

CyTOF Software v8.0

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Introduction

CyTOF® Software v8.0 is designed for data acquisition and analysis of single-cell suspension samples with CyTOF XT™. For data acquisition, CyTOF Software v8.0 is pre-installed on a Windows® 10 Pro 64-bit computer system provided with CyTOF XT. For offline data processing, install the software on a non-acquisition computer.

About This Software

IMPORTANT **CyTOF Software v8.0 is compatible only with CyTOF XT** and with data generated by the CyTOF XT system. It is not compatible with the Hyperion™ Imaging System, Helios™, CyTOF, CyTOF 2, or CyTOF C5 upgrade instruments or data acquired by these systems.

Version

The initial release version of CyTOF Software v8.0 is 8.0.14050 (130069[8.0.14050]).

System Requirements

Data Acquisition Computer

For data acquisition, CyTOF Software v8.0 comes pre-installed on the computer (118783) provided with your CyTOF XT system.

Data Processing Computers

For offline data processing, the minimum recommended computer configuration is:

Component	Minimum Requirement
Operating system	Windows 10
Processor	Dual-core 2.5 GHz base frequency 32 GB memory 4 MB cache
Installed memory	8 GB

Features and Improvements

- Instrument configuration, automatic tuning, and data acquisition settings for daily operation and maintenance of CyTOF XT
- One-step automatic tuning and calibration bead QC
- Full control of the integrated sample delivery system, including:
 - Sample mixing and agitation
 - Resuspension settings for pelleted samples
 - Optional addition of calibration beads as an internal standard
 - Sample recovery settings
 - Automatic blockage detection and removal
- Minimal hands-on, unattended acquisition of up to 13 samples
- Export cumulative tuning history for improved system performance monitoring.
- Acquire batches of up to 13 samples, each with unique and independent sample settings.
- Support for walk-up acquisition: Add new samples during batch acquisition as previous samples are acquired and carousel locations become available.
- Compatible with Maxpar® Pathsetter™, a fully automated reporting and data analysis solution that automatically identifies 37 immune cell types in FCS files from samples processed with the Maxpar® Direct™ Immune Profiling Assay™.
- New compressed LMD (linear mode data) file for raw data requires less storage space than IMD (integrated mass data) files created by earlier versions of CyTOF Software.
- Normalized FCS (FCS 3.1) file output is generated during acquisition. Files are ready for analysis when batch acquisition is complete.
- Configurable email settings to receive notification of batch completion
- Built-in, searchable software help system
- Software registration to ensure that your software and help content is always up to date

Recommendations

Acquisition Computers

- To reduce or eliminate acquisition interruption due to low computer resources:
 - Do not change configured Windows power options on the acquisition computer. These settings are configured to ensure the best computer performance for data acquisition.
 - Disable or reschedule automatic processes. Windows Automatic Update, disk defragmentation, and virus scanning require computer resources. If a process is scheduled to run during acquisition, acquisition may fail due to insufficient computer resources.
 - Preserve as much free space on the C: drive as possible. Do not install software that is not required for the instrument.
 - To prevent the effect of network latency on performance, do not acquire data to a network drive.
 - Preserve system resources for data acquisition. Do not run additional software or process data during acquisition. These actions reduce the system resources available for acquisition.
- To ensure adequate disk space and prevent data loss and acquisition interruption, do not copy files to the hard drive while data is being acquired.
- After starting the software, allow all hardware components to initialize before opening the Autosampler camera or the plasma camera (System Log updates until initialization is complete). Doing so may interfere with hardware initialization. If a component fails to initialize, close and reopen the software to force hardware initialization again.
- If plasma shutdown occurs during automatic clog removal, the automatic clog removal routine stops. If this occurs, manually clear the clog according to instructions in the CyTOF XT User Guide. Open the software and start plasma again and resubmit unacquired samples for acquisition.
- When opening the instrument door, close CyTOF Software. If the software is not closed, the alignment may shift, and the system may not reach XY boundaries (120,000 steps). If this occurs, manually rehome the system from **Instrument Configuration > Alignment**.
- When Instrument Tuning completes before the full injection volume is reached, manually stop injection from the Tuning Protocol by clicking **Stop Introduction System**.
- In Template Editor, use only ASCII printable characters in the Target column. Using nonprintable characters may cause issues with downstream analysis.
- Pagination settings for Tuning Manager and Acquisition Manager are applied after the software is closed and reopened. Pagination settings are applied after Template Editor is closed and reopened.
- When CyTOF Software is opened, the Estimated Time column on Acquisition Manager displays 0:00:00:00. Click the protocol to display the correct estimated time.

- In Template Editor, the high-level channel lock toggle functions properly, but does not update to reflect the current state (all channels locked/all channels unlocked).
- In FlowJo, the Time axis is incorrectly displayed when the file contains data acquired over more than 1 calendar day. To gate on time, customize the Time axis in FlowJo.

Data Processing Computers

The following recommendations are for offline, data processing installations on personal computers.

- For data processing on a personal computer, v8.0 upgrades earlier versions of CyTOF Software. If you need to run both v8.0 and an earlier version of software for data processing, they must be run on different computers.
- If there is not enough available space on the hard drive, the CyTOF Software installer displays an error message (**0x80070643 – Fatal error during installation**) and stops the installation process. Free up at least 500 MB of space on your hard drive and try again.

For technical support visit techsupport.fluidigm.com.

North America +1 650 266 6100 | Toll-free (US/CAN): 866 358 4354 | support.northamerica@fluidigm.com Latin America +1 650 266 6100 | techsupportlatam@fluidigm.com
Europe/Middle East/Africa/Russia +44 1223 598100 | support.europe@fluidigm.com China (excluding Hong Kong) +86 21 3255 8368 | techsupportchina@fluidigm.com
Japan +81 3 3662 2150 | techsupportjapan@fluidigm.com All other Asian countries/India/Australia +1 650 266 6100 | techsupportasia@fluidigm.com

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