SoftMax® Pro

Data Acquisition and Analysis Software

Version 7.1.1

Release Notes

MOLECULAR DEVICES

Version 7.1.1
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Contents

Chapter 1: General Information

The SoftMax® Pro Data Acquisition and Analysis Software controls Molecular Devices® spectrophotometers and absorbance, luminescence, and fluorescence microplate readers and detection platforms.

The software provides extensive data calculation and analysis capabilities under a Good Manufacturing Practices (GMP), Good Laboratory Practices (GLP) work environment for pharmaceutical, biotechnology, academic, hospital, and government customers.

The software includes over 160 assay protocols to speed life science research and drug discovery assay development and screening. You can customize experiment protocols, analyze and display data, and create meaningful reports. The straightforward yet powerful programming capabilities of the SoftMax Pro Software can further enhance specialized data collection and analysis needs through custom assay development.

The SoftMax Pro Software is widely integrated with industry-leading robotics systems.

For additional information, see the following documents:

- *SoftMax Pro Data Acquisition and Analysis Software User Guide*
- *GxP Admin Software User Guide*
- *SoftMax Pro Data Acquisition and Analysis Software Standard Edition and MiniMax Imaging Edition Installation Guide*
- *SoftMax Pro Data Acquisition and Analysis Software - GxP Edition - Installation Guide for the Multi Computer Setup*
- *SoftMax Pro Data Acquisition and Analysis Software - GxP Edition - Installation Guide for the Single Computer Setup*

Computer System Requirements Standard Edition

The SpectraMax® MiniMax™ 300 Imaging Cytometer ships with a computer that meets the computer system specifications for the SoftMax Pro Software - MiniMax Imaging edition.

You can install the SoftMax Pro Software - Standard edition on a computer with the following system specifications.

Requirements: SoftMax Pro Software - Standard Edition

Item	Minimum	Recommended
Processor	Intel Core i3 Dual core	Quad core
Operating system	- Windows 7 Professional or Enterprise, 64-bit with KB3125574 (Convenience Rollup Update for Windows 7 SP1) - Windows 10 Professional or Enterprise, 64-bit - .NET Framework 4.6.1 (.NET Framework is installed automatically by the SoftMax Pro Software installer, if necessary)	- Windows 7 Professional or Enterprise, 64-bit with KB3125574 (Convenience Rollup Update for Windows 7 SP1) - Windows 10 Professional or Enterprise, 64-bit - .NET Framework 4.6.1 (.NET Framework is installed automatically by the SoftMax Pro Software installer, if necessary)
Data connection	USB 2.0 port Network port (depending on the instrument)	USB 2.0 ports For instruments that require an RS-232 serial port, you can use a USB 2.0 port with a Keyspan USB-to-serial adapter. Keyspan USB-to-serial adapters have been field tested and are approved by Molecular Devices. Network port
Memory	4 GB RAM	8 GB RAM
Hard drive	2 GB of available space	5 GB of available space, or more
Graphics display	Graphics display adapter with 32 MB video RAM and 1280x800 or higher resolution display	Graphics display adapter with 32MB video RAM and 1920x1080 or higher resolution display
Software activation	Internet connection or external USB drive	Internet connection or external USB drive

Note: Installation and usage of the SoftMax Pro Software on the Windows XP and Windows 8 operating systems is no longer supported. The software is neither tested nor validated on Windows XP or Windows 8. Windows 7 with 32 bit operating system is also no longer supported. You can install the SoftMax Pro Software - Standard edition on a Windows 7 with 64 bit operating system, but Windows 10 is strongly recommended.

Scalability SoftMax® Pro 7.1.1 GxP Compliance Software Suite

The SoftMax Pro 7.1.1 GxP Compliance Software Suite scales with the size of your laboratory environment. Depending on the size of your implementation, you can install the interdependent SoftMax Pro 7.1.1 GxP Compliance Software Suite components on multiple networked computers. For the smallest of implementations, it is possible to install the components on a single computer. You should consult with your Molecular Devices representative and your network administrators to plan and scale your implementation according to your requirements.

SoftMax Pro 7.1.1 GxP Compliance Software Suite components:

- **GxP Admin Software**: The GxP Admin Software (server) is the database and security back-end application that you install on a dedicated, centrally located server with a static IP address. This server must be accessible to all computers that run the GxP Admin Portal Software and the SoftMax Pro GxP Software. The GxP Admin Software does not have a user interface.
- **GxP Admin Portal Software**: The GxP Admin Portal is the user interface that you use to interact with the GxP Admin Software. Install the GxP Admin Portal Software on a computer or computers that have access to the dedicated server on which you install the GxP Admin Software.
- **SoftMax Pro GxP Software**: The SoftMax Pro GxP Software (client) controls the microplate reader for data acquisition and statistical data analysis. These computers must have access to the dedicated server on which you install the GxP Admin Software.

This scalability has changed the way the software is installed, validated, and supported.

- **SoftMax Pro Software Standard Edition and MiniMax Imaging Edition** - There is no version 7.1.1 for the SoftMax Pro Software Standard edition or the SoftMax Pro MiniMax Imaging edition. You cannot update these editions to version 7.1.1. The current update path is to update from version 7.0.3 (or earlier) to version 7.1.
- **SoftMax Pro Software GxP Edition** - There are two methods to deploy the SoftMax Pro Software - GxP edition:
  - Multi Computer Setup - This setup supports multiple microplate readers connected to multiple computers and Windows Credential login mode. All computers in the multi computer setup are networked to one central secure Microsoft SQL database that you install separately.
  - Single Computer Setup - This setup means that the computer connected to the microplate reader is also the same computer that houses all components of the SoftMax Pro 7.1.1 GxP Compliance Software Suite. This is the only computer that runs the SoftMax Pro GxP software and the only computer that acquires data from the microplate reader. The SoftMax Pro 7.1.1 GxP Single Computer Setup Installation Wizard installs a Microsoft SQL Express database on the computer. The installed database can store up to 10 GB of data with the related System Audit Trail records.

SoftMax Pro 7.1.1 GxP Compliance Software Suite Update Path

CAUTION! If you update the SoftMax Pro Software - GxP edition from a version prior to 7.1, the update to SoftMax Pro Software - GxP edition version 7.1.1 requires time and training to implement. Please contact Technical Support for assistance. See Obtaining Support on page 10.

For the SoftMax Pro Software - GxP edition, the only change between version 7.1 and version 7.1.1 is to remove the dependency on the Docker Desktop application. If you update from SoftMax Pro Software - GxP edition version 7.1 to version 7.1.1 there is no change to the software workflow. This requires a new installation. The database can be migrated.

Computer System Requirements GxP Edition Multi Computer Setup

Install each component in the multi computer setup on computers that have the following system requirements.

Note: If you intend to use Active Directory Single Sign On, your network infrastructure must support Active Directory.

Requirements: Server Computer for GxP Admin Software

Item	Required
Operating system	Windows 10 Enterprise, Windows 10 Pro, Windows Server 2016, or Windows Server 2019 (all 64-bit)
Processor	Intel Core i5 with 8 or more cores or equivalent
Memory	16 GB RAM
Hard drive	50 GB of available space, or more
Database	Microsoft SQL Express or Microsoft SQL Server (either 2016 or 2017)
Additional software	Windows PowerShell 5.1 must be 64-bit. Must allow script execution with the execution policy set to at least `Remote Signed`
Domain Name Service (DNS)	Configured DNS must be active for all computers participating in the multi computer setup

Ports

For the typical multi computer setup the network connections between the computers require that all firewalls and routers be configured to allow data transfer using ports 8210, 8211, 1433, and 1434.

Backup

The multi computer setup assumes that your company network has standard backup and recovery procedures in place for the SQL database.

Requirements: Client Computers for SoftMax Pro GxP Software

Item	Minimum	Standard Performance
Operating system	Windows 10 Enterprise, Windows 10 Pro, Windows Server 2016, or Windows Server 2019 (all 64-bit)	
Processor	Intel Core i5 with 4 cores or equivalent	Intel Core i5 with 8 or more cores or equivalent
Memory	8 GB RAM	16 GB RAM
Hard drive	50 GB of available space, or more	
Additional software	Windows PowerShell 5.1 must be 64-bit. Must allow script execution with the execution policy set to at least `Remote Signed`	

Computer System Requirements GxP Edition Single Computer Setup

CAUTION! You cannot use the SoftMax Pro 7.1.1 GxP Single Computer Setup Installation Wizard to install the SoftMax Pro 7.1.1 GxP Compliance Software Suite on a computer that has version 7.1 installed. You cannot update from version 7.1 to version 7.1.1 on the same computer. When a network connection exists between the computer onto which you install version 7.1.1 and the computer that contains the database for version 7.1, the installation allows you to migrate the version 7.1 database to the new computer for use with the version 7.1.1 software.

For the single computer setup, you install all the SoftMax Pro 7.1.1 GxP Compliance Software Suite components on a computer with the following specifications.

Note: You must have Admin rights on the computer.

SoftMax Pro 7.1.1 GxP Compliance Software Suite - Single Computer Setup

Item	Required
Operating system	Windows 10 Enterprise or Windows 10 Pro (all 64-bit)
Processor	Intel Core i5 processor or higher w/ 8 or more cores (min. 4 cores to install)
Memory	16 GB RAM (minimum 8 GB to install)
Hard drive	50 GB of available space (File and Folder Compression must be disabled)
Network card	Configured and enabled
Database	Microsoft SQL Express will be installed by the wizard (10 GB storage limit)
Additional software	Windows PowerShell 5.1 must be 64-bit and able to execute scripts

Note: If you intend to use Windows Credentials login mode users that use Active Directory or if you need a larger database, you can use the multi computer setup installation steps to install all SoftMax Pro 7.1.1 GxP Compliance Software Suite components on one computer. Contact Molecular Devices support for assistance.

Windows 10 Home edition and Mobile edition are not supported.

Note: The computer cannot have Microsoft SQL installed. The SoftMax Pro 7.1.1 GxP Single Computer Setup Installation Wizard installs a SQL Express database for the SoftMax Pro 7.1.1 GxP Compliance Software Suite.

Note: If the SoftMax Pro GxP Software loses connection with the GxP Admin Software database for more than 30 days, protocol data will not be saved to the database. You should resolve any database connection issue within 30 days.

Required Computer Settings

CAUTION! Disable your anti-virus program before you install the software. Anti-virus programs can interfere with the installation process. If your computer hibernates or turns off during data acquisition, the transfer of data from the instrument to the software can be interrupted.

To prevent data loss turn off all sleep and hibernation settings for the hard disk, the CPU, and the USB ports.

To define computer settings in the Windows Control Panel:

1. Open **Control Panel**.
2. Click **Hardware and Sound**.
3. Under **Power Options**, click **Change When the Computer Sleeps**.
4. Click **Change advanced power settings**.
5. In the Power Options dialog, set **Hard disk > Turn Off Hard Disk After** to **Never**.
6. Set **Sleep > Sleep After** to **Never**.
7. Set **Sleep > Hibernate After** to **Never**.
8. Set **USB Settings > USB Selective Suspend Setting** to **Disabled**.
9. Click **OK**.

Decimal Symbol Must be a Period

For the SoftMax Pro Software to parse or execute calculations, the regional options for the computer must use the period symbol (“.”) for the decimal symbol. This can be an issue if the Region and Language setting for the computer is something other than English.

To set custom regional settings, go to **Control Panel > Clock and Region**.

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, has a link to the Knowledge Base, which contains 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.

You can contact your local representative or Molecular Devices Technical Support at 800-635-5577 X 1815 (North America only) or +1 408-747-1700. In Europe call +44 (0) 118 944 8000.

To find regional support contact information, visit www.moleculardevices.com/contact.

Chapter 2: SoftMax Pro Software Version 7.1.1

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Summary

SoftMax Pro Software Standard Edition and SoftMax Pro Software - MiniMax Imaging Edition

For the SoftMax Pro Software - Standard edition and SoftMax Pro Software - MiniMax Imaging edition, there is no version 7.1.1. These editions will remain at version 7.1. These editions are not affected by the requirements that prompted the creation of version 7.1.1.

Update Eligibility

There is no path to update SoftMax Pro Software - Standard edition and SoftMax Pro Software - MiniMax Imaging Edition to 7.1.1.

The current update path for these editions is to update from version 7.0.3 (or lower) to version 7.1.

Please contact your Molecular Devices representative.

See the *SoftMax Pro Data Acquisition and Analysis Software Standard Edition and MiniMax Imaging Edition Installation Guide*.

SoftMax Pro Software - GxP Edition

For the SoftMax Pro Software - GxP edition, the only change between version 7.1 and version 7.1.1 is to remove the dependency on the Docker Desktop application.

Update Eligibility

SoftMax Pro Software - GxP edition version 7.1.1 eliminates the update path to SoftMax Pro Software - GxP edition version 7.1. Please do not install SoftMax Pro Software - GxP edition version 7.1. Please contact our technical support group immediately for assistance with an update to version 7.1.1.

Note: If you update the SoftMax Pro Software - GxP edition from a version prior to SoftMax Pro Software - GxP edition 7.1, the update to SoftMax Pro Software - GxP edition version 7.1.1 requires time and training to implement. For a list of changes made between SoftMax Pro Software - GxP edition version 7.0.3 and SoftMax Pro Software - GxP edition version 7.1.1 see SoftMax Pro Software Version 7.1 on page 16.

If you update from SoftMax Pro Software - GxP edition version 7.1 to SoftMax Pro Software - GxP edition version 7.1.1 there is no change to the software other than to remove the requirement for the Docker Desktop application.

Compatibility Matrix

The GxP Admin Software version 3.0.1 is compatible with the SoftMax Pro Software - GxP edition version 7.1.1.

- The GxP Admin Software version 3.0.1 is not compatible with any SoftMax Pro GxP Software prior to 7.1.1.
- The SoftMax Pro Software - GxP edition versions prior to version 7.1 must be used with GxP Admin Software version 2.x.

Documentation

For details, see the following documents:

- *SoftMax Pro Data Acquisition and Analysis Software User Guide*
- *GxP Admin Software User Guide*
- *GxP Admin Software Release Notes*
- *SoftMax Pro Data Acquisition and Analysis Software - GxP Edition - Installation Guide for the Single Computer Setup*
- *SoftMax Pro Data Acquisition and Analysis Software - GxP Edition - Installation Guide for the Multi Computer Setup*
- The application online help

New in SoftMax Pro Software 7.1.1

There are no new features in the SoftMax Pro Software version 7.1.1.

Issues Addressed in SoftMax Pro Software 7.1.1

The functionality of the software has not changed other than the software no longer uses the Docker Desktop application.

Removed the Dependency on the Docker Desktop Application

SoftMax Pro 7.1 GxP Compliance Software Suite with GxP Admin Software version 3.0 and SoftMax Pro Software version 7.1 used the Docker Desktop application.

Resolution:

SoftMax Pro 7.1.1 GxP Compliance Software Suite with GxP Admin Software version 3.0.1 and SoftMax Pro Software version 7.1.1 no longer uses the Docker Desktop application.

Impact of fix:

SoftMax Pro Software - GxP edition version 7.1 and GxP Admin Software version 3.0 are deprecated.

Installation Changes

Previously, to install the SoftMax Pro 7.1 GxP Compliance Software Suite, you would run the GxP Admin Software installation wizard and choose the option to install the SoftMax Pro 7.1 GxP Compliance Software Suite in the single computer setup or the multi computer setup. You then needed to run a second wizard to install the GxP Admin Portal Software. After that you needed to run the SoftMax Pro Software installation wizard and select the SoftMax Pro Software - GxP edition.

Resolution:

The installation of the SoftMax Pro 7.1.1 GxP Compliance Software Suite is now independent of the SoftMax Pro Software - Standard edition installation.

For the SoftMax Pro 7.1.1 GxP Compliance Software Suite there are two distinct installation paths:

- Multi Computer Setup
- Single Computer Setup

Impact of fix:

There are no changes in the workflow or functionality between the GxP Admin Portal Software version 3.0.1 / SoftMax Pro GxP Software version 7.1.1 SoftMax Pro GxP Compliance Software Suite and the GxP Admin Software version 3.0 / SoftMax Pro GxP Software version 7.1 SoftMax Pro GxP Compliance Software Suite.

All installation steps have been updated.

Multi Computer Setup

For the multi computer setup, installation is now script-based. See the *SoftMax Pro Data Acquisition and Analysis Software - GxP Edition - Installation Guide for the Multi Computer Setup*.

