

Compendium of 3130, 3730, and 3500 Series Data Collection Software Changes

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About this user bulletin

This user bulletin summarizes changes to each version of the Data Collection Software. For more information, see “Related documentation” on page 12.

Note: Some products listed in this user bulletin have been discontinued.

About the Data Collection Software

3500 Series Data Collection Software

The 3500 Series Data Collection Software integrates instrument control, data collection, consumable/maintenance quality control, and size calling into a single piece of software, streamlining functions such as instrument setup, plate setup, data collection, and preliminary data review.

The 3500 Series Data Collection Software provides immediate access to size-called data, which allows users to assess data quality as the data is generated, without first transferring output files into secondary analysis software packages. Additionally the software offers pre-configured protocols and plate templates to support rapid and efficient fragment and sequencing run setup.

3130 and 3730 Series Data Collection Software

The 3130 and 3730 Series Data Collection Software is used to set up and control the instrument, and to collect raw fluorescent data for a wide variety of fragment analysis and sequencing applications for low-to-medium throughput laboratories (3130 instrument) and high throughput laboratories (3730 instrument). The software collects information about the dye emission (fluorescence) spectra, then processes the raw data as fragment size, base sequence, or relative concentration for use by the GeneMapper™ *ID-X* Software.

Forensic validation

We have validated the following Data Collection Software versions for use with forensic applications:

- 3130 and 3730 Series Data Collection Software—v3.0 and v4
- 3730xl Data Collection Software 5
- 3500 Series Data Collection Software—v1, v2, v3.0/3.1, and v4/4.0.1

The validation was performed according to the guidelines from the *Scientific Working Group on DNA Analysis Methods* (SWGDM). For more information on validation, see “Related documentation” on page 12.

Your laboratory should determine the appropriate testing or validation that is required to comply with your laboratory guidelines or applicable regulations.

GeneMapper™ *ID-X* Software co-installation not recommended

Co-installation of GeneMapper™ *ID-X* Software with the Data Collection Software versions discussed in this user bulletin has not been validated and is not supported.

3500 Series Data Collection Software 4—v4.0 and v4.0.1

Updates from previous versions

Table 1 and Table 2 list the 3500 Series Data Collection Software 4 updates for v4.0 and v4.0.1.

Table 1 New features for v4.0

Feature category	Enhancements
General support	<ul style="list-style-type: none"> • Windows™ 10, 64-bit operating system (IOT Enterprise) is supported. • No license activation or yearly license renewal is required. <p>The 3500 Series Data Collection Software 4 has been tested with these antivirus software applications:</p> <ul style="list-style-type: none"> • Symantec Endpoint Protection 12 • McAfee Endpoint Security version 10.5 <p>IMPORTANT! McAfee Endpoint Security can block services that are needed to start the Data Collection Software. If you observe this issue, disable the Firewall from McAfee Endpoint Security Settings or create a rule to allow traffic for the IP address 192.168.0.1 on the local network.</p>
Data optimization features	<ul style="list-style-type: none"> • Signal optimization • Off-scale recovery • Pull-up reduction <p>For more information, see the <i>3500 Series Data Collection Software 4 User Bulletin: New Features</i> (Pub. No. 100075298).</p>
Flexible plate loading	<p>The software allows you to load an additional plate to the autosampler at any time during a run.</p>

Table 1 New features for v4.0 (continued)

Feature category	Enhancements
DS-36 install check (6-dye)	<p>A 6-dye J6 selection is available in the Chemistry list in the Install Check screen.</p> <p>The components of the install check reaction are as follows:</p> <ul style="list-style-type: none"> • GeneScan™ 600 LIZ™ Size Standard v2.0 (Cat. No. 4408399) • Hi-Di™ Formamide (Cat. No. 4311320 or 4440753) • GlobalFiler™ Allelic Ladder (from the GlobalFiler™ PCR Amplification Kit, or ordered separately Cat. No. 4476033) <p>The volumes of install check components per reaction are as follows:</p> <ul style="list-style-type: none"> • Size standard—0.4 µL • Hi-Di™ Formamide—9.6 µL • Allelic ladder—1 µL <p>Pass/fail criteria for HID J6 install check:</p> <ul style="list-style-type: none"> • 26 size standard peaks • 343 ladder peaks • All markers except TH01: ±0.7 bp of nominal size for the allele. • TH01: <ul style="list-style-type: none"> – Seven alleles are ±0.7 bp of nominal size for the allele – Three alleles are ±0.5 bp of nominal size for the allele • Minimum peak height >400 RFU
New assays, instrument protocols, QC protocols, and dye sets	Library items have been updated for signal optimization and off-scale data recovery.
Preferences for reagent use	<p>You can set Instrument Settings preferences to:</p> <ul style="list-style-type: none"> • Prevent an instrument run if reagents exceed on-instrument limits or expiration date. • Control the display and timing of warnings that are related to reagent usage limits and expiration.

