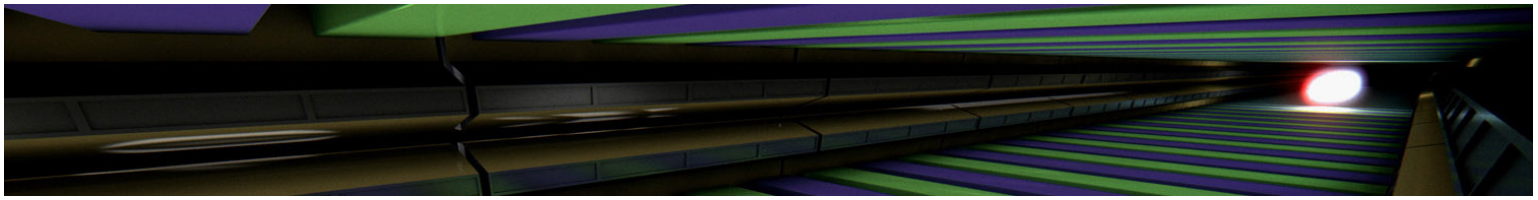


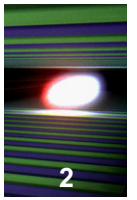
jddd

XFEL Operator Training

Elke Sombrowski

European XFEL

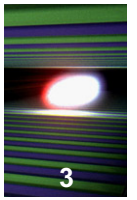
jddd Technology



jddd Technology

- JDDD = Java Doocs Data Display
- Developed at Desy (MCS4 group)
- Uses standard JAVA technology ➔ available on many operating system
- Based on Java 1.8, upgrade planned
- Panel builder and runtime engine for control system displays
- Stores panels (XML format) on local file system or in central SVN repository
- NEW: Each control network has a separate copy of the main repository ➔ ensure fail-safe operation

jddd Technology



jddd supports all control systems used at DESY

- DOOCS
- TINE
- TANGO
- EPICS
- Karabo

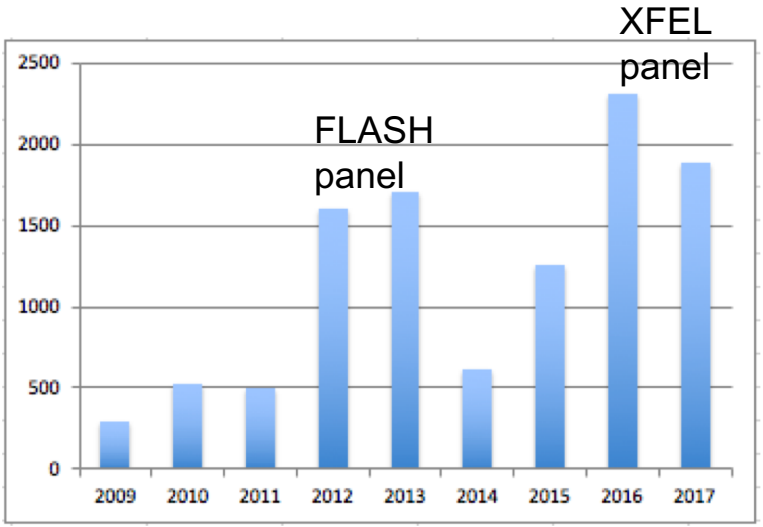
jddd is the commonly used graphical interface for

- FLASH
- XFEL
- PETRA vacuum

SVN panel statistics

SVN repository

Number of added-deleted xml files (excluding converted ddd panels)



May 2018

- ~ 12500 files total
- ~ 4700 files in user directory
- ~ 5000 files in Zeuthen

Usages statistics

January 2017

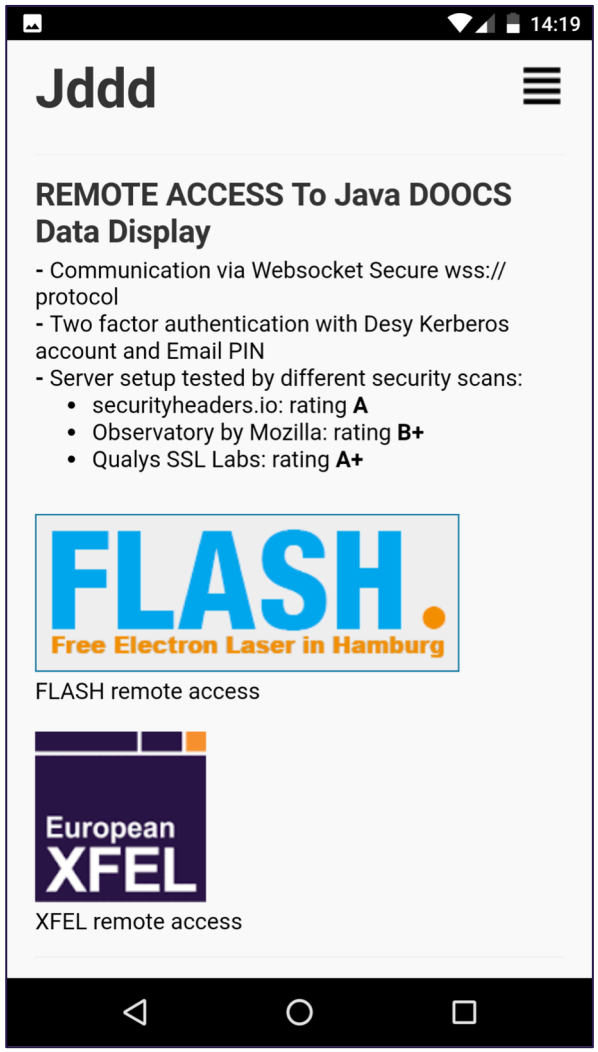
	# started panels per day	# started diff. panels per day	# diff. users per day	# sessions per day
average	2661	454	67	173
max	5445	737	124	337

How to start jddd

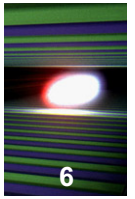
- **https://jddd.desy.de**
  - jddd web interface
  - Java Webstart (has to be replaced in future)

- **Linux/Mac: start scripts**
  - jddd, jddd-run
  - jddd-exp, jddd-exp-run
  - jFLASH, xfel
  - jddd-run -file /svn/examples/bitMask.xml

- **Windows: Netinstall**



XFEL MainTaskbar



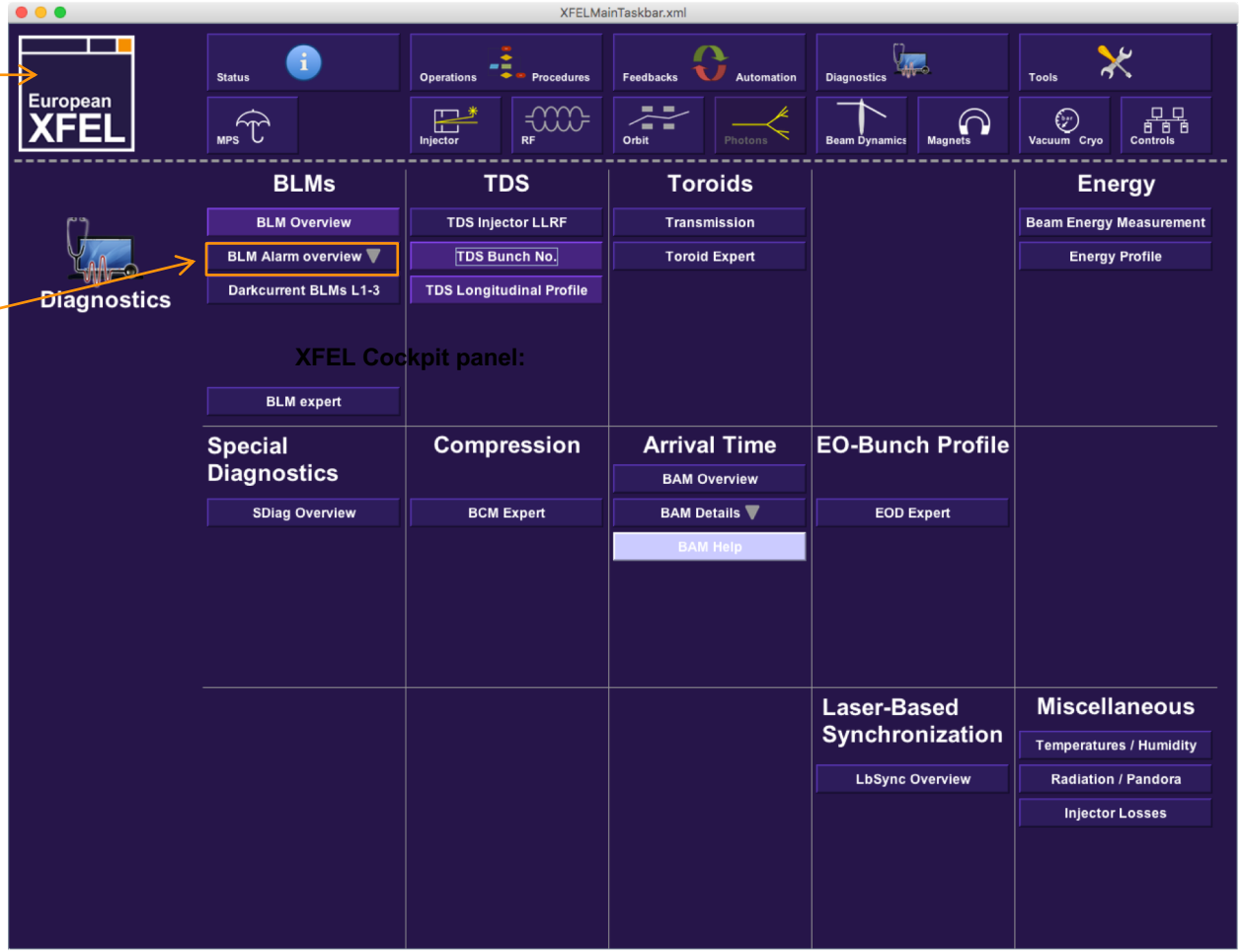
XFEL MainTaskbar panel:

Click here to reduce the size of the panel

Dropdown Menu

The upper part is always visible.