Single Computer Setup

For the single computer setup, there is now only one wizard. The SoftMax Pro 7.1.1 GxP Single Computer Setup Installation Wizard installs the following:

- GxP Admin Software (No user interface. No version visible.)
- GxP Admin Portal Software version 3.0.1
- SoftMax Pro Software - GxP edition version 7.1.1
- GxP Admin Backup Tool (optional)
- GxP Admin EDB Converter Tool (optional)

See the *SoftMax Pro Data Acquisition and Analysis Software - GxP Edition - Installation Guide for the Single Computer Setup*.

Chapter 3: SoftMax Pro Software Version 7.1

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Summary

SoftMax Pro Software Standard Edition and SoftMax Pro Software - MiniMax Imaging edition

For the SoftMax Pro Software - Standard edition and SoftMax Pro Software - MiniMax Imaging edition, the following new features are available:

New Features:

- Added support for the SpectraMax® ABS Microplate Reader and the SpectraMax® ABS Plus Microplate Reader.
- Changed Auto Save to Auto Export.
- Added a new Function Editor to enable the definition of custom curve fits.
- Added new formulas and accessors.
- Added Legacy Rounding Calculations section of the SoftMax Pro Options dialog.
- Made Protocol Library updates.
- Updated all microplate reader instrument user guides.
- Updated the Formula Reference Guide and corresponding application help.

Update eligibility:

SoftMax Pro Software - Standard edition and SoftMax Pro Software - MiniMax Imaging edition

To update from SoftMax Pro Software - Standard edition or SoftMax Pro Software - MiniMax Imaging edition 7.0.3 and earlier versions to version 7.1, this update follows the procedures that are common to previous updates. However there is no path to update these editions to version 7.1.1. In other words there is no SoftMax Pro Software - Standard edition or SoftMax Pro Software - MiniMax Imaging edition version 7.1.1.

SoftMax Pro Software - GxP edition

Due to issues with the installation of the SoftMax Pro Software - GxP edition version 7.1, the release of the SoftMax Pro Software - GxP edition version 7.1.1 eliminates the ability to update the SoftMax Pro Software - GxP edition to version 7.1. In other words there is no way to install SoftMax Pro Software - GxP edition version 7.1.

CAUTION! If you update the SoftMax Pro Software - GxP edition from version 7.0.3 or earlier, the update to version 7.1.1 requires time and training to implement.

All new features listed above (and described in the following topics) and all issues corrected for the SoftMax Pro Software - Standard edition version 7.1 are included in the SoftMax Pro Software - GxP edition version 7.1.1.

For the SoftMax Pro Software - GxP edition, this update is a completely new application. For details, see the *SoftMax Pro Data Acquisition and Analysis Software User Guide*, the *GxP Admin Software User Guide*, the *GxP Admin Software Release Notes*, and the application online help.

- SoftMax Pro GxP Software version 7.1.1 must be used with GxP Admin Software version 3.0.1.
- SoftMax Pro GxP Software version 7.1.1 supports SoftMax Pro GxP Software version 7.0.x and version 6.x protocol files and data files. You must import these legacy files into the SoftMax Pro GxP Software version 7.1.1 database.
- You can import SoftMax Pro GxP Software version 7.0.x and version 6.x user names into the SoftMax Pro GxP Software version 7.1.1 database but you must update each user's security permissions and assign each user to at least one Project for SoftMax Pro GxP Software version 7.1.1.

The following changes were made to the SoftMax Pro GxP Software for the 7.1 version that now installs as version 7.1.1.

Changes to SoftMax Pro GxP Software - GxP Edition:

- Import legacy files
- Export documents
- Document workflow
- Icons in the Ribbon on the GxP tab
- New Auto Save

New GxP Admin Software Features:

- Web based with a Microsoft SQL database
- Supports Windows Credentials Active Directory LDAP users
- Expanded password strength options
- Projects restrict document access
- Permissions expanded and enhanced

See SoftMax Pro Software Version 7.1.1 on page 11 for additional information.

New in SoftMax Pro Software 7.1

The following new features are included in SoftMax Pro Software version 7.1.

Formula Updates

There are over 80 new operators and the *SoftMax Pro Data Acquisition and Analysis Software Formula Reference Guide* and the Formula Reference application help have been updated to reflect the changes.

Mathematical Functions

The following have been added to the Mathematical functions.

Acosh

Acosh(Parameter)

Returns the inverse hyperbolic cosine of a number, list of numbers, or array of numbers.

Acosh(3) = 1.762747

Erf

Erf(parameter)

Returns the error function erf(x)

Gamma

Gamma(Parameter)

Returns the gamma function for a number, list of numbers, or array of numbers.

Gamma(0.5) = 1.772454

LambertW

LambertW(Parameter)

Returns the Lambert W function (principal branch) for a number, list of numbers, or array of numbers.

LambertW(-0.367879441) = -0.999969

RandNormWithSeed

RandNormWithSeed(Parameter)

Same as for operator RandNorm but specifying a number for the seed of the random number generator so that the result does not change when recalculated.

Statistical Functions

The following have been added to the Statistical Functions.

EDSMarkOutliers

ESDMarkOutliers(data,maxOutliers,significance)

Returns the items in a list or array of numbers, with outliers, as identified by the Rosner extreme studentized deviate test, replaced by MakeErr(139) which is displayed as "Outlier".

The maximum number of outliers and significance for the test must be specified.

EDSOutlierIndicies

Returns the indices of any items in a list or array of numbers identified as outliers by the Rosner extreme studentized deviate test. The maximum number of outliers and significance for the test must be specified.

NormalCDF

NormalCDF(Parameter)

Returns the normal distribution cumulative distribution function. The Parameter is a number, list, or array of numbers.

NormalCDFInv

NormalCDFInv(Parameter)

Returns the inverse of the normal distribution cumulative distribution function.

ROUTMarkOutliers

ROUTMarkOutliers(data,functionSelector,Q)

Given an array list of data in the form x~y or x~y~w (x, y, w are equal-sized arrays of the x, y, and weight values respectively), returns an array of the y-values, with any values identified as outliers by the ROUT test (Motulsky and Brown BMC Bioinformatics 2006 7:123), replaced by MakeErr(139).

Outliers are identified based on a curve fit model specified by the function selector.

Q is a number between 0 and 1 which tunes the selectivity of the algorithm, and which becomes more aggressive in identifying outliers as Q increases; the authors recommend the value 0.01.

If the calculation fails the result is an empty array.

ROUTOutlierIndices

ROUTOutlierIndices(data,functionSelector,Q)

Given data, function selector, and Q value, returns the indices of any items identified as outliers by the ROUT test. See ROUTMarkOutliers above.

ShapiroWilk

ShapiroWilk(Parameter)

Returns the Shapiro Wilk statistic of a list or array of up to fifty numbers.

ShapiroWilkPercentagePoint

ShapiroWilkPercentagePoint(p,N)

Returns the Shapiro Wilk percentage point with percentage p for N samples. To be used for normality testing in conjunction with the ShapiroWilk function. Supported percentages are: 1,2,5,10,50,90,95,98,99.

ShapiroWilkRoystonProbability

ShapiroWilkRoystonProbability(Parameter)

Returns the p-value for the Shapiro Wilk normality test as extended by Royston. The parameter is a list or array of up to five thousand numbers.

Graph Functions

The following have been added to the Graph functions.

AICc

AICc(PlotName)

Returns the corrected Akaike criterion for the curve fit model. This can be used to compare models which need not be nested.

FProbCompare

FProbCompare(PlotName1,PlotName2)

Returns the probability corresponding to FStatCompare.

FProbLackOfFit

FProbLackOfFit(PlotName)

Returns the probability corresponding to FStatLackOfFit.

FProbLackOfFitPLA

FProbLackOfFitPLA(PlotName)

Returns the probability corresponding to FStatLackOfFitPLA.

FProbRegression

FProbRegression(PlotName)

Returns the probability corresponding to FStatRegression. It is an F-test where the null hypothesis is that slope of the data is zero.

FStatCompare

FStatCompare(PlotName1,PlotName2)

Returns the F-statistic for extra-sum-of squares ANOVA comparing two nested curve fit models.

PlotName1 corresponds to the model with fewer variable parameters.

FStatLackOfFit

FStatLackOfFit(PlotName)

Returns the lack-of-fit F-statistic, which is applicable to data sets with replicate measurements.

FStatLackOfFitPLA

FStatLackOfFitPLA(PlotName)

Returns the lack-of-fit F-statistic for a PLA fit, which is applicable to data sets with replicate measurements.

FStatRegression

FStatRegression(PlotName)

Returns the F-statistic comparing the model to a linear fit with slope zero.

InterpXInRange

InterpXInRange(PlotName,Yvalues,x1,x2)

Similar to InterpX but an allowable range for x is specified by parameters x1, x2.

InterpYCILower

InterpYCILower(PlotName,Xvalues)

Returns the confidence interval lower limit of the function value (confidence band) at the specified X values.

InterpYCILowerInterpX

InterpYCILowerInterpX(PlotName,Yvalues)

Returns X values of lower confidence band at the specified Y values.

InterpYCILowerInterpXInRange

InterpYCILowerInterpXInRange(PlotName,Yvalues,x1,x2)

Returns X values, between x1 and x2, of lower confidence band at the specified Y values.

InterpYCIUpper

InterpYCIUpper(PoltName,Xvalues)

Returns the confidence interval upper limit of the function value (confidence band) at the specified X values.

InterpYCIUpperInterpX

InterpYCIUpperInterpX(PlotName,Yvalues)

Returns X values of upper confidence band at the specified Y values.

InterpYCIUpperInterpXInRange

InterpYCIUpperInterpXInRange(PlotName,Yvalues,x1,x2)

Returns X values, between x1 and x2, of upper confidence band at the specified Y values.

InterpYPILower

InterpYPILower(PlotName,Xvalues)

Returns the prediction interval lower limit of the function value (prediction band) at the specified X values.

InterpYPILowerInterpX

InterpYPILowerInterpX(PlotName,Yvalues)

Returns X values of lower prediction band at the specified Y values.

InterpYPILowerInterpXInRange

InterpYPILowerInterpXInRange(PlotName,Yvalues,x1,x2)

Returns X values, between x1 and x2, of lower prediction band at the specified Y values.

InterpYPIUpper

InterpYPIUpper(PlotName,Xvalues)

Returns the prediction interval upper limit of the function value (prediction band) at the specified X values.

InterpYPIUpperInterpX

InterpYPIUpperInterpX(PlotName,Yvalues)

Returns X values of upper prediction band at the specified Y values.

InterpYPIUpperInterpXInRange

InterpYPIUpperInterpXInRange(PlotName,Yvalues,x1,x2)

Returns X values, between x1 and x2, of upper prediction band at the specified Y values.

InterpYVariance

InterpYVariance(PlotName,Xvalues)

Returns the variance of the function value at the specified X values.

NormalOrderStatisticMedians

NormalOrderStatisticMedians(n)

Returns the list of normal-ordered statistic medians for the specified number of data points (n).

A normal probability plot can be constructed by plotting the data against this list. For normally distributed data, the points should fall approximately on a straight line, so that normality can be assessed visually or by linear regression.

The parameter value must match the number of data points in the column or group of interest.

For example, if the data you are analyzing has 48 data points, the formula would be:

NormalOrderStatisticMedians(48)

Parm_Covar

Replace _ with either A, B, C, D, G, H, I, or J.

Parm_Covar(PlotName)

Returns, as a list, the covariance of the parameter with respect to all other parameters used in the curve fit.

Parm_RatioFiellerCI

Replace _ with either A, B, C, D, G, H, I, or J.

Parm_RatioFiellerCI(PlotName1,PlotName2,alpha)

Returns the confidence interval of the ratio of the parameter for the specified plots (PlotName1 corresponds to the numerator in the ratio). The significance for the confidence interval is specified by alpha.

Residuals

Residuals(PlotName)

Returns a list of residuals of the plot. Useful in assessing the suitability of a curve fit model, either visually by plotting or with a normality test.

WeightingFormula

WeightingFormula(PlotName)

Returns (as text) the curve fit weighting formula.

Array Functions (formally known as Other Functions)

The following have been added to the Array functions. This category was previously named Other Functions.

ArithmeticSeries

ArithmeticSeries(N,initial,increment)

Returns an array of numbers comprising an arithmetic series with N items, specifying the initial value and increment.

ArraySection

ArraySection(data,fromIndex,toIndex)

Returns an array of items from array data, specifying the range of indices.

BinnedItems

BinnedItems(data,bins)

Given a sorted (ascending order) array of numbers and an array list of bins as index pairs, returns an array list containing the binned items.

GeometricSeries

GeometricSeries(N,initial,factor)

Returns an array of numbers comprising a geometric series with N items, specifying the initial value and multiplicative factor.

IndexedItems

IndexedItems(data,indices)

Returns an array containing items from the array data at the specified indices.

MakeBins

MakeBins(data,N)

Given a sorted (ascending order) array of numbers and number of bins N, returns N bins of uniform size as an array list of index pairs.

RandNormArray

RandNormArray(N)

Returns an array of N normally distributed random numbers with mean 0 and variance 1.

RandNormArrayWithSeed

RandNormArrayWithSeed(N)

As for RandNormArray but specifying the seed for the random number generator so that the result is reproducible.

RemoveIndexedItems

RemoveIndexedItems(data,indices)

Returns an array containing items from the array data with the specified items removed.

Reverse

Reverse(Parameter)

Returns the list or array parameter with items reversed.

SelectedIndices

SelectedIndices(Parameter)

Returns the indices of the items in the specified Boolean array that are true.

Transpose

Transpose(Parameter)

Returns the transpose of a list, array, or array list.

Text Functions

The following have been added to the Text functions.

TextToArray

TextToArray("Text1","Text2")

Returns an array of text strings in Text1, with the separator character specified by Text2. An array of separators may also be specified.

TextToArray("500 600"," ") = 500

600

Curve Fit Functions

The following is an entirely new category of functions. The functions in this section make it possible to perform least-squares regression without reference to a graph section. Data are specified as an array list x ~ y or x ~ y ~ w, where x, y, and w are lists of numbers for the independent variable, dependent variable and weighting respectively. Note that x ~ y1 ~ w1 ~ y2 ~ w2 ~..~ yN ~ wN may be used to specify N-replicates for each x. All lists must have the same number of items.

There are four ways to specify curve fit functions.

- Explicit Curve Fit Functions
- Implicit Curve Fit Functions
- 3D Curve Fit Functions on page 86
- Differential Curve Fit Functions

Explicit Curve Fit Functions

An explicit curve fit function is specified either by a function selector (as obtained from the FunctionSelector function) or as a formula f(x). The formula may be a text string, or optionally an array of strings with the parameter derivatives following the formula. The syntax is as in summary formulas, except that document references such as accessors are not allowed. The independent variable is denoted x.

CurveFitParameters

CurveFitParameters(data,functionSelector)

Given data and function selector, returns a list of the parameter estimates.

CurveFitSumOfSquaredErrorsProfile

CurveFitSumOfSquaredErrorsProfile

(data,functionSelector,parameterIndex,parameterValues)

Given data, a function selector, a parameter index and list of parameter values, returns a list with the sum-of-squared errors for each parameter value.

FunctionDerivative

FunctionDerivative(functionSelector, parameters, x)

Given a function, a list of the parameter values, and a number or list of numbers x, returns the function derivative value(s) at x.

FunctionIntegral

FunctionIntegral(functionFormula, parameters, xRange)

Given a function, parameter values, and an array list of x ranges in the form x1 ~ x2, returns an array containing the definite integrals of the function over those ranges.

FunctionInverseValue

FunctionInverseValue(functionFormula, parameters, yWithRange)

Given a function, parameter values, and y with a range x1, x2 for its inverse in the form of an array list y ~ x1 ~ x2, returns x such that y = f(x) and x1 <= x <= x2.

FunctionParameterDerivatives

FunctionParameterDerivatives(functionFormula, parameters, x)

Given a function, a list of the parameter values, and a number x, returns the derivatives of the function at x with respect to the parameters.

FunctionSelector

FunctionSelector(key)

Returns a whole number which may be used as a selector for a standard curve fit function identified by a text key from the following list: LINEAR, QUADRATIC, CUBIC, QUARTIC, SEMILOG, LOGLOG, 4P, 5P, EXP, RH, 2PEXP, BIEXP, BIRH, 2SITECOMP, GAUSSIAN, BC, 5PALT, RHL. The key is not case sensitive.

