# Operator Training: Sequencer / File catalog

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Three parts of the same program:

File Catalog viewer

SaveRe...

**File Operator XFEL**

File  View  Options  Tools  Tests  Help

XFEL

Last file restored (or saved): 2018-06-19T10:07:16+02 ( ID=18062 )   diff.= 2884

Machine File Catalog | Sequence files | Symbolic files | Re-writable files

XFEL Catalog has **13479** files.   With the following filters: **306** files listed in the table below.   show filters   ☑ apply filters

FILTERS

| ID | Timestamp | Beamline | E [GeV] | λ [nm] | SASE [µJ] | Comment | File type | Authors | e-log link |
|---|---|---|---|---|---|---|---|---|---|
| 17985 | Mon 2018-06-18 21:20:01 | | | | | DOE tests: SA1 lasing at 9.15 keV; 900 ... | normal | Froehlich, Negodin | |
| 17959 | Tue 2018-06-12 19:35:07 | | | | | shift documentation, new setup 9.3keV, ... | normal | bsteffen | |
| 17958 | Tue 2018-06-12 17:00:27 | | | | | Clean setup 14 GeV; SASE1 9.3 keV, 8... | normal | Scholz, Froehlich | |
| 17929 | Mon 2018-06-11 18:50:03 | | | | | SASE1@7.3keV, 1.5mJ; SASE3@900e... | normal | Froehlich, Grecki, ... | |
| 17920 | Fri 2018-06-08 15:13:17 | | | | | shift documentation | normal | tamras | |
| 17900 | Thu 2018-06-07 07:03:12 | | | | | 60bunch, 0.26nC, 14GeV, T4D trans., ... | normal | tam, mey | |
| 17889 | Wed 2018-06-06 06:32:13 | | | | | 30bunch, 0.26nC, 564kHz, 9.2keV, 1.25... | normal | tamras | |
| 17873 | Mon 2018-06-04 18:08:54 | | | | | shift docu - 900uJ SASE1 | normal | Brinker | |
| 17794 | Wed 2018-05-23 20:55:07 | | | | | 750muJ@10.5keV | reference | mscholz | |
| 17679 | Fri 2018-05-18 15:56:13 | | | | | 14 GeV, SASE1 900 uJ, SASE3 2 mJ, fr... | normal | Froehlich | |
| 17663 | Wed 2018-05-16 10:45:15 | | | | | SASE1  2b, 050 mJ | normal | | |
| 17613 | Mon 2018-05-14 17:54:37 | | | | | 2bunch, 275pC, 14GeV, SA1 1350µJ, S... | normal | tam, kru | |
| 17612 | Mon 2018-05-14 09:41:40 | | | | | 30 bunches SASE1, 280 pC, 1.2 mJ, 9... | normal | mscholz | |
| 17609 | Sun 2018-05-13 07:07:57 | | | | | 30bunch, 275pC, T4D transmission, SA... | normal | kru, tam | |
| 17592 | Fri 2018-05-11 11:26:56 | | | | | 38bunch, 250pC, 14GeV, T4d transmis... | normal | tam, kru | |
| 17585 | Thu 2018-05-10 16:54:25 | | 14.000 | | | after adjusting pointing of SASE 3, lasin... | normal | Brinker | |
| 17533 | Sun 2018-05-06 23:27:20 | | | | | 1bunch, 250pC, SA1 260µJ, 14GeV, 10... | normal | tamras | |
| 17487 | Thu 2018-05-03 16:43:50 | | | | | 23bunch, 250pC, 14GeV,  SA1, SA2, S... | normal | tamras | |
| 17483 | Wed 2018-05-02 19:42:35 | | | | | 18bunch, 250pC, 14GeV, SA1/208µJ, S... | normal | tamras | |
| 17482 | Wed 2018-05-02 17:18:39 | | | | | all 3 beamlines with light on (9.2 KeV, 7 ... | normal | | |
| 17481 | Wed 2018-05-02 15:38:01 | | | | | 18bunch, 250pC, 14GeV, SA1, SA2, SA... | normal | tamras | |
| 17469 | Tue 2018-05-01 11:58:33 | | | | | 1bunch, 250pC, B2D transmission, TDS... | normal | tamras | |
| 17468 | Tue 2018-05-01 07:11:23 | | | | | 1bunch, 250pC, 14GeV, 100% transmis... | normal | tamras | |
| 17463 | Mon 2018-04-30 14:22:45 | | | | | 1bunch, 250pC, 14GeV, 100% T5D tra... | normal | tamras | |
| 17462 | Mon 2018-04-30 12:12:32 | | | | | 250pC, 1bunch, 14GeV, 100% TLD, T5... | normal | tamras | |
| 17461 | Mon 2018-04-30 07:15:39 | | | | | 250pC, 1bunch, 14GeV T4D 100%trans... | normal | | |
| 16908 | Tue 2018-04-03 22:25:21 | | | | | end of run file, with these settings 500 b... | normal | dnoelle et al | |
| 16790 | Thu 2018-03-15 18:10:55 | | | | | Beam to TLD and T4D, 14 GeV | normal | Froehlich | |
| 16787 | Thu 2018-03-15 11:33:06 | | | | | beam in SASE 1 and 2 | normal | bsteffen | |

SELECTED FROM TABLE

Selected file: [          ]   ID= [    ]   RESTORE: selected file ➡ Machine   WRITE into a symb. file

Three parts of the same program:

File Catalog viewer

SaveRestore tool

Three parts of the same program:

Sequencer

**File Operator XFEL**

File  Edit  View  Options  Help

*XFEL*

**SEQUENCE: Join injector 1 and XTL**
Filename: join_i1_xtl.xml

Sequencer Control

▷ START sequence     ■ STOP sequence     **STATUS: idle**     CLOSE window

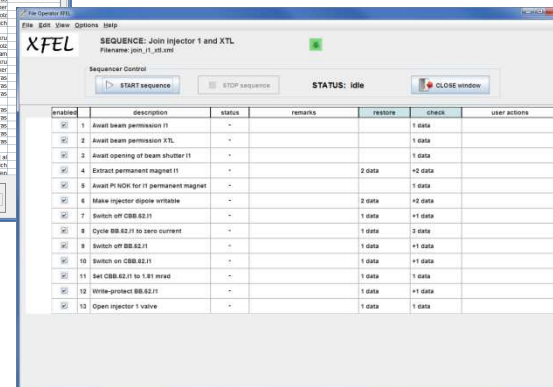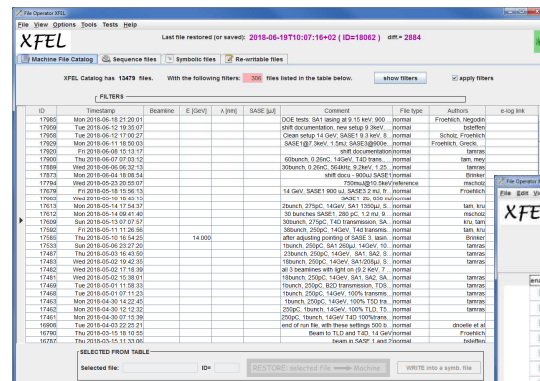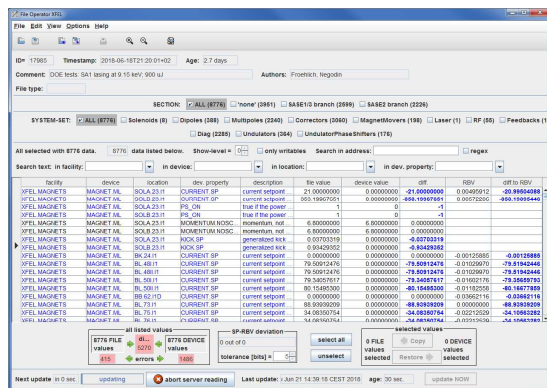| enabled | | description | status | remarks | restore | check | user actions |
|---|---|---|---|---|---|---|---|
| ☑ | 1 | Await beam permission I1 | - | | | 1 data | |
| ☑ | 2 | Await beam permission XTL | - | | | 1 data | |
| ☑ | 3 | Await opening of beam shutter I1 | - | | | 1 data | |
| ☑ | 4 | Extract permanent magnet I1 | - | | 2 data | +2 data | |
| ☑ | 5 | Await PI NOK for I1 permanent magnet | - | | | 1 data | |
| ☑ | 6 | Make injector dipole writable | - | | 2 data | +2 data | |
| ☑ | 7 | Switch off CBB.62.I1 | - | | 1 data | +1 data | |
| ☑ | 8 | Cycle BB.62.I1 to zero current | - | | 1 data | 3 data | |
| ☑ | 9 | Switch off BB.62.I1 | - | | 1 data | +1 data | |
| ☑ | 10 | Switch on CBB.62.I1 | - | | 1 data | +1 data | |
| ☑ | 11 | Set CBB.62.I1 to 1.81 mrad | - | | 1 data | 1 data | |
| ☑ | 12 | Write-protect BB.62.I1 | - | | 1 data | +1 data | |
| ☑ | 13 | Open injector 1 valve | - | | 1 data | 1 data | |

