Faster Workflow

In the new patent-pending Dataset View, all of the images and data that belong to a dataset stay together in one organized workspace. The Dataset View displays images in a grid using a layout that you specify – select a view mode to organize any number of images by time point, channel (wavelength), stage position, Z position, and so on. Or, view a composite overlay of channels on one image and turn on or off the display of each channel. When your image looks the way you want it, export it to PowerPoint with one click.

Display large amounts of data without sacrificing clarity. Multiple Dataset Views may be positioned side-by-side horizontally or vertically to compare various aspects of the same dataset or different datasets. For example, to compare images acquired at three different sites, simply open three Dataset Views and, in each Dataset View, select a stage position from the list on the Home tab. Align the Dataset Views to easily see the images acquired at all three sites. A filmstrip at the bottom of the Dataset View displays thumbnail images, augmenting the image navigation options. Zoom and pan all displayed images at once, scale images of any bit depth, and assign colors to channels to further investigate even the most subtle objects in your images.

The tab-based "ribbon" interface provides convenient access to the most commonly used options. Select an acquisition mode and only the options that are relevant to the mode appear, guiding you quickly through the task by providing just the right tools at the right time. The ribbon's left-to-right workflow sets the path for hardware configuration, experiment setup, image acquisition, and data analysis, while extensive tooltips and online help offer assistance along the way. To make things even easier, you can create your own shortcuts to the options you use most.

Built-in Hardware Setup and Device Control

Installing and configuring microscope devices and cameras takes only a few steps using the options on the Hardware Setup tab. MetaMorph NX Software does not impose limits on how hardware is configured—any supported component can be configured as a magnification or illumination component. And, because MetaMorph NX Software leverages the continuous development

of drivers throughout its history, it supports more high-quality drivers for devices and components than any other imaging software application on the market.

Exceptional Display Performance and Multi-Tasking Capability

Optimum image and data display performance is ensured through configurable cache and display memory settings which let you determine how memory is allocated to the MetaMorph NX Software. And with support for 64-bit Microsoft Windows 7, more memory is available, making data analysis and manipulation even faster.

With its new multi-threading capability, MetaMorph NX Software remains responsive during even the longest acquisitions. You can analyze data and inspect images as they are
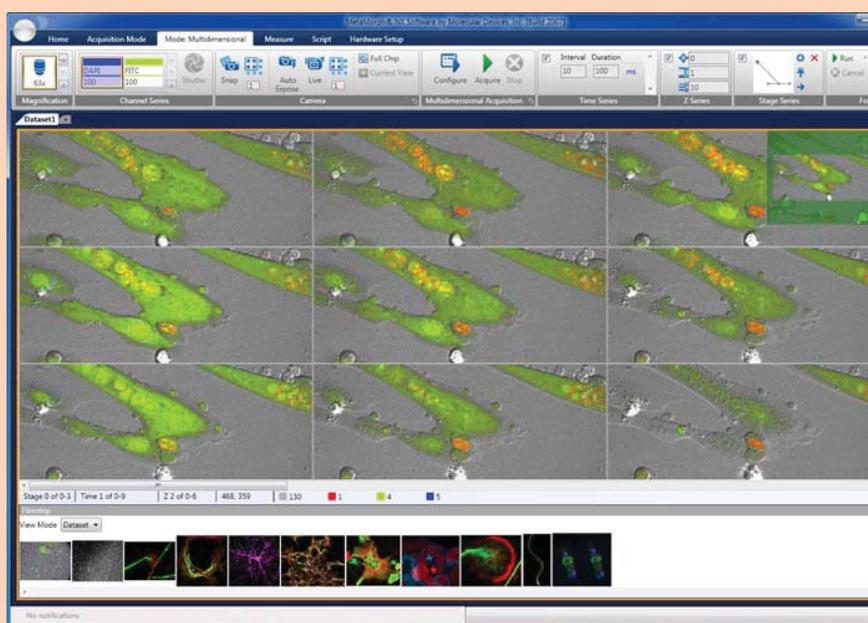
acquired and run multiple measurements at the same time. Multi-threading also allows for asynchronous control of hardware peripherals, improving the speed of acquisitions.