FunctionValue

FunctionValue(functionFormula, parameters, x)

Given a function, a list of the parameter values, and a number or list of numbers x, returns the function value(s) at x.

GlobalRegressionMetrics

GlobalRegressionMetrics(data, functionFormula,initialParameters, indexMap)

As for GlobalRegressionParameters, but returns associated regression metrics as a list of numbers: the sum-of-squared errors, degrees of freedom, and coefficient of determination (R2).

GlobalRegressionParameterCovarianceMatrix

GlobalRegressionParameterCovarianceMatrix(data, functionFormula,initialParameters, indexMap)

As for GlobalRegressionParameters, but returns the associated parameter covariance matrix.

GlobalRegressionParameters

GlobalRegressionParameters(data, functionFormula,initialParameters, indexMap)

Given multiple data sets in the form of an array list x1 ~y 1 ~ w1 ~ x2 ~ y2 ~ w2, ...xN ~y N ~ wN, a function, initial parameter values, and an index map specifying which parameters are used for which sets in the form of an array of lists of parameter indices, returns a list of the parameter estimates.

ParameterCovarianceMatrix

ParameterCovarianceMatrix(data, functionFormula, parameters)

Given data, a function, and a list of the parameter values, returns the parameter covariance matrix as an array list of numbers.

ParameterIndependenceValues

ParameterIndependenceValues(data, functionFormula, parameters)

Given data, a function, and a list of the parameter values, returns the independence values for all parameters.

ParameterMarginalIntervals

ParameterMarginalIntervals(data, functionFormula, parameters, SSE)

Given data, a function, a list of the parameter values, and a sum-of-squared errors, returns the marginal confidence intervals for all parameters.

RegressionMetrics

RegressionMetrics(data, functionFormula, parameters)

Given data, a function, and parameter values, returns a list of numbers: the sum-of-squared errors, degrees of freedom, and coefficient of determination (R2).

RegressionParameters

RegressionParameters(data, functionFormula,initialParameters)

Given data, a function, and a list of initial parameter values, returns a list of the parameter estimates.

RegressionParametersFixable

RegressionParametersFixable(data, functionFormula, initialParameters, parametersVariable)

As for RegressionParameters, but allowing some parameters to be fixed, as specified by the array of Booleans parametersVariable, with a variable parameter designated as true.

Implicit Curve Fit Functions

The following functions accept a formula f(x, y) defining an implicit curve fit function y(x) such that f(x, y) = 0. The formula is specified by a text string referencing variables x and y.

ImplicitFunctionInverseValue

ImplicitFunctionInverseValue(functionFormula, parameters, yWithRange)

Given an implicit function, parameter values, and y with a range x1, x2 for its inverse in the form of an array list y ~ x1 ~ x2, returns x such that f(x, y) = 0 and x1 <= x <= x2.

ImplicitFunctionValue

ImplicitFunctionValue(functionFormula, parameters, x)

Given an implicit function, a list of the parameter values, and a number or list of numbers x, returns the function value(s) at x.

ParameterCovarianceMatrixImplicit

ParameterCovarianceMatrixImplicit(data, functionFormula, parameters)

Given data, an implicit function, and a list of parameter values, returns the parameter covariance matrix as an array list of numbers.

RegressionParametersImplicit

RegressionParametersImplicit(data,functionFormula,initialParameters)

Given data, an implicit function, and initial parameter values, returns a list of the parameter estimates.

3D Curve Fit Functions

The following functions accept a formula defining a curve fit function of two independent variables f(x, y). The formula is specified by a text string referencing variables x and y. 3D data must be an array list with format x ~ y ~ z or x ~ y ~ z ~ w, where x, y, z, are lists of the data and w a list of the associated weights. All lists must have the same number of items.

FunctionValue3D

FunctionValue3D(functionFormula, parameters, xyPoints)

Given a function, a list of the parameter values, and an array of lists of x and y values, returns the function value(s) at the specified x and y points.

RegressionParameters3D

RegressionParameters3D(data, functionFormula,initialParameters)

Given data, a function, and a list of initial parameter values, returns a list of the parameter estimates.

RegressionParameters3DFixable

RegressionParameters3DFixable(data, functionFormula, initialParameters, parametersVariable)

As for RegressionParameters3D, but allowing some parameters to be fixed, as specified by the array of booleans parametersVariable, with a variable parameter designated as true.

Differential Curve Fit Functions

The following functions accept a formula to define a function that is a solution of a system of first-order differential equations. A differential function is specified by an array list of text strings with one row for each component fi with the format fi ~ dfi /dx or fi ~ dfi /dx ~ Ji ~ dJi dx, where J denotes the Jacobian matrix. In the formula, components are identified by the symbols f1, f2, ... ,f8. The value of the function is that of the first component (f1).

RegressionParametersDifferential

RegressionParametersDifferential(data, initialX, functionFormula, initialParameters)

Given data, the initial x value, a function, and initial parameter values, returns a list of the parameter estimates.

DifferentialFunctionValue

DifferentialFunctionValue(initialX, functionFormula, initialParameters,x)

Given data, a function, parameter values, and a number or list of numbers x, returns the function value(s) at x.

Miscellaneous Functions

The following are new miscellaneous functions.

KMeansClusters

KMeansClusters(data,N,i)

Given a multi-dimensional data set, specified by an array list of numbers, data, with a column for each dimension, the number of clusters, N, and the number of iterations, i, returns the clusters. The output is an array list with a row of data item indices for each cluster (can be used in KASP assay (genotyping) analysis).

LinearDiscriminantVector

LinearDiscriminantVector(Parameter1,Parameter2)

Returns the linear discriminant vector for two multi-dimensional data sets, parameter1 and parameter2. Each data set is specified by an array list of numbers, with a column for each dimension.

LinearSolution

LinearSolution(Parameter1,Parameter2)

Returns the solution of a system of linear equations Ax = b; parameter1 is an array list of numbers specifying the coefficients, A, and parameter2 is the right hand-side b. The returned array is the solution x (can be used for multi-component analysis).

PrincipalComponents

PrincipalComponents(Parameter)

Returns the principal component vectors of a multi-dimensional data set specified as an array list of numbers, with a column for each dimension.

PrincipalComponentsEigenvalues

PrincipalComponentsEigenvalues(Parameter)

Returns the principal component eigenvalues of a multi-dimensional data set specified as an array list of numbers, with a column for each dimension.

RowIndices

RowIndices(Parameter)

Given an array list of numbers, returns an array containing the index of the row in which each number occurs. Use in conjunction with KMeansClusters to determine cluster assignments.

Protocol Library Updates

The following changes have been made to the SoftMax Pro Software Protocol Library.

New protocols for 7.1:

- CatchPoint SSE (F3-F5)
- CatchPoint SSE (i3-i3x)
- CatchPoint SSE (iD3-iD5)
- CatchPoint SSE (Paradigm)
- CatchPoint SSE
- MitoXpress Xtra
- pH-Xtra

Revised protocol:

- BCA
- Validation plate protocols have been updated to remove EzCert references.

Legacy Rounding

The SoftMax Pro Options dialog, in the Calculations category, has a Legacy Rounding check box to improve consistency with the SoftMax Pro Software version 5. This introduces a small factor to force rounding upward.

Function Editor for Custom Curve Fits

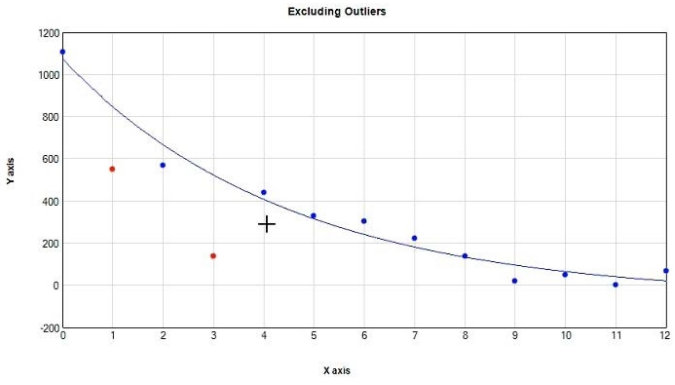
The Operations tab now includes a  icon to access the Function Editor dialog.

The Function Editor dialog enables you to specify functions for custom curve fits. These functions are functions of a single independent variable, x, and a set of parameters denoted A, B, C, D, G, H, I, J. They supplement the curve fits that are included with the software and you can use custom curve fits anywhere within the protocol in which they are defined.

A custom function is available to fit data in any graph section in the protocol in which it is defined. In the list of curve fits options, the curve fits you create in the Function Editor display in the Custom category. You must assign initial parameter values in the Curve Fit Settings dialog. This is in contrast to the built-in functions for which initial values may be specified but are not required. Initial parameter values are formulas and may contain document references. A parameter may be fixed at its initial value. After you assign the initial parameter value, the software stores the initial value formulas in the protocol.

Outlier Tests (Grubbs, Rosner, ROUT)

SoftMax Pro offers the tools to conduct Grubbs, Rosner and ROUT outlier tests.



The ROUT method allows outlier testing based on a curve fit. Outlier tests are convenient tools to justify the exclusion of outliers from compliance data based on a reproducible, mathematically established method.

Auto Export

Data can be exported to a location outside the database. Various file formats are available to support the import into other data collection and storage applications—specifically LIMS (Laboratory Information Management System) or SDMS (Scientific Data Management System) packages.

Auto Save

In SoftMax Pro GxP the file name and/or storage location of a Released document can be defined at the design stage, status In Work.

Additional improvements include that new documents must be saved before they can be modified and documents are automatically saved before and after a read to prevent the loss of data.

To export files out of the database, please use Auto-export.

Document Workflow

The document life-cycle in a compliant lab consists of multiple different development and review steps and requires a system to indicate the document state. The status system allows a Project team to track and approve documents while the document moves through the pipeline of development, review, release and usage in a controlled environment.

There are two types of documents:

- Protocols contain instrument settings, notes, statements, group settings, graph settings, and so on. Protocols do not contain data.
- Data documents contain everything from the protocol plus the data that the instrument collects and the results of the formula calculations that are set up in the protocol.

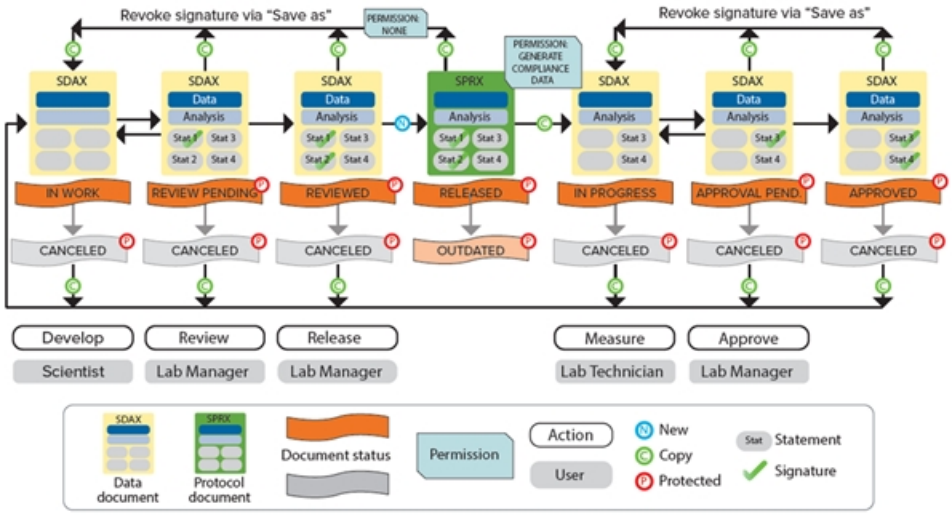
Document Statuses

The SoftMax Pro 7.1.1 GxP Compliance Software Suite installation includes three default Roles: Scientist, Lab Technician, and Lab Manager. The default permissions for these Roles correspond with the document statuses that are present in the SoftMax Pro GxP Software. You can modify the default Role permissions, if needed.

SoftMax Pro GxP Software document statuses:

- In Work
- Review Pending
- Reviewed
- Released
- In Progress
- Approval Pending
- Approved
- Outdated
- Canceled

The following diagram illustrates the correlation of each document status with the permissions assigned to the default Roles.



The following section provides an example of a document workflow that corresponds to the default Roles. Your laboratory can define Roles and document workflows that meet your needs.

In Work Document Status - Scientist Role

Scientists open and save new data documents and define instrument settings in Plate sections and define data analysis formulas in the Group sections and Note sections. The software assigns a new document the status In Work. Scientists add statements to the document to provide communication to the other users responsible for the document. Scientists sign the first statement to prevent further edits and set the document status to Review Pending.

Review Pending Document Status - Lab Manager Role

Lab managers review data documents with the status Review Pending, sign the second statement, and set the document status to Reviewed.

Reviewed Document Status - Release Protocol - Lab Manager Role

If the data document with the status Reviewed is correct, lab managers then release the documents as a protocols. The software saves protocols with the status Released to enable reuse.

If the document has a newer iteration or is incorrect, lab managers can set documents that have the status Released to the Outdated status.

In Progress Document Status - Lab Technician Role

Lab technicians open protocols with the Released status and the software prompts the lab technicians to save protocols as data documents before they can run the experiments. Because the Lab Technician Role has the Generate Compliance Data permission, the software sets the data documents status to In Progress and removes the two signed statements. This allow lab technicians to run the experiments and generate compliance data.

When lab technicians finish their work, they sign a statement to prevent further changes and set the document status to Approval Pending.

Approval Pending Document Status - Lab Manager Role

Lab managers confirm that documents with the Approval Pending status meet regulatory requirements, sign a statement, and set the document status to Approved.

Canceled Document Status

Users with appropriate permissions can set the document status to Canceled at the applicable points in the document workflow.

Issues Addressed in SoftMax Pro Software 7.1

The following issues were addressed in SoftMax Pro Software version 7.1.0.

File Path Does Not Display in Printed .sprx Files

Tracking ID: 422

On the Printing Options dialog, when the user selects to display File Path and Name in the footer, the footer in the printout displays “Untitled1” rather than the path and name of the file for the .sprx. The file path and name is only retrievable from the respective file audit trail.

Resolution:

File Name and Path now display correctly in the printout.

Impact of fix:

This fix has no impact on current workflow or data.

ABS and TUNE OQ Protocol Errors

Tracking ID: 73

Discrepancy between IQOQ and protocol.

Accuracy %=-1; validating magnitude at 1.7 OD is smaller than 2.6 => Acceptable

Resolution:

Fixed tolerance for hysteresis in Note section Criteria/Alignment. Moved bulk notes section from first into last section Appendix Added Release Notes

Impact of fix:

This fix has no impact on current workflow or data.

Installation Takes Too Long

Tracking ID: 81

The install on the customer computer takes 5-10 minutes just to collect the information. The install time hangs for 5-10 minutes on the .NET component installation then completely hangs on the license component installation. When finished, the license manager could not be found. The HASP service is installed and running.

Resolution:

Corrected the installation package.

Impact of fix:

This fix has no impact on current workflow or data.

Error Bar Menu Blank

Tracking ID: 98

When the user plots data, they want to set the Y axis Error to No Error. When they plot 2 curves and set both to No Error, then close and open the data file, the second data set Y Axis Error does not explicitly show No Error – instead it defaults to a blank field.

Resolution:

This is a cosmetic issue. The error bars play no role in data analysis, so by definition there is no impact on data analysis. The error bars display correctly.

Impact of fix:

This fix has no impact on current workflow or data.

Double-Right Click Allows Bypass Locked Sections

Tracking ID: 173

A GxP user with permission to only Read Plate and Edit Formulas (nothing else) opens a GxP data file that has all sections locked. If the GxP user double right-clicks on the Summary formula, the user is able to edit the formula despite the section being Locked.

Only Summary formulas are affected by this right-click behavior. .

Resolution:

Updated permission enforcement to prevent the above behavior.

Impact of fix:

This fix has no impact on current workflow or data.

Validation Package - IQ Test Files

Tracking ID: 180

SoftMaxPro_GxP_Software_Installed_Files.txt is not easily human readable.

Resolution:

The SoftMaxPro_GxP_Software_Installed_Files.txt file has been replaced by an Installation Qualification Tool application that is included on the Validation Package CD.

Impact of fix:

See user documentation and updated application help.