Three parts of the same program:

File Catalog viewer

Sequencer

SaveRestore tool

Address: made of 4 fields:

'facility' / 'device' / 'location' / 'property'

examples:

XFEL.MAGNETS/MAGNET.ML/BK.24.I1/CURRENT.SP

XFEL.RF/LLRF.CONTROLLER/CTRL.GUN.I1/SP.AMPL

# Main task of Sequencer / File catalog:

→ save machine settings

List of files:

2016-05-23 12:30
2016-05-23 17:25
2016-05-23 23:40
2016-05-24 03:10
2016-05-25 11:45
...

machine settings

| facility | device | location | dev. property | description | file value |
|----------|--------|----------|---------------|-------------|------------|
| XFEL.MAGNETS | MAGNET.ML | SOLA.23.I1 | CURRENT.SP | current setpoint ... | 21.00000000 |
| XFEL.MAGNETS | MAGNET.ML | SOLB.23.I1 | CURRENT.SP | current setpoint ... | 353.19967651 |
| XFEL.MAGNE | | | | | |
| XFEL.MAGNE | | | | | |
| XFEL.MAGNE | | | | | |
| XFEL.MAGNETS | MAGNET.ML | SOLB.23.I1 | MOMENTUM.NOSC... | momentum, not ... | 6.80000000 |
| XFEL.MAGNETS | MAGNET.ML | SOLA.23.I1 | KICK.SP | generalized kick ... | 0.03703319 |
| XFEL.MAGNETS | MAGNET.ML | SOLB.23.I1 | KICK.SP | generalized kick ... | 0.93429352 |
| XFEL.MAGNETS | MAGNET.ML | B | nt setpoint ... | | 0.00000000 |
| XFEL.MAGNETS | MAGNET.ML | B | nt setpoint ... | | 79.50912476 |
| XFEL.MAGNETS | MAGNET.ML | B | nt setpoint ... | | 79.50912476 |
| XFEL.MAGNETS | MAGNET.ML | B | nt setpoint ... | | 79.34057617 |
| XFEL.MAGNETS | MAGNET.ML | B | nt setpoint ... | | 80.15495300 |
| XFEL.MAGNETS | MAGNET.ML | B | nt setpoint ... | | 0.00000000 |
| XFEL.MAGNETS | MAGNET.ML | B | nt setpoint ... | | 88.93939209 |
| XFEL.MAGNETS | MAGNET.ML | B | nt setpoint ... | | 34.08350754 |
| XFEL.MAGNETS | MAGNET.ML | B | nt setpoint | | 34.08350754 |

## The goal is to get reproducible accelerator conditions

- magnet settings
- RF settings
- golden orbit
- ...

# Sequencer / File catalog  XFEL

## file catalog filters



File Operator XFEL

File  View  Options  Tools  Tests  Help

**XFEL**

Last file restored (or saved): **2018-06-19T10:07:16+02 ( ID=18062 )**  diff.= **2892**

| Machine File Catalog | Sequence files | Symbolic files | Re-writable files |

XFEL Catalog has **13479** files.  With the following filters: **306** files listed in the table below.  | hide filters |  ☑ apply filters

**FILTERS**

| remove all filters |

Show with TYPE:  ☐ temp  ☑ normal  ☑ reference  ☑ special  ☑ optics    Search text (in Status): [                    ]

Show with CLASSIFICATION:  ☑ with errors  ☑ without errors  ☑ excellent    Search text (in Comment): [                    ]

Show with:  ☑ errors  ☑ errors in writables    Search text (in Authors): [                    ]

☐ Show newer than  [01.January.2013]    Search text (in Category): [sequencer]

| ID | Timestamp | Beamline | E [GeV] | λ [nm] | SASE [μJ] | Comment | File type | Authors | e-log link |
|----|-----------|----------|---------|--------|-----------|---------|-----------|---------|-----------|
| 17985 | Mon 2018-06-18 21:20:01 | | | | | DOE tests: SA1 lasing at 9.15 keV; 900 ... | normal | Froehlich, Negodin | |
| 17959 | Tue 2018-06-12 19:35:07 | | | | | shift documentation, new setup 9.3keV, ... | normal | bsteffen | |
| 17958 | Tue 2018-06-12 17:00:27 | | | | | Clean setup 14 GeV; SASE1 9.3 keV, 8... | normal | Scholz, Froehlich | |
| 17929 | Mon 2018-06-11 18:50:03 | | | | | SASE1@7.3keV, 1.5mJ; SASE3@900e... | normal | Froehlich, Grecki, ... | |
| 17920 | Fri 2018-06-08 15:13:17 | | | | | shift documentation | normal | tamras | |
| 17900 | Thu 2018-06-07 07:03:12 | | | | | 60bunch, 0.26nC, 14GeV, T4D trans., ... | normal | tam, mey | |
| 17889 | Wed 2018-06-06 06:32:13 | | | | | 30bunch, 0.26nC, 564kHz, 9.2keV, 1.25... | normal | tamras | |
| 17873 | Mon 2018-06-04 18:08:54 | | | | | shift docu - 900uJ SASE1 | normal | Brinker | |
| 17794 | Wed 2018-05-23 20:55:07 | | | | | 750muJ@10.5keV | reference | mscholz | |
| 17679 | Fri 2018-05-18 15:56:13 | | | | | 14 GeV, SASE1 900 uJ, SASE3 2 mJ, fr... | normal | Froehlich | |
| 17663 | Wed 2018-05-16 18:45:15 | | | | | SASE1  2b, 850 mJ | normal | | |
| 17613 | Mon 2018-05-14 17:54:37 | | | | | 2bunch, 275pC, 14GeV, SA1 1350μJ, S... | normal | tam, kru | |
| 17612 | Mon 2018-05-14 09:41:40 | | | | | 30 bunches SASE1, 280 pC, 1.2 mJ, 9... | normal | mscholz | |
| 17609 | Sun 2018-05-13 07:07:57 | | | | | 30bunch, 275pC, T4D transmission, SA... | normal | kru, tam | |
| 17592 | Fri 2018-05-11 11:26:56 | | | | | 38bunch, 250pC, 14GeV, T4d transmis... | normal | tam, kru | |
| 17585 | Thu 2018-05-10 16:54:25 | | 14.000 | | | after adjusting pointing of SASE 3, lasin... | normal | Brinker | |
| 17533 | Sun 2018-05-06 23:27:20 | | | | | 1bunch, 250pC, SA1 260μJ, 14GeV, 10... | normal | tamras | |
| 17487 | Thu 2018-05-03 16:43:50 | | | | | 23bunch, 250pC, 14GeV,  SA1, SA2, S... | normal | tamras | |
| 17483 | Wed 2018-05-02 19:42:35 | | | | | 18bunch, 250pC, 14GeV, SA1/208uL, S... | normal | tamras | |

**SELECTED FROM TABLE**

Selected file: [                    ]  ID= [        ]   | RESTORE: selected file ⟹ Machine |   | WRITE into a symb. file |

Sequencer / File catalog  XFEL

file catalog 'category filter'

# Sequencer / File catalog XFEL

**file catalog 'category filter'**



File Operator XFEL

File  View  Options  Tools  Tests  Help

**XFEL**

Last file restored (or saved): **2018-06-19T10:07:16+02 ( ID=18062 )**   diff.= **2892**

| Machine File Catalog | Sequence files | Symbolic files | Re-writable files |

XFEL Catalog has **13479** files.   With the following filters: **9529** files listed in the table below.   **hide filters**   ☑ apply filters

**FILTERS**

**remove all filters**

Show with TYPE: ☐ temp  ☑ normal  ☑ reference  ☑ special  ☑ optics    Search text (in Status): [_____]

Show with CLASSIFICATION: ☑ with errors  ☑ without errors  ☑ excellent    Search text (in Comment): [_____]

Show with: ☑ errors  ☑ errors in writables    Search text (in Authors): [_____]

☐ Show newer than  01.January.2013    Search text (in Category): [_____]

| ID | Timestamp | Beamline | E [GeV] | λ [nm] | SASE [µJ] | Comment | File type | Authors | e-log link |
|---|---|---|---|---|---|---|---|---|---|
| 18074 | Tue 2018-06-19 17:11:05 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |
| 18073 | Tue 2018-06-19 17:09:23 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |
| 18072 | Tue 2018-06-19 17:07:01 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |
| 18071 | Tue 2018-06-19 17:04:44 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |
| 18070 | Tue 2018-06-19 17:01:10 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |
| 18069 | Tue 2018-06-19 16:57:41 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |
| 18068 | Tue 2018-06-19 16:56:23 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |
| 18067 | Tue 2018-06-19 16:52:01 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |
| 18066 | Tue 2018-06-19 16:50:15 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |
| 18065 | Tue 2018-06-19 16:48:07 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |
| 18064 | Tue 2018-06-19 16:43:53 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |
| 18063 | Tue 2018-06-19 16:24:54 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |
| 18060 | Tue 2018-06-19 08:58:35 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |
| 18059 | Tue 2018-06-19 08:56:41 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |
| 18058 | Tue 2018-06-19 08:54:49 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |
| 18057 | Tue 2018-06-19 08:53:12 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |
| 18056 | Tue 2018-06-19 08:50:10 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |
| 18055 | Tue 2018-06-19 08:48:18 | | | | | /home/xfeloper/data/Emittance_Monitor/... | special | EMGUI | |

