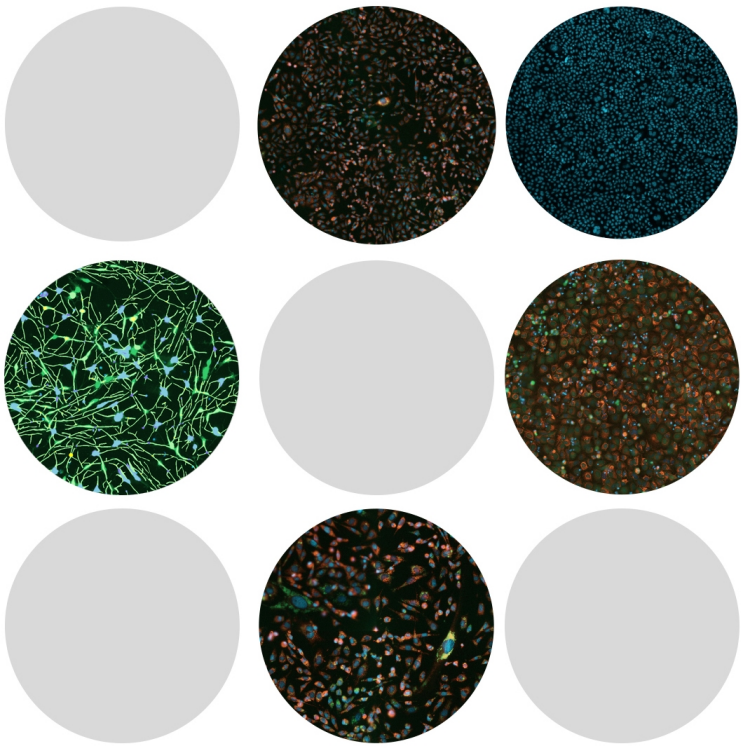

CellReporterXpress®

Image Acquisition and Analysis Software

Version 2.6

Release Notes

MOLECULAR DEVICES

CellReporterXpress Software, Version 2.6
February 2020

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Chapter 1: CellReporterXpress Image Acquisition and Analysis Software

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The Molecular Devices® CellReporterXpress® Image Acquisition and Analysis Software is the user interface for the Molecular Devices® ImageXpress® Pico Automated Cell Imaging System.

The CellReporterXpress software integrates image acquisition and analysis into a unified workflow. Along with the ImageXpress Pico system, the CellReporterXpress software streamlines automated imaging to offer a simplified solution for scaling up microscopy. Its features include:

- A web-based interface that runs on many browsers, including those found on iPads and Android tablets.
- Over 25 available predefined experimental protocols.
- High-powered analysis tools equivalent to those found in desktop applications.
- Easy-to-manage data with no requirement to configure a database.
- A simplified user interface that is easy to learn and easy to use.

Obtaining Support

Molecular Devices is a leading worldwide manufacturer and distributor of analytical instrumentation, software, and reagents. We are committed to the quality of our products and to fully supporting our customers with the highest level of technical service.

Our Support website, www.moleculardevices.com/service-support, describes the support options offered by Molecular Devices, including service plans and professional services. It also has a link to our Knowledge Base, which contains documentation, technical notes, software upgrades, safety data sheets, and other resources. If you still need assistance after consulting the Knowledge Base, you can submit a request to Molecular Devices Technical Support.

Technical Support

You can contact Molecular Devices Technical Support by submitting a support request through the Knowledge Base or by phone. For regional support contact information, go to www.moleculardevices.com/contact.

You will need the instrument serial number.

Documentation

Review the product documentation on the Knowledge Base, including installation guides and user guides. In addition, online Help is available within the CellReporterXpress software. Press **F1** to access Help for the current page.

Additional Resources

Web-based microscopy courses:

- www.leica-microsystems.com/science-lab
- www.ibiology.org/ibioeducation/taking-courses/ibiology-microscopy-short-course.html

The Molecular Probes Handbook offers advice on fluorescent probes and can help you determine if there are better stains available for your analysis:

- www.thermofisher.com/us/en/home/references/molecular-probes-the-handbook.html

Product Documentation

The following guides are available on the Molecular Devices Knowledge Base at mdc.custhelp.com:

- *CellReporterXpress Installation Guide*
- *CellReporterXpress Release Notes*
- *CellReporterXpress User Guide*
- *ImageXpress Pico Pre-Installation Guide*
- *ImageXpress Pico Installation Guide*
- *ImageXpress Pico User Guide*
- *ImageXpress Pico Calibration Kit Guide*

In addition, the CellReporterXpress software includes context-sensitive Help that you can access from within the software. Just press the **F1** key from within the software to view Help for the current page.