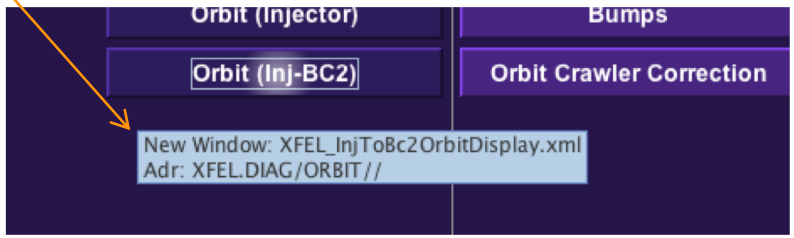
The lower part contains buttons to open special panels for the selected topic.



Buttons

Button which opens a new panel:

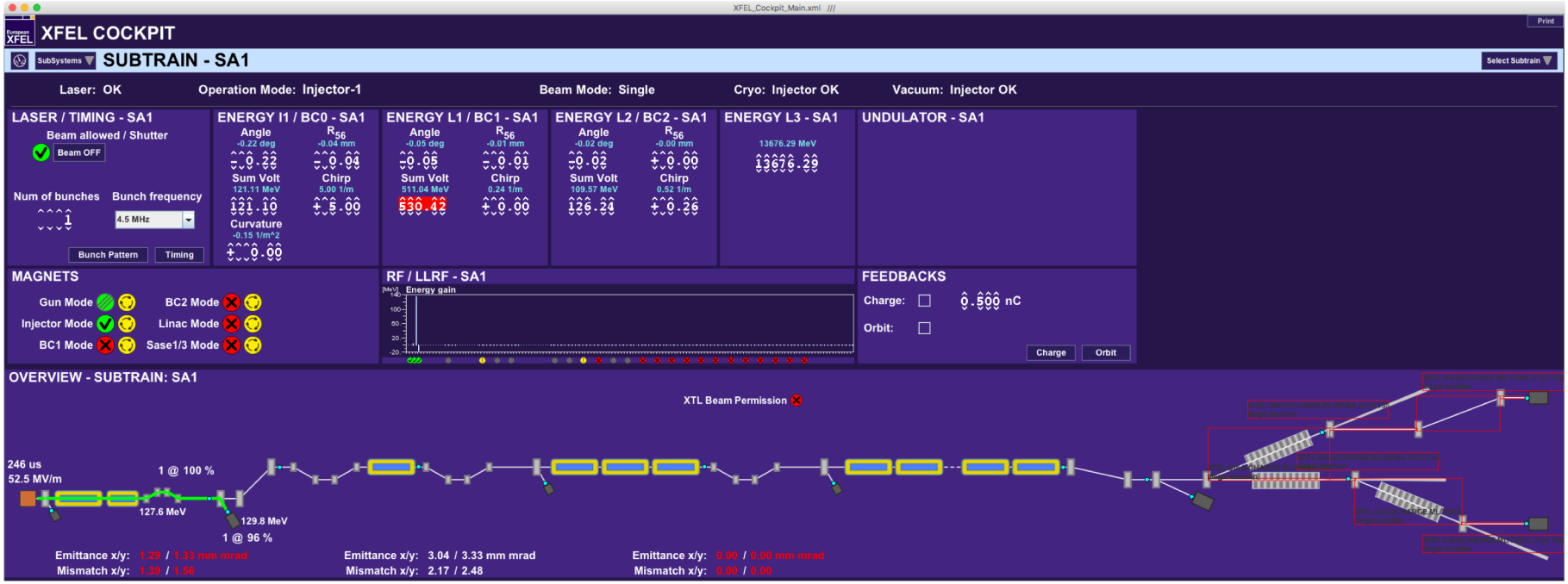
- Don’t click panically: a drag event will not open a panel
- If the panel is already running, a new instance of the same panel will not be started
- If you want to force jddd to open the same panel twice: focus the panel with the button, then press shift and click the button
- The tooltiptext displays the panel name and start address



XFEL Cockpit

XFEL Cockpit panel:

- Conceptual idea: Display all information in one panel
- Additional device panels (for magnets, bpms,…) can be opened with “New Window” buttons
- Most values from middle layer servers



TickDials

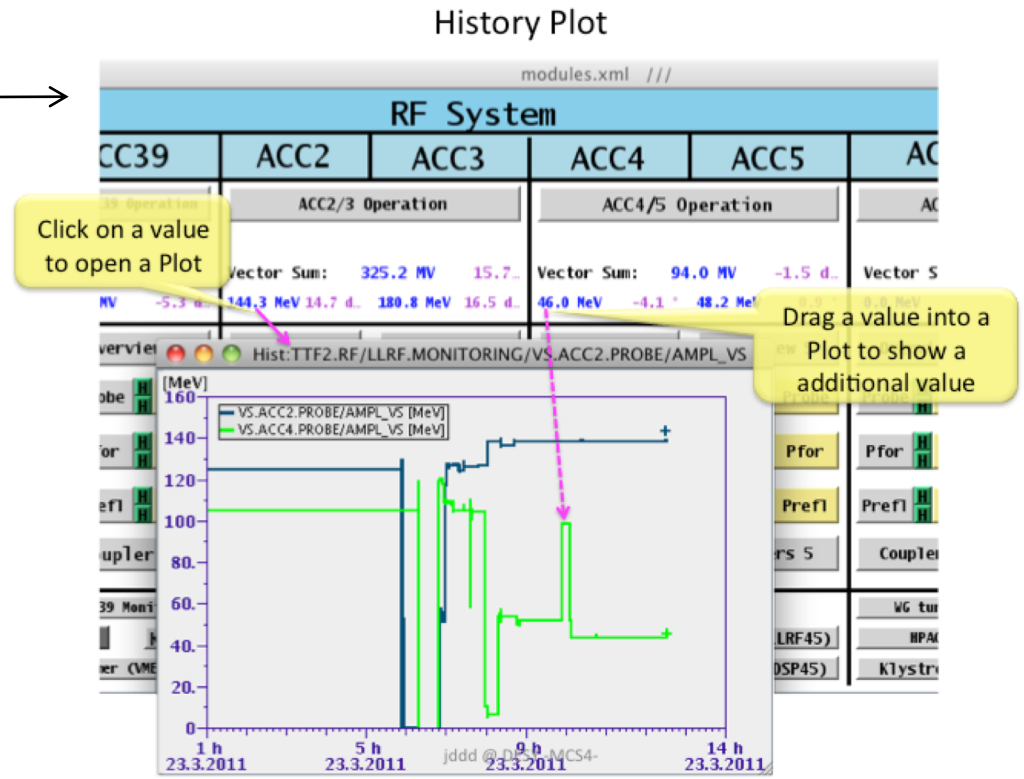
TickDials:

- The selected digit has a gray background →
- The tooltiptext shows min. and max. values

- The number of digits is defined by min. and max. value
- Errors are indicated by a red background color, the full error message is displayed in the tooltiptext
- After clicking on a TickDial, the digits become blue for some time to indicate that the value has changed (this “deadTime” default is 4 sec)
- A right click opens an input dialog