**SELECTED FROM TABLE**

Selected file: 2018-06-18T21:20:01+02   ID= 17985   **RESTORE: selected file ⟶ Machine**   **WRITE into a symb. file**

# Sequencer / File catalog  XFEL

file catalog 'category filter'

category

Sequencer / File catalog  XFEL

double click opens the contents and details

File content XFEL

parameter address

file value

File content XFEL

parameter address   file value   present value

File content XFEL



address • file value • present value • difference

**File Operator XFEL**

File  Edit  View  Options  Help

ID= 17985    Timestamp: 2018-06-18T21:20:01+02    Age: 2.8 days

Comment: DOE tests: SA1 lasing at 9.15 keV; 900 uJ    Authors: Froehlich, Negodin

File type:

SECTION:  ☑ ALL (8776)   ☐ 'none' (3951)   ☐ SASE1/3 branch (2599)   ☐ SASE2 branch (2226)

SYSTEM-SET:  ☑ ALL (8776)  ☐ Solenoids (8)  ☐ Dipoles (388)  ☐ Multipoles (2240)  ☐ Correctors (3060)  ☐ MagnetMovers (198)  ☐ Laser (1)  ☐ RF (55)  ☐ Feedbacks (1)
☐ Diag (2285)  ☐ Undulators (364)  ☐ UndulatorPhaseShifters (176)

All selected with 8776 data.    8776  data listed below.  Show-level = 0    ☐ only writables   Search in address:                    ☐ regex

Search text: in facility:              ▼   in device:              ▼   in location:              ▼   in dev. property:              ▼

| facility | device | location | dev. property | description | file value | device value | diff. | RBV | diff.to RBV |
|---|---|---|---|---|---|---|---|---|---|
| XFEL.MAGNETS | MAGNET.ML | SOLA.23.I1 | CURRENT.SP | current setpoint … | 21.00000000 | 0.00000000 | -21.00000000 | -0.00190735 | -21.00190735 |
| XFEL.MAGNETS | MAGNET.ML | SOLB.23.I1 | CURRENT.SP | current setpoint … | 353.19967651 | 0.00000000 | -353.19967651 | 0.00686647 | -353.19281005 |
| XFEL.MAGNETS | MAGNET.ML | SOLA.23.I1 | PS_ON | true if the power … | 1 | 0 | -1 | | |
| XFEL.MAGNETS | MAGNET.ML | SOLB.23.I1 | PS_ON | true if the power … | 1 | 0 | -1 | | |
| XFEL.MAGNETS | MAGNET.ML | SOLA.23.I1 | MOMENTUM.NOSC… | momentum, not … | 6.80000000 | 6.80000000 | 0.00000000 | | |
| XFEL.MAGNETS | MAGNET.ML | SOLB.23.I1 | MOMENTUM.NOSC… | momentum, not … | 6.80000000 | 6.80000000 | 0.00000000 | | |
| XFEL.MAGNETS | MAGNET.ML | SOLA.23.I1 | KICK.SP | generalized kick … | 0.03703319 | 0.00000000 | -0.03703319 | | |
| XFEL.MAGNETS | MAGNET.ML | SOLB.23.I1 | KICK.SP | generalized kick … | 0.93429352 | 0.00000000 | -0.93429352 | | |
| XFEL.MAGNETS | MAGNET.ML | BK.24.I1 | CURRENT.SP | current setpoint … | 0.00000000 | 0.00000000 | 0.00000000 | -0.00137329 | -0.00137329 |
| XFEL.MAGNETS | MAGNET.ML | BL.48I.I1 | CURRENT.SP | current setpoint … | 79.50912476 | 0.00000000 | -79.50912476 | -0.00953676 | -79.51866152 |
| XFEL.MAGNETS | MAGNET.ML | BL.48II.I1 | CURRENT.SP | current setpoint … | 79.50912476 | 0.00000000 | -79.50912476 | -0.00953676 | -79.51866152 |
| XFEL.MAGNETS | MAGNET.ML | BL.50I.I1 | CURRENT.SP | current setpoint … | 79.34057617 | 0.00000000 | -79.34057617 | -0.01373294 | -79.35430911 |
| XFEL.MAGNETS | MAGNET.ML | BL.50II.I1 | CURRENT.SP | current setpoint … | 80.15495300 | 0.00000000 | -80.15495300 | -0.01029970 | -80.16525271 |
| XFEL.MAGNETS | MAGNET.ML | BB.62.I1D | CURRENT.SP | current setpoint … | 0.00000000 | 0.00000000 | 0.00000000 | -0.04234322 | -0.04234322 |
| XFEL.MAGNETS | MAGNET.ML | BL.73.I1 | CURRENT.SP | current setpoint … | 88.93939209 | 0.00000000 | -88.93939209 | -0.00038147 | -88.93977356 |
| XFEL.MAGNETS | MAGNET.ML | BL.75.I1 | CURRENT.SP | current setpoint … | 34.08350754 | 0.00000000 | -34.08350754 | -0.02326970 | -34.10677724 |
| XFEL.MAGNETS | MAGNET.ML | BL.76.I1 | CURRENT.SP | current setpoint … | 34.08350754 | 0.00000000 | -34.08350754 | -0.02326970 | -34.10677724 |

**all listed values**
8776 FILE values  → di... 5270 ← 8776 DEVICE values
415 ← errors → 1486

**SP-RBV deviation**
0 out of 0
tolerance [bits] = 5

select all
unselect

**selected values**
0 FILE values selected  ← Copy   0 DEVICE values selected
Restore →

Next update 28 sec.  update completed   ✕ abort server reading   Last update: Jun 21 16:37:32 CEST 2018  age: 2 sec.  update NOW

# File content XFEL

overview differences

difference



File Operator XFEL

File  Edit  View  Options  Help

ID= 17985    Timestamp: 2018-06-18T21:20:01+02    Age: 2.8 days

Comment: DOE tests: SA1 lasing at 9.15 keV; 900 uJ    Authors: Froehlich, Negodin

File type:

SECTION: ☑ ALL (8776)   ☐ 'none' (3951)   ☐ SASE1/3 branch (2599)   ☐ SASE2 branch (2226)

SYSTEM-SET: ☑ ALL (8776)   ☐ Solenoids (8)   ☐ Dipoles (388)   ☐ Multipoles (2240)   ☐ Correctors (3060)   ☐ MagnetMovers (198)   ☐ Laser (1)   ☐ RF (55)   ☐ Feedbacks (1)
☐ Diag (2285)   ☐ Undulators (364)   ☐ UndulatorPhaseShifters (176)

All selected with 8776 data.   8776  data listed below.   Show-level = 0   ☐ only writables   Search in address: _____   ☐ regex

Search text: in facility: _____   in device: _____   in location: _____   in dev. property: _____