Tip: Molecular Devices recommends that you review the documentation before installing or using the ImageXpress Pico system or the CellReporterXpress software.

About This Guide

This guide is intended for the scientist or IT professional who will be installing and configuring the CellReporterXpress software. This guide describes the notable changes in this release of the CellReporterXpress software.

The information in this guide is subject to change without notice. Molecular Devices recommends that you review the guide on the Knowledge Base for the most up-to-date information.

Chapter 2: CellReporterXpress Version 2.6

Version 2.6 of the CellReporterXpress Image Acquisition and Analysis software is a minor release. This section summarizes the changes incorporated since the last release of the software.

New Features in CellReporterXpress Version 2.6

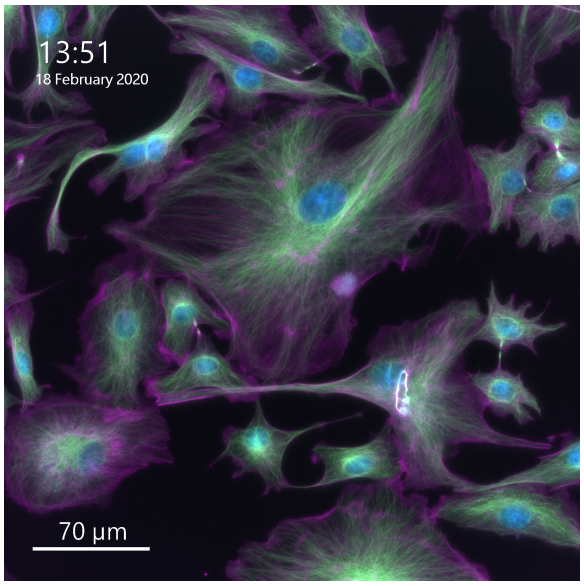
The following new features are included in CellReporterXpress Version 2.6.

Full-Resolution TIFF Image Exported as Tiles

Due to the 2 GB file size limit for a TIFF file, the software scales any full-size image larger than 2 GB. If your image is over 2 GB and you want to export it at full resolution, you can now export the image as tiles. The image tiles can be joined together using a TIFF image processing program to achieve a full-resolution image.

Scale Bar and Time Stamp in Exported Full-Size Images

You can now include a scale bar and a time stamp in an exported full-size image. The time stamp can show the date and time of the acquisition or the elapsed time from the earliest time point in the export.



Time Stamp in Downloaded Movies

You can now include a time stamp in a downloaded movie. The time stamp can show the date and time of the acquisition or the elapsed time from the earliest time point in the movie.

Issues Addressed in CellReporterXpress Version 2.6

The following issues were addressed in CellReporterXpress Version 2.6:

- (ITSP-224) When an experiment is running, clicking Cancel on the In Progress tab of the Monitor page now stops acquisition as expected.
- (ITSP-378) A timeout error no longer occurs when using a stitched protocol to run an experiment.
- (ITSP-522) Image analysis segmentation is now displayed correctly in the software user interface.
- (ITSP-528) An error no longer occurs when exporting image by time point.
- (CRX-1602) On the Configuration Settings page, clicking Back now displays the previous page as expected.
- (CRX-2043) Analysis summary data is now correctly calculated for a slide acquisition with multiple regions of interest.
- (CRX-2084) Exported images from an experiment that uses a stitched, colorimetric protocol are now scaled correctly and display as expected.
- (CRX-2092) An error no longer occurs when you snap a Z stack image with digital confocal on and then change the projection calculation type.
- (CRX-2093) You can now select a well as expected on the Choose Position to Acquire tab of the Acquisition Settings page or Analysis Settings page.
- (CRX-2168) The software no longer freezes when you select a row on the cell level table and then view a cell level image.