Force Two Different Reviewers To Sign Two Statements

Tracking ID: 185

Customer requested the ability to force the signature of two statements by two different reviewers to add improved level of security.

Resolution:

New document workflow and signature procedures includes this requested feature.

Impact of fix:

See user documentation and updated application help.

Sign Protocol Files

Tracking ID: 184

Customer requested the ability to add a digital signature for protocols to provide an additional level of security.

Resolution:

New document workflow and signature procedures includes this requested feature.

Impact of fix:

See user documentation and updated application help.

Auto Save Does Not Work As Expected

Tracking ID: 186

When Auto Save is enabled in a GxP environment, the saved file is not automatically opened in the software and the unsaved copy is still open as 'untitled 1'.

Resolution:

Previous Auto Save has been renamed Auto Export and an entirely new Auto Save feature has been added to the SoftMax Pro Software - GxP edition.

Impact of fix:

See user documentation and updated application help.

Deactivate Account After Three Consecutive Logon Failures

Tracking ID: 189

When a user closes the SoftMax Pro Software window, the login failure count is reset.

Resolution:

User is now blocked after three failed login attempts and cannot reset the count by restarting the software.

Impact of fix:

This fix has no impact on current workflow or data.

Unable To Print Audit Trail

Tracking ID: 192

User unable to completely print the audit trail. Other parts of the data file print fine but the audit trails does not print completely and an error message displays.

Resolution:

Corrected the issue. Audit trail information prints correctly.

Impact of fix:

This fix has no impact on current workflow or data.

Display User ID in Statements

Tracking ID: 194

Customer requested that statements display both username and user ID.

Resolution:

Statements now the display the user ID.

Impact of fix:

This fix has no impact on current workflow or data.

Windows 10 Update Causes Errors

Tracking ID: 198

The Microsoft Windows 10 Fall Creators Update - Build 1709 caused errors for the SoftMax Pro software. This issue is caused by the Web Browser control.

Resolution:

The What's New tab and the SoftMax Pro integrated Web Browser has been reconfigured to display the Molecular Devices web pages in a Web Browser that is not integrated in the SoftMax Pro application.

Impact of fix:

See user documentation and updated application help.

SpectraMax i3x Firmware Issues When Dual Software Versions Used

Tracking ID: 202

For a computer that uses the Windows 7 Pro, SP1, 64 bit, Japanese operating system that has both the SoftMax Pro version 7.0.2 and SoftMax Pro version 7.0.3 installed together, the user can correctly connect and control the SpectraMax i3x microplate reader with SoftMax Pro version 7.0.2 but cannot use the instrument with SoftMax Pro version 7.0.3 in a standard manner.

When connecting SoftMax Pro version 7.0.3 to the instrument, a firmware update is required even if the firmware update was already done.

Resolution:

Corrected the issue.

Impact of fix:

This fix has no impact on current workflow or data.

Plate Section Start Time Is Different From Audit Trail

Tracking ID: 213

The plate read time does not match the start time in the audit trail.

Resolution:

Corrected the issue.

Impact of fix:

This fix has no impact on current workflow or data.

Audit Trail Entry for Unsaved Measurements

Tracking ID: 215

Customer requested the ability to have an audit trail entry for when a measurement was performed but the data file has not been saved.

Resolution:

New document workflow and audited events includes this requested feature.

Impact of fix:

See user documentation and updated application help.

Print - Page Breaks Cut Off Content

Tracking ID: 217

Information is cut off in the footers when a document is printed.

Resolution:

Corrected the issue.

Impact of fix:

This fix has no impact on current workflow or data.

Cuvette Data Only Prints Correctly Under Draft Print Settings

Tracking ID: 220

When Cuvette Set data is printed, the data only prints correctly under Draft print settings. If the Print Settings are set to "Better" or "Best" then data becomes increasingly cropped.

Resolution:

Corrected the issue.

Impact of fix:

This fix has no impact on current workflow or data.

Audit Trail Displays Mixed Language Format For the Date/Time

Tracking ID: 239

The date/time format in the SoftMax Pro GxP 7.0.2 audit trail displays mixed language format.

Resolution:

Corrected the issue.

Impact of fix:

This fix has no impact on current workflow or data.

Audit Trail Display Switches Duplicated Experiment Information

Tracking ID: 252

When a user creates a new experiment based on another experiment, the audit trail displays the information for the source experiment switched with the new experiment.

For example:

If Expt2 is created based on BasicEndpoint, the audit trail displays BasicEndpoint was created based on Expt2.

Resolution:

Corrected the issue.

Impact of fix:

This fix has no impact on current workflow or data.

Recent Documents List Displays "0." In the List

Tracking ID: 254

The Recent Documents list from the Application menu displays an additional document "0" at the bottom of the list.

Resolution:

Corrected the issue.

Impact of fix:

This fix has no impact on current workflow or data.

Add a Note When Masking Wells

Tracking ID: 259

Customer requested the ability to add a note when masking wells.

Resolution:

Functionality added.

Impact of fix:

See user documentation and updated application help.

Auto Save Invalid Path Messages

Tracking ID: 269

User defined a valid path for Auto Save but messages display stating the path is invalid.

Resolution:

Auto Save has been renamed Auto Export and the issue has been corrected.

Impact of fix:

See user documentation and updated application help.

SpectraMax iD5 Connection Results in Offline Reading

Tracking ID: 296

The connection between a SpectraMax iD5 and the SoftMax Pro Software is lost when reading several consecutive plates (no workflow) and instrument keeps on reading in simulation mode adding fake results. Connection can be lost also before a read.

This is caused by system changes that comes with latest Microsoft Windows 7 and 10 Updates

Resolution:

Corrected the issue.

Impact of fix:

This fix has no impact on current workflow or data.

SpectraMax iD3 Connection Issue

Tracking ID: 283

User had an issue using SMP7.03 on a Win10 PC that resulted when a workflow paused, mostly after shaking. The user needed to reconnect the software to the reader in order to resume the workflow.

Additional error messages displayed. The user clicked OK and the workflow continued but eventually a 'Time Out' message appeared.

This is caused by system changes that comes with latest Microsoft Windows 7 and 10 Updates

Resolution:

Corrected the issue.

Impact of fix:

This fix has no impact on current workflow or data.

SpectraMax iD5 Closing Plate Drawer Caused Lost Connection

Tracking ID: 284

User experienced a connection issue of connection with the SpectraMax iD5 when they used the SoftMax Pro software to close the plate drawer. No error message displayed. The instrument performs a read in simulation mode.

This is caused by system changes that comes with latest Microsoft Windows 7 and 10 Updates

Resolution:

Corrected the issue.

Impact of fix:

This fix has no impact on current workflow or data.

SpectraMax iD5 Shake Workflow Causes Connection Error

Tracking ID: 302

When a user adds a shake task to a workflow for the SpectraMax iD5, a connection error occurs.

This is caused by system changes that comes with latest Microsoft Windows 7 and 10 Updates

Resolution:

Corrected the issue.

Impact of fix:

This fix has no impact on current workflow or data.

Accessor for the Analyst/Username

Tracking ID: 287

Customer requested the addition of a formula accessor for the username.

Resolution:

Added an accessor for username.

Impact of fix:

See user documentation and updated application help.

SpectraMax L Settings Dark Adapt Number Cannot Be Less Than 1 Minute

Tracking ID: 288

Dark adapt can go below 0.5 minutes in fast kinetic mode in SpectraMax L lumi settings in SoftMax Pro v5.4.6 but in v7.0.3 it throws an error and the minimum you can go is 1 minute.

Resolution:

Corrected the issue.

Impact of fix:

This fix has no impact on current workflow or data.

Overwrite Plate Data permission Can Be Over-Ridden

Tracking ID: 301

A GxP user with the Edit Reader Settings permissions can over-write existing SoftMax Pro GxP data files.

Resolution:

SoftMax Pro Software - GxP edition version 3.0 has updated permissions and security to prevent the issue.

Impact of fix:

See user documentation and updated application help.

Ability to Automatically Export Signed XML File Data

Tracking ID: 353

Customer requested that the system shall be able to automatically export signed XML and PDF files out of the database to a predefined location after the read is finished.

Resolution:

Previous Auto Save has been renamed Auto Export and an entirely new Auto Save feature has been added to the SoftMax Pro Software - GxP edition.

Impact of fix:

See user documentation and updated application help.

Print Out Sequence Differs From Display Sequence

Tracking ID: 360

When a GxP Data file prints, the sequence of information is different from the screen display sequence.

Resolution:

Corrected the issue.

Impact of fix:

This fix has no impact on current workflow or data.

FlexStation User Guide - Pipetting Speed

Tracking ID: 414

There is a discrepancy between the FlexStation User Guide and the SoftMax Pro Software reported pipetting speed values.

Resolution:

Corrected the user guide and related online help.

Impact of fix:

This fix has no impact on current workflow or data.

SpectraMax iD5 User Guide

Tracking ID: 433

There is an error in the SpectraMax iD5 User Guide for Fluorescence Polarization. The Anisotropy calculation is missing factor 2.

Resolution:

Corrected the User Guide and corresponding online help.

Impact of fix:

This fix has no impact on current workflow or data.

Cannot Convert a Protocol to Export for Sharing

Tracking ID: 439

An error occurs when the user tries to export a protocol to the format for sharing on the Protocols tab.

Resolution:

Corrected the issue.

Impact of fix:

This fix has no impact on current workflow or data.

Known Issues In SoftMax Pro Software 7.1

SoftMax Pro Data Acquisition and Analysis Software Automation API Reference Guide

At the time of the SoftMax Pro Software 7.1 release, the *SoftMax Pro Data Acquisition and Analysis Software Automation API Reference Guide* had yet to be updated to reflect the changes to the API caused by the updates to the SoftMax Pro 7.1.1 GxP Compliance Software Suite.

Contact Molecular Devices for the version of the *SoftMax Pro Data Acquisition and Analysis Software Automation API Reference Guide* that pertains to the SoftMax Pro Software version 7.1.

Chapter 4: SoftMax Pro Software Version 7.0.3

The SoftMax Pro Software version 7.0.3 is a minor release.

Summary

New features:

- Support for the SpectraMax® L Luminescence Microplate Reader
- Support for the SpectraMax® iD5 Multi-Mode Microplate Reader
- The SoftMax Pro Software Usability Improvements
- New Formulas and Accessors
- Protocol Library Updates

Issues addressed:

- !GroupBlankValues incorrect
- The SoftMax Pro Software validation package 4P/5P parameter discrepancy
- Wavelength Optimization Times Out for SpectraMax iD3
- Improve Plate Height Detection Logic for SpectraMax iD3
- Qualification Summary Results "Out of Specification" for SpectraMax iD3

Update eligibility:

- For the SoftMax Pro Standard edition 7.0.0 and higher, you can update to the SoftMax Pro Software version 7.0.3 for free.
- For the SoftMax Pro GxP edition 7.0.0 and higher, you can update to the SoftMax Pro Software version 7.0.3 for free.
- For the SoftMax Pro Software version 6.X.X and lower, you must contact Molecular Devices support for update fees and eligibility.

New in SoftMax Pro Software 7.0.3

The following new features are included in SoftMax Pro Software version 7.0.3.

Support for the SpectraMax L Luminescence Microplate Reader

The SoftMax Pro Software version 7.0.3 is the first to support the SpectraMax L Luminescence Microplate Reader since the release of the SoftMax Pro Software version 5.4.6. The SpectraMax L is a high-performance microplate reader that measures luminescence in 96-well and 384-well plates. When the instrument is equipped with the variable-volume injectors option, it can measure both flash and glow luminescence.

- 96-well standard plates - 10 µL to 200 µL
- 384-well and 96-well half area plates - 10 µL to 80 µL

High-precision peristaltic pumps ensure precise injection volumes and rapid sample mixing. Continuous monitoring between injection and measurement provides for extremely fast reactions and reduced delay time.

Optional multiple photomultiplier tubes (PMTs) and multiple injector configurations enable increased throughput and wavelength-dependent assays such as BRET1 and BRET2.

The extreme flexibility and high sensitivity of the instrument makes it ideal for applications within the fields of biochemistry, cell biology, immunology, molecular biology, and microbiology. Typical applications include luciferase reporter gene, ATP, Ca2+, aequorin, and ELISAs.

Features of the SpectraMax L include:

- Greater than nine orders of dynamic range
- Reads both 96-well and 384-well plates
- Dual injection into both 96-well and 384-well plates
- Programmable injection speeds
- AutoWash flush of tubing and tips when the instrument is turned off
- Landscape and portrait plate orientation
- Optional dual PMT configuration with filter positions for instrument wavelength dependent assays such as BRET
- Optional dual PMT configuration for higher throughput
- Optional injectors (up to four)
- Isothermal temperature control in the plate chamber
- Optional barcode reader to read labels on plates

The instrument can accommodate SBS-standard 96-well and 384-well plates with dimensions of 128.2 mm long, 86.0 mm wide, and heights from 14 mm to 15 mm.

Support for the SpectraMax iD5 Multi-Mode Microplate Reader

The SpectraMax iD5 Multi-Mode Microplate Reader has a touchscreen interface that provides integrated instrument control, data display, and the ability to export results over your network for statistical data analysis. You must use a computer running the SoftMax Pro Software to operate the instrument for advanced acquisition or injector protocols.

There are several instrument configurations.

- Base includes filters for tunable fluorescence polarization read mode using the monochromator and filters to measure europium and terbium using the Time-Resolved Fluorescence read mode.
- SpectraMax® Injector System with SmartInject™ (factory installed or installed by a by a Molecular Devices field representative)
- Enhanced TRF Module (you can install)
- Bottom Luminescence (factory installed)

The instrument supports the following read modes:

- Absorbance Read Mode
- Fluorescence Intensity Read Mode
- Luminescence Read Mode
- Fluorescence Polarization Read Mode
- Time-Resolved Fluorescence Read Mode
- FRET Read Mode (requires the SoftMax Pro Software)
- TR-FRET Read Mode (requires the SoftMax Pro Software and Enhanced TRF module)
- Western Blot TRF Read Mode (requires the SoftMax Pro Software)

Note: The SpectraMax iD5 is certified for use with Cisbio Bioassays' HTRF® (Homogeneous Time-Resolved Fluorescence) technology. HTRF is a proprietary TR-FRET technology.

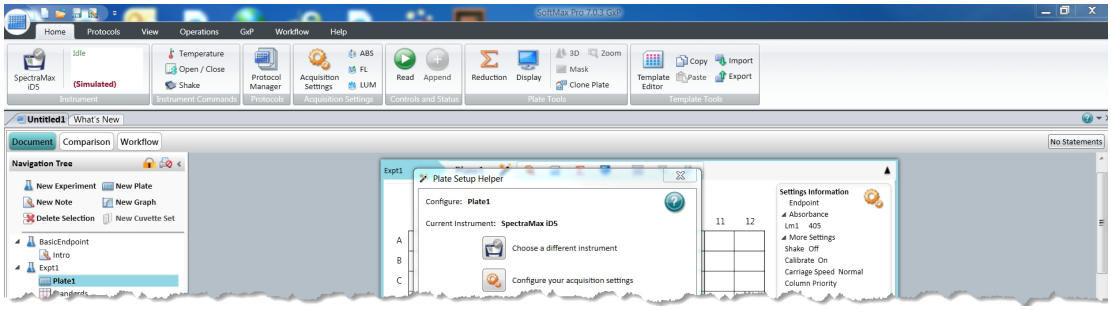
The instrument supports the following read types:

- Endpoint Read Type
- Kinetic Read Type
- Well Scan Read Type
- Spectrum Read Type

You must use a computer running the SoftMax Pro Software to operate the instrument for injector protocols and the following read modes: FRET, TR-FRET, and Western Blot.

Ribbon - Home Tab

Multiple icons that were previously on the Operations tab in the Ribbon have been moved to the Home tab.