| facility | device | location | dev. property | description | file value | device value | diff. | RBV | diff.to RBV |
|---|---|---|---|---|---|---|---|---|---|
| XFEL.MAGNETS | MAGNET.ML | SOLA.23.I1 | CURRENT.SP | current setpoint ... | 21.00000000 | 0.00000000 | **-21.00000000** | -0.00190735 | **-21.00190735** |
| XFEL.MAGNETS | MAGNET.ML | SOLB.23.I1 | CURRENT.SP | current setpoint ... | 353.19967651 | 0.00000000 | **-353.19967651** | 0.00686647 | **-353.19281005** |
| XFEL.MAGNETS | MAGNET.ML | SOLA.23.I1 | PS_ON | true if the power ... | 1 | 0 | **-1** | | |
| XFEL.MAGNETS | MAGNET.ML | SOLB.23.I1 | PS_ON | true if the power ... | 1 | 0 | **-1** | | |
| XFEL.MAGNETS | MAGNET.ML | SOLA.23.I1 | MOMENTUM.NOSC... | momentum, not ... | 6.80000000 | 6.80000000 | 0.00000000 | | |
| XFEL.MAGNETS | MAGNET.ML | SOLB.23.I1 | MOMENTUM.NOSC... | momentum, not ... | 6.80000000 | 6.80000000 | 0.00000000 | | |
| XFEL.MAGNETS | MAGNET.ML | SOLA.23.I1 | KICK.SP | generalized kick ... | 0.03703319 | 0.00000000 | **-0.03703319** | | |
| XFEL.MAGNETS | MAGNET.ML | SOLB.23.I1 | KICK.SP | generalized kick ... | 0.93429352 | 0.00000000 | **-0.93429352** | | |
| XFEL.MAGNETS | MAGNET.ML | BK.24.I1 | CURRENT.SP | current setpoint ... | 0.00000000 | 0.00000000 | 0.00000000 | -0.00137329 | **-0.00137329** |
| XFEL.MAGNETS | MAGNET.ML | BL.48I.I1 | CURRENT.SP | current setpoint ... | 79.50912476 | 0.00000000 | **-79.50912476** | -0.00953676 | **-79.51866152** |
| XFEL.MAGNETS | MAGNET.ML | BL.48II.I1 | CURRENT.SP | current setpoint ... | 79.50912476 | 0.00000000 | **-79.50912476** | -0.00953676 | **-79.51866152** |
| XFEL.MAGNETS | MAGNET.ML | BL.50I.I1 | CURRENT.SP | current setpoint ... | 79.34057617 | 0.00000000 | **-79.34057617** | -0.01373294 | **-79.35430911** |
| XFEL.MAGNETS | MAGNET.ML | BL.50II.I1 | CURRENT.SP | current setpoint ... | 80.15495300 | 0.00000000 | **-80.15495300** | -0.01029970 | **-80.16525271** |
| XFEL.MAGNETS | MAGNET.ML | BB.62.I1D | CURRENT.SP | current setpoint ... | 0.00000000 | 0.00000000 | 0.00000000 | -0.04234322 | **-0.04234322** |
| XFEL.MAGNETS | MAGNET.ML | BL.73.I1 | CURRENT.SP | current setpoint ... | 88.93939209 | 0.00000000 | **-88.93939209** | -0.00038147 | **-88.93977356** |
| XFEL.MAGNETS | MAGNET.ML | BL.75.I1 | CURRENT.SP | current setpoint ... | 34.08350754 | 0.00000000 | **-34.08350754** | -0.02326970 | **-34.10677724** |
| XFEL.MAGNETS | MAGNET.ML | BL.75II.I1 | CURRENT.SP | current setpoint ... | 34.08350754 | 0.00000000 | **-34.08350754** | -0.02326970 | **-34.10677724** |

— all listed values —
8776 FILE values  →  di...  5270  ←  8776 DEVICE values
415  ← errors →  1486

— SP-RBV deviation —
0 out of 0
tolerance [bits] = 5

select all
unselect

— selected values —
0 FILE values selected  ← Copy   0 DEVICE values selected
Restore →

Next update 28 sec.   update completed   ✕ abort server reading   Last update: Jun 21 16:37:32 CEST 2018   age: 2 sec.   update NOW

## File content  XFEL

## filters: system-sets, 'show-level', writables, …



**File Operator XFEL**

File   Edit   View   Options   Help

ID= 17985    Timestamp: 2018-06-18T21:20:01+02    Age: 2.8 days

Comment: DOE tests: SA1 lasing at 9.15 keV; 900 uJ    Authors: Froehlich, Negodin

File type:

SECTION:  ☑ ALL (8776)   ☐ 'none' (3951)   ☐ SASE1/3 branch (2599)   ☐ SASE2 branch (2226)

SYSTEM-SET:  ☑ ALL (8776)   ☐ Solenoids (8)   ☐ Dipoles (388)   ☐ Multipoles (2240)   ☐ Correctors (3060)   ☐ MagnetMovers (198)   ☐ Laser (1)   ☐ RF (55)   ☐ Feedbacks (1

☐ Diag (2285)   ☐ Undulators (364)   ☐ UndulatorPhaseShifters (176)

All selected with 8776 data.   |8776| data listed below.   Show-level = |0|   ☐ only writables   Search in address: [                    ]   ☐ regex

Search text:  in facility: [                ] ▼   in device: [            ] ▼   in location: [            ] ▼   in dev. property: [            ] ▼

| facility | device | location | dev. property | description | file value | device value | diff. | RBV | diff.to RBV |
|---|---|---|---|---|---|---|---|---|---|
| XFEL.MAGNETS | MAGNET.ML | SOLA.23.I1 | CURRENT.SP | current setpoint … | 21.00000000 | 0.00000000 | -21.00000000 | -0.00190735 | -21.00190735 |
| XFEL.MAGNETS | MAGNET.ML | SOLB.23.I1 | CURRENT.SP | current setpoint … | 353.19967651 | 0.00000000 | -353.19967651 | 0.00686647 | -353.19281005 |
| XFEL.MAGNETS | MAGNET.ML | SOLA.23.I1 | PS_ON | true if the power … | 1 | 0 | -1 | | |
| XFEL.MAGNETS | MAGNET.ML | SOLB.23.I1 | PS_ON | true if the power … | 1 | 0 | -1 | | |
| XFEL.MAGNETS | MAGNET.ML | SOLA.23.I1 | MOMENTUM.NOSC… | momentum, not … | 6.80000000 | 6.80000000 | 0.00000000 | | |
| XFEL.MAGNETS | MAGNET.ML | SOLB.23.I1 | MOMENTUM.NOSC… | momentum, not … | 6.80000000 | 6.80000000 | 0.00000000 | | |
| XFEL.MAGNETS | MAGNET.ML | SOLA.23.I1 | KICK.SP | generalized kick … | 0.03703319 | 0.00000000 | -0.03703319 | | |
| XFEL.MAGNETS | MAGNET.ML | SOLB.23.I1 | KICK.SP | generalized kick … | 0.93429352 | 0.00000000 | -0.93429352 | | |
| XFEL.MAGNETS | MAGNET.ML | BK.24.I1 | CURRENT.SP | current setpoint … | 0.00000000 | 0.00000000 | 0.00000000 | -0.00137329 | -0.00137329 |
| XFEL.MAGNETS | MAGNET.ML | BL.48I.I1 | CURRENT.SP | current setpoint … | 79.50912476 | 0.00000000 | -79.50912476 | -0.00953676 | -79.51866152 |
| XFEL.MAGNETS | MAGNET.ML | BL.48II.I1 | CURRENT.SP | current setpoint … | 79.50912476 | 0.00000000 | -79.50912476 | -0.00953676 | -79.51866152 |
| XFEL.MAGNETS | MAGNET.ML | BL.50I.I1 | CURRENT.SP | current setpoint … | 79.34057617 | 0.00000000 | -79.34057617 | -0.01373294 | -79.35430911 |
| XFEL.MAGNETS | MAGNET.ML | BL.50II.I1 | CURRENT.SP | current setpoint … | 80.15495300 | 0.00000000 | -80.15495300 | -0.01029970 | -80.16525271 |
| XFEL.MAGNETS | MAGNET.ML | BB.62.I1D | CURRENT.SP | current setpoint … | 0.00000000 | 0.00000000 | 0.00000000 | -0.04234322 | -0.04234322 |
| XFEL.MAGNETS | MAGNET.ML | BL.73.I1 | CURRENT.SP | current setpoint … | 88.93939209 | 0.00000000 | -88.93939209 | -0.00038147 | -88.93977356 |
| XFEL.MAGNETS | MAGNET.ML | BL.75.I1 | CURRENT.SP | current setpoint … | 34.08350754 | 0.00000000 | -34.08350754 | -0.02326970 | -34.10677724 |
| XFEL.MAGNETS | MAGNET.ML | BL.76.I1 | CURRENT.SP | current setpoint … | 34.08350754 | 0.00000000 | -34.08350754 | -0.02326970 | -34.10677724 |

**all listed values**
8776 FILE values  →  di… 5270  ←  8776 DEVICE values
415  ←  errors  →  1486

**SP-RBV deviation**
0 out of 0
tolerance [bits] = |5|

select all    unselect

**selected values**
0 FILE values selected  ← Copy  0 DEVICE values selected
Restore →

Next update |1 28 sec.   update completed   ⊗ abort server reading   Last update: | Jun 21 16:37:32 CEST 2018   age: |2 sec.   update NOW

File content XFEL

filters: system-sets='Correctors'



## File Operator XFEL

**File  Edit  View  Options  Help**

ID= 17985    Timestamp: 2018-06-18T21:20:01+02    Age: 6.7 days

Comment: DOE tests: SA1 lasing at 9.15 keV; 900 uJ    Authors: Froehlich, Negodin

File type:

SECTION:  ☑ ALL (8776)  ☐ 'none' (3951)  ☐ SASE1/3 branch (2599)  ☐ SASE2 branch (2226)

SYSTEM-SET:  ☐ ALL (8776)  ☐ Solenoids (8)  ☐ Dipoles (388)  ☐ Multipoles (2240)  ☑ Correctors (3060)  ☐ MagnetMovers (198)  ☐ Laser (1)  ☐ RF (55)  ☐ Feedbacks (1)
☐ Undulators (364)  ☐ UndulatorPhaseShifters (176)

1 system-set selected with 3060 data.    3060    data listed below.    Show-level = 0    ☐ only writables    Search in address: _____    ☐ regex