Chapter 3: CellReporterXpress Version 2.5

3

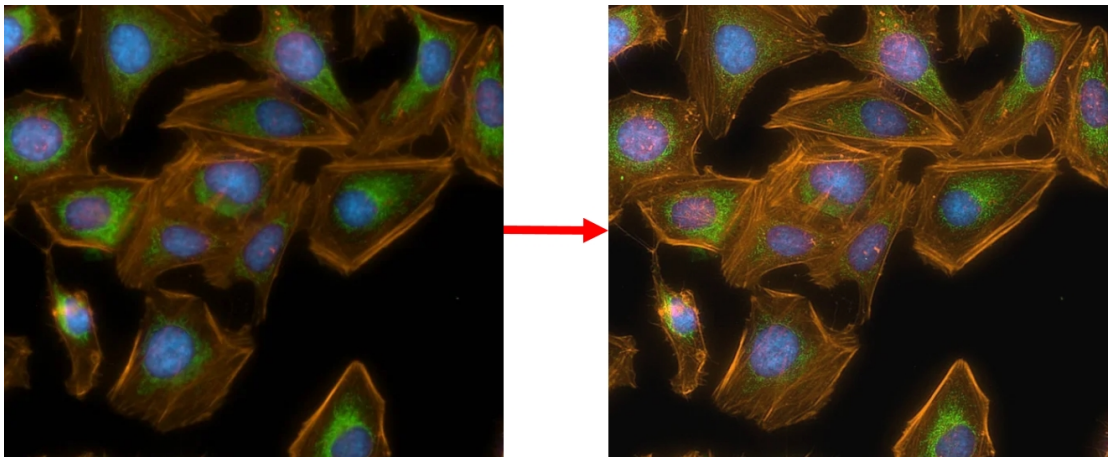
Version 2.5 of the CellReporterXpress Image Acquisition and Analysis software is a minor release. This section summarizes the changes incorporated since the last release of the software.

New Features in CellReporterXpress Version 2.5

The following new features are included in CellReporterXpress Version 2.5.

Digital Confocal

Digital confocal is a new optional (licensed) feature that uses 2D on-the-fly deconvolution to enhance contrast, improve resolution, and sharpen images, significantly increasing assay quality. By restoring light to its original point of origin, digital confocal allows you to decrease exposure time and improve the statistical significance of your observations. Digital confocal is seamlessly integrated into the fluorescent image acquisition workflow.



AutoQuant integrated innovation Digital confocal uses the AutoQuant 2D RealTime Deconvolution algorithm.

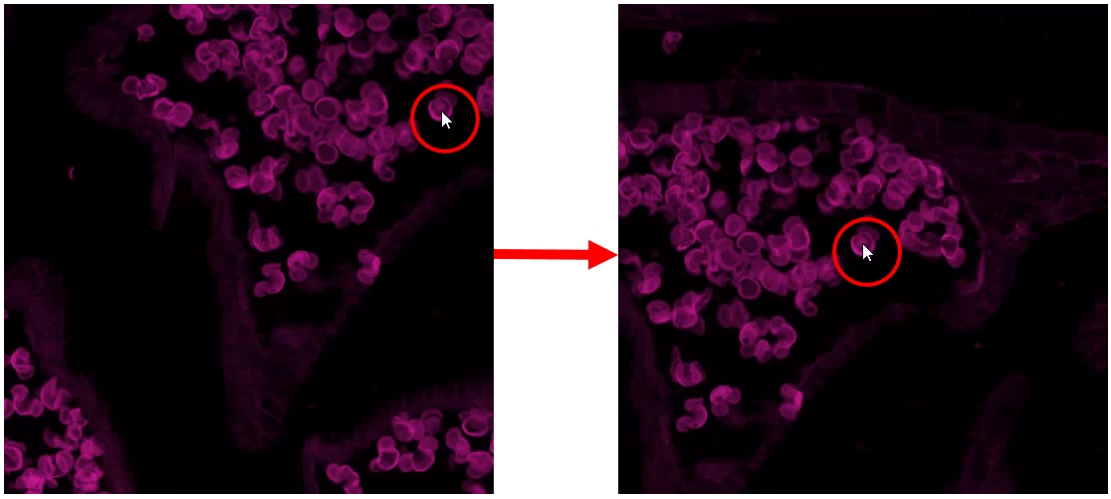
Live Preview

With the new live preview feature, you can move the sample (X-Y) stage to explore a continually updated, dynamic image of your sample. The two virtual joysticks allow you to visualize your experiment before acquisition, which helps you quickly and easily find a region of interest and focus in on what is important to your research.