Table 1 New features for v4.0 (continued)

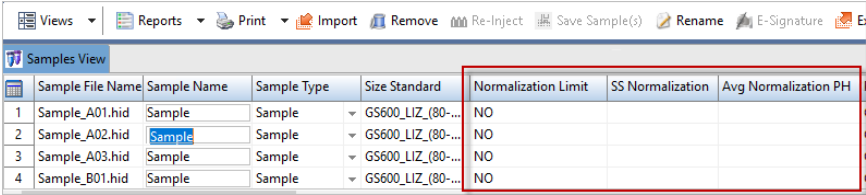
Feature category	Enhancements
Size standard normalization information	<p>By default, the Samples view displays the following columns.</p> <ul style="list-style-type: none"> • Normalization Limit set in the instrument protocol. • Size Standard Normalization Factor calculated by the software. This factor can be applied to data in GeneMapper™ ID-X Software by enabling the Normalization checkbox in the GeneMapper™ ID-X Software analysis method. • Avg Normalization PH (peak height) of the size standard peaks used to calculate the factor. <p>You can change table settings to hide these columns.</p> 
Consumables log export	<p>You can export the consumables log in CSV or XLS format. For each consumable, the consumables log contains installation date, instrument serial number, lot, serial number, expiration date, and the name of the user who installed the consumable.</p> <ol style="list-style-type: none"> 1. In any screen, select Tools > Export Consumables Log. 2. Select a location and enter a name for the export file. <p>IMPORTANT! In the exported file, the conditioning reagent part description incorrectly lists "Polymer Pouch". However, the lot number that is listed is correct for the conditioning reagent.</p>
Injection list export	<p>You can export the injection list from two locations:</p> <ul style="list-style-type: none"> • Preview Run screen at any time before a run or during a run. • Samples view screen when a run is complete.
Calendar	<p>Tasks have new Every Two Weeks repeat setting.</p>
EPT plot for completed or terminated runs	<p>You can view the ElectroPhoresis Telemetry (EPT) plot in the Monitor Run screen. The EPT plot shows instrument data conditions for a completed or terminated run until the plate for the run is unlinked.</p> <p>Note: EP Voltage, Laser Power, EP Current, and Run Temp are stored in the sample file and is available to view in secondary analysis software.</p>

Table 2 New features for v4.0.1

Feature category	Enhancements
Assay library	<p>The following assays have been removed:</p> <ul style="list-style-type: none"> • Assays with _SO suffix (signal optimization) • Legacy assays with the old naming convention (<i>STR kit</i>)

Table 2 New features for v4.0.1 (continued)

Feature category	Enhancements
Instrument protocol library	Removed instrument protocols with _SO suffix (signal optimization).
Run module option	<p>—HID36_POP4(xl)_SO run module (SO=signal optimization) has been removed.</p> <p>Note: The HID36_POP4(xl)_SO run module was provided to minimize injection variability between capillaries. The new run module introduced polymer before the injection and set a higher capillary position during injection. However, the introduction of polymer caused artifacts in the data.</p> <p>New recommendations for reducing signal variation across capillaries are available in <i>Technical Bulletin: Updated Recommendations for use of the Signal Optimization Features in 3500 Series Data Collection Software 4 for HID</i>.</p>
Default injection order	The defect that caused inconsistent default plate injection order has been fixed.
Additional minor defect fixes	See the <i>3500 Series Data Collection Software 4.0.1 Release Notes</i> (Pub. No. 100087946).

GeneMapper™ ID-X Software compatibility

The HID sample files generated by 3500 Series Data Collection Software 4 (v4.0 and v4.0.1) were validated for analysis with GeneMapper™ ID-X Software v1.5 and v1.6.