Search text:  in facility: _____ ▼    in device: _____ ▼    in location: _____ ▼    in dev. property: _____ ▼

| facility | device | location | dev. property | description | file value | device value | diff. | RBV | diff.to RBV |
|---|---|---|---|---|---|---|---|---|---|
| XFEL.MAGNETS | MAGNET.ML | CKX.23.I1 | CURRENT.SP | current setpoint … | 1.12232304 | 0.00000000 | -1.12232304 | -0.00032187 | -1.12264490 |
| XFEL.MAGNETS | MAGNET.ML | CKY.23.I1 | CURRENT.SP | current setpoint … | 2.98953485 | 0.00000000 | -2.98953485 | -0.00033617 | -2.98987103 |
| XFEL.MAGNETS | MAGNET.ML | CKX.24.I1 | CURRENT.SP | current setpoint … | 0.85000002 | 0.00000000 | -0.85000002 | -0.00030756 | -0.85030758 |
| XFEL.MAGNETS | MAGNET.ML | CKY.24.I1 | CURRENT.SP | current setpoint … | 2.32699990 | 0.00000000 | -2.32699990 | -0.00079632 | -2.32779622 |
| XFEL.MAGNETS | MAGNET.ML | CKX.25.I1 | CURRENT.SP | current setpoint … | 0.00000000 | 0.00000000 | 0.00000000 | -0.00040770 | -0.00040770 |
| XFEL.MAGNETS | MAGNET.ML | CKY.25.I1 | CURRENT.SP | current setpoint … | 0.00000000 | 0.00000000 | 0.00000000 | -0.00047922 | -0.00047922 |
| XFEL.MAGNETS | MAGNET.ML | CY.37.I1 | CURRENT.SP | current setpoint … | 0.06797803 | 0.00000000 | -0.06797803 | 0.00205994 | -0.06591809 |
| XFEL.MAGNETS | MAGNET.ML | CX.37.I1 | CURRENT.SP | current setpoint … | 0.03273017 | 0.00000000 | -0.03273017 | -0.00274659 | -0.03547675 |
| XFEL.MAGNETS | MAGNET.ML | CY.39.I1 | CURRENT.SP | current setpoint … | -0.10690549 | 0.00000000 | 0.10690549 | 0.00091553 | 0.10782102 |
| XFEL.MAGNETS | MAGNET.ML | CX.39.I1 | CURRENT.SP | current setpoint … | 0.79555476 | 0.00000000 | -0.79555476 | 0.00022888 | -0.79532587 |
| XFEL.MAGNETS | MAGNET.ML | CIY.51.I1 | CURRENT.SP | current setpoint … | -0.13041462 | 0.00000000 | 0.13041462 | 0.00008821 | 0.13050283 |
| XFEL.MAGNETS | MAGNET.ML | CIX.51.I1 | CURRENT.SP | current setpoint … | 0.00971351 | 0.00000000 | -0.00971351 | -0.00016689 | -0.00988040 |
| XFEL.MAGNETS | MAGNET.ML | CIY.55.I1 | CURRENT.SP | current setpoint … | -0.02618911 | 0.00000000 | 0.02618911 | 0.00014424 | 0.02633336 |
| XFEL.MAGNETS | MAGNET.ML | CIX.57.I1 | CURRENT.SP | current setpoint … | -0.09820218 | 0.00000000 | 0.09820218 | -0.00003695 | 0.09816522 |
| XFEL.MAGNETS | MAGNET.ML | CIY.58.I1 | CURRENT.SP | current setpoint … | 0.02393392 | 0.00000000 | -0.02393392 | 0.00012517 | -0.02380875 |
| XFEL.MAGNETS | MAGNET.ML | CBB.62.I1D | CURRENT.SP | current setpoint … | 0.60196036 | 0.00000000 | -0.60196036 | -0.00194550 | -0.60390586 |
| XFEL.MAGNETS | MAGNET.ML | CIY.63.I1 | CURRENT.SP | current setpoint … | -0.24627872 | 0.00000000 | 0.24627872 | -0.00009418 | 0.24618454 |

**all listed values**
3060 FILE values  →  di... 1390  ←  3060 DEVICE values
0  ←  errors  →  0

**SP-RBV deviation**
0 out of 0
tolerance [bits] = 5

select all
unselect

**selected values**
0 FILE values selected  ← Copy    Restore ⇒  0 DEVICE values selected

Next update  28 sec.    update completed    ⊗ abort server reading    Last update: Jun 25 15:04:44 CEST 2018    age: 2 sec.    update NOW

File content  XFEL

filters: system-sets='Correctors'



**File Operator XFEL**

File  Edit  View  Options  Help

ID= 17985    Timestamp: 2018-06-18T21:20:01+02    Age: 6.7 days

Comment: DOE tests: SA1 lasing at 9.15 keV; 900 uJ    Authors: Froehlich, Negodin

File type:

SECTION:  ☑ ALL (8776)  ☐ 'none' (3951)  ☐ SASE1/3 branch (2599)  ☐ SASE2 branch (2226)

SYSTEM-SET:  ☐ ALL (8776)  ☐ Solenoids (8)  ☐ Dipoles (388)  ☐ Multipoles (2240)  ☑ Correctors (3060)  ☐ MagnetMovers (198)  ☐ Laser (1)  ☐ RF (55)  ☐ Feedbacks (1)

☐ Undulators (364)  ☐ UndulatorPhaseShifters (176)

1 system-set selected with 3060 data.    3060  data listed below.    Show-level = 0    ☐ only writables    Search in address: [          ]  ☐ regex

Search text:  in facility: [          ] ▼    in device: [          ] ▼    in location: [          ] ▼    in dev. property: [          ] ▼

| facility | device | location | dev. property | description | file value | device value | diff. | RBV | |
|----------|--------|----------|---------------|-------------|------------|--------------|-------|-----|---|
| | | | | | | | | | (all) |
| XFEL.MAGNETS | MAGNET.ML | CKX.23.I1 | CURRENT.SP | current setpoint ... | 1.12232304 | 0.00000000 | -1.12232304 | -0.00032187 | CURRENT.SP |
| XFEL.MAGNETS | MAGNET.ML | CKY.23.I1 | CURRENT.SP | current setpoint ... | 2.98953485 | 0.00000000 | -2.98953485 | -0.00033379 | KICK.SP |
| XFEL.MAGNETS | MAGNET.ML | CKX.24.I1 | CURRENT.SP | current setpoint ... | 0.85000002 | 0.00000000 | -0.85000002 | -0.00031233 | MOMENTUM.NOSC |
| XFEL.MAGNETS | MAGNET.ML | CKY.24.I1 | CURRENT.SP | current setpoint ... | 2.32699990 | 0.00000000 | -2.32699990 | -0.00080824 | PS_ON |
| XFEL.MAGNETS | MAGNET.ML | CKX.25.I1 | CURRENT.SP | current setpoint ... | 0.00000000 | 0.00000000 | 0.00000000 | -0.00041008 | -0.00041008 |
| XFEL.MAGNETS | MAGNET.ML | CKY.25.I1 | CURRENT.SP | current setpoint ... | 0.00000000 | 0.00000000 | 0.00000000 | -0.00047684 | -0.00047684 |
| XFEL.MAGNETS | MAGNET.ML | CY.37.I1 | CURRENT.SP | current setpoint ... | 0.06797803 | 0.00000000 | -0.06797803 | 0.00205994 | -0.06591809 |
| XFEL.MAGNETS | MAGNET.ML | CX.37.I1 | CURRENT.SP | current setpoint ... | 0.03273017 | 0.00000000 | -0.03273017 | -0.00274659 | -0.03547675 |
| XFEL.MAGNETS | MAGNET.ML | CY.39.I1 | CURRENT.SP | current setpoint ... | -0.10690549 | 0.00000000 | 0.10690549 | 0.00091553 | 0.10782102 |
| XFEL.MAGNETS | MAGNET.ML | CX.39.I1 | CURRENT.SP | current setpoint ... | 0.79555476 | 0.00000000 | -0.79555476 | 0.00022888 | -0.79532587 |
| XFEL.MAGNETS | MAGNET.ML | CIY.51.I1 | CURRENT.SP | current setpoint ... | -0.13041462 | 0.00000000 | 0.13041462 | 0.00009298 | 0.13050760 |
| XFEL.MAGNETS | MAGNET.ML | CIX.51.I1 | CURRENT.SP | current setpoint ... | 0.00971351 | 0.00000000 | -0.00971351 | -0.00017047 | -0.00988397 |
| XFEL.MAGNETS | MAGNET.ML | CIY.55.I1 | CURRENT.SP | current setpoint ... | -0.02618911 | 0.00000000 | 0.02618911 | 0.00014544 | 0.02633455 |
| XFEL.MAGNETS | MAGNET.ML | CIX.57.I1 | CURRENT.SP | current setpoint ... | -0.09820218 | 0.00000000 | 0.09820218 | -0.00003934 | 0.09816284 |
| XFEL.MAGNETS | MAGNET.ML | CIY.58.I1 | CURRENT.SP | current setpoint ... | 0.02393392 | 0.00000000 | -0.02393392 | 0.00012875 | -0.02380517 |
| XFEL.MAGNETS | MAGNET.ML | CBB.62.I1D | CURRENT.SP | current setpoint ... | 0.60196036 | 0.00000000 | -0.60196036 | -0.00434876 | -0.60630912 |
| XFEL.MAGNETS | MAGNET.ML | CIY.63.I1 | CURRENT.SP | current setpoint ... | -0.24627872 | 0.00000000 | 0.24627872 | -0.00009298 | 0.24618573 |

all listed values
| 3060 FILE values | di... 1390 | 3060 DEVICE values |
0 | errors | 0