One joystick controls stage movement, allowing you to pan around the sample.

A second joystick allows you to interactively adjust focus. Once you achieve the right focus, you can set the focus offset for the acquisition.

The "click to center" function centers the image based on the spot that you click. When you locate a region of interest, you can save the current field of view for the acquisition.



ImageXpress Pico System Improvements

Along with the release of version 2.5 of the CellReporterXpress software, the following improvements were made to the ImageXpress Pico system:

Dish Holder

The new, optional dish holder (part number 5077007) is designed for imaging up to six standard culture dishes of 35 mm (1.38 in.) in diameter.

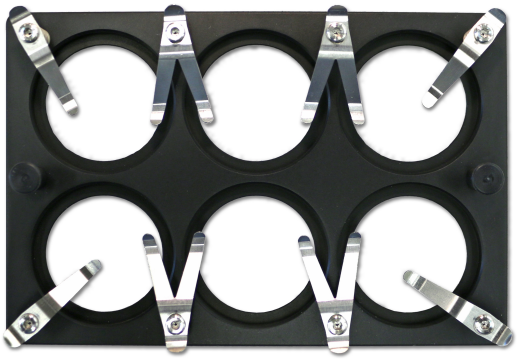
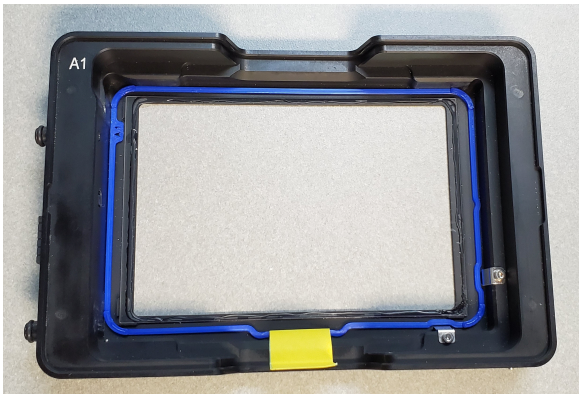


Plate Skirt Height Adapter

The optional environmental control system now includes three plate skirt height adapters (part number 5077006).



Under certain magnifications, a plate with a low skirt height may cause autofocus issues inside the environmental control cassette. The plate skirt height adapter sits inside the environmental control cassette to raise the plate, which can help autofocus succeed.

Push-to-Connect Fittings

The optional environmental control system now includes three ¼" NPT male to 6mm O.D. push-to-connect fittings (part number 5075610).

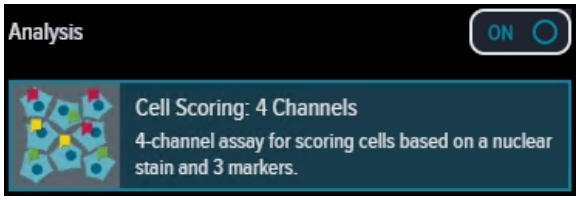
These push-to-connect fittings help you easily connect the regulator of your gas supply to the instrument.

Support for Microsoft Windows Server 2016

Microsoft Windows Server 2016 Standard Edition is now a supported operating system for the CellReporterXpress software.

Four-Channel Multi-Wavelength Cell Scoring

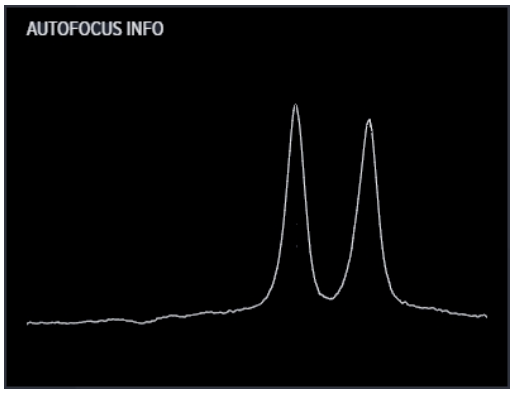
A new, optional analysis (Cell Scoring: 4 Channels) provides the ability to perform analysis with up to four fluorescent stains, furthering enhancing the ability to perform multi-wavelength cell scoring.



The four-channel multi-wavelength cell scoring analysis is ideal for counting and logging measurements of cells in multiple wavelength experiments. Using a fluorescent marker for the nucleus and additional markers for the cytoplasm, each wavelength is analyzed, and cells are assigned multiparametric phenotypic profiles.

