EIGER FW Release Notes

EIGER FW 1.6.6

Bugfixes:
- Disarm and cancel will flush the filewriter – data files will be finished (introduced in version 1.6.5)

Hardware Support (experimental):
- 40 GBit cards on X systems (recommended card: Mellanox ConnectX-3 Pro)
    - DELL R930 – use in slot 3
    - DELL R820 – use in slot 6

EIGER FW 1.6.5

Bugfixes:
- Numerous simultaneous connections are again possible (versions 1.6.3 and 1.6.4 allowed only up to 3 simultaneous connections).
- Disarm command now cancels after current exposure.
- Correct MD5 sum of the stream header.

System Support:
- Support of EIGER X 500K

Known issues/bugs:
- Inconsistent time strings for different modules of the SIMPLON API httpREST interface. Please note that time strings will be reformatted in an upcoming release.
- Webmin's image capture test might continue even if an error condition has been reported during the detector command arm.
- MD5 sum in the stream header is deprecated.

EIGER FW 1.6.4

Bugfixes:
- Monitor usage without package loss.
- Stable initialization of detector systems.

Performance values:
- Monitor Buffer
    - EIGER X 16M: 64 images
    - EIGER R 4M: 101 images

Known issues/bugs:
- API webserver might return "500 Internal Server Error" for individual requests after being flooded with simultaneous requests. Requests returning html code 500 should be repeated and will subsequently yield valid results.

EIGER FW 1.6.3

New experimental feature (only for testing):
- Possibility to obtain status information during external trigger modes through wait command

System support:
- Specific solution support for wide geometry of the EIGER X 1M system

EIGER FW 1.6.2

Bugfixes:
- 4M ROI Mode for EIGER X 9M and EIGER X 16M available with 4M performance
- Maximum number of images in external enable mode increased to 2e9
- Values in user uploaded pixel mask are persistently stored also for virtual pixels.

EIGER FW 1.6.1

Bugfixes:
- Full support of goniometer parameters omega, phi, chi kappa and two_theta.

EIGER FW 1.6.0

New features
- Implemented 4M ROI mode for EIGER X 9M and X 16M detectors
- Continuous performance (image arrival at the file writer or stream interface with the following frame rate - independent of frame rate used for recording – approximate values):

- 4M – 500 Hz*

- 9M – 200 Hz

- 16M – 100 Hz

  *… 4M – up to 560 Hz 16 Bit auto summation, 560 Hz – 750 Hz no auto summation 12 Bit images => count rate capability at 12 Bit depends on set frame rate

- Maximum number of images (../detector/../config/nimages) increased from 1e6 to 2e9

- Image bit depth

  - <= 50 Hz 32 bit

  - > 50 Hz 16 Bit

- Experimental feature: nimages_per_master_file allows to create a single h5 file instead of a master and data file.

Bugfixes
- Timeout at the http rest interface set to 30 days

- Initialize command now aborts running exposure series

Known issues/bugs
- The configuration parameter data_collection_date is not functional. It is not a configuration parameter and will be removed. The system date can be configured via the web interface of the detector control unit.

- The non-functional and obsolete configuration parameter summation_nimages will be removed.

- The return value sequence_id will be changed to series_id in future versions to keep naming consistency.

- Goniometer parameter <axis>_range_total and <axis>_range_average are interchanged.

EIGER FW 1.5.2

Bugfixes
- Fix problem with FW update tool

EIGER FW 1.5.1

New features
- Bit shuffle LZ4 compression (experimental)

Bugfixes
- Number of frames per exposure is now in all cases a multiple of nframes_sum
- Monitor_buffer maximum value is increased to 200 images for all detector sizes

EIGER FW 1.5.0

Full support for EIGER X 9M & 16M
Performance optimization

New features
- Full frame rate possible for all detectors

Bugfixes
- After the arm command the detector status did not switch to ready but retained at idle

Known issues/bugs
- EIGER X 1M: rounding limits only allow 2999 Hz.
- The configuration parameter data_collection_date is not functional. It is not a configuration parameter and will be removed. The system date can be configured via the web interface of the detector control unit.
- The configuration parameter summation_nimages will be removed. This parameter is a non-functional relict from earlier detector systems.
- The return value sequence_id will be changed to series_id in future versions to keep naming consistency.

Extended support for EIGER X 16M systems (experimental)
Nexus update (see separate document)

New features

- Stream mechanism based on ZeroMQ

- Faster arm time

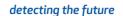- Added "continuous_readout_period" – Periods smaller than this result in 16 bit images

Bugfixes

- NeXus conform adaptation for the wavelength unit from A to angstrom

Known issues/bugs

- The configuration parameter data_collection_date is not functional. It is not a configuration parameter and will be removed. The system date can be configured via the web interface of the detector control unit.

- The configuration parameter summation_nimages will be removed. This parameter is a non-functional relict from earlier detector systems.

- The return value sequence_id will be changed to series_id in future versions to keep naming consistency.

New features

- Added monitor initialize command

- Added filewriter initialize command

- Added system control daemon: restart daq on url
  /system/api/<version>/command/restart

- Trigger INTE support, allows trigger command PUT with duration value

Bugfixes

- Sensor thickness set to 450 µm

- Lower limit for count_time set to 3 µs

- Default initialization values count_time and frame_time set to 1 s

- Default initialization element set to copper

- Correct default energy to the value of copper

- Fix for crash if detector is accessed from two threads simultaneously

- Detector status/error returns list instead of dictionary

- Readout time was not set to 3.78 µs for 1M

- Set software_version to the version of the API

Known issues/bugs

- The configuration parameter data_collection_date is not functional. It is not a
  configuration parameter and will be removed. The system date can be configured
  via the web interface of the detector control unit.

- The configuration parameter summation_nimages will be removed. This parameter
  is a non-functional relict from earlier detector systems.

- The return value sequence_id will be changed to series_id in future versions to
  keep naming consistency.

EIGER FW 1.2.2

ℹ️ Support for EIGER R 4M systems

New features
- Added "Restore default network settings" button in "System Settings" web interface

Bugfixes
- Fixed part of the update procedure

EIGER FW 1.2.1

Bugfixes
- Changed the readout time 3.78 µs
- Fixed a bug concerning the IP address assignment (EM4, DELL PowerEdge R820)

EIGER FW 1.2.0

ℹ️ Support for EIGER X 16M systems (experimental)

New features
- Fixed NEXUS issue with HDF5 file structure
- Extended the energy range

EIGER FW 1.1.0

ℹ️ Support for EIGER X 4M systems

New features
- Network configuration on the R820 systems
- FW update to extend the energy range, 3.78 µs

Known issues
- Frame time is limited to min. frame time 0.025 ms
- 10GB Interface - only one type is possible

EIGER FW 1.0.4

Bugfixes
- FW update to extend the energy range, 3.78 µs

EIGER FW 1.0.3

Bugfixes
- Fixed USB - LED status monitor

EIGER FW 1.0.2

Bugfixes
- Disable network manage for em2

EIGER FW 1.0.1

Bugfixes
- Back port of DAQ reset

EIGER FW 1.0.0

First production release of the software

New features
- New firmware with trigger for series
- UI with extend functionality - network configuration
- Limit checks for
- Rate corrections on all images transferred to the pc
- Abort and cancel in a different thread
- Improve image builder to handle summation of variable number of image

Bugfixes
- Configuration of modules causes instability
- photon_energy, detector_distance, detector_translation have units

Known issues
- Noise at lowest thresholds
- Only one trigger after an arm

EIGER FW 0.6.0-0.9.0

Alpha versions used for prototypes.

General Information

Disclaimer

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