SP-RBV deviation
0 out of 0
tolerance [bits] = 5

select all
unselect

selected values
0 FILE values selected | ◄ Copy | 0 DEVICE values selected
| Restore ► |

Next update  in 0 sec.  |  updating  |  ✖ abort server reading    Last update: Jun 25 15:06:26 CEST 2018    age: 31 sec.    update NOW

File content  XFEL

filters: system-sets='Correctors' AND property='KICK.SP'

File Operator XFEL

File  Edit  View  Options  Help

ID= 17985    Timestamp: 2018-06-18T21:20:01+02    Age: 6.7 days

Comment: DOE tests: SA1 lasing at 9.15 keV; 900 uJ    Authors: Froehlich, Negodin

File type:

SECTION:  ☑ ALL (8776)  ☐ 'none' (3951)  ☐ SASE1/3 branch (2599)  ☐ SASE2 branch (2226)

SYSTEM-SET:  ☐ ALL (8776)  ☐ Solenoids (8)  ☐ Dipoles (388)  ☐ Multipoles (2240)  ☑ Correctors (3060)  ☐ MagnetMovers (198)  ☐ Laser (1)  ☐ RF (55)  ☐ Feedbacks (1)
☐ Undulators (364)  ☐ UndulatorPhaseShifters (176)

1 system-set selected with 3060 data.   765  data listed below.   Show-level = 0   ☐ only writables   Search in address: _____   ☐ regex

Search text:  in facility: _____ ▾   in device: _____ ▾   in location: _____ ▾   in dev. property: KICK.SP ▾

| facility | device | location | dev. property | description | file value | device value | diff. | RBV | diff.to RBV |
|----------|--------|----------|---------------|-------------|-----------|--------------|-------|-----|-------------|
| XFEL.MAGNETS | MAGNET.ML | CKX.23.I1 | KICK.SP | generalized kick ... | 0.00042058 | 0.00000000 | -0.00042058 | | |
| XFEL.MAGNETS | MAGNET.ML | CKY.23.I1 | KICK.SP | generalized kick ... | 0.00112030 | 0.00000000 | -0.00112030 | | |
| XFEL.MAGNETS | MAGNET.ML | CKX.24.I1 | KICK.SP | generalized kick ... | 0.00031853 | 0.00000000 | -0.00031853 | | |
| XFEL.MAGNETS | MAGNET.ML | CKY.24.I1 | KICK.SP | generalized kick ... | 0.00087202 | 0.00000000 | -0.00087202 | | |
| XFEL.MAGNETS | MAGNET.ML | CKX.25.I1 | KICK.SP | generalized kick ... | 0.00000000 | 0.00000000 | 0.00000000 | | |
| XFEL.MAGNETS | MAGNET.ML | CKY.25.I1 | KICK.SP | generalized kick ... | 0.00000000 | 0.00000000 | 0.00000000 | | |
| XFEL.MAGNETS | MAGNET.ML | CY.37.I1 | KICK.SP | generalized kick ... | 0.00002416 | 0.00000000 | -0.00002416 | | |
| XFEL.MAGNETS | MAGNET.ML | CX.37.I1 | KICK.SP | generalized kick ... | 0.00001148 | 0.00000000 | -0.00001148 | | |
| XFEL.MAGNETS | MAGNET.ML | CY.39.I1 | KICK.SP | generalized kick ... | -0.00003800 | 0.00000000 | 0.00003800 | | |
| XFEL.MAGNETS | MAGNET.ML | CX.39.I1 | KICK.SP | generalized kick ... | 0.00027896 | 0.00000000 | -0.00027896 | | |
| XFEL.MAGNETS | MAGNET.ML | CIY.51.I1 | KICK.SP | generalized kick ... | -0.00021370 | 0.00000000 | 0.00021370 | | |
| XFEL.MAGNETS | MAGNET.ML | CIX.51.I1 | KICK.SP | generalized kick ... | 0.00001591 | 0.00000000 | -0.00001591 | | |
| XFEL.MAGNETS | MAGNET.ML | CIY.55.I1 | KICK.SP | generalized kick ... | -0.00004290 | 0.00000000 | 0.00004290 | | |
| XFEL.MAGNETS | MAGNET.ML | CIX.57.I1 | KICK.SP | generalized kick ... | -0.00016090 | 0.00000000 | 0.00016090 | | |
| XFEL.MAGNETS | MAGNET.ML | CIY.58.I1 | KICK.SP | generalized kick ... | 0.00003920 | 0.00000000 | -0.00003920 | | |
| XFEL.MAGNETS | MAGNET.ML | CBB.62.I1D | KICK.SP | generalized kick ... | 0.00186493 | 0.00000000 | -0.00186493 | | |
| XFEL.MAGNETS | MAGNET.ML | CIY.63.I1 | KICK.SP | generalized kick ... | -0.00040370 | 0.00000000 | 0.00040370 | | |

all listed values
765 FILE values  →  di... 323  →  765 DEVICE values
0  ←  errors  →  0

SP-RBV deviation
0 out of 0
tolerance [bits] = 5

select all
unselect

selected values
0 FILE values selected  ← Copy   Restore →  0 DEVICE values selected

Next update: 17 sec.   update completed   ⊗ abort server reading   Last update: Jun 25 15:09:09 CEST 2018   age: 14 sec.   update NOW

**File content  XFEL**

item selection and copy-restore buttons



File Operator XFEL

File  Edit  View  Options  Help

ID= 17985    Timestamp: 2018-06-18T21:20:01+02    Age: 6.7 days

Comment: DOE tests: SA1 lasing at 9.15 keV; 900 uJ        Authors: Froehlich, Negodin

File type:

SECTION:  ☑ ALL (8776)   ☐ 'none' (3951)   ☐ SASE1/3 branch (2599)   ☐ SASE2 branch (2226)

SYSTEM-SET:  ☐ ALL (8776)  ☐ Solenoids (8)  ☐ Dipoles (388)  ☐ Multipoles (2240)  ☑ Correctors (3060)  ☐ MagnetMovers (198)  ☐ Laser (1)  ☐ RF (55)  ☐ Feedbacks (1)

☐ Undulators (364)   ☐ UndulatorPhaseShifters (176)

1 system-set selected with 3060 data.    765   data listed below.   Show-level = 0 ⬍   ☐ only writables   Search in address: [          ]   ☐ regex

Search text:  in facility: [          ] ⬍    in device: [          ] ⬍    in location: [          ] ⬍    in dev. property: KICK.SP ⬍

| facility | device | location | dev. property | description | file value | device value | diff. | RBV | diff.to RBV |
|---|---|---|---|---|---|---|---|---|---|
| XFEL.MAGNETS | MAGNET.ML | CKX.23.l1 | KICK.SP | generalized kick ... | 0.00042058 | 0.00000000 | -0.00042058 | | |
| XFEL.MAGNETS | MAGNET.ML | CKY.23.l1 | KICK.SP | generalized kick ... | 0.00112030 | 0.00000000 | -0.00112030 | | |
| XFEL.MAGNETS | MAGNET.ML | CKX.24.l1 | KICK.SP | generalized kick ... | 0.00031853 | 0.00000000 | -0.00031853 | | |
| XFEL.MAGNETS | MAGNET.ML | CKY.24.l1 | KICK.SP | generalized kick ... | 0.00087202 | 0.00000000 | -0.00087202 | | |
| XFEL.MAGNETS | MAGNET.ML | CKX.25.l1 | KICK.SP | generalized kick ... | 0.00000000 | 0.00000000 | 0.00000000 | | |
| XFEL.MAGNETS | MAGNET.ML | CKY.25.l1 | KICK.SP | generalized kick ... | 0.00000000 | 0.00000000 | 0.00000000 | | |
| XFEL.MAGNETS | MAGNET.ML | CY.37.l1 | KICK.SP | generalized kick ... | 0.00002416 | 0.00000000 | -0.00002416 | | |
| XFEL.MAGNETS | MAGNET.ML | CX.37.l1 | KICK.SP | generalized kick ... | 0.00001148 | 0.00000000 | -0.00001148 | | |
| XFEL.MAGNETS | MAGNET.ML | CY.39.l1 | KICK.SP | generalized kick ... | -0.00003800 | 0.00000000 | 0.00003800 | | |
| XFEL.MAGNETS | MAGNET.ML | CX.39.l1 | KICK.SP | generalized kick ... | 0.00027896 | 0.00000000 | -0.00027896 | | |
| XFEL.MAGNETS | MAGNET.ML | CIY.51.l1 | KICK.SP | generalized kick ... | -0.00021370 | 0.00000000 | 0.00021370 | | |
| XFEL.MAGNETS | MAGNET.ML | CIX.51.l1 | KICK.SP | generalized kick ... | 0.00001591 | 0.00000000 | -0.00001591 | | |
| XFEL.MAGNETS | MAGNET.ML | CIY.55.l1 | KICK.SP | generalized kick ... | -0.00004290 | 0.00000000 | 0.00004290 | | |
| XFEL.MAGNETS | MAGNET.ML | CIX.57.l1 | KICK.SP | generalized kick ... | -0.00016090 | 0.00000000 | 0.00016090 | | |
| XFEL.MAGNETS | MAGNET.ML | CIY.58.l1 | KICK.SP | generalized kick ... | 0.00003920 | 0.00000000 | -0.00003920 | | |
| XFEL.MAGNETS | MAGNET.ML | CBB.62.l1D | KICK.SP | generalized kick ... | 0.00186493 | 0.00000000 | -0.00186493 | | |
| XFEL.MAGNETS | MAGNET.ML | CIY.63.l1 | KICK.SP | generalized kick ... | -0.00040370 | 0.00000000 | 0.00040370 | | |