Plots

History plots



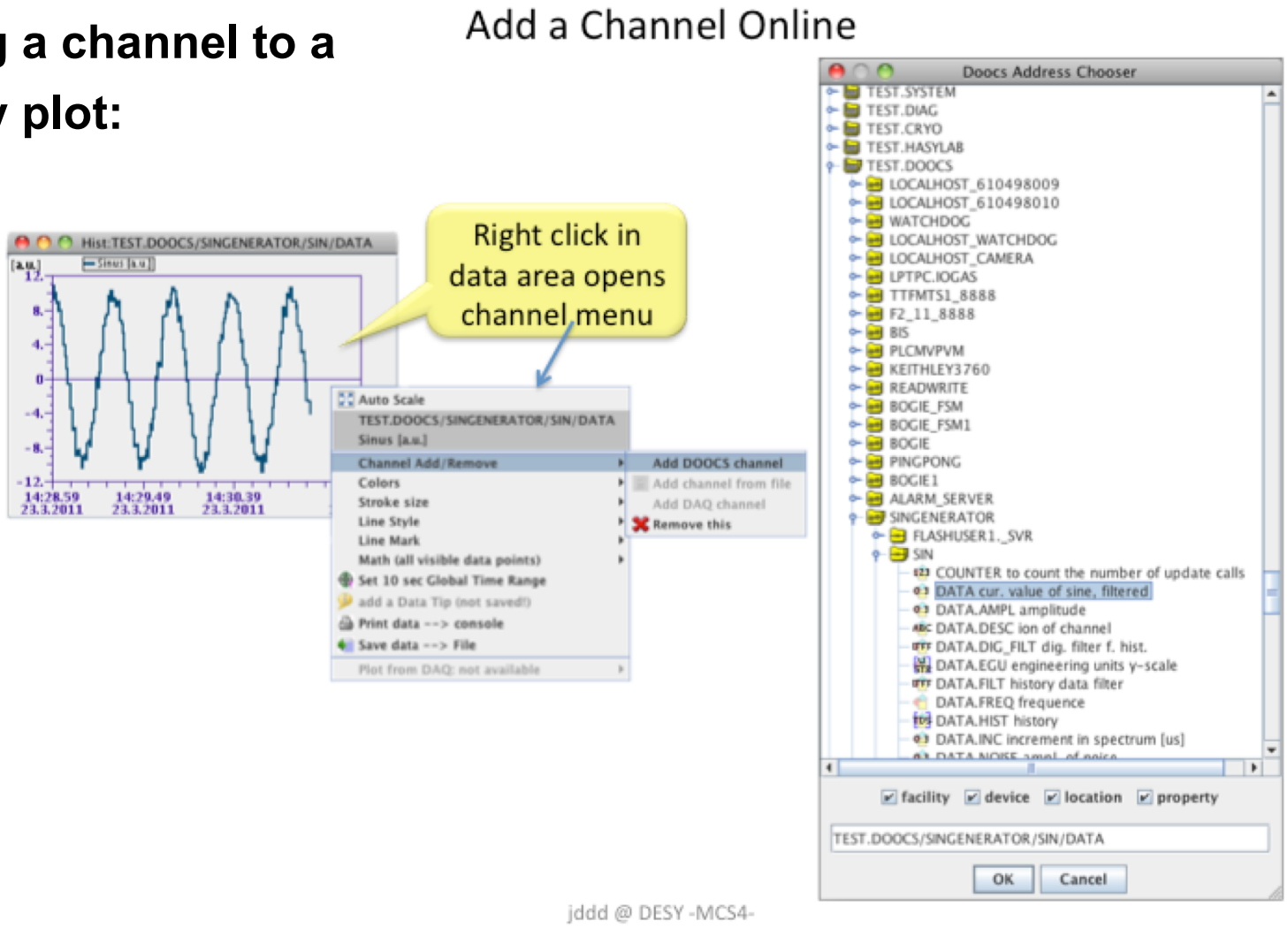
Zooming in plots:

- Inside the plot
- Beside the axis
- Move the axis
- Autoscale in context menu

European XFEL

Plots

Adding a channel to a History plot:



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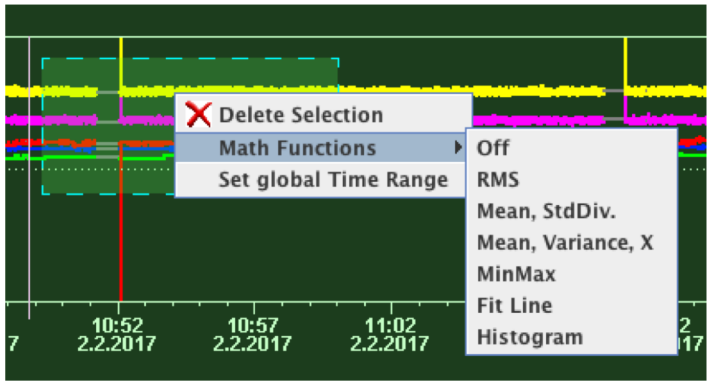
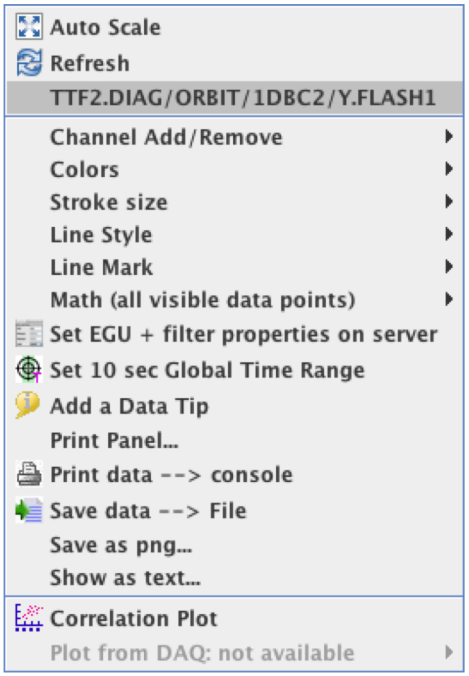
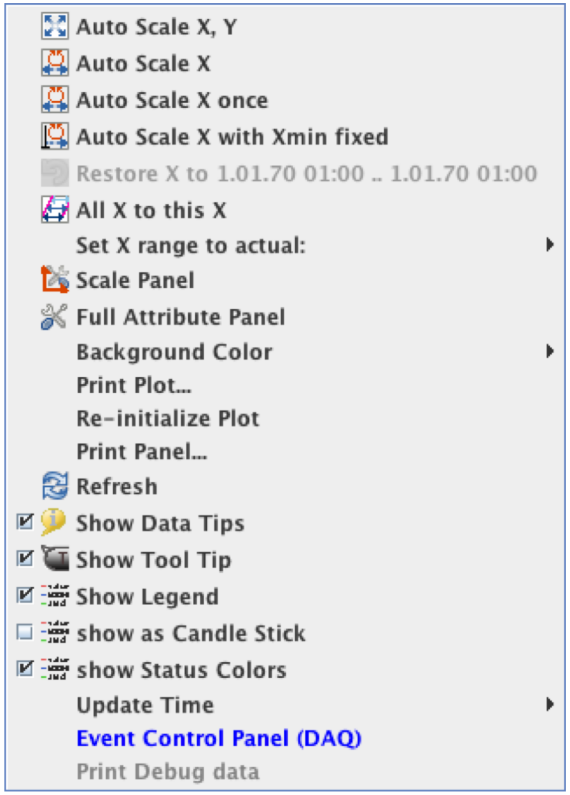
Plots

A plot has 3 different context menus:

- Axis menu
- Channel menu
- Selection menu







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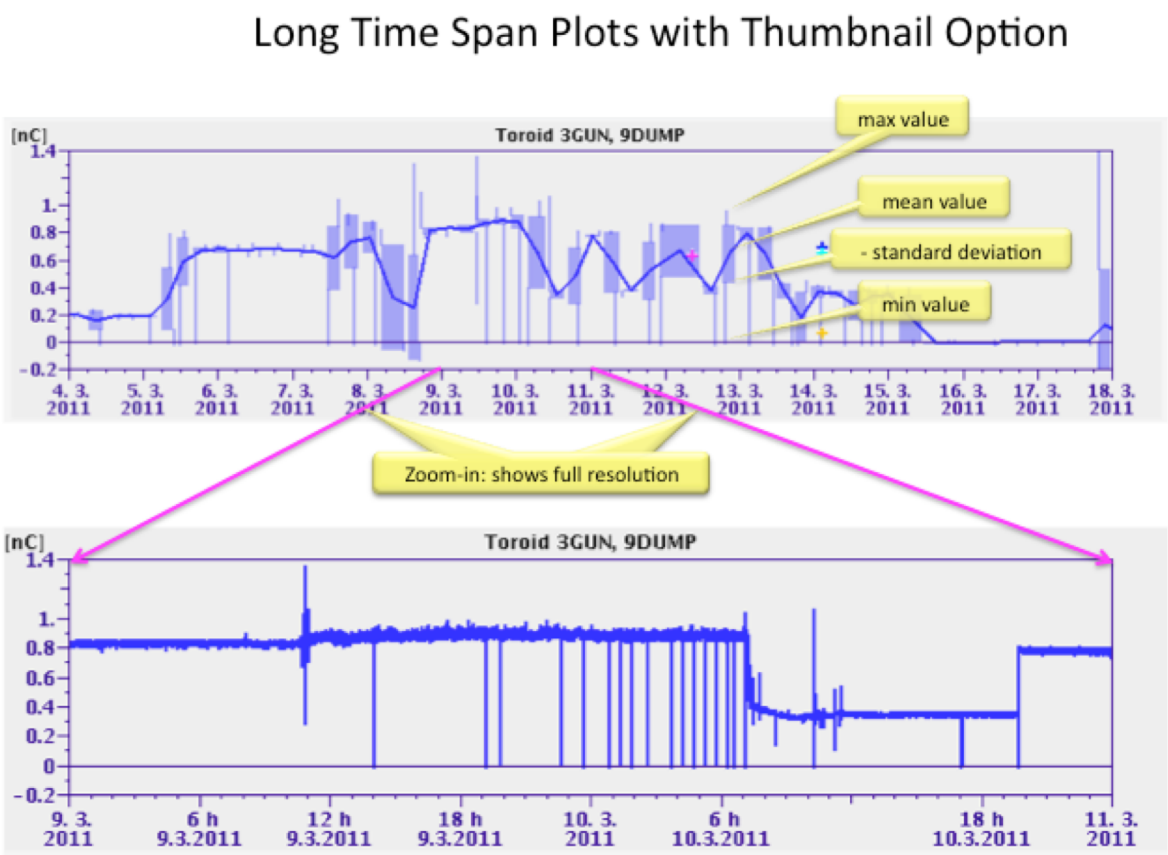
Plots