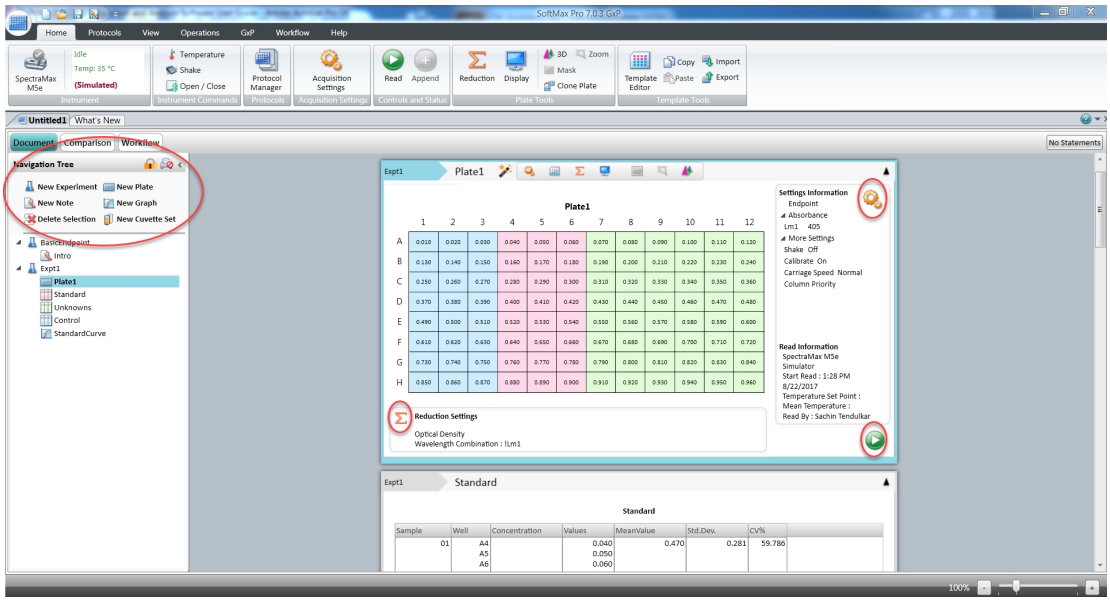
Icons formerly located in the Instrument Command group on the Operations tab, such as Temperature, Open/Close, and Shake have been moved to the Home tab.

Access to the Protocol Library has been added to the Home tab. The Protocol Library can still be accessed from the Protocols tab as well.

For the SpectraMax iD3 and SpectraMax iD5 Multi-Mode Microplate Readers, Quick Start icons have been added to the Home tab to enable you to quickly begin an Absorbance, Fluorescence, or Luminescence read.

Workspace Icons

Icons that control the sections in the Navigation Tree have been moved from the Home tab to the Navigation Tree.



The New Experiment, New Note, Delete Selection, New Plate, New Graph, and New Cuvette Set icons now display above the Navigation Tree in the Workspace.

Plate sections and Cuvette Set sections now include a Settings icon on the right in the Settings Information area.

Plate sections and Cuvette Set sections now include a Read icon below the Settings Information area and a Data Reduction icon in the Reduction Settings area.

Formula Updates

The following changes have been made to the *SoftMax Pro Software Formula Reference Guide* and the Formula Reference application help accessible from the Help tab in the Ribbon.

Graph Functions

The following have been added to the Graph functions.

Parm_StdError

Replace _ with either A, B, C, D, or G.

ParmAStdError(PlotName@GraphName)

ParmBStdError(PlotName@GraphName)

ParmCStdError(PlotName@GraphName)

ParmDStdError(PlotName@GraphName)

ParmGStdError(PlotName@GraphName)

Returns the standard error of the curve fit for the A, B, C, D, or G parameter of the curve fit assigned to the specified plot.

Plate and Cuvette Set Setup Accessors

The following has been added to the Plate and Cuvette Setup accessors.

!InstrumentSerial

Returns the serial number for the SpectraMax L, SpectraMax® i3 Multi-Mode Microplate Reader, SpectraMax® i3x Multi-Mode Microplate Reader, SpectraMax iD3, SpectraMax iD5, FilterMax™ F3 Multi-Mode Microplate Reader, FilterMax™ F5 Multi-Mode Microplate Reader and SpectraMax® Paradigm® Multi-Mode Microplate Reader.

Accessors - Plate Data Accessors

The following have been added to the Plate Data accessors to support the SpectraMax L.

!Lm1DualReadM

Returns the raw value from each well of a Plate section for the Lm1 wavelength reading taken after an M-injection.

!Lm1DualReadP

Returns the raw value from each well of a Plate section for the Lm1 wavelength reading taken after a P-injection.

!Lm2DualReadM

Returns the raw value from each well of a Plate section for the Lm2 wavelength reading taken after an M-injection.

!Lm2DualReadP

Returns the raw value from each well of a Plate section for the Lm2 wavelength reading taken after a P-injection.

!MValue

Returns the raw value from each well of a Plate section for the Lm1 wavelength for reads following the M-injection.

!PlateBlankLm1DualReadM

Returns the plate blank M read for wavelength Lm1.

!PlateBlankLm2DualReadM

Returns the plate blank M read for wavelength Lm2.

!PlateBlankLm1DualReadP

Returns the plate blank P read for wavelength Lm1.

!PlateBlankLm1DualReadP

Returns the plate blank P read for wavelength Lm2.

!PValue

Returns the raw value from each well of a Plate section for the Lm1 wavelength for reads following the P-injection.

Injector Data Accessors

The following have been added to the Injector Data accessors to support the SpectraMax L.

!MInjectionDelay

For the reads with injection only.

Returns the delay time in seconds between the M-injection and the read for the M-injection.

The expected values are 1 to 3600 seconds.

- If no delay step is used, then the value is returned as 0.
- If the M-injection is not used, then the value is returned as empty.

This accessor is useful for retrieving the specified delay time for reporting purposes.

!MInjectionShakeTime

For the reads with injection only.

Returns the shake duration time in seconds of the M-injection.

!MInjectionSpeed

For the reads with injection only.

Returns the speed in seconds of the M-injection and the read for the M-injection.

!MInjectionVolume

For the reads with injection only.

Returns the volume of the M-injection in µL. The expected values are 10 to the maximum volume of the well.

This accessor is useful for retrieving the injected volume for activity calculation in a well.

If M-injection is not used, then the value is returned as empty.

!PInjectionDelay

For the reads with injection only.

Returns the delay time in seconds between the P-injection and the read for the P-injection.

The expected values are 1 to 3600 seconds.

- If no delay step is used, then the value is returned as 0.
- If the P-injection is not used, then the value is returned as empty.

This accessor is useful for retrieving the specified delay time for reporting purposes.

!PInjectionShakeTime

For the reads with injection only.

Returns the shake duration time in seconds of the P-injection.

!PInjectionSpeed

For the reads with injection only.

Returns the speed in seconds of the P-injection and the read for the P-injection.

!PInjectionVolume

For the reads with injection only.

Returns the volume of the P-injection in µL. The expected values are 10 to the maximum volume of the well.

This accessor is useful for retrieving the injected volume for activity calculation in a well.

If the P-injection is not used, then the value is returned as empty.

Protocol Library Updates

The following changes have been made to the SoftMax Pro Software Protocol Library.

Folder renamed:

- Associates of Cape Code renamed to Endotoxin & Glucan

Protocols renamed:

- SpectraMax iD SpectraTest FL1 renamed to SpectraMax iD3 SpectraTest FL1
- SpectraMax iD SpectraTest LM1 renamed to SpectraMax iD3 SpectraTest LM1
- SpectraMax iD SpectraTest ABS1 renamed to SpectraMax iD3 SpectraTest ABS1
- Chromo-LAL renamed to Kinetic Chromogenic LAL
- Pyrotell-T renamed to Kinetic Turbidimetric LAL

Protocols added to the SpectraCuvette Holder folder:

- SpectraCuvette iD3 Abs DNA Quant
- SpectraCuvette iD3 Fluorescence
- SpectraCuvette iD5 Abs DNA Quant
- SpectraCuvette iD5 Fluorescence

Protocols added to the corresponding Reader Validation Plate folder:

- SpectraMax iD5 SpectraTest FL1
- SpectraMax iD5 SpectraTest LM1
- SpectraMax iD5 SpectraTest LM1 incl Bottom
- SpectraMax iD5 SpectraTest ABS1
- SpectraMax iD5 Multi-Mode FP TRF

Protocol added to the TRF-FRET folder:

- HTRF Eu-Red (iD5)
- HTRF Tb-Red (iD5)

Protocols added to the Reporter Assays folder:

- Dual Luciferase Reporter Assay (iD3)
- Dual Luciferase Reporter Assay (iD5)
- Dual Luciferase Reporter Assay (Spec L)

Protocols added to the Molecular Devices Reagents > Reporter Assays folder:

- SpectraMax DuoLuc Reporter Assay (iD3)
- SpectraMax DuoLuc Reporter Assay (iD5)
- SpectraMax DuoLuc Reporter Assay (Spec L)

Protocols with a revised introduction and new version number:

- Fungitell Vmean
- Glucatell Diazo-Endpoint
- Glucatell Onset Time
- Glucatell Vmean

- Pyrochrome Diazo-Endpoint
- Pyrochrome Endpoint
- Pyrochrome Kinetic

Other protocol updates:

- SpectraMax Glo Steady-Luc Reporter Assay - Revised protocol, added note on Target Calibration Wavelength for use with Spec L, in Molecular Devices Reagents > Reporter Assays folder and Reporter Assays folder.

Issues Addressed in SoftMax Pro Software 7.0.3

The following issues were addressed in SoftMax Pro Software version 7.0.3.

!GroupBlankValues incorrect

Tracking ID: 20374

The number of values that display in a summary formula does not match the actual number of values which could affect further calculations.

Resolution:

Corrected the display of summary formula.

Impact of fix:

This fix has no impact on current workflow or data.

SoftMax Pro Validation package 4P/5P parameter discrepancy

Tracking ID: 5222

The SoftMax Pro Software validation package has a discrepancy in the 4P/5P curve fit parameters in the published .sda and .xls version of the files Plate Interp.sda/xls.

For instance, in the 5P, the C, D, and E parameters in the SoftMax Pro Software are 3.67e+4, 1.89e+5 and 0.965, respectively. But in the Excel file they are given as 38969.4023, 200157.43, and 1. A similar issue exists in the 4P comparisons.

Resolution:

Corrected the discrepancy in the 4P/5P curve fit parameters in the published .sda and .xls version of the files Plate Interp.sda/xls.

Impact of fix:

This fix has no impact on current workflow or data.

Wavelength Optimization Times Our for SpectraMax iD3

The Spectral Optimization Wizard times out.

Resolution:

The Spectral Optimization Wizard no longer times out for the SpectraMax iD3.

Impact of fix:

This fix has no impact on current workflow or data.

Improve Plate Height Detection Logic for SpectraMax iD3

The plate height detection needs to be improved for the SpectraMax iD3.

Resolution:

Improved the plate height detection logic for the SpectraMax iD3.

Impact of fix:

This fix has no impact on current workflow or data.

Qualification Summary Results "Out of Specification" for SpectraMax iD3

The FL1 protocol for the SpectraMax iD3 instrument displayed an Out of Specification error even when the protocol run was completed.

Resolution:

Updated the FL1 protocol to resolve the issue.

Impact of fix:

This fix has no impact on current workflow or data.

Known Issues in SoftMax Pro Software 7.0.3

In GxP Admin Software version 2.1.1, when you click to select a user on the Users tab the user name is highlighted. If you then use the keyboard arrow keys, other names appear to be selected. However, when you change tabs or press Enter, the user that was selected by the mouse click is selected not the user that was highlighted by the arrow key. This will be addressed in the next release of the GxP Admin Software.

This issue does not affect the SoftMax Pro Software.

Chapter 5: SoftMax Pro Software Version 7.02

5

The SoftMax Pro Software version 7.0.2 is a minor release.

New in SoftMax Pro Software 7.0.2

The following new features are included in SoftMax Pro Software version 7.0.2.

Injector Support for the SpectraMax iD3 Multi-Mode Microplate Reader

The SpectraMax iD3 provides a touchscreen interface for integrated instrument control, data display, and the ability to export results for statistical data analysis.

The monochromator-based instrument supports three read modes:

- UV and Visible Absorbance (ABS)
- Fluorescence Intensity (FL)
- Luminescence (LUM)

All software required to run basic non-injector reads is installed in the instrument and is accessible from the touchscreen. You must use a computer running the SoftMax Pro Software to operate the instrument for advanced acquisition settings and for protocols that use the SpectraMax Injector System. When the SpectraMax iD3 has the SpectraMax® Injector System with SmartInject™, you must use a computer running SoftMax Pro Software to run injector protocols.

The injectors in the instrument enable you to deliver a reagent to the wells of a microplate. The injector system is method independent which means you can run injector protocols for all read modes: Absorbance, Luminescence (all wavelength), Luminescence Monochromator, Fluorescence Intensity top, and Fluorescence Intensity bottom.

You can operate the instrument via the SoftMax Pro Software to collect data from one or more microplates and store the data in a single file, using the same or different instrument settings for different microplates. Assays that require a read in two or more read modes or read types can be combined in a single experiment and run with a single command in the SoftMax Pro Software, by defining separate microplate reads and enabling Auto Read.

For information on the acquisition and analysis capabilities of the SoftMax Pro Software, see the *SoftMax Pro User Guide*.

Note: When you operate the SpectraMax iD3 via a computer running the SoftMax Pro Software, the instrument touchscreen is disabled.

The SpectraMax iD3 software version 1.0 is compatible with SoftMax Pro Software version 7.0.1.

The SpectraMax iD3 software version 1.1 is compatible with SoftMax Pro Software version 7.0.2.

To update the SpectraMax iD3 software, contact Support.

GxP Support for the SpectraMax iD3 Multi-Mode Microplate Reader

The SpectraMax iD3 provides a touchscreen interface for integrated instrument control, data display, and the ability to export results for statistical data analysis.

SoftMax Pro Software version 7.0.2 supports the operation of the SpectraMax iD3 in GxP mode.

Note: When you operate the instrument via a computer running the SoftMax Pro Software, the instrument touchscreen is disabled.

For users that use the SoftMax Pro Software - GxP edition to operate the instrument, the user must have the following permission to lock and unlock the instrument touchscreen:

In the Ribbon, on the GxP tab, users with appropriate permission can use the following icons to lock and unlock the instrument touchscreen:

- Click  **GxP Mode On** to lock the instrument touchscreen and operate the instrument from the computer running the SoftMax Pro Software in GxP mode. This locks the instrument touchscreen for all users and you must operate the instrument from a computer running the SoftMax Pro Software - GxP edition.
- Click  **GxP Mode Off** to release the lock from the instrument touchscreen and allow users to use the instrument touchscreen to run experiments.

Note: The instrument remains locked until the user with the appropriate permission clicks  **GxP Mode Off** to stop the GxP mode. You cannot use the Instrument Connection dialog to disconnect from a SpectraMax iD3 and SpectraMax iD5 that is locked in GxP mode.

Note: If you use the Instrument Connection dialog to disconnect from a SpectraMax iD3 instrument that is locked in GxP mode, the instrument remains locked until you click **GxP Mode Off**  to stop the GxP mode.

The SpectraMax iD3 software version 1.1 is compatible with SoftMax Pro Software version 7.0.2.

To update the SpectraMax iD3 software, contact Support.

All software required to run basic non-injector reads is installed in the instrument and is accessible from the touchscreen. You must use a computer running the SoftMax Pro Software to operate the instrument for advanced acquisition settings and for protocols that use the SpectraMax Injector System.

Protocol Library Updates

The Following changes have been made to the SoftMax Pro Software protocol library.

Protocols added:

- SpectraMax iD SpectraTest FL1
- SpectraMax iD SpectraTest LM1
- SpectraMax iD SpectraTest ABS1

Protocols removed from the TR-FRET folder:

- HTRF Assay Optimization (cartridge)
- HTRF Assay Optimization (M5e)
- HTRF Reader Control
- HTRF Standard Assay (cartridge)
- HTRF Standard Assay Europium (M5e)
- HTRF Standard Assay Terbium (M5e)

Protocols added to the TR-FRET folder:

- HTRF Assay Optimization Eu (cartridge)
- HTRF Assay Optimization Eu (M5e)
- HTRF Assay Optimization Tb-Red (cartridge)
- HTRF Assay Optimization Tb-Red (M5e)
- HTRF Reader Control (M5e)
- HTRF Standard Assay Eu (cartridge)
- HTRF Standard Assay Eu (M5e)
- HTRF Standard Assay Tb-Red (cartridge)
- HTRF Standard Assay Tb-Red (M5e)

In the Binding and Enzymology folder, the AlphaScreen protocol has been replaced with the following revised version:

- AlphaScreen 384 HTS (cartridge)

Protocols removed from the Reporter Assays folder:

- Dual-Luciferase Reporter Assay (i3x)
- Dual-Luciferase Reporter Assay (FlexStation)

Protocols added to the Reporter Assays folder:

- Dual Luciferase Reporter Assay (i3x)
- Dual Luciferase Reporter Assay (FlexStation)

Protocol added to the Molecular Devices Reagents folder > Reporter Assays subfolder:

- SpectraMax DuoLuc Reporter Assay (i3x)

Issues Addressed in SoftMax Pro Software 7.0.2

No issues were addressed in SoftMax Pro Software version 7.0.2.