**all listed values**
765 FILE values ➡ di... 323 ⬅ 765 DEVICE values
0 ⬅ errors ➡ 0

**SP-RBV deviation**
0 out of 0
tolerance [bits] = 5 ⬍

select all    unselect

**selected values**
0 FILE values selected  ⬅ Copy    0 DEVICE values selected
Restore ➡

Next update n 17 sec.   update completed   ⊗ abort server reading   Last update: n Jun 25 15:09:09 CEST 2018   age: 14 sec.   update NOW

**File content  XFEL**

**restore button**



File Operator XFEL

File  Edit  View  Options  Help

ID= 17985    Timestamp: 2018-06-18T21:20:01+02    Age: 6.7 days

Comment: DOE tests: SA1 lasing at 9.15 keV; 900 uJ        Authors: Froehlich, Negodin

File type:

SECTION:  ☑ ALL (8776)   ☐ 'none' (3951)   ☐ SASE1/3 branch (2599)   ☐ SASE2 branch (2226)

SYSTEM-SET:  ☐ ALL (8776)  ☐ Solenoids (8)  ☐ Dipoles (388)  ☐ Multipoles (2240)  ☑ Correctors (3060)  ☐ MagnetMovers (198)  ☐ Laser (1)  ☐ RF (55)  ☐ Feedbacks (1)

☐ Undulators (364)   ☐ UndulatorPhaseShifters (176)

1 system-set selected with 3060 data.    765  data listed below.   Show-level = 0    ☐ only writables   Search in address:                         ☐ regex

Search text: in facility:                ▼    in device:                ▼    in location:                ▼    in dev. property: KICK.SP      ▼

| facility | device | location | dev. property | description | file value | device value | diff. | RBV | diff.to RBV |
|---|---|---|---|---|---|---|---|---|---|
| XFEL.MAGNETS | MAGNET.ML | CKX.23.l1 | KICK.SP | generalized kick ... | 0.00042058 | 0.00000000 | -0.00042058 | | |
| XFEL.MAGNETS | MAGNET.ML | CKY.23.l1 | KICK.SP | generalized kick ... | 0.00112030 | 0.00000000 | -0.00112030 | | |
| XFEL.MAGNETS | MAGNET.ML | CKX.24.l1 | KICK.SP | generalized kick ... | 0.00031853 | 0.00000000 | -0.00031853 | | |
| XFEL.MAGNETS | MAGNET.ML | CKY.24.l1 | KICK.SP | generalized kick ... | 0.00087202 | 0.00000000 | -0.00087202 | | |
| XFEL.MAGNETS | MAGNET.ML | CKX.25.l1 | KICK.SP | generalized kick ... | 0.00000000 | 0.00000000 | 0.00000000 | | |
| XFEL.MAGNETS | MAGNET.ML | CKY.25.l1 | KICK.SP | generalized kick ... | 0.00000000 | 0.00000000 | 0.00000000 | | |
| XFEL.MAGNETS | MAGNET.ML | CY.37.l1 | KICK.SP | generalized kick ... | 0.00002416 | 0.00000000 | -0.00002416 | | |
| XFEL.MAGNETS | MAGNET.ML | CX.37.l1 | KICK.SP | generalized kick ... | 0.00001148 | 0.00000000 | -0.00001148 | | |
| XFEL.MAGNETS | MAGNET.ML | CY.39.l1 | KICK.SP | generalized kick ... | -0.00003800 | 0.00000000 | 0.00003800 | | |
| XFEL.MAGNETS | MAGNET.ML | CX.39.l1 | KICK.SP | generalized kick ... | 0.00027896 | 0.00000000 | -0.00027896 | | |
| XFEL.MAGNETS | MAGNET.ML | CIY.51.l1 | KICK.SP | generalized kick ... | -0.00021370 | 0.00000000 | 0.00021370 | | |
| XFEL.MAGNETS | MAGNET.ML | CIX.51.l1 | KICK.SP | generalized kick ... | 0.00001591 | 0.00000000 | -0.00001591 | | |
| XFEL.MAGNETS | MAGNET.ML | CIY.55.l1 | KICK.SP | generalized kick ... | -0.00004290 | 0.00000000 | 0.00004290 | | |
| XFEL.MAGNETS | MAGNET.ML | CIX.57.l1 | KICK.SP | generalized kick ... | -0.00016090 | 0.00000000 | 0.00016090 | | |
| XFEL.MAGNETS | MAGNET.ML | CIY.58.l1 | KICK.SP | generalized kick ... | 0.00003920 | 0.00000000 | -0.00003920 | | |
| XFEL.MAGNETS | MAGNET.ML | CBB.62.l1D | KICK.SP | generalized kick ... | 0.00186493 | 0.00000000 | -0.00186493 | | |
| XFEL.MAGNETS | MAGNET.ML | CIY.63.l1 | KICK.SP | generalized kick ... | -0.00040370 | 0.00000000 | 0.00040370 | | |

all listed values
765 FILE values   di... 323   765 DEVICE values
0   ← errors →   0

SP-RBV deviation
0 out of 0
tolerance [bits] = 5

select all
unselect

selected values
765 FILE   ← Copy   765 DEVICE
values selected   Restore →   values selected

Next update  in 1 sec.   update completed   ✕ abort server reading   Last update: Jun 25 15:14:20 CEST 2018   age: 30 sec.   update NOW

File content XFEL

restore all button



File Operator XFEL: Restore Overview

timestamp: 2018-06-18T21_20_01+02   has   765   values.   Comment: DOE tests: SA1 lasing at 9.15 keV; 900 uJ

values selected= 765   for restoring= 765   still to restore= 765   skipped by user= 0   error(s)= 0   differ= 0

| address | status | error c... | error message |
|---|---|---|---|
| XFEL.MAGNETS/MAGNET.ML/CKX.2... | restoring ... | 0 | |

Restore selected items

Device: XFEL.MAGNETS/MAGNET.ML/CKX.23.I1/KICK.SP

restore  4.2057980213027E-4       (actual= 0.0)

Restore all     Restore this     Skip this and go to next     Cancel all

Print FULL table     Print ONLY summary     Close this Window

2 branch (2226)

(198)  ☐ Laser (1)  ☐ RF (55)  ☐ Feedbacks (1)  ☐

s: [                    ]  ☐ regex

v. property: KICK.SP  [ ▼ ]

| | diff. | RBV | diff.to RBV |
|---|---|---|---|
| | -0.00042058 | | |
| | -0.00112030 | | |
| | -0.00031853 | | |
| | -0.00087202 | | |
| | 0.00000000 | | |
| | 0.00000000 | | |

| XFEL.MAGNETS | MAGNET.ML | CY.37.I1 | KICK.SP | generalized kick ... | 0.00002416 | 0.00000000 | -0.00002416 |
| XFEL.MAGNETS | MAGNET.ML | CX.37.I1 | KICK.SP | generalized kick ... | 0.00001148 | 0.00000000 | -0.00001148 |
| XFEL.MAGNETS | MAGNET.ML | CY.39.I1 | KICK.SP | generalized kick ... | -0.00003800 | 0.00000000 | 0.00003800 |
| XFEL.MAGNETS | MAGNET.ML | CX.39.I1 | KICK.SP | generalized kick ... | 0.00027896 | 0.00000000 | -0.00027896 |
| XFEL.MAGNETS | MAGNET.ML | CIY.51.I1 | KICK.SP | generalized kick ... | -0.00021370 | 0.00000000 | 0.00021370 |
| XFEL.MAGNETS | MAGNET.ML | CIX.51.I1 | KICK.SP | generalized kick ... | 0.00001591 | 0.00000000 | -0.00001591 |
| XFEL.MAGNETS | MAGNET.ML | CIY.55.I1 | KICK.SP | generalized kick ... | -0.00004290 | 0.00000000 | 0.00004290 |
| XFEL.MAGNETS | MAGNET.ML | CIX.57.I1 | KICK.SP | generalized kick ... | -0.00016090 | 0.00000000 | 0.00016090 |
| XFEL.MAGNETS | MAGNET.ML | CIY.58.I1 | KICK.SP | generalized kick ... | 0.00003920 | 0.00000000 | -0.00003920 |
| XFEL.MAGNETS | MAGNET.ML | CBB.62.I1D | KICK.SP | generalized kick ... | 0.00186493 | 0.00000000 | -0.00186493 |
| XFEL.MAGNETS | MAGNET.ML | CIY.63.I1 | KICK.SP | generalized kick | -0.00040370 | 0.00000000 | 0.00040370 |

all listed values
765 FILE values     di... 323     765 DEVICE values
0     ⇦ errors ⇨     0

