



# MACSQuant<sup>®</sup> Instrument short instructions File management

Before using the instrument for the first time, read the MACSQuant Instrument user manual and MACSQuantify Software user manual.

# Introduction

In addition to automatically saving data files, the MACSQuantify Software enables users to create and save various file types such as analysis templates and instrument settings for efficient use of the MACSQuant Instrument. These short instructions provide a brief description of the file types. They also show the user how to transfer files from the instrument to a backup location or to a personal computer for data analysis.

# **File types**

## **MACSQuant data file**

MACSQuant data files (MQD) are automatically saved in the .mqd file format when a measurement is started. The MQD file contains the acquired data. Furthermore, it combines the instrument setting file, experiment file, and analysis template which were applied during acquisition.

MACSQuant data files are saved in **Private** or **Public** in the folder **data** depending on the access permissions of the user.

## Instrument setting file

Instrument setting files contain PMT voltages, channel scales, compensation matrix, height, width, area, and trigger selection. Instrument settings can be loaded the next time an experiment is performed.

Instrument settings can be saved as a separate instrument setting file, e.g. after running a compensation. Alternatively, the instrument setting can be retrieved from any MACSQuant data file.

Default instrument settings from the PMT calibration are automatically saved in **Public** in the folder **device**. Manually created instrument settings can be saved either in **Private** and **Public** in the folder **device** depending on the user access permissions..

# **Experiment file**

Experiment files are helpful if similar assays and samples are acquired repeatedly. An experiment file contains all information defined in the **Experiment** tab, e.g. flow rate, mixing, uptake volume, and sample ID for a particular sample or a set of samples. The experiment file also contains information about the used instrument settings and analysis

templates if applied. Experiment files can also be generated in the PC version of the MACSQuantify Software and can be copied to the MACSQuant Instrument.

Experiment files can be saved in **Private** and **Public** in the folder **experiments** depending on the access permissions of the user.

## Analysis template file

An analysis template is a pre-defined layout for acquired data and can be composed of plots, statistics, or tables. It usually includes gating strategies, region names, and displayed statistics. When an analysis template is saved and opened again, it will not contain any data. The analysis template can be used to insert data for analysis.



Figure 1: Example of an analysis template. Associated hierarchical gating strategy is shown for clarity.

Analysis template files can be saved in **Private** and **Public** in the folder **analysis** depending on the access permissions of the user.

#### Workspace file

A workspace represents a file combining other file types including a link to the data files. It contains the following information:

- · Sample list: samples currently displayed in the sample list
- · Experiment tab: all experiment parameters

- Instrument setting: current instrument setting including compensation and calibration settings
- Analysis template: current analysis view and template, if selected

Workspaces are most useful on a PC due to the fact that instrument settings and sample lists will change on the MACSQuant Instrument. Workspaces can be stored in **Private** or **External** but not in **Public**. **Workspaces** are saved in the **prj** folder.

If data files saved in a workspace are moved or deleted, then the workspace cannot be used anymore. The workspace only contains the link to the data file.

# Data management

It is recommended to back up data to a remote location and to remove data from the MACSQuant Instrument regularly. Data can be transferred from the MACSQuant Instrument to a remote storage location, such as network folder, USB flash drive, external hard drive, local PCs, etc. Use either the **Backup** or **Copy** function.

# **Copying files**

Custom users can copy their own private and public files depending on their access rights. An administrator can copy all files, including (private) files of all users, all files in public locations, and administrator files in a private location.

Log files, crash reports, and system audit trails can only be copied by an administrator.

- 1 Insert a USB flash drive into a USB port of the instrument to transfer data from the MACSQuant Instrument to a USB flash drive.
- 2 Wait for the device to be recognized.
- 3 Go to File > Copy... to copy files.
- 4 Select the file type.
- 5 Select the destination from the available drop-down menu in the dialog box.



- 6 Enter a password if prompted when transferring data to a network location.
- 7 From the drop-down menu, select:
  - **To**: The selected files are copied to the selected destination. The folder structure is also preserved at the destination location.

- From: The selected files will be imported. The files must be organized in the same folder structure as in the destination folder to be properly imported.
- 8 Select the box next to the desired files or folders.
- 9 Click Copy.
- 10 A dialog window appears when all files are copied.

Click **Eject** to ensure safe removal of the USB flash drive. Otherwise data can be damaged.

# **Exporting FCS or CSV files**

The MACSQuant Instrument will store all acquired data in the .mqd file format. Files can be exported as FCS or CSV files.

- 1 Right-click on a data file in the **Samples** tab and select **Export sample...** to export MQD files as FCS or CSV files.
- 2 Select the desired file type (.fcs or .csv) from the drop-down menu. If a gating strategy was applied, the MACSQuantify Software will create a separate FCS file for each gated population. Select the box Skip subpopulations to export all populations into one FCS file. The file will be stored in the same folder where the original MQD file is located.

# Data backup to remote storage location

- 1 Click on the 🕑 **Backup** button in the toolbar to backup files.
- 2 Enter a password if prompted.
- 3 Select all files or data files when prompted.
- 4 All previously backed up files will be deleted, if **Delete cloned files** was selected. FCS files need to be deleted manually.
- 5 When the backup is complete, a dialog window for confirmation appears.

If a private backup option has been defined, it will also appear as a source or destination in the **Copy** window.

## **Deleting files**

The administrator can use the folder **All users** in the **Copy** window to clear up the hard drive after copying the files to a remote storage location.

Make sure to have a backup of the files before proceeding with deletion.

- 1 Go to File > Copy...
- 2 Select the box next to the desired files or folders.
- 3 Click Delete to remove the folders.

# Are you in need of additional assistance?

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