Chapter 6: SoftMax Pro Software Version 7.0.1

The SoftMax Pro Software version 7.0.1 is a minor release.

New in SoftMax Pro Software 7.0.1

The following new feature is included in SoftMax Pro Software version 7.0.1.

Support for the SpectraMax iD3 Multi-Mode Microplate Reader

The SpectraMax iD3 Multi-Mode Microplate Reader provides a touchscreen interface for integrated instrument control, data display, and the ability to export results for statistical data analysis.

The monochromator-based instrument supports three read modes:

- UV and Visible Absorbance (ABS)
- Fluorescence Intensity (FL)
- Luminescence (LUM)

Optional integration of the instrument with a computer enables you to export data over your intranet or via a USB flash drive in an Excel format for further analysis.

You can operate the instrument via the SoftMax Pro Software to collect data from one or more microplates and store the data in a single file, using the same or different instrument settings for different microplates. Assays that require a read in two or more read modes or read types can be combined in a single experiment and run with a single command in the SoftMax Pro Software, by defining separate microplate reads and enabling Auto Read.

For information on the acquisition and analysis capabilities of the SoftMax Pro Software, see the *SoftMax Pro User Guide*.

Note: When you operate the instrument via a computer running the SoftMax Pro Software, the instrument touchscreen is disabled.

The SpectraMax iD3 software version 1.0 is compatible with SoftMax Pro Software version 7.0.1.

The SpectraMax iD3 software version 1.1 is compatible with SoftMax Pro Software version 7.0.2.

To update the SpectraMax iD3 software, the instrument cannot be locked by the SoftMax Pro Software.

Issues Addressed in SoftMax Pro Software 7.0.1

The following issues were addressed in SoftMax Pro Software version 7.0.1.

Cannot Auto Save Data in NTFS Folders That Do Not Have Delete or Modify Permissions

Tracking ID: 20362

In the Auto Save Properties dialog, assigning a folder with deny delete Windows NTFS permissions for a file location resulted in an error message reporting that the file path either does not exist or cannot be accessed by the current user.

Resolution:

The software will allow the user to assign the folder if the user is part of a network user group, the user has delete or modify permissions for the selected folder, and the folder is local or on a network. The software will not allow the user to assign the folder if using a local user account on a computer that is not part of a domain or using a domain account for network access (for example, by mapping a drive using a domain account).

Impact of fix:

This fix has no impact on current workflow or data.

The Software Cannot Start Without Prerequisite Redistributable Software

Tracking ID: 20372

If the SoftMax Pro Software version 7.0 is installed on a computer that already has "Microsoft Visual C++ 2015 Redistributable (x64) – 14.0.23026" installed, the SoftMax Pro Software installer does not install the prerequisite version of the redistributable "Microsoft Visual C++ 2015 Redistributable (x86) – 14.0.23026". In this case, the SoftMax Pro Software version 7.0 cannot start.

Resolution:

The SoftMax Pro Software version 7.0.1 installer installs the appropriate versions of the prerequisite redistributable software.

Impact of fix:

This fix has no impact on current workflow or data.

Chapter 7: SoftMax Pro Software Version 7.0

The SoftMax Pro Software version 7.0 is a major release. The following is a summary of the changes incorporated in this revision as compared to version 6.5.1, the last general release of the SoftMax Pro Software.

To obtain a copy of the release notes for versions older than 7.0, contact technical support. See Obtaining Support on page 10.

New in SoftMax Pro Software 7.0

The following new features are included in SoftMax Pro Software version 7.0.

Support for the FlexStation 3 Reader

The FlexStation® 3 Multi-Mode Microplate Reader combines the performance of a dual-monochromator, multi-mode microplate reader and an integrated 8-channel or 16-channel pipettor into one compact bench top reader. This integrated system provides a multi-detection platform capable of increasing liquid-handling throughput and flexibility for biochemical-based and cell-based assays. The system is equally amenable to agonist and antagonist assay formats. The instrument combines fluid transfer with multi-detection optics to provide a microplate reader capable of doing a broad span of applications for the drug discovery and research environments.

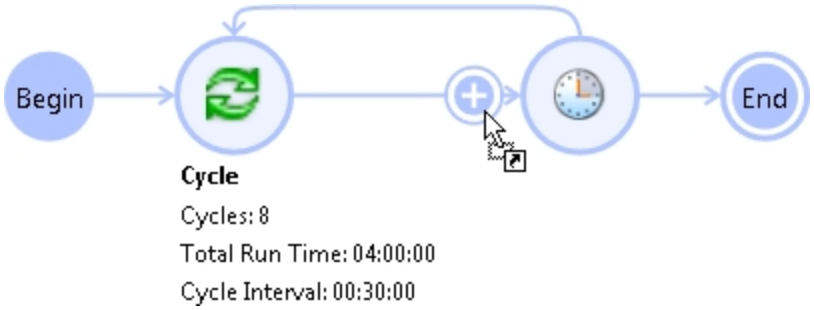
The instrument's dual monochromators allow you to target the optimal assay excitation and emission wavelengths and eliminate the need to change expensive band pass filters between experiments.

Some improvements have been made since version 5.x of the software. For example, the spectrum and well scan read types can include liquid handling in a version 7.x protocol. For more information on the improvements that were made, contact technical support. See Obtaining Support on page 10.

Workflow Editor

The Workflow view provides a drag-and-drop workflow editor and tools to run and monitor a workflow. In Workflow view you can define a workflow that uses the defined Plate sections and instrument settings to run multitask kinetic reads that last hours or days.

Drag tasks from the menu on the left to the timeline on the right.



Define repeated tasks by placing the tasks in a defined Cycle task.

Tip: You can gather data over long periods of time by using a Kinetic read type and then defining the Timing settings to acquire a single point with each read.

Note: Place only Kinetic reads within a cycle. Using other read types causes the software to overwrite the previously acquired data in the Plate section. You can place an Endpoint, Well Scan, Spectrum, or Flex read before or after a cycle to preserve the acquired data.

Discontinuous Kinetics

To stop and restart a Kinetic read while the Plate section is being read, click **Interrupt** to pause the read, and then click **Append** to continue the Kinetic read from where it left off. When you interrupt a read, the instrument finishes the read for all the wells you select in the plate and then waits for your input before continuing. This type of discontinuous kinetic read can help with acquisition development.

After a Kinetic read ends successfully, click **Append** to read the same Plate section again and append the data to the data that already exists in the Plate section.

Note: If you stop a Kinetic read before it completes, you cannot restart the read or append data to the read. To use these features, you must either let the read finish or click **Interrupt** to pause the read.

New Protocols

The following protocols have been added to the installed software.

- **Aequorin GPCR_FlexStation3**

  Location: **Cell Signaling & Transport** and **Molecular Devices Reagents > Cell Signaling & Transport**

  This protocol is designed to facilitate the acquisition and analysis of data for “flash” type luminescent GPCR assays using aequorin as a Ca++ reporter. When using the FlexStation 3 reader to do these assays, cells are generally plated in a white, clear-bottomed microplate (can be allowed to attach and grow overnight), and then test compounds and controls are dispensed into the assay plate using the integrated pipettor in the FlexStation 3 reader.
- **Calcium Assay**

  Location: **Cell Signaling & Transport** and **Molecular Devices Reagents > Cell Signaling & Transport**

  Use this protocol to detect and analyze data for Molecular Devices FLIPR Calcium Assays. This protocol is suitable for the SpectraMax i3x with the Injector Cartridge.
- **Membrane Potential**

  Location: **Cell Signaling & Transport** and **Molecular Devices Reagents > Cell Signaling & Transport**

  This protocol is designed for using the Molecular Devices FLIPR Membrane Potential Assay in the FlexStation 3 reader.
- **FlexStation 3 ABS1**

  Location: **Reader Validation-Plate Abs**

  This protocol is designed for using the SpectraTest ABS1 Absorbance Validation Plate with the FlexStation 3 reader.
- **FlexStation 3 FL1**

  Location: **Reader Validation-Plate Fl**

  This protocol is designed for using the SpectraTest FL1 Fluorescence Validation Plate with the FlexStation 3 reader.
- **FlexStation 3 LM1**

  Location: **Reader Validation-Plate Lum**

  This protocol is designed for using the SpectraTest LM1 Luminescence Validation Plate with the FlexStation 3 reader.
- **F3 or DTX800 Instrument**

  Location: **Reader Validation-Plate Multi-Mode > FilterMax or DTX**

  This protocol is designed for using the Multi-Mode Validation Plate with the FilterMax F3 Multi-Mode Microplate Reader or the DTX 800 Multi-Mode Microplate Reader.
- **F5 or DTX880 Instrument**

  Location: **Reader Validation-Plate Multi-Mode > FilterMax or DTX**

  This protocol is designed for using the Multi-Mode Validation Plate with the FilterMax F5 Multi-Mode Microplate Reader or the DTX 880 Multi-Mode Microplate Reader.

- **LUM ALPHA Cartridges**

  Location: **Reader Validation-Plate Multi-Mode > SpectraMax i3(x)**

  This protocol is designed for using the Multi-Mode Validation Plate with the SpectraMax i3x or SpectraMax i3 Instrument and a Glow Luminescence (LUM) Detection Cartridge or AlphaScreen Detection Cartridge.
- **TRF FPOL HTRF Cartridges**

  Location: **Reader Validation-Plate Multi-Mode > SpectraMax i3(x)**

  This protocol is designed for using the Multi-Mode Validation Plate with the SpectraMax i3x or SpectraMax i3 Instrument and a Time Resolved Fluorescence (TRF-EUSA) Detection Cartridge, Fluorescence Polarization (FP) Detection Cartridge, or Cisbio HTRF Detection Cartridge.
- **ABS-MONO Cartridge**

  Location: **Reader Validation-Plate Multi-Mode > SpectraMax Paradigm**

  This protocol is designed for using the Multi-Mode Validation Plate with the SpectraMax Paradigm and an Absorbance Detection Cartridge.
- **FI-CFP-YFP Cartridge**

  Location: **Reader Validation-Plate Multi-Mode > SpectraMax Paradigm**

  This protocol is designed for using the Multi-Mode Validation Plate with the SpectraMax Paradigm and a Fluorescence Intensity (FI) (CFP-YFP) Detection Cartridge.
- **FI-COFL Cartridge**

  Location: **Reader Validation-Plate Multi-Mode > SpectraMax Paradigm**

  This protocol is designed for using the Multi-Mode Validation Plate with the SpectraMax Paradigm and a Fluorescence Intensity (FI) (coum-fluor) Detection Cartridge.
- **FI-Cy3Cy5 Cartridge**

  Location: **Reader Validation-Plate Multi-Mode > SpectraMax Paradigm**

  This protocol is designed for using the Multi-Mode Validation Plate with the SpectraMax Paradigm and a Fluorescence Intensity (FI) (Cy3-Cy5) Detection Cartridge.
- **FI-FLRH Cartridge**

  Location: **Reader Validation-Plate Multi-Mode > SpectraMax Paradigm**

  This protocol is designed for using the Multi-Mode Validation Plate with the SpectraMax Paradigm and a Fluorescence Intensity (FI) (fluor-rhod) Detection Cartridge.
- **G-BLAZER Cartridge**

  Location: **Reader Validation-Plate Multi-Mode > SpectraMax Paradigm**

  This protocol is designed for using the Multi-Mode Validation Plate with the SpectraMax Paradigm and a Fluorescence Intensity (FI) GeneBLAzer Detection Cartridge.
- **LUM ALPHA Cartridge**

  Location: **Reader Validation-Plate Multi-Mode > SpectraMax Paradigm**

  This protocol is designed for using the Multi-Mode Validation Plate with the SpectraMax Paradigm and a Glow Luminescence (LUM) Detection Cartridge or AlphaScreen Detection Cartridge.

- **MULTI Cartridge**

  Location: **Reader Validation-Plate Multi-Mode > SpectraMax Paradigm**

  This protocol is designed for using the Multi-Mode Validation Plate with the SpectraMax Paradigm and a Multi-Mode (MULTI) Detection Cartridge.

- **MULTI-TOX Label Blue Cartridge**

  Location: **Reader Validation-Plate Multi-Mode > SpectraMax Paradigm**

  This protocol is designed for using the Multi-Mode Validation Plate with the SpectraMax Paradigm and a Fluorescence Intensity Dual Label (FI-DL) (MultiTox-Fluor) Detection Cartridge and the AFC (amino-fluorocoumarin) label.

- **MULTI-TOX Label Green Cartridge**

  Location: **Reader Validation-Plate Multi-Mode > SpectraMax Paradigm**

  This protocol is designed for using the Multi-Mode Validation Plate with the SpectraMax Paradigm and a Fluorescence Intensity Dual Label (FI-DL) (MultiTox-Fluor) Detection Cartridge and the R110 (rhodamine 110) label.

- **TRF FPOL HTRF Cartridges**

  Location: **Reader Validation-Plate Multi-Mode > SpectraMax Paradigm**

  This protocol is designed for using the Multi-Mode Validation Plate with the SpectraMax Paradigm and a Time Resolved Fluorescence (TRF-EUSA) Detection Cartridge, Fluorescence Polarization (FP) Detection Cartridge, or Cisbio HTRF Detection Cartridge.

- **TUNE Cartridge**

  Location: **Reader Validation-Plate Multi-Mode > SpectraMax Paradigm**

  This protocol is designed for using the Multi-Mode Validation Plate with the SpectraMax Paradigm and a Tunable Wavelength (TUNE) Detection Cartridge.

New Formula Functions

The following formula functions have been added to the installed software.

For a full description of the formula functions in the software, see the *SoftMax Pro Software Formula Reference Guide*.

ANOVAFStatAndProb

ANOVAFStatAndProb((x1~x2~...~xN)&(y1~y2~...~yN))

ANOVA F-Statistic and Probability

Performs standard ANOVA analysis on data specified as an array list of numbers. The format for the data is group1&group2&...&groupK, where each group is a list of numbers x1~x2~...~xN.

The returned value is an array of two numbers: the F-value and its associated probability.

Under the null hypothesis that all groups have the same mean, the F-value is an F-statistic with numerator degrees of freedom = (number of groups - 1) and denominator degrees of freedom = (number of data - number of groups).

For example:

ANOVAFStatAndProb((1~2~3)&(4~5~6))

InterpolatedXData

InterpolatedXData(Parameter)

Takes one parameter, a list of number arrays, and returns an array of interpolated numbers. Each interpolated number is the average of the corresponding input values. The result is equivalent to using the Average function.

Example: InterpolatedXData(!A1Lm1XVals~!A1Lm2XVals)

InterpolatedYData

InterpolatedYData(ParameterX,ParameterY)

Takes two parameters, two lists of number arrays of the same size (X and Y), and returns a list of number arrays, with each array containing interpolated Y values.

Example: InterpolatedYData(!A1Lm1XVals~!A1Lm2XVals,!A1Lm1~!A1Lm2)

Returns the interpolated values for both wavelengths Lm1 and Lm2.

InterpolatedYDataAtXPoints

InterpolatedYDataAtXPoints(ParameterX,ParameterY,ParameterZ)

Takes three parameters: an array of numbers X, array of numbers Y, and an array of x-interpolation points. Returns an array containing interpolated Y-values at the specified interpolation points.

Example: InterpolatedYDataAtXPoints(!A1Lm1XVals,!A1Lm1,InterpolatedXData (!A1Lm1XVals~!A1Lm2XVals))

Returns the interpolated values for wavelength Lm1.

LocalTimeNumeric

LocalTimeNumeric(Parameter)

Returns an array of numbers encoding the local time and date:

- Seconds
- Minutes
- Hours
- Day of the month (1 to 31)
- Month (1 to 12)
- Year
- Day of the week (1 to 7)
- Day of the year (1 to 366)
- Daylight saving time in use (0 or 1)

Example: LocalTimeNumeric(!A1Lm1TimeOrigin@Plate1)

See !TimeOrigin on page 69.