Plots with candle stick representation:



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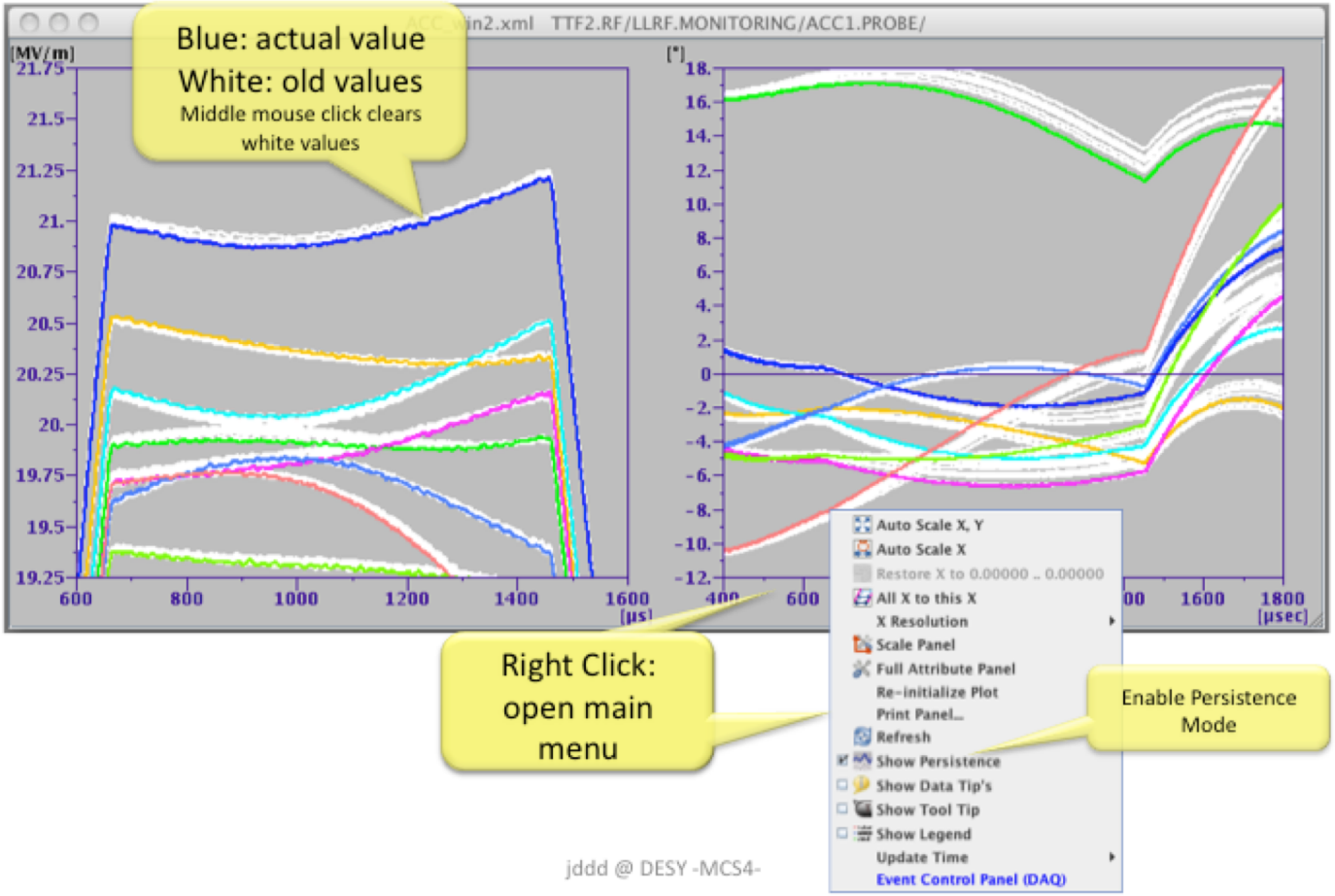
Plots

Persistance Plots:

Persistence Plot: Display Noise Bands



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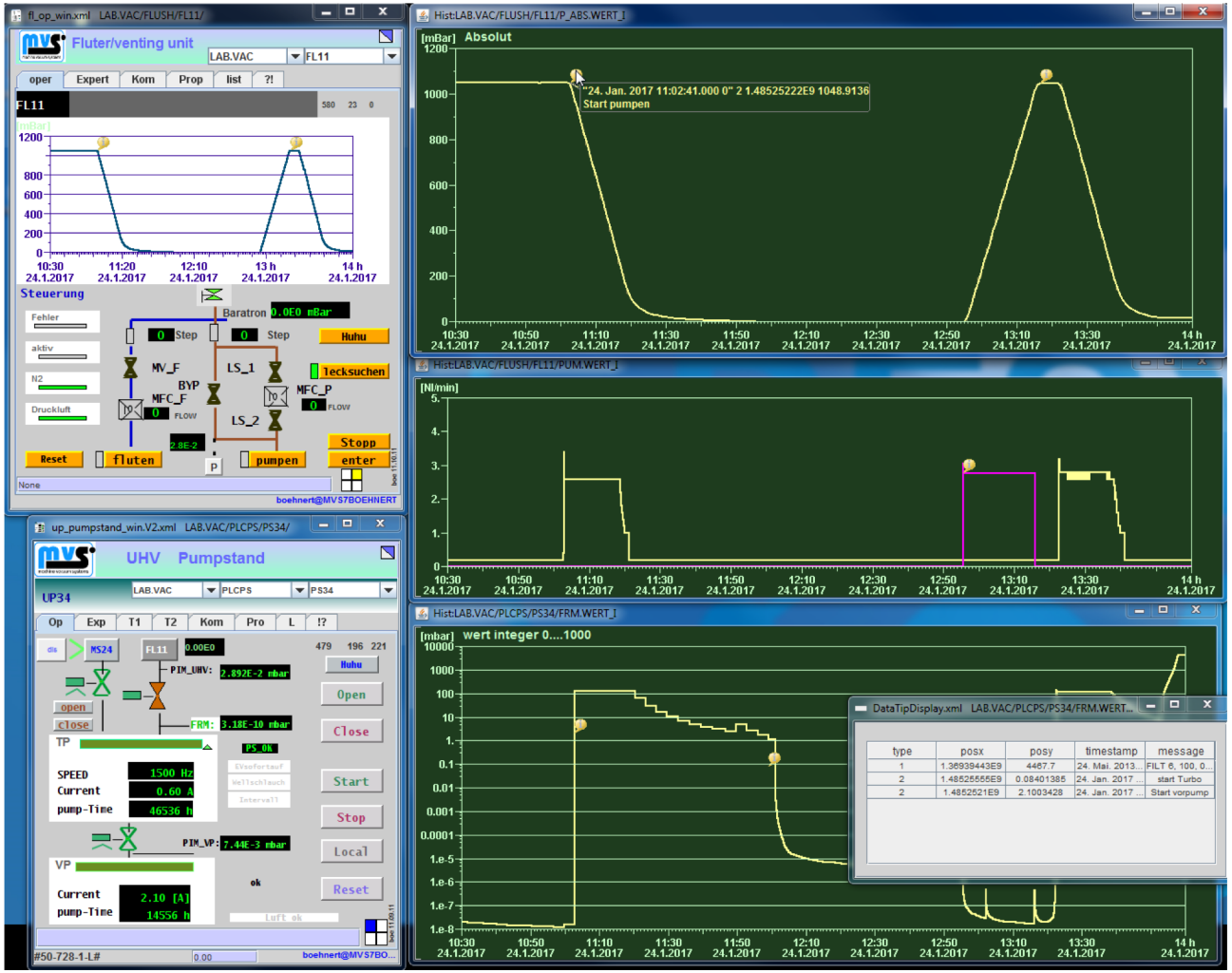
Plots

Plot data tips:

- Axis menu: show data tips
- Channel menu: add data tip



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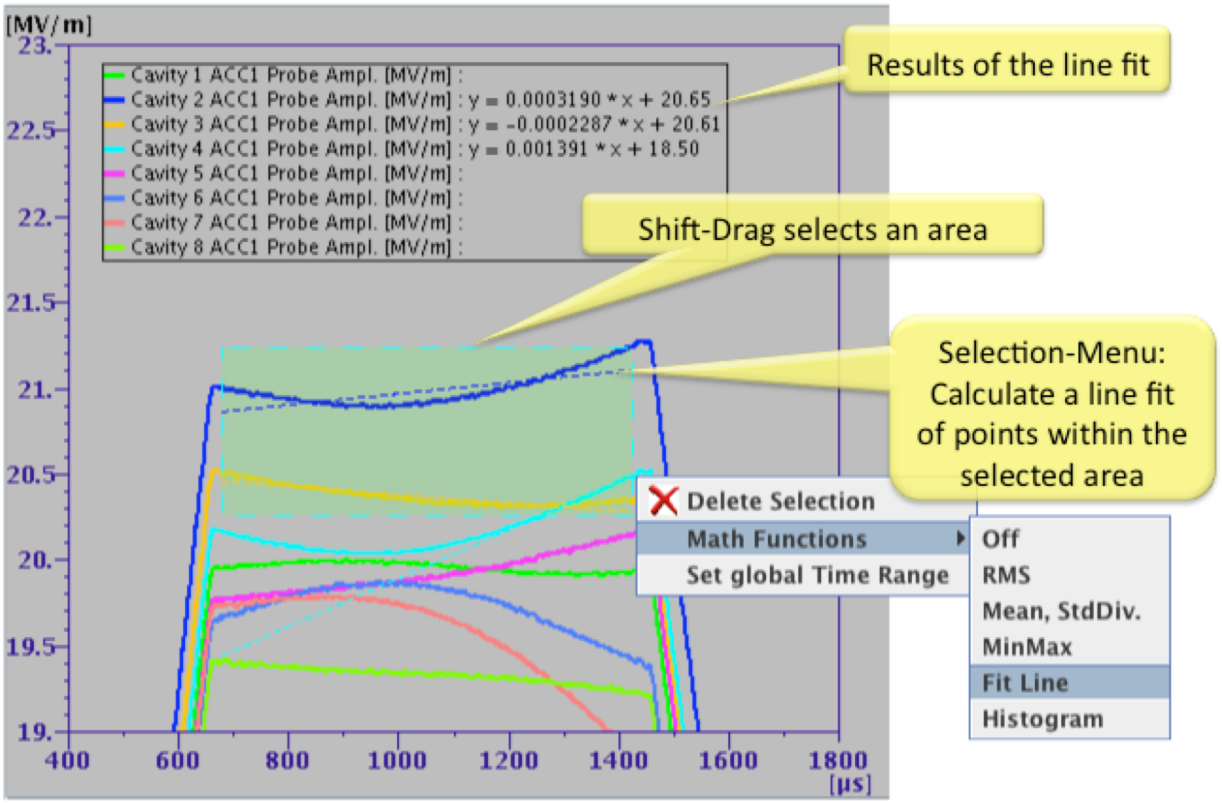
Plots

Math functions in plots:

Time-domain (Spectrum) Plots with Math Functions



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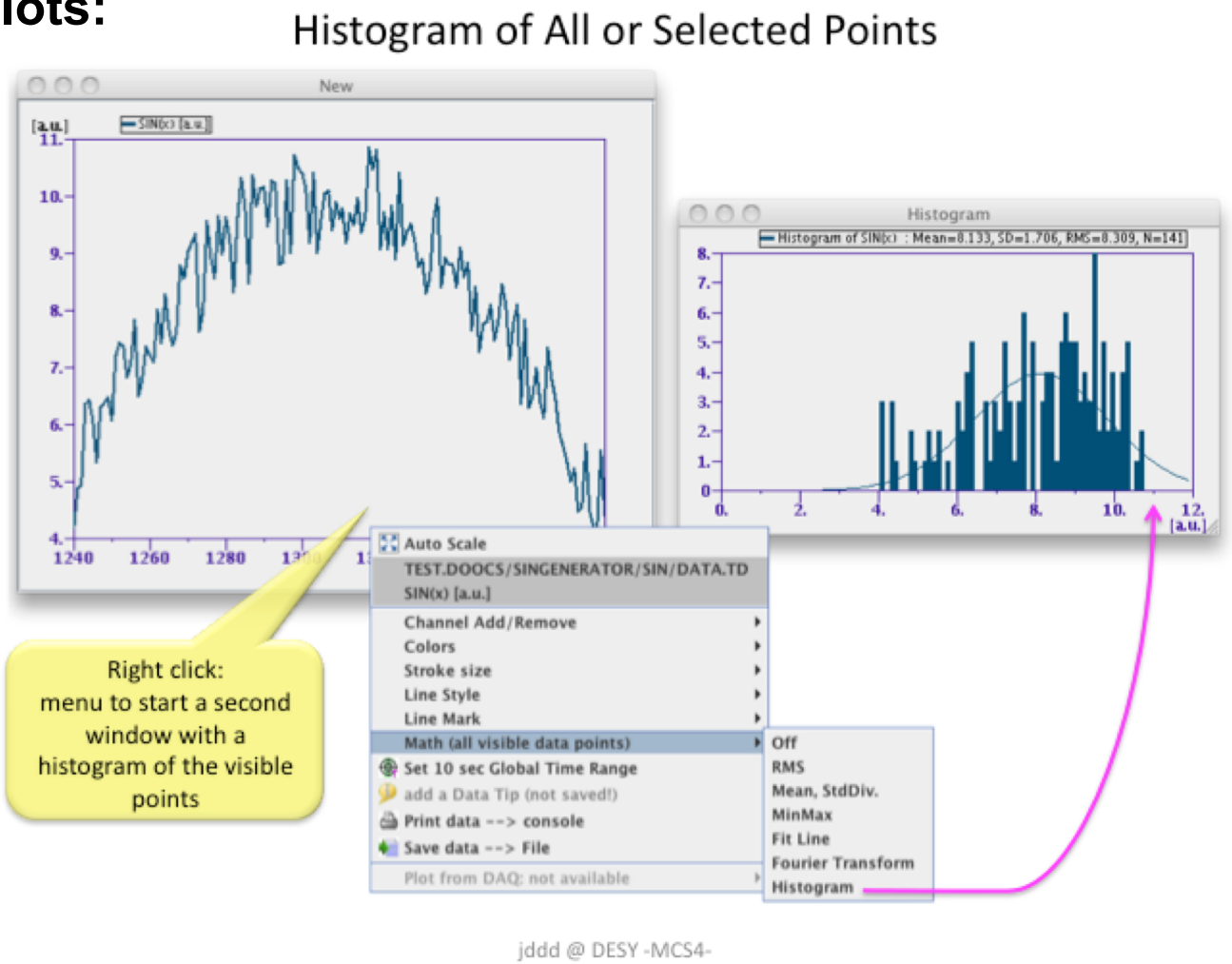
Plots

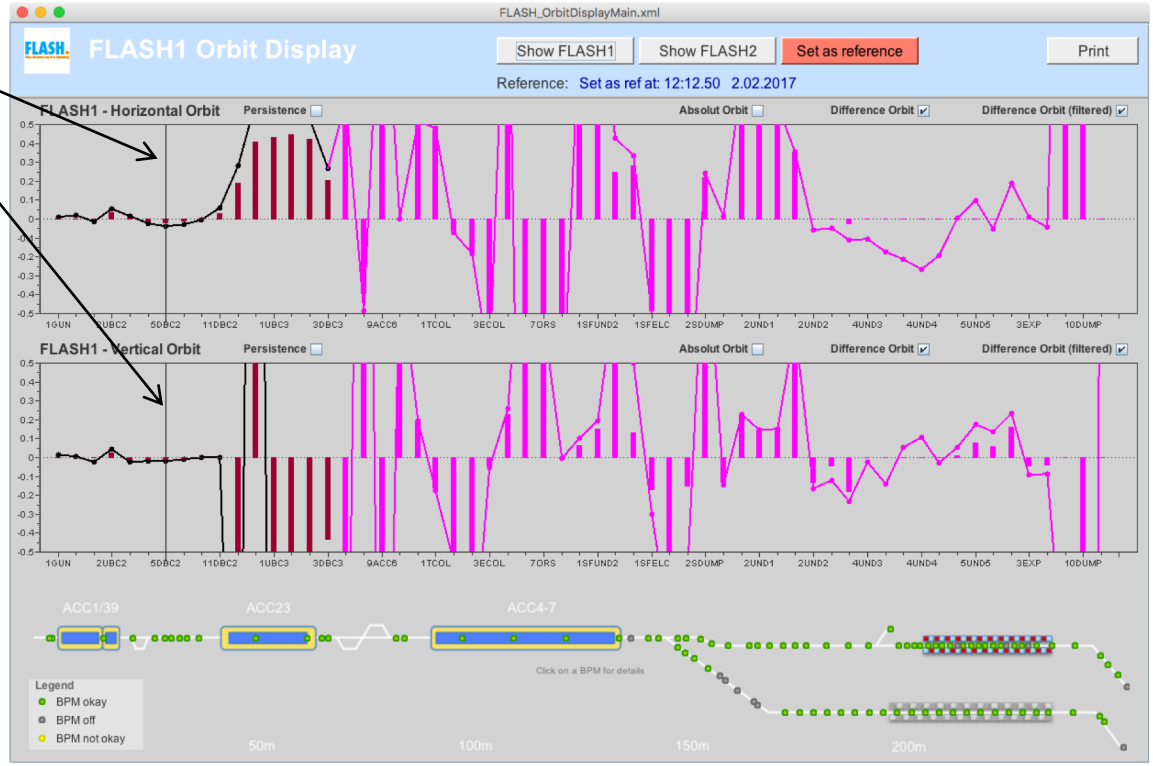
Histogram Plots:



Plots

Plots with MasterXScale:

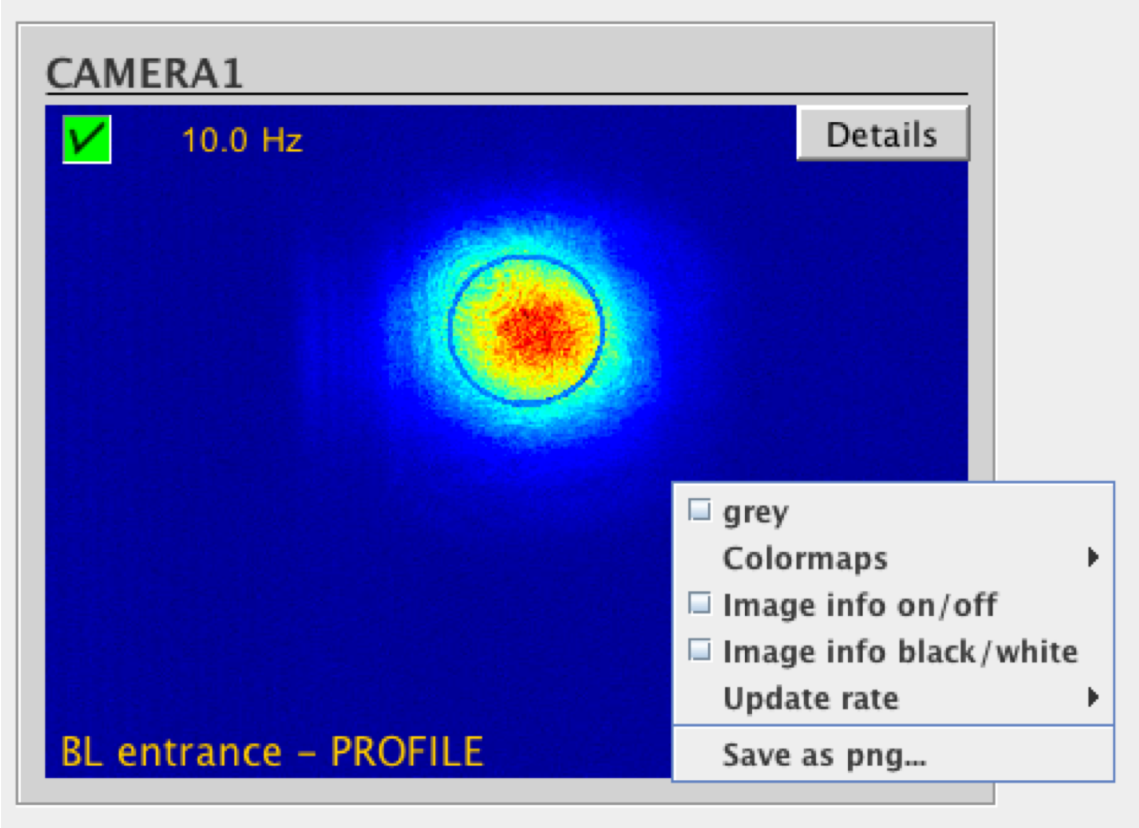
- Plots with the same master scale change their axis simultaneously
- Click into the plot and move the mouse -> a hairline indicates the connected plots



Camera images

Camera images:

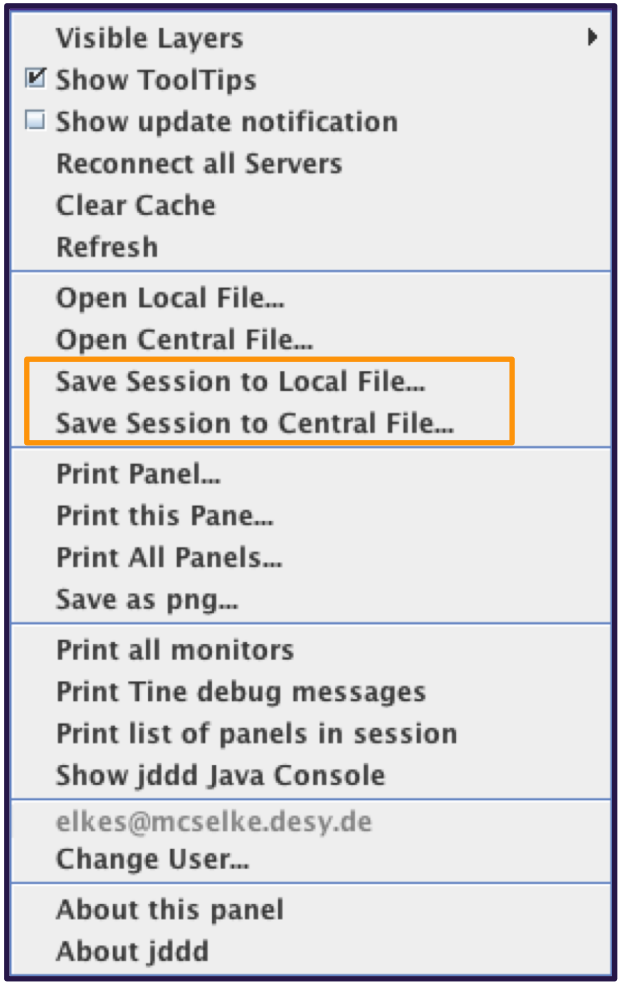
- Have a context menu
- Zoom with mouse



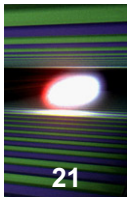
Save sessions

Sessions:

- A session saves a set of jddd panel names, sizes, positions and special settings
- Save your special session file via the context menu



Panel design



Unsatisfied with the panel design?

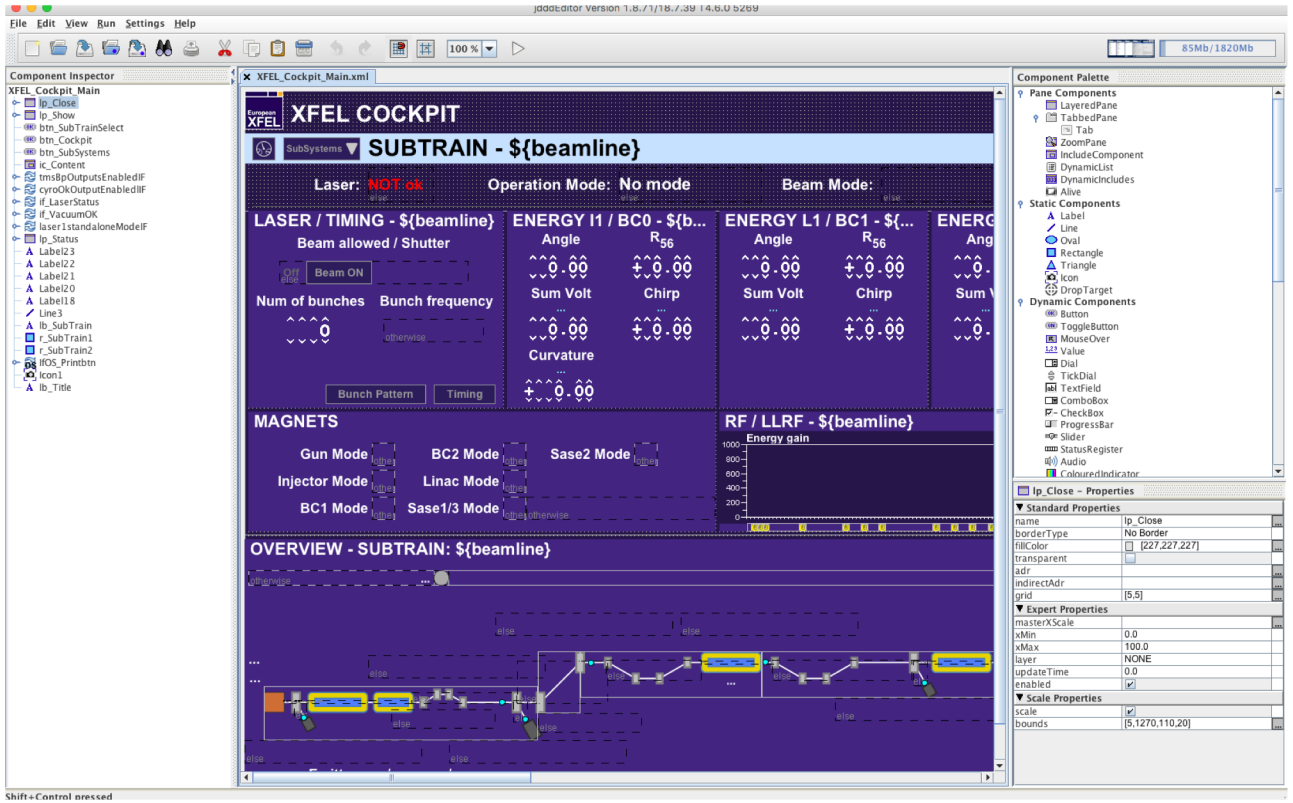
- Talk to the machine coordinators
- But think about the following points at first:
  - Colors are a matter of taste, if you ask 10 people to select a panel background color you will get 10 different colors
  - Changing colors is a lot of work, because you can’t change just the background color
  - Many people discussed about the design of each panel before Jan generated it
- Don’t hesitate to do simple panel changes yourself
  - Note the design_hints.xml
  - Ask me if you want to attend a jddd training
  - Don’t touch important panels like the Cockpit panel