3500 Series Data Collection Software 3—v3.0 and v3.1

IMPORTANT! The primary analysis algorithms (base-calling and size-calling) remain unchanged from 3500 Series Data Collection Software 1. There were no changes in v3.0 or v3.1 in the core algorithms for instrument control, data collection, spectral multicomponenting, peak detection, sizing, and quality check.

Updates from previous versions

Table 3 and Table 4 list the 3500 Series Data Collection Software 3 updates and enhancements for v3.0 and v3.1 that are most relevant to users performing Human Identification (HID) applications.

Table 3 New features for v3.0

Feature category	Enhancements
Install check and calibration	Calibration/Install check status displays a warning when a required step is missed.
	Option to enter notes when accepting or rejecting a calibration run.
	Option to perform only one spectral calibration run. The system now requires only sufficient consumables for a single run (instead of 3 runs) to start the spectral calibration run.
Library user interface	Ability to permanently lock datastore objects to prevent editing.

Table 3 New features for v3.0 (continued)

Feature category	Enhancements
Library user interface	Improved ability to filter library objects to hide unnecessary or unused objects: <ul style="list-style-type: none"> • Filter by application type (Sequencing, Fragment, HID, All) • Filter by number of capillaries (8, 24) • Filter by excluding objects with names that match the filter name
	Ability to specify the number of runs retained in the run log.
User interface operation	Performance improvements to streamline startup sequence, reduce response time, and eliminate instances of overlapping “ghost box” windows.
	Warning appears at software launch if the instrument door is open.
	Option to enter notes when stopping a run prematurely.
	Option to terminate the injection list when aborting a run.
	Ability to use the plate grid to select individual samples for re-injection and see the corresponding injection number.
	Improved ability to set up plates using imported text files that have been modified in Microsoft™ Excel™ 2007.
	Added user confirmation step after reverse plate-link button is pressed (to help prevent inadvertent plate switching).
	Progress bar displays elapsed time (instead of percentage) with improved accuracy.
RFID consumable tracking	Remove remaining RFID hard stops in RUO mode except for single-use Conditioning Reagent capacity limit.
	Improved precision of the consumable expiration dashboard display to include days and hours. Expiration is now set to occur at 11:59 PM local time (instead of noon GMT).
Wizards	Improved dashboard and UI layout to make wizards more easily accessible.
	Changed the wizard event name to Wash Pump and Channels to be consistent with the wizard name.
	Updated the Wash Pump and Channels and Install Capillary Array Wizards with additional instructions to install a fresh Anode Buffer Container when finishing the wizards.
	New Instrument Reactivation Wizard assists in preparing the instrument for operation when no capillary array is already installed on the instrument.
Reports	Ability to customize report logos using the Preferences menu.
	Improved consumables reporting to highlight expired consumables in the annotation view.
	New sample file annotation view for fragment analysis sample files.

Table 3 New features for v3.0 (continued)

Feature category	Enhancements
Reports	New utility gathers multiple log files to help the Field Service Engineer rapidly gather troubleshooting information.
Security, Audit, and e-Signature (SAE)	Optimized the amount of information that is stored in the AuditSummary.aud file to improve performance and reduce the need to create new audit files.
	Disabled the ability to delete pre-defined roles.
	New run ended event added to the action log.
	Option to prohibit pasting into the password field.
	Option to disable a non-administrative user from editing preferences.
	New audit event added to document object deletion.

Table 4 New features for v3.1

Feature category	Enhancements
Polymer and buffer limits ^[1]	Increase from 7 to 14 days.
	8-capillary instrument—Increase from 120 to 240 injections.
	24-capillary instrument—Increase from 50 to 100 injections.
Polymer pouch size	Support 96-sample pouch. Note: Validation of the 96-sample pouch is not included in this user bulletin. The Genetic Analysis Team tested and passed the 96-sample pouch. For the validation studies described in the <i>3500 Series Data Collection Software v3.1 User Bulletin: New Features and HID Validation Summary</i> (Pub. No. MAN0014110), the HID Team used the 960-sample pouch for sizing precision and size accuracy, and the 384-sample pouch for genotype concordance and peak height.

^[1] On-instrument supported limits are the lower of: 14 days, stated number of injections, or the expiry date.

GeneMapper™ ID-X Software compatibility

The HID sample files generated by 3500 Series Data Collection Software 3 (v3.0 and v3.1, RUO only) can be viewed and analyzed with GeneMapper™ ID-X Software v1.2 and later.