UTCTimeNumeric

UTCTimeNumeric(Parameter)

Returns an array of numbers to encode the universal coordinated time (UTC) and date:

- Seconds
- Minutes
- Hours
- Day of the month (1 to 31)
- Month (1 to 12)
- Year
- Day of the week (1 to 7)
- Day of the year (1 to 366)
- Daylight saving time in use (0 or 1)

LocalTimeText

LocalTimeText(Parameter)

Returns a text string of the local time and date.

New Formula Accessors

The following accessors have been added to the installed software.

For a full description of the formula accessors in the software, see the *SoftMax Pro Software Formula Reference Guide*.

!TransferRate

!TransferRate1, !TransferRate2, !TransferRate3

!WellTransferRate1, !WellTransferRate2, !WellTransferRate3

For the FlexStation 3 reader only.

Returns the transfer rate in microliters per second for the corresponding compound transfer used with a Plate section.

!TransferTime

!TransferTime1, !TransferTime2, !TransferTime3

!WellTransferTime1, !WellTransferTime2, !WellTransferTime3

For the FlexStation 3 reader only.

Returns the time points for the corresponding compound transfer used with a Plate section.

!TransferVolume

!TransferVolume1, !TransferVolume2, !TransferVolume3

!WellTransferVolume1, !WellTransferVolume2, !WellTransferVolume3

For the FlexStation 3 reader only.

Returns the volume in microliters for the corresponding compound transfer used with a Plate section.

!TimeOrigin

!LmXTimeOrigin

!A1LmXTimeOrigin

!WellTimeOrigin

For a kinetic data set for the specified wavelength, this accessor returns the number of seconds since the start of the current epoch when the first measurement was recorded. Generally, this accessor is used to determine the difference in time between two measurements, allowing different data sets to reference a common time origin.

!AllTimeOrigins

!LmXAllTimeOrigins

For a kinetic data set for the specified wavelength, this accessor returns as an array the time origins for all wells in a plate.

New Automation Command

The following automation command has been added to the installed software.

For a full description of the automation commands in the software, see the *SoftMax Pro Software Automation API Reference Guide*.

AppendData

```
Int32 AppendData()
```

Purpose

Reads the current **Plate** section and appends the new data to the existing data.

If the current section is not a **Plate** section, then the next **Plate** section is read.

Parameters

None

Modifications Made to SoftMax Pro Software 7.0

The following modifications were made to SoftMax Pro Software version 7.0.

Time Alignment Reduction

The **Time Alignment** option in the **Reduction** dialog was formerly known as **Interpolate Raw Data**. It now also includes the **Interpolate Wells** option that was previously an export-only option in the SoftMax Pro Software v5.x.

For the FlexStation 3, the software logs each data value with its own read time and can align the time points by Wavelength or by Well to interpolate the data against a single time point.

- Select the **Time Alignment** check box and then click **Wavelength** to do wavelength combination calculations correctly. For example, you can take a ratio of two different wavelengths (Lm1/Lm2) in a single well that have been read at two different time points. The Wavelength option is available only when two or more wavelengths are present in the data.

  With **Wavelength** selected, the software uses quadratic interpolation to calculate the interpolated values. This results in the loss of one point at each end of the plot. Before starting the calculation, the software determines the starting point by averaging the initial data points of the separate wavelengths. For example, if the first data points of the two wavelengths have time values of 0.3 and 0.5 seconds, the software averages these data points and uses 0.4 seconds as its initial point for interpolation.
- Select the **Time Alignment** check box and then click **Well** to normalize the kinetic read times of the wells in the column against the read time of the first well in the column.

  Injection occurs at the same time in all the wells of a column, but each of the wells is read sequentially. So, each well is read at a different time point during the reaction from the injection. With Well selected, the data in the wells are interpolated against the time point of the read of the first well.

Other Modifications

The following minor modifications were made to the software for this release:

- The **View** tab in the ribbon contains a new section called **Expand/Collapse Sections**. Click an option to **Collapse All Sections** or to **Expand All Sections** in the workspace.
- The **Temperature**, **Shake**, and **Open / Close** buttons were moved from the **Home** tab to the **Operations** tab in the ribbon.
- The **Shake** option has a new keyboard shortcut. Hold down the **F8** key to shake the microplate in the chamber. Release the key to stop the shake operation.

  The **Shake** option is now available for the SpectraMax i3x, SpectraMax i3, and SpectraMax Paradigm Instruments. The shake operation does a linear mode, medium intensity shake of the microplate in these instruments.
- The **Show Hide group table columns** dialog now has **Hide All** and **Show All** buttons.
- The curve fit selection list has been enhanced to provide more information to help with the selection. These selections are shown in the **Fit** list in the toolbar at the top of the **Graph** section. You can filter the list of curve fits by selecting a category from the **Category** list.

Protocol Library Updates

Some of the protocols in the Protocol Library have been moved or duplicated in other folders.

The IMAP folder has been removed, and all the IMAP protocols have been added to the Fluorescence Polarization folder. The IMAP protocols are also available in the Molecular Devices Reagents > IMAP Kinase Assays folder.

Subfolders have been added to the Molecular Devices Reagents folder, and the protocols in the folder have been redistributed into these subfolders.

- **Cardiotoxicity**
  EarlyTox Cardiotoxicity (Advanced)
  EarlyTox Cardiotoxicity (Advanced-cartridge)
  EarlyTox Cardiotoxicity (Basic)
  EarlyTox Cardiotoxicity (Basic -cartridge)
- **Cell Signaling & Transport**
  Calcium assay (FlexStation)
  CatchPoint cAMP
  Membrane Potential
  Neurotransmitter Transporter Uptake
  QBT Fatty Acid Uptake
- **Cell Viability**
  EarlyTox Cell Integrity
  EarlyTox Glutathione
  EarlyTox Live Cell
  EarlyTox Live Dead
  EarlyTox NucView 488
  EarlyTox R110
- **DNA Quantitation**
  SpectraMax Quant AccuBlue HiRange dsDNA
  SpectraMax Quant AccuBlue Pico dsDNA
  SpectraMax Quant AccuClear Nano dsDNA
- **IMAP Kinase Assays**
  IMAP Evaluation Demo Kit
  IMAP FP FAM (cartridge)
  IMAP FP FAM
  IMAP FP TAMRA
  IMAP TR-FRET FAM
  IMAP TR-FRET TAMRA

- **Reporter Assays**

  SpectraMax Glo Steady-Luc Reporter Assay
- **Western Blot**

  ScanLater Western Blot Mini Membrane

  ScanLater Western Blot

The **Western Blot** folder has been removed, and all the Western Blot protocols have been added to the **Molecular Devices Reagents > Western Blot** folder.

The following protocols have been modified.

- **Fungitell Vmean**

  Location: **Associates of Cape Cod**

  The settings were updated to make them compatible with the M series readers.
- **Glucatell Onset Time**

  Location: **Associates of Cape Cod**

  The settings were updated to make them compatible with the M series readers.
- **Glucatell Vmean**

  Location: **Associates of Cape Cod**

  The settings were updated to make them compatible with the M series readers.
- **Pyrochrome Kinetic**

  Location: **Associates of Cape Cod**

  The settings were updated to make them compatible with the M series readers.
- **Alamar Blue Cell Viability**

  Location: **Cell Growth & Viability**

  The settings were updated to make them compatible with the M series readers.
- **CellTiter-Blue Fluorescence**

  Location: **Cell Growth & Viability**

  The settings were updated to make them compatible with the M series readers.
- **EarlyTox Cell Integrity**

  Location: **Cell Growth & Viability**

  The settings were updated to make them compatible with the M series readers.
- **EarlyTox Gluthathione**

  Location: **Cell Growth & Viability**

  The settings were updated to make them compatible with the M series readers.
- **EarlyTox Live Cell**

  Location: **Cell Growth & Viability**

  The settings were updated to make them compatible with the M series readers.
- **EarlyTox Live Dead**

  Location: **Cell Growth & Viability**

  The settings were updated to make them compatible with the M series readers.

- **EarlyTox NucView**
  Location: **Cell Growth & Viability**
  The settings were updated to make them compatible with the M series readers.
- **EarlyTox R110**
  Location: **Cell Growth & Viability**
  The settings were updated to make them compatible with the M series readers.
- **190 ABS1**
  Location: **Reader Validation-Plate Abs**
  In the **Results** section under **Baseline Noise Tests (Kinetic)**, the formula was corrected for **Data points within reduction limits** by changing **Col11** to **DataCheck**. This summary formula serves a display purpose only and has no impact on the Pass/Fail outcome.
  A reminder about recertification was added.
- **340PC 384 ABS1**
  Location: **Reader Validation-Plate Abs**
  A reminder about recertification was added.
- **M2 M2e M3 M4 M5 M5e ABS1**
  Location: **Reader Validation-Plate Abs**
  A reminder about recertification was added.
- **Plus 384 ABS1**
  Location: **Reader Validation-Plate Abs**
  A reminder about recertification was added.
- **SpectraMax i3(x) SpectaTest ABS1**
  Location: **Reader Validation-Plate Abs**
  A reminder about recertification was added.
- **VersaMax ABS1**
  Location: **Reader Validation-Plate Abs**
  A reminder about recertification was added.
- **Gemini EM FL1**
  Location: **Reader Validation-Plate Fl**
  A reminder about recertification was added.
- **Gemini XPS FL1**
  Location: **Reader Validation-Plate Fl**
  A reminder about recertification was added.
- **M2 SpectraTest FL1**
  Location: **Reader Validation-Plate Fl**
  A reminder about recertification was added.
- **M2e SpectraTest FL1**
  Location: **Reader Validation-Plate Fl**
  A reminder about recertification was added.

- **M3 M4 M5 M5e SpectraTest FL1**

  Location: **Reader Validation-Plate Fl**

  A reminder about recertification was added.
- **SpectraMax i3(x) SpectaTest FL1**

  Location: **Reader Validation-Plate Fl**

  A reminder about recertification was added.
- **M3 M4 M5 M5e SpectraTest LM1**

  Location: **Reader Validation-Plate Lum**

  A reminder about recertification was added.
- **SpectraDrop Abs DNA Quant** and **SpectraDrop Abs RNA Quant**

  Location: **SpectraDrop Micro-Volume Microplate**

  The originally named **SpectraDrop Abs DNA RNA Quant** has been split into separate DNA and RNA protocols.
- **SpectraDrop Abs DNA Quant (cartridge)** and **SpectraDrop Abs RNA Quant (cartridge)**

  Location: **SpectraDrop Micro-Volume Microplate**

  The originally named **SpectraDrop Abs DNA RNA Quant (cartridge)** has been split into separate DNA and RNA protocols.

Modified Automation Commands

The following automation command have been modified in the installed software.

For a full description of the automation commands in the software, see the *SoftMax Pro Software Automation API Reference Guide*.

CloseDrawer

```
Int32 CloseDrawer()
Int32 CloseDrawer(String drawerType)
```

Purpose

Closes the specified drawer on the instrument.

For most instruments, this command closes the microplate drawer.

Parameters

The CloseDrawer parameters are recognized by the FlexStation 3 reader only. For all other instruments, the parameters are ignored and can be omitted.

drawerType

Type: String

Must be one of the following strings:

- “Assay Plate Drawer” [default]
- "Compound Plate Drawer”
- “Tips Drawer”

These values are not case sensitive.

Note: The *drawerType* parameter is required for the FlexStation 3 reader, since it has three drawers. If the parameter is omitted, then the assay plate drawer is closed.

GetDrawerStatus

```
Int32 GetDrawerStatus()
Int32 GetDrawerStatus(String drawerType)
```

Purpose

Returns the state of the specified drawer on the instrument.

For most instruments, this command returns the state of the microplate drawer.

Parameters

The GetDrawerStatus parameters are recognized by the FlexStation 3 reader only. For all other instruments, the parameters are ignored and can be omitted.

drawerType

Type: String

Must be one of the following strings:

- “Assay Plate Drawer” [default]
- "Compound Plate Drawer”
- “Tips Drawer”

These values are not case sensitive.

Note: The *drawerType* parameter is required for the FlexStation 3 reader, since it has three drawers. If the parameter is omitted, then the status of the assay plate drawer is returned.

OpenDrawer

```
Int32 OpenDrawer()
Int32 OpenDrawer(String drawerType)
OpenDrawer(Int32 xPosition, Int32 yPosition, Bool locked)
```

Purpose

Opens the specified drawer on the instrument.

For most instruments, this command opens the microplate drawer.

Note: For instruments with temperature control, the microplate drawer cannot be opened while the incubator is on.

Parameters for FlexStation 3 Readers

The OpenDrawer *drawerType* parameter is recognized by the FlexStation 3 reader only. For all other instruments, the parameters are ignored and can be omitted.

drawerType

Type: String

Must be one of the following strings:

- “Assay Plate Drawer” [default]
- "Compound Plate Drawer”
- “Tips Drawer”

These values are not case sensitive.

Note: The *drawerType* parameter is required for the FlexStation 3 reader, since it has three drawers. If the parameter is omitted, then the assay plate drawer is opened.

Parameters for SpectraMax i3x, SpectraMax i3, SpectraMax Paradigm, and FilterMax Instruments

The OpenDrawer xPosition, yPosition, and locked parameters are recognized by the SpectraMax i3x, SpectraMax i3, SpectraMax Paradigm, and FilterMax Instruments only.

For all other instruments, these parameters are ignored and can be omitted.

xPosition

Type: Int32

This parameter defines the left-right offset for the position of the open microplate drawer.

- Range for the SpectraMax i3x, SpectraMax i3 Instruments: 0 to 2900
- Range for the SpectraMax Paradigm Instrument: 0 to 2950
- Range for the FilterMax Instruments: 0 to 2950

yPosition

Type: Int32

This parameter defines the front-rear offset for the position of the open microplate drawer.

- Range for the SpectraMax i3x, SpectraMax i3 Instruments: 5200 to 6900
- Range for the SpectraMax Paradigm Instrument: 5200 to 6900
- Range for the FilterMax Instruments: 5200 to 6900

locked

Type: Bool

When this parameter is true, the microplate is held in a fixed position to allow operations such as dispensing.

Issues Addressed in SoftMax Pro Software 7.0

The following issues were addressed in SoftMax Pro Software version 7.0.

The Last Line of a Notes Section Does not Print

Tracking ID: 4762

If a Notes section has a long description, the last line of text might get cut off when printed.

Other tracking references: FB4561, FB4880, and FB4910

Resolution:

If a line of text does not fit on a page when printing a Notes section, then the text is printed on the next page. In addition, a reference line has been added to the Note section display that indicates page breaks.

Impact of fix:

This fix has no impact on current workflow or data.

The Estimated Minimum Kinetic Interval is Incorrect for the Fluorescence Polarization (FP) (Rhodamine) Detection Cartridge in a SpectraMax i3 Instrument

Tracking ID: 16073

When running a read using a Fluorescence Polarization (FP) (Rhodamine) Detection Cartridge in a SpectraMax i3 Instrument, the actual read time can be up to twice as long as the estimated minimum kinetic interval in the **Settings** dialog.

Other tracking reference: FB4685

Resolution:

The minimum kinetic interval is more accurately estimated in the **Settings** dialog.

The Software Cannot Open a File Created in a Previous Version that Contains an Invalid Character

Tracking ID: 18298

When attempting to open a file that was created by a previous version of the software, if the file contains an invalid character, then an error message is displayed, and the file does not open.

Planned Resolution:

A file created by an earlier version of the software can be opened, even when the file contains an invalid character.

Impact of fix:

This fix has no impact on current workflow or data.

Cannot Save GxP Data in NTFS Folders That Do Not Have Delete or Modify Permissions

Tracking ID: 18493

If NTFS folders do not have delete or modify permissions, then the SoftMax Pro GxP Software cannot save data files in these folders.

Other tracking reference: FB4888

Resolution:

The SoftMax Pro GxP Software can save data files in NTFS folders that do not have delete or change permissions. The user is not able to modify the data after it has been saved.

Impact of fix:

This fix has no impact on current workflow or data.

If the Software is Connected to a FilterMax F3 Reader in Simulation Mode, the points in a Well Scan are Displayed Outside of the Well

Tracking ID: 18533

In the **Settings** dialog, the points in a Well Scan are displayed outside of the boundary for the well when the software is connected to a FilterMax F3 Multi-Mode Microplate Reader in simulation mode.

Other tracking reference: FB4911

Resolution:

The points in a Well Scan are displayed within the boundary for the well in the **Settings** dialog, even when the software is connected to a FilterMax F3 Multi-Mode Microplate Reader in simulation mode.