European XFEL

The jddd editor

The jddd editor is easy to use:

- Rich set of predefined widgets
- No programming skills are needed



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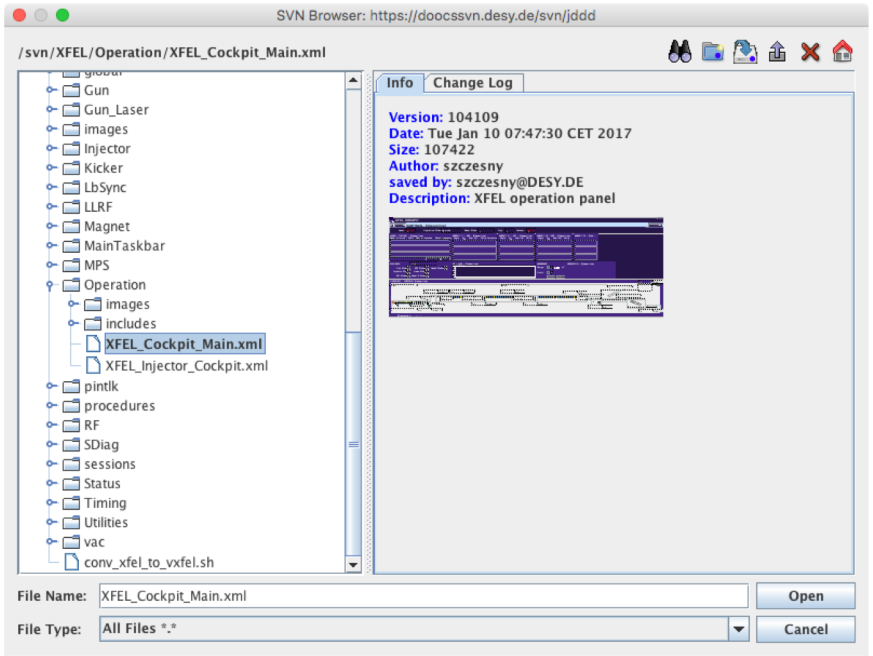
The jddd editor

Saving panels:

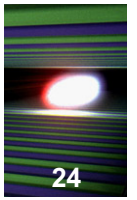
- To local file system
- To central SVN repository: the SVN keeps the history of the edited files (see Change Log tab)

SVN folder structure

- User directories for testing panels
- Experiment folders XFEL, PETRA FLASH,... for special experiment panels
- „global“ folder for standard panels



Error handling



If you observe any problems with jddd:

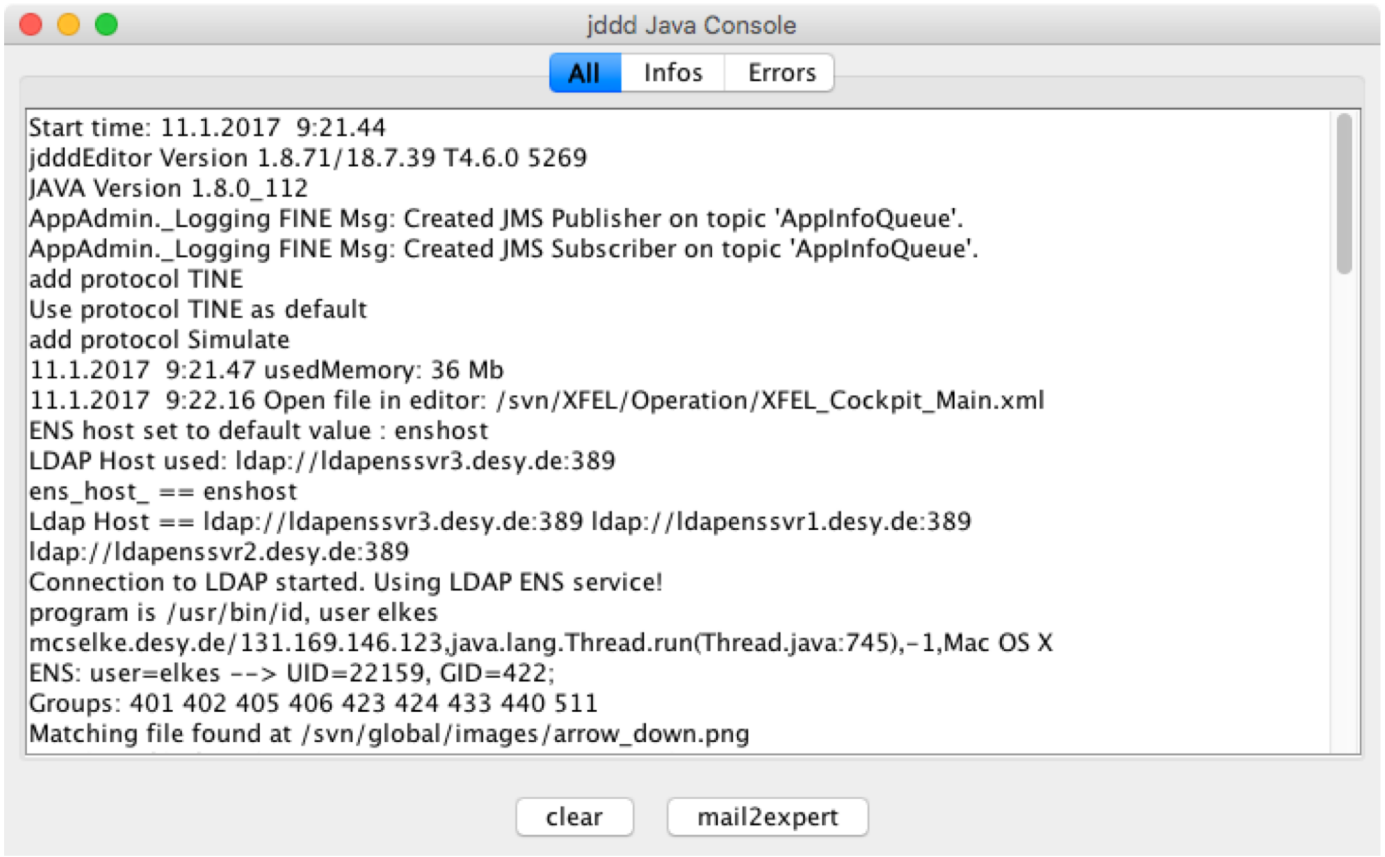
- Close all panels which are not needed
- Check for error messages on the jddd Java console
- Watch the memory bar in the upper right corner of the first frame
  - It displays used/max memory
- In the About panel:
  - Check the component count
  - Check the number of calls per second
- Write an email to jddd@desy.de and the panel author

European XFEL

Error handling

The jddd Java console:

- Open via context menu -> Show jddd Java console



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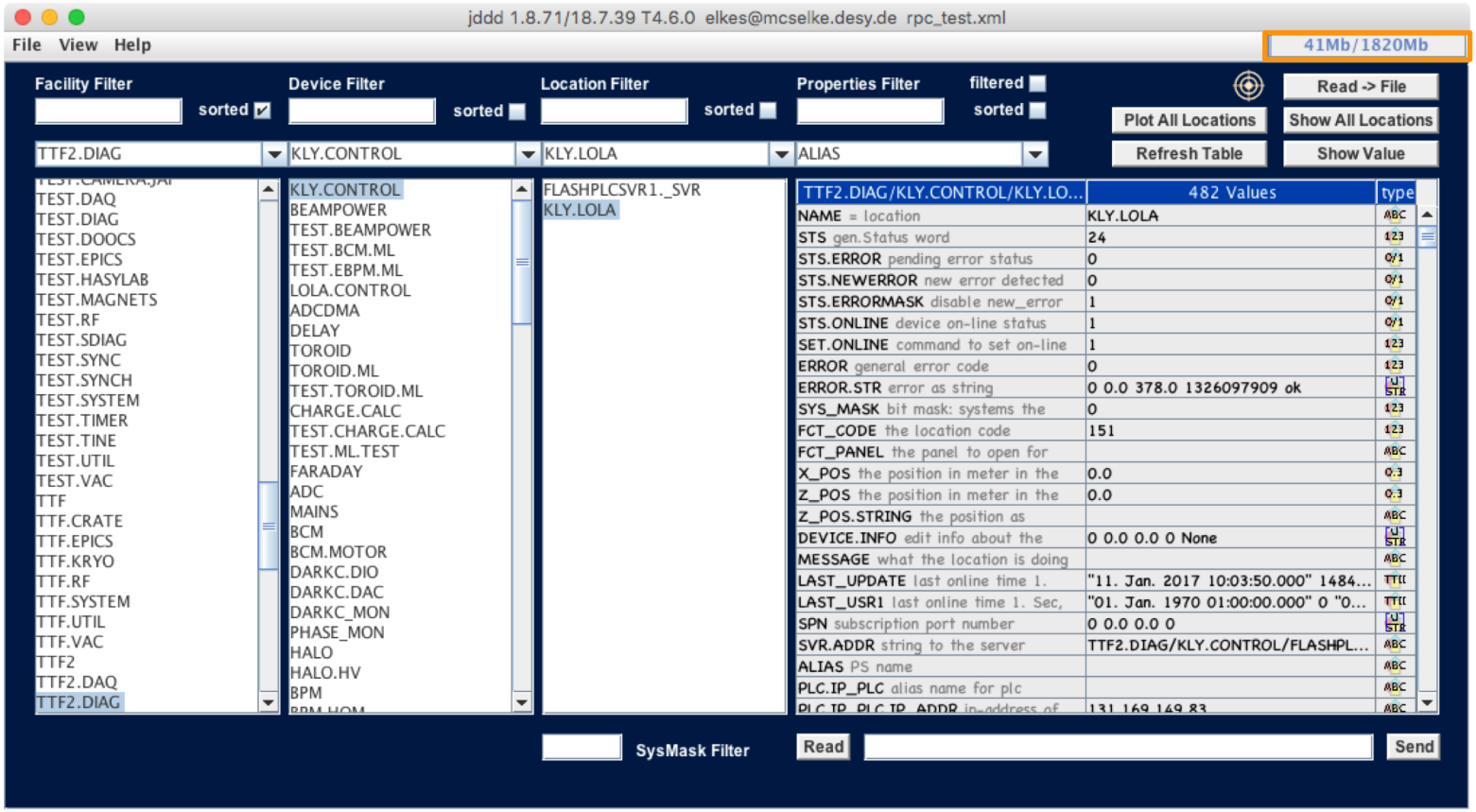
Error handling