Comprehensive Uncomplicated Image Acquisition

The numerous options for image acquisition continue in MetaMorph NX Software but the new interface and workflow simplify the configuration process and eliminate the need for journals or macros. In most cases, you can select an acquisition mode and configure a single or multidimensional image acquisition using just the settings on the ribbon. Options are available for acquiring images at various sites, at certain times, at multiple focal planes, with a variety of illumination conditions using built-in image autofocus or microscope focus stabilization. You can hide the options for the parts of the acquisition configuration that you do not need. Advanced settings (for example, the order in which images are acquired with multiple channels and a Z series) are a click away in the configuration dialog.

In multidimensional acquisition mode, MetaMorph NX Software saves images as they are acquired and automatically stores acquisition settings. You will never lose your work, and you can quickly repeat an acquisition at a later date using the stored settings.
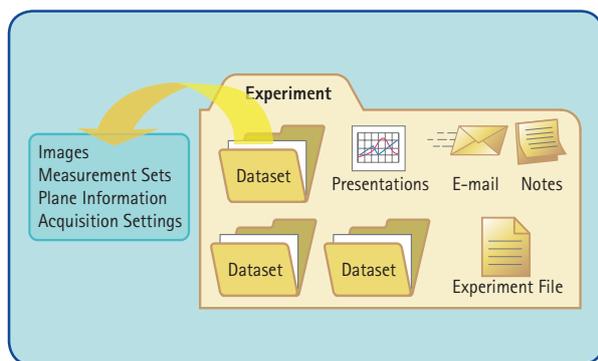
Coherent Image Review, Analysis, and Data Management

MetaMorph NX Software provides several ways to measure and evaluate objects in images. Measurements can include the area, dimensions, shape, orientation, and intensity of objects and regions, as well as a statistical summary of the measurements made. You can measure all the

MetaMorph NX Software's Efficient Desktop

The Dataset View makes the most efficient use of the display space without obstructing views of your images or data.

planes in an image at once without needing to write a journal or script. Once you measure images, you can sort and graph the results. Each set of measurement results and the settings used to make the measurement are automatically saved with the dataset and can be accessed, reconfigured, and filtered using MetaMorph NX Software at any time. In the Dataset View, you can arrange images next to tables and graphs to explore how measurements made on some or all of the images relate to the dataset as a whole, to other measurements, and to the visual information in the images. When you have sorted your analysis data according to your criteria, export your data to Excel with one click.

Every time you create a new experiment, MetaMorph NX Software creates a folder for the experiment on the hard drive of your computer. An experiment folder contains a subfolder for each dataset in the experiment. Each dataset folder contains images (single image .tif files), image metadata, measurement sets, and, if applicable, the acquisition settings used to acquire the images. You can add other files to the folder that support your experiment, such as emails, presentations, documents, and notes.

MetaMorph NX Software Experiment Folder

The experiment folder allows you to keep all relevant pieces of your experiment in one place.

Full Support For Extendibility and Task Automation Through Scripting
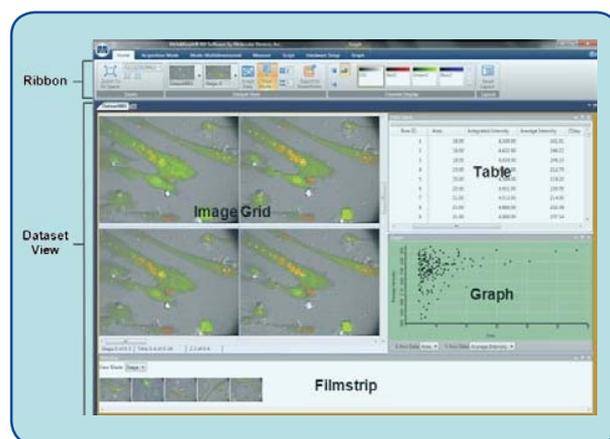
The Script tab provides an environment for writing scripts using IronPython, an implementation of the Python scripting language, which provides native support for all standard .NET tools. With IronPython, you can extend the MetaMorph NX Software to solve virtually any experimental problem and you can automate tasks within MetaMorph NX Software. The scripting environment uses

auto-completion, which presents a list of available successive functions as you write a script.

Modular Architecture Means Faster Delivery of Features and Customization Opportunities

The MetaMorph NX Software is built upon a new modular architecture that assures rapid addition of subsequent features, applications, and support for new hardware. Enhancements will be frequent, readily available, and easy to install.

MetaMorph NX Desktop Workspace

Two main areas comprise the MetaMorph NX software workspace:
- The ribbon across the top, which contains tabs and options for performing tasks
- The Dataset View, which contains images and can optionally include a filmstrip, the data table and one or more graphs that belong to a dataset.

Molecular Devices

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