3500 Series Data Collection Software 2

IMPORTANT! The primary analysis algorithms (base-calling and size-calling) remain unchanged from 3500 Series Data Collection Software 1. There were no changes in v2.0 in the core algorithms for instrument control, data collection, spectral multicomponenting, peak detection, sizing, and quality check.

Updates from previous versions

The following updates were included when upgrading from 3500 Series Data Collection Software 1 to 3500 Series Data Collection Software 2 in RUO mode only.

- Support Thermo Fisher Scientific-configured Windows™ 7 Operating System Professional SP1.
- Upgrade computer to a Dell™ OptiPlex™ XE-4 GB RAM, 500 GB RAID Disk.
- Update software licensing technology to use online software registration.
- *(HID/RUO version only)* When the polymer or buffer shelf life expires, change RFID hard stops to warnings.
- Improve the spatial calibration QC checks.
New QC check evaluates each spatial calibration peak to confirm that the peak is above a minimum defined threshold. The capillary spacing measurement is enhanced to evaluate the spacing difference between cap n and n+1.
- Update the capillary fill step threshold in the instrument run modules (change from 1,000 to 150). This improves polymer leak detection during array fill operations.
- Update the Consumables Dashboard **Days Remaining** field from an integer value to a decimal displayed to the 1/100th.
- Add Consumable Usage Statistics Report to provide consumables usage per week/month/year.
- Require the Target EP voltage information to update during a run on the Sensor Details page.
- Update the Hovering tool in the **Fragment Results** view to display the quality value for off-scale data.
- Expand instrument error messages for more informative reporting of fatal instrument errors.
- *(When the Auditing functionality is enabled)* Reduce the file size of the AuditSummary.log. This helps to improve library data management and prevent audit file corruption.
- Add the Manual Control command to open/close the CCD camera shutter.
- Correct the incomplete display of the *The Load plate for run message does not display correctly* error.
- Streamline the startup sequence to minimize the software steps needed to connect to the instrument.
- Run the Instrument daemon by the Service Monitor, without the DOS window. This prevents it from being closed accidentally.
- Field Service Engineers perform migration of data from Data Collection Software v1 to v2.

GeneMapper™ ID-X Software compatibility

The HID sample files generated by 3500 Series Data Collection Software 2 can be viewed and analyzed with GeneMapper™ ID-X Software v1.2 and later.

3730xl Data Collection Software 5

Updates from previous versions

The following updates were included when upgrading from previous versions of the 3730 Series Data Collection Software to 3730xl Data Collection Software 5.

- Removed yearly license.
- Removed the requirement for an additional 6-dye module to run and analyze 6-dye data.
- Modified run modules to support updated laser parameters.
- Added support for the Windows™ 10 Operating System (64-bit).

GeneMapper™ ID-X Software compatibility

The FSA sample files generated by 3730xl Data Collection Software 5 were validated for analysis with GeneMapper™ ID-X Software v1.6.

3130 and 3730 Series Data Collection Software 4

Updates from previous versions

The following updates were included when upgrading from previous versions of the 3130 and 3730 Series Data Collection Software to v4.

- Support Thermo Fisher Scientific-configured Windows™ 7 Operating System Professional SP1.
- Upgrade computer to a Dell™ OptiPlex™ XE-4 GB RAM, 500 GB RAID Disk. Replaces existing computer systems that are no longer supported.
- Add 6-dye capability to view 6-dye data in the Capillaries Viewer, the Cap/Array Viewer, and the Spectral Viewer windows. (An additional 6-dye Module is required to run and analyze 6-dye data).
- Update the Sapphire Pump Wizard to improve pump control values. This helps to attain system specifications.
Pressure settings of the pump were lowered to 0.6 amps and 600 steps/second from 1.0/1,000. These settings control only the pump speed during polymer management operations (arrays fills, bubble removes, and so on). These settings have no effect on sample injection or fragment migration. (There is no pump movement during sample injection or during electrophoresis).
- Add BigDye™ Direct mobility files to support BigDye™ Direct chemistry.
- Field Service Engineers perform migration of data from Data Collection Software v3.x to v4.

GeneMapper™ ID-X Software compatibility

The FSA sample files generated by 3130 and 3730 Data Collection Software 4 can be viewed and analyzed with all versions of the GeneMapper™ ID-X Software, with the following exception: The 6-dye FSA files can only be viewed and analyzed with GeneMapper™ ID-X Software v1.2 or later.