Autofocus Info

The CellReporterXpress software uses hardware and software autofocus to determine the best focus for the sample. When autofocus issues occur, they are typically caused by an incorrect configuration in the Labware Library. In many cases, the issue can be addressed by remeasuring plate dimensions and adjusting the labware configuration.



The new Autofocus Info graph on the Acquisition Settings page shows the focus peaks for the most recent autofocus to help you understand how it was determined. You can use the graph along with the information in the *CellReporterXpress Help* and *CellReporterXpress User Guide* to troubleshoot autofocus issues.

Mimetas Protocol Templates

The Template Library includes two new protocol templates that have been designed for the 384 Mimetas OrganoPlate. Use these templates to configure the acquisition of images using these plates.

CellReporterXpress Installation Utility Improvements

The CellReporterXpress Installation Utility has been redesigned to streamline the software installation process.

Increased Security

The CellReporterXpress software uses HTTP for communication. It is important to note that these HTTP connections are not secured or encrypted. You may want to avoid using insecure protocols (such as HTTP) outside of your organization's secured network in favor of using an HTTPS proxy server, which uses SSL/TLS to encrypt communications.

When configuring installations that might be exposed to outside parties, consider securing your CellReporterXpress communications. You can now secure CellReporterXpress data transfers with encryption by installing the software with a security certificate. This type of installation uses a PFX file, which is provided by your IT professional. The PFX file is a password-protected certificate archive that contains the entire certificate chain along with the matching private key.

See the *CellReporterXpress Installation Guide* for details on these increased security options.

Export Stitched TIFF Images from Experiments

You can now easily export stitched TIFF images from a CellReporterXpress experiment for further processing and analysis. Exported images can be scaled to meet the 32K x 32K pixel size required by Molecular Devices® MetaXpress® High-Content Image Acquisition and Analysis Software.

As part of this new feature, the MD Import/Export Service is no longer required by the software. For upgrading users, this service will be removed when you install CellReporterXpress version 2.5.

Documentation Changes

The CellReporterXpress Help and CellReporterXpress User Guide now contain detailed descriptions of each analysis included in the software, including explanations of the input parameters, summary measurements, and cell measurements.

Issues Addressed in CellReporterXpress Version 2.5

The following issues were addressed in CellReporterXpress Version 2.5:

- (CRX-1061) The object segmentation overlay is now visible at full zoom.
- (CRX-1201) For an acquisition that includes both Z stacking and a time series, the recommended interval for the time series now includes the time required to acquire each Z stack plane.
- (ITSP-436) An error no longer results when the Snap Image Size configuration setting is set to Maximum.
- (CRX-1448) When you duplicate a protocol, the selected acquisition region is now identical to the acquisition region the same as the original protocol.
- (CRX-1458) When you reboot the host computer, configuration settings are maintained as expected.
- (CRX-1459) When you select cells in the Cell Zoom Level Scatter Plot, data displays as expected on the Cell Zoom Level Table.
- (CRX-1594) When you automatically calculate the exposure time for a wavelength (by clicking Auto on the Focus/Exposure Settings tab of the Acquisition Settings page), the histogram on the Image Intensity Settings tab updates as expected.
- (CRX-1622) When you acquire a transmitted light image with Z stacking, the first z stack plane is no longer dark.
- (CRX-1640) When you acquire fluorescent or colorimetric images with Z stacking, projection images using the Best Focus setting no longer have a blurred edge artifact.
- (CRX-1808) When exporting a stitched image for which scaling is required, the pixel scaling data in the image metadata is updated as expected.

  Note: If you are using an automated script to import images to another software, you no longer need to add the scaling to the images.

- (CRX-1827) When the instrument is powered off and then powered on again, the software detects the slide holder as expected.
- (CRX-1941) When you acquire a transmitted light image with Z stacking, the projection image is no longer black.
- (CRX-1943) With the environmental control cassette and a 4x objective, the software no longer excludes the following wells from acquisition:
  - With a 12-well plate, the top row of wells can now be selected for acquisition.
  - With a 24-well plate, the top row and both the first and last columns cannot be selected for acquisition.
- (CRX-1947) When using environmental control, and you open the top door of the instrument, gas flow and humidity continue for ten minutes. After ten minutes, gas flow and humidity are shut off and must be restarted manually.

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