Impact of fix:

This fix has no impact on current workflow or data.

Part of the GxP Audit Trail Text is Missing when Printed

Tracking ID: 19026

When printing a GxP audit trail, sometimes part of the information is missing. This generally happens when the audit trail spans more than one page and the **Print Quality** setting in the **Printing Options** dialog is set to a higher quality than **Draft**.

Other tracking references: 19872 and FB4880

Resolution:

The entire contents of the GxP audit trail prints properly for all print qualities.

Impact of fix:

This fix has no impact on current workflow or data.

Blurry Images Acquired Using a SpectraMax MiniMax Cytometer

Tracking ID: 19436

After doing a fluorescence read using a SpectraMax i3x with a SpectraMax MiniMax Cytometer, the acquired Min and Max images in the **Settings** dialog appear blurry with a focus adjustment outside of the range 100 to 140.

Other tracking reference: FB4993

Resolution:

The acquired Min and Max images in the **Settings** dialog are not blurry after doing a fluorescence read using a SpectraMax i3x with a SpectraMax MiniMax Cytometer.

Impact of fix:

This fix has no impact on current workflow or data.

The StakMax Software Interface Does Not Display

Tracking ID: 19438

The StakMax Software interface is not displayed when opened, and it must be closed using Windows Task Manager.

When running the SoftMax Pro Software connected to the StakMax Microplate Handling System in simulation mode, and error message is displayed saying that the instrument cannot be connected.

Other tracking references: 18744 and FB4991

Resolution:

The StakMax Software interface is displayed when opened and runs without error, even when the SoftMax Pro Software is connected to the StakMax Microplate Handling System in simulation mode.

Impact of fix:

This fix has no impact on current workflow or data.

Printing Error When Printing a Large GxP Audit Trail

Tracking ID: 20021

When printing a very large GxP audit trail, the software stops running unexpectedly and the audit trail is not printed.

Other tracking reference: FB5053

Resolution:

The GxP audit trail prints successfully regardless of the size of the audit trail.

Impact of fix:

This fix has no impact on current workflow or data.

Known Issues in SoftMax Pro Software 7.0

The following known issues exist in SoftMax Pro Software v7.0.

Some 384-well plate display options have not been implemented

Tracking ID: FB2463

The 384-well plate-specific display options vertical, rotated, and interleaved have not been implemented.

Planned Resolution:

Implementing support for these display options is in the product backlog for future implementation.

Cannot export cuvette sets

Tracking ID: FB2494

The means to export cuvette sets has not been implemented.

Planned Resolution:

Implementing cuvette-set export is in the product backlog for future implementation.

The Threshold reduced data display is not available

Tracking ID: FB2497

The Threshold reduced data display option has not been implemented. The color map display options can be used to get similar results.

Planned Resolution:

Implementing the Threshold reduced data display option is in the product backlog for future implementation.

The Ranged reduced data display is not available

Tracking ID: FB2498

The Ranged reduced data display option has not been implemented. The color map display options can be used to get similar results.

Planned Resolution:

Implementing the Ranged reduced data display option is in the product backlog for future implementation.

Importing raw data has not been implemented

Tracking ID: FB2521

The means to import data into a Plate section has not been implemented.

Planned Resolution:

Importing data into a Plate section is in the product backlog for future implementation.

The Decimal Symbol of the Regional and Language Options settings has to be set to the period symbol (“.”) regardless of the language setting

Tracking ID: FB2727

When the language setting on a computer is set to a language other than English, the decimal symbol can be set to a symbol other than the period symbol, generally the comma symbol (“,”). If this happens, parsing or calculations might not be executed correctly in the SoftMax Pro Software. To have the software work properly, the user must customize the computer’s regional options to use the period symbol (“.”) for the decimal symbol.

Planned Resolution:

Allowing the comma symbol (“,”) for the decimal symbol is in the product backlog for future implementation.

Auto Print not available

Tracking ID: FB2768

The means to print automatically after a read completes has not been implemented.

Planned Resolution:

Implementing Auto Print is in the product backlog for future implementation.

Displaying a cuvette set as a 96-well plate is not available

Tracking ID: FB2770

The means to display a cuvette set as a 96-well plate has not been implemented.

Planned Resolution:

Implementing the means to display a cuvette set as a 96-well plate is in the product backlog for future implementation.

Raw data does not display in 1000s

Tracking ID: FB2771

The option to display raw data in 1000s has not been implemented. Raw data is displayed in scientific-notation by default, reducing the need to also display the data in 1000s.

Planned Resolution:

Implementing the option to display raw data in 1000s is in the product backlog for future implementation.

Detection cartridges removed from a SpectraMax Paradigm instrument display as available in the Settings dialog

Tracking ID: 2863

If a detection cartridge is removed from the SpectraMax Paradigm instrument while the SoftMax Pro Software is running, the list of available detection cartridges in the Settings dialog continues to display the removed detection cartridges as available in the instrument. This can be resolved by closing and restarting the SoftMax Pro Software.

Planned Resolution:

Displaying available detection cartridges in real time is in the product backlog for future implementation.

Exporting templates in XML format is not supported

Tracking ID: 4076

Templates cannot be exported to XML format.

Some automation partners who rely on XML format might need to use a text format instead.

Planned Resolution:

This issue has been noted and is in the product backlog for future resolution.

Software Slows when Group Tables Have More Than 200 Rows

Tracking ID: 4743

If a file contains a Group table that has more than 200 rows, the software can start to run more slowly and can slow down the performance of the computer.

Planned Resolution:

To prevent slow performance create group tables with fewer than 200 rows.

Improving the performance of the software for files with large Group tables is in the product backlog for future development.

Different Values are Displayed in v5.x Than in v6.x and v7.x for the Same File in the LambdaMax Column

Tracking ID: 4848

After opening the same file in SoftMax Pro Software v5.x and v6.x or 7.x, v5.x of the software displays a different value in the LambdaMax column than is displayed in v6.x and v7.x.

Planned Resolution:

None.

Inversions of cubic and particularly cubic spline functions can be ambiguous. In such cases v6.x and v7.x find the calibrating point for which the y-value is closest to that being inverted, and then finds the solution x closest to the x-value of that point. This is not the algorithm used in v5.x, but tends to give more reasonable back calculations of standard concentrations.

In such cases, v5.x might differ from v6.x and v7.x.

Reduced Kinetic Plot is Displayed Incorrectly when Group Blanks are Applied After reduction

Tracking ID: 6533

With group blanks applied after reduction, the slope of the reduced Kinetic Plot is displayed incorrectly in the graph.

Planned Resolution:

Displaying the slope of the Kinetic Plots correctly when group blanks are applied after reduction is in the product backlog for future development.

Raw value accessors return data in an unexpected numerical order for well scan data in the SpectraMax Paradigm instrument

Tracking ID: 7345

When using a raw value accessor in a formula for SpectraMax Paradigm instrument well scan data, the numbers are returned in the order top-to-bottom and then left-to-right. They should be returned left-to-right and then top-to-bottom.

Resolution:

Normalizing the numerical order for well scan data display is in the product backlog for future development.

Import From v5.x Changes the micron symbol to a lower-case m

Tracking ID: 10022

After importing from a v5.x file, the font changes the µ symbol to a lower-case m. This can cause confusion in measurements. For example, 300 µL is imported as 300 mL.

Planned Resolution:

Improving font detection during a legacy-file import is in the product backlog for future development.

Cannot Detect More Than One SpectraMax i3 or SpectraMax Paradigm Instrument

Tracking ID: 12461

With more than one SpectraMax i3 or SpectraMax Paradigm instrument connected to the same computer, the SoftMax Pro Software can detect only one of the instruments.

There are two methods to work around this issue:

- Power up only the instrument that you want to have the SoftMax Pro Software detect and leave all other instruments powered down.
- Select each instrument using separately installed versions of the SoftMax Pro Software. This method requires that the older version of the software supports the instrument that you want to detect.

Planned Resolution:

Detecting more than one SpectraMax i3 or SpectraMax Paradigm instrument connected to the same computer is in the product backlog for future development.

The Estimated Minimum and Maximum Object Size Settings Do Not Include the Smallest and Largest Objects in an Acquired Image

Tracking ID: 12497

For Cell Proliferation and Marker Expression analysis types in the Image Analysis Settings, the size estimate sometimes generates a minimum object size that is larger than the smallest object in the acquired image, or a maximum object size that is smaller than the largest object.

To work around this issue, manually type values in the fields:

- To include objects smaller than the estimated minimum, type a smaller value in the minimum size field.
- To include objects larger than the estimated maximum, type a larger value in the maximum size field.

The full size range that can be available for analysis in the SoftMax Pro Software is 0 µm to 5-million µm. Molecular Devices recommends that you do not use a maximum object size of less than 8 µm.

Planned Resolution:

Improved estimation of minimum and maximum object sizes for an acquired image is in the product backlog for future development.

In an Acquired Image, Objects within a Large Contiguous Ring Object are Included as Part of the Ring

Tracking ID: 12498

If an image has a large object, such as a group of confluent cells, that forms a contiguous ring, then all other objects, such as cells or colonies, inside that ring are linked together with that larger object. This can lead to anomalous results if you are looking at cell proliferation or growth into an area that is surrounded by confluent cells.

To work around this issue, you can export the acquired image to a different analysis tool.

Planned Resolution:

Detecting smaller objects within a large contiguous ring object is in the product backlog for future development.

Entering a Maximum Object Width to Include Objects Less Than Three Pixels Wide Can Generate Erroneous Data

Tracking ID: 12499

For a Cell Count image analysis, entering a maximum object width that includes objects that are less than three pixels wide can drastically change the thresholding and object segmentation. This can have an effect on the object measurements and introduce error into the data.

Molecular Devices recommends that you do not use a maximum object size of less than 8 µm.

Planned Resolution:

Reducing erroneous data from entering an object size that is too small for the camera resolution is in the product backlog for future development.

Selected Objects are Sometimes Eliminated from the Analysis When Using the Set Range by Clicking on Objects Feature

Tracking ID: 12500

The size and intensity estimates generated by the software after using the **Set Range by Clicking on Objects** feature sometimes eliminates objects that were clicked.

To work around this issue, manually type values in the fields after you finish clicking on objects in the images until you get the desired results.

Planned Resolution:

Improved estimation of size and intensity values when using the **Set Range by Clicking on Objects** feature is in the product backlog for future development.

No Notification is Provided if the .NET Framework Installation Fails

Tracking ID: 13116

If the SoftMax Pro Software installation fails to properly install the .NET framework, then the software cannot run, and no notification is provided when a user tries to start the software.

Planned Resolution:

Detecting and generating a message for a failed .NET installation is in the product backlog for future development.

Group Table Data Generated in v4.x and then Saved in v5.x Displays Incorrectly in v6.x or v7.x

Tracking ID: 14147

If a group table populated by arrays and lists was saved in the SoftMax Pro Software v4.x and then converted in v5.x, the table is empty when opened in v6.x or v7.x. If the table data is regenerated and then saved in 6.x or v7.x, then after reopening the file, the table is reconfigured and some data are missing.

Planned Resolution:

Correctly displaying table data generated in earlier versions of the SoftMax Pro Software is in the product backlog for future development.

Unsupported File Extension in an Automation Script Fails to Save Data

Tracking ID: 15312

Using an unsupported file extension in the **SaveAs** command in automation mode fails to save the acquired data without a notification of the error condition. Other conditions that might lead to this type of failure could be a full hard drive or a lost connection to the directory where the data is to be saved.

This condition is also found when running a StakMax script that has an unsupported file extension in the **Save Document As** or the **Save Document As with Barcode** command.

Note: The StakMax Software uses the file extensions for SoftMax Pro Software version 5.x and earlier (.pda or .eda). To use a script with version 6.x, you must edit the file name in the path statement to use the appropriate version 6.x file extension (.sda or .sdax) before adding the command to the script.

Planned Resolution:

More efficient handling of file-save errors in automation scripts is in the product backlog for future development.

The StakMax Instrument Stops in an Automated Read

Tracking ID: 16389

When running the StakMax instrument in automation mode, the instrument sometimes stops running during a multiple-microplate read.

As a workaround, use the SoftMax Pro Software version 5.x to run the automated read, and then open the v5.x data files in v6.x to analyze the data.

Planned Resolution:

Completing uninterrupted automated reads with the StakMax instrument is in the product backlog for future development.

The Updated Firmware Version is not Displayed After a Firmware Update

Tracking ID: 16455

After updating the firmware for a FilterMax instrument, the new firmware version is not displayed in the **Instrument Information** dialog.

Planned Resolution:

Displaying the new firmware version immediately after updating the firmware for a FilterMax instrument is in the product backlog for future development.

The Driver for the StakMax Instrument is not Installed on Windows 8.1

Tracking ID: 16457

Attempting to connect to the StakMax Instrument from the software installed on Windows 8.1 fails. This is due to the driver for the StakMax Instrument not being installed with the software.

Planned Resolution:

Installing the driver for the StakMax Instrument in Windows 8.1 is in the product backlog for future development.

Transmitted Light Images are not Displayed in the Settings Dialog After First Acquiring Fluorescence Images

Tracking ID: 16644

After acquiring the Max and Min images for fluorescence, selecting transmitted light in addition to the fluorescence wavelengths and then attempting to acquire the Max and Min images for transmitted light and fluorescence displays only the fluorescence images.

A workaround for this issue is to close and re-open the settings dialog, and then acquire the Max and Min images for all the selected wavelengths, including transmitted light.

Planned Resolution:

Displaying the Max and Min images for all the selected wavelengths is in the product backlog for future development.

Configuring Settings from the Plate Helper for a SpectraMax i3 Instrument with the Cartridge Drawer Open Generates an Object Reference Error

Tracking ID: 16653

With the cartridge drawer open on a SpectraMax i3 Instrument, clicking **Configure your acquisition settings** in the **Plate Helper** generates an **Object reference not set to an instance of an object** error message.

Planned Resolution:

Improving error handling for an open cartridge drawer is in the product backlog for future development.

Cannot Paste a Copied Template From One Document to Another in Vertical Tab Group View

Tracking ID: 16667

With the program window in **Vertical Tab Group** view, copying a template from a **Plate** section in one document and then attempting to paste the template into a **Plate** section in a different document results in the paste operation failing.

Planned Resolution:

Successfully pasting a copied template from one document to another in **Vertical Tab Group** view is in the product backlog for future development.

The Software Stops Unexpectedly When Closing a Western Blot Data File Where the File Path is No Longer Available

Tracking ID: 16904

If the file path for a Western Blot data file becomes unavailable, closing the document causes the software to stop unexpectedly.

Planned Resolution:

Closing a Western Blot data file that has an unavailable file path without causing the software to stop is in the product backlog for future development.

The Syntax Helper in the Formula Editor is not Displayed Properly in Windows 8.1

Tracking ID: 18371

When you type in the **Formula Editor** with the **Syntax Helper** enabled, context menus appear below your entry to help you with the correct syntax for your formula. In Windows 8.1 set to tablet layout, the context menus are displayed incorrectly in the software.

A workaround for this issue is to use the standard layout.

Another workaround is to change the "handedness" of the context menus for your tablet layout. See http://www.askvg.com/how-to-change-menu-position-from-left-to-right-in-windows-vista/.

Planned Resolution:

Improving the format of the **Syntax Helper** in tablet layout is in the product backlog for future development.

Cuvette Air Calibration for the SpectraMax Plus 384 Microplate Reader Starts at 200 nm

Tracking ID: 18682

For the SpectraMax Plus 384 microplate reader, the air calibration routine for a cuvette starts at 200 nm, instead of 190 nm.

Planned Resolution:

Starting the cuvette air calibration at 190 nm for the SpectraMax Plus 384 microplate reader is in the product backlog for future development.

Reduced Value Displays #ERR for v5.x FlexStation Data File

Tracking ID: 19452

After opening a v5.x file with acquired data from an incomplete read on FlexStation 3 reader, the reduced data displays as #ERR.

Planned Resolution:

The software development team has determined the cause of this issue and is investigating a resolution that will not compromise data integrity.

Some systems might freeze or display incorrectly if using an out-of-date display driver

Tracking ID: 032869

This issue was found to exist with the Intel G41 Express Chipset 8.15.10.1749; 6-May-2009 display driver.

This issue can be resolved by upgrading the user's computer to the latest version of the display driver.

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