3130 and 3730 Series Data Collection Software 3—v3.1.1

Updates from previous versions

The following updates were included when upgrading from previous versions of the 3130 and 3730 Series Data Collection Software to v3.1.1.

- Compatible with Thermo Fisher Scientific-configured Windows™ Vista™ (32-bit, Business Edition) Operating System.
- Upgrade of the embedded database from Oracle™ 8i to Oracle™ 11g software. This provides improved performance, and enhances database security with transparent data encryption.
- Add a warning message that appears when assigning Results Group where the number of samples assigned to the result group has reached 80% of the maximum limit (maximum = 7,000 samples).
- Fix Oracle™ 180-day password expiration. An internal password in the v3.1 software no longer expires incorrectly.
- Update software licensing technology to use online software registration, and annual renewal. Replaces standard registration code licensing.
- 3130 Data Collection Software v3.1 and 3130xl Data Collection Software v3.1 support the CAP™ Polymer with a new Install Array, the Change Polymer Wizard, and the new default run module:
 - Spect36_CAP
 - ConformationAnalysis36_CAP

In addition to the default run module, several new run modules and dye sets are included in this version:

- BDX Run Module
- (3130xl only) SNIPlex Dye set and Run Module
- GS 1200 Run Module

GeneMapper™ ID-X Software compatibility

The FSA sample files generated by 3130 and 3730 Data Collection Software v3.1.1 can be viewed and analyzed with all versions of the GeneMapper™ ID-X Software.

Documentation and support

Related documentation

Document title	Pub. No.
3500 Series Genetic Analyzer	
<i>3500/3500xL Genetic Analyzer: Protocols for the analysis of Applied Biosystems™ PCR Amplification Kit PCR Products and Validation Summary User Bulletin</i>	4469192
<i>HID Updater 3500 Data Collection Software v2.0 User Bulletin</i>	NA
<i>3500 Series Data Collection Software v3 User Bulletin: New Features and HID Validation Summary</i>	MAN0010812
<i>3500 Series Data Collection Software 3 Release Notes</i> (Located on the 3500 Data Collection Software 3 CD)	100026263
<i>3500 Series Data Collection Software 3.1 Release Notes</i>	100032109
<i>3500 Series Data Collection Software v3.1 User Bulletin: New Features and HID Validation Summary</i>	MAN0014110
<i>3500 Series Data Collection Software 4 User Bulletin: New Features and Developmental Validation</i>	100075298
<i>Software Release Notes 3500 Series Data Collection Software 4</i>	100078600
<i>3500 Series Data Collection Software 4.0.1 Release Notes</i>	100087946
3730 Series Genetic Analyzer	
<i>3730/3730xl DNA Analyzer Data Collection Software v3.1 User Bulletin</i>	4440403
<i>3730xl Data Collection Software 5 Release Notes</i>	100078677
<i>3730xl Data Collection Software 5 for HID User Bulletin: New Features and Developmental Validation</i>	MAN0019461
3130 Series Genetic Analyzer	
<i>3130/3130xl Genetic Analyzers Using Data Collection Software v3.0 User Bulletin</i>	4363787
<i>3130 v3.1 and 3130xl v3.1 Data Collection Software User Bulletin</i>	4440307
GeneMapper™ ID-X Software	
<i>Technical Note: Compendium of GeneMapper™ ID-X Software version changes from version 1.0.1 through version 1.6</i>	—

Customer and technical support

For support:

- **In North America**—Send an email to HIDTechSupport@thermofisher.com, or call **888-821-4443 option 1**.
- **Outside North America**—Contact your local support office.

For the latest services and support information for all locations, go to thermofisher.com/support to obtain the following information.

- Worldwide contact telephone numbers
- Product support
- Order and web support
- Safety Data Sheets (SDSs; also known as MSDSs)

Additional product documentation, including user guides and Certificates of Analysis, are available by contacting Customer Support.

Limited product warranty

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For descriptions of symbols on product labels or product documents, go to [thermofisher.com/symbols-definition](https://www.thermofisher.com/symbols-definition).

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Revision	Date	Description
B.0	13 October 2020	Add current software versions for the 3500 Genetic Analyzer and the 3730xl DNA Analyzer.
A.0	18 September 2014	New document.

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