The memory bar:



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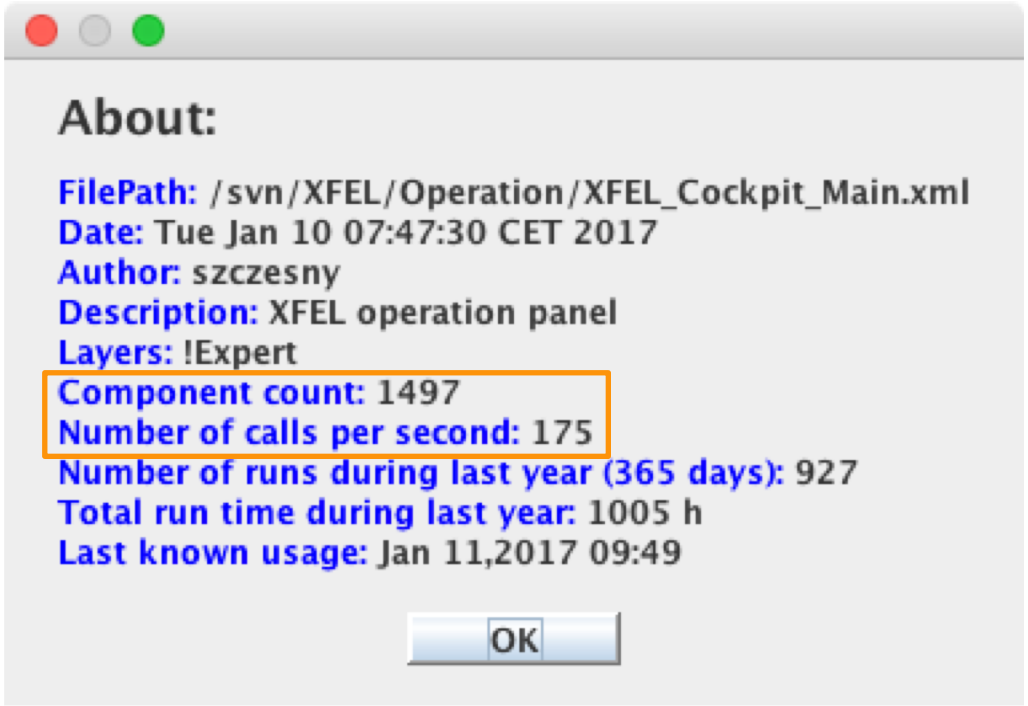
Error handling

If one specific panel is slow:

- Open via context menu -> About this panel



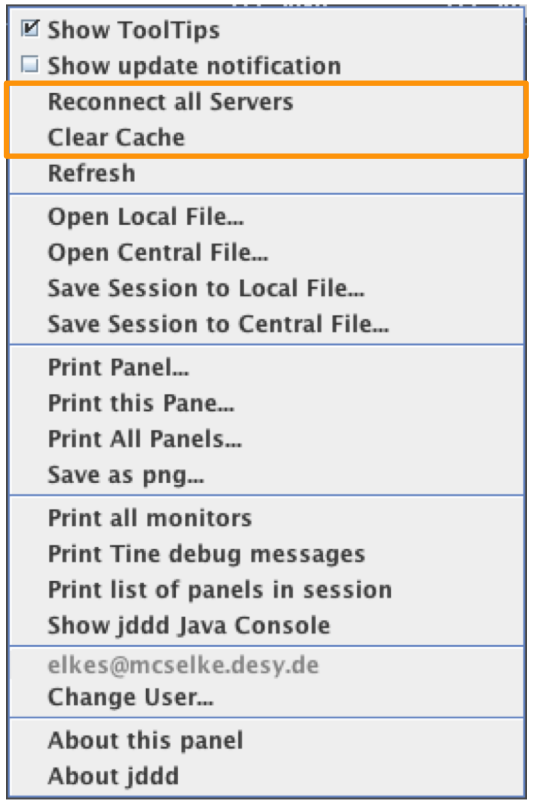
Error handling

If you don't get the current panel version:

- Open context menu -> Clear cache

On Connection problems:

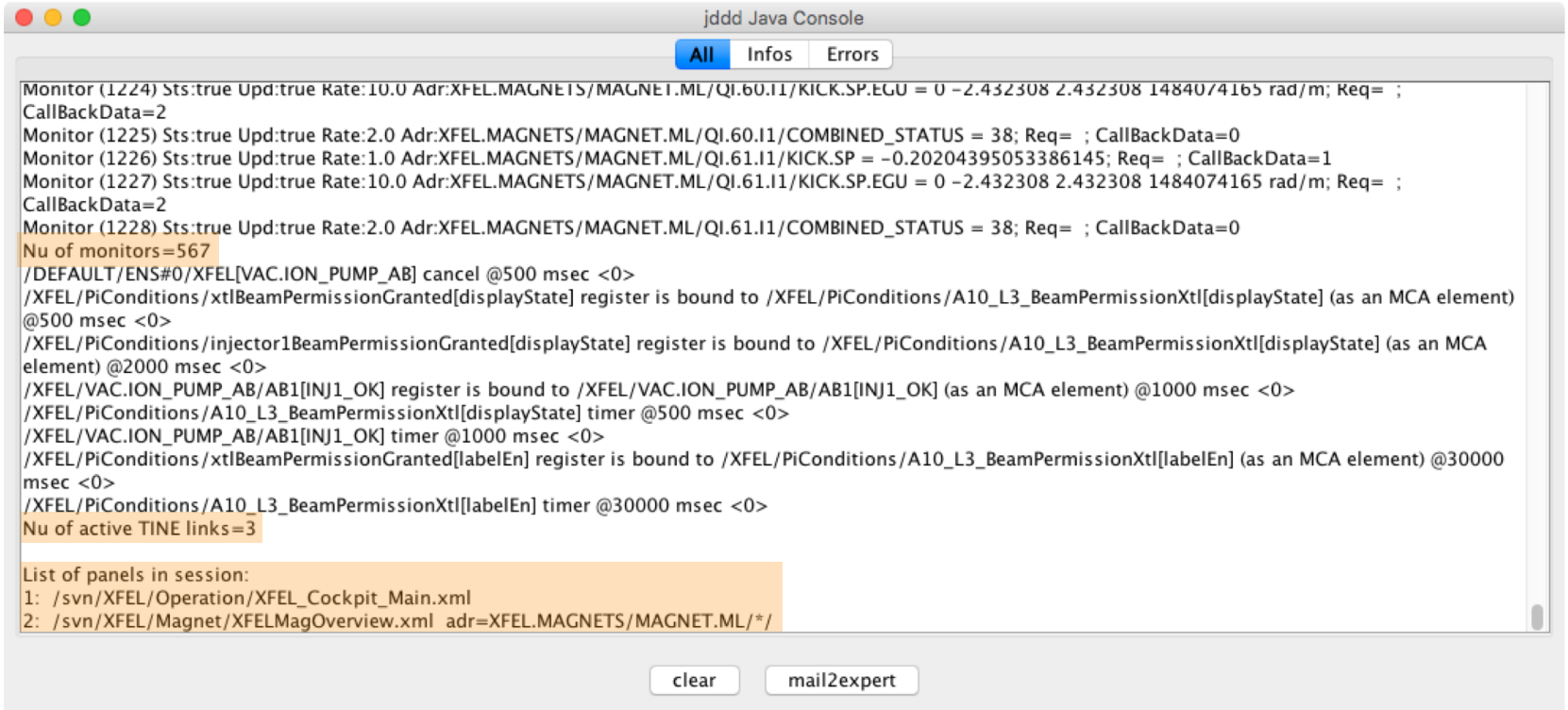
- Open context menu -> Reconnect all Servers



Error handling

Additional information available via the context menu:

- Print list of panels in session
- Print all monitors



Error handling

A bug report should contain the following information:

- Operating system, how jddd was started
- jddd version number
- Panel name and path in SVN
- Screenshot
- Detailed description

Please send your bug report to jddd@desy.de