SP-RBV deviation
0 out of 0
tolerance [bits] = 5

select all
unselect

selected values
765 FILE values selected     ⇦ Copy     765 DEVICE values
Restore ⇨     selected

Next update  17 sec.   update completed   ⊗ abort server reading   Last update: Jun 25 15:16:55 CEST 2018   age: 14 sec.   update NOW

XFEL: list of symbolic files

# XFEL: how to write a file into a symbolic file: ... right mouse click on a file...

## Sequencer XFEL

**File Operator XFEL**

File  View  Options  Tools  Tests  Remote-Control  Help

*XFEL*

Last file restored (or saved):  **2018-06-19T10:07:16+02 ( ID=18062 )**  diff.= **2884**

| Machine File Catalog | Sequence files | Symbolic files | Re-writable files |

XFEL has 6 sequence files.    With the following filters:    6   files listed in the table below.    [ remove all filters ]

**FILTERS**
- [ ] show also sequences for experts

| Title | Filename |
|---|---|
| Join injector 1 and XTL | join_i1_xtl.xml |
| Join SASE1/3 and XTL | join_xtl_sase13.xml |
| Join SASE2 and XTL | join_xtl_sase2.xml |
| Separate injector 1 from XTL | separate_i1_xtl.xml |
| Separate SASE1/3 from XTL | separate_xtl_sase13.xml |
| Separate SASE2 from XTL | separate_xtl_sase2.xml |

**Selected SEQUENCE file:** [                    ] [ open in sequencer ]

# Example of Sequencer  XFEL :  Join injector 1 and XTL

**File Operator XFEL**

File  Edit  View  Options  Help

**XFEL**
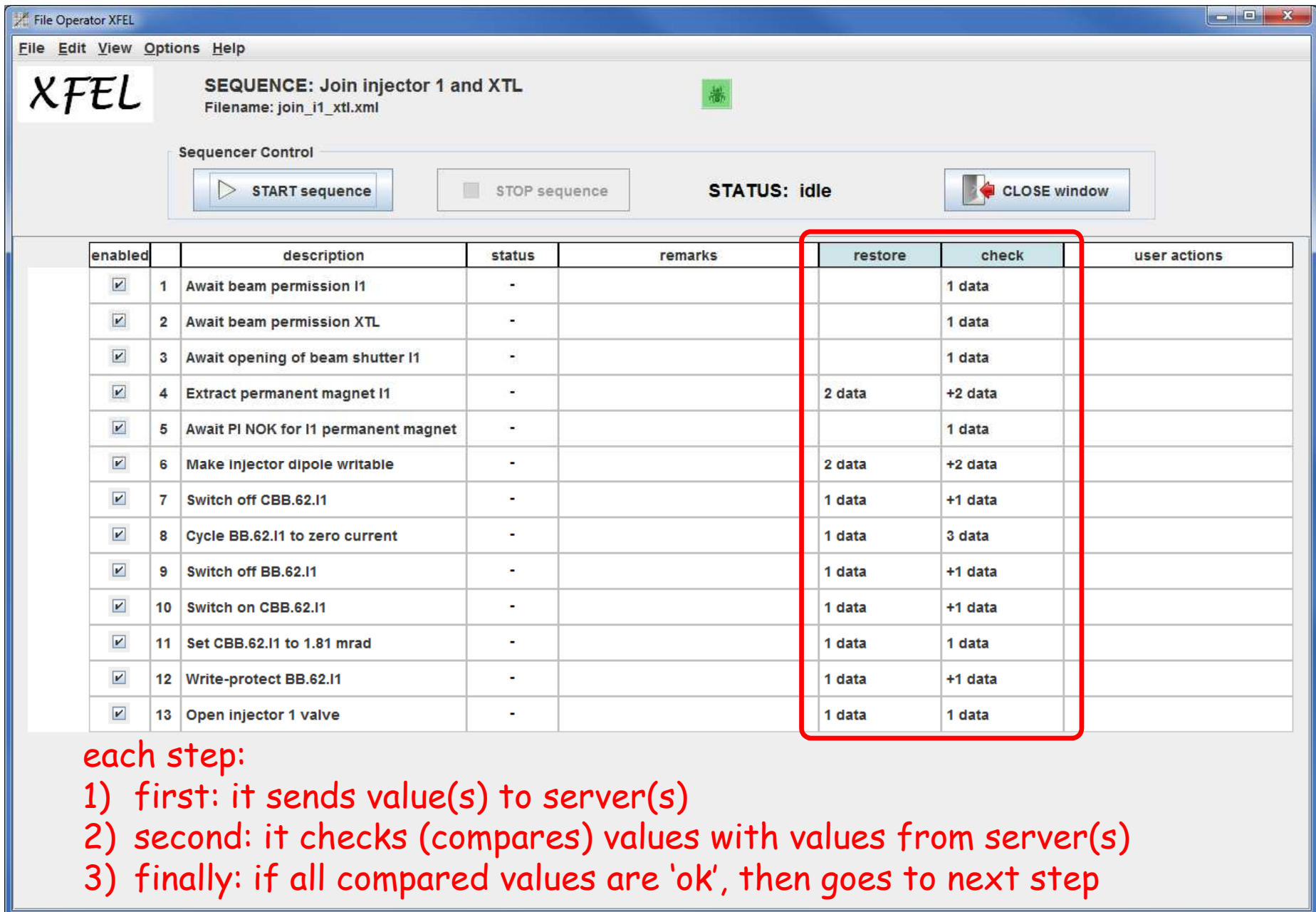
**SEQUENCE:** Join injector 1 and XTL
Filename: join_i1_xtl.xml

### Sequencer Control

| ▷ START sequence | ■ STOP sequence | **STATUS: idle** | ⬅ CLOSE window |

| enabled | | description | status | remarks | restore | check | user actions |
|---|---|---|---|---|---|---|---|
| ✔ | 1 | Await beam permission I1 | - | | | 1 data | |
| ✔ | 2 | Await beam permission XTL | - | | | 1 data | |
| ✔ | 3 | Await opening of beam shutter I1 | - | | | 1 data | |
| ✔ | 4 | Extract permanent magnet I1 | - | | 2 data | +2 data | |
| ✔ | 5 | Await PI NOK for I1 permanent magnet | - | | | 1 data | |
| ✔ | 6 | Make injector dipole writable | - | | 2 data | +2 data | |
| ✔ | 7 | Switch off CBB.62.I1 | - | | 1 data | +1 data | |
| ✔ | 8 | Cycle BB.62.I1 to zero current | - | | 1 data | 3 data | |
| ✔ | 9 | Switch off BB.62.I1 | - | | 1 data | +1 data | |
| ✔ | 10 | Switch on CBB.62.I1 | - | | 1 data | +1 data | |
| ✔ | 11 | Set CBB.62.I1 to 1.81 mrad | - | | 1 data | 1 data | |
| ✔ | 12 | Write-protect BB.62.I1 | - | | 1 data | +1 data | |
| ✔ | 13 | Open injector 1 valve | - | | 1 data | 1 data | |

# Example of Sequencer XFEL : Join injector 1 and XTL



control buttons

# Example of Sequencer XFEL : Join injector 1 and XTL



a procedure with 13 steps

## Example of Sequencer  XFEL :  Join injector 1 and XTL

**File Operator XFEL**

File  Edit  View  Options  Help

### XFEL

**SEQUENCE:** Join injector 1 and XTL
**Filename:** join_i1_xtl.xml

**Sequencer Control**

▷ START sequence     ■ STOP sequence     **STATUS:  idle**     ◀ CLOSE window

| enabled | | description | status | remarks | restore | check | user actions |
|---|---|---|---|---|---|---|---|
| ☑ | 1 | Await beam permission I1 | - | | | 1 data | |
| ☑ | 2 | Await beam permission XTL | - | | | 1 data | |
| ☑ | 3 | Await opening of beam shutter I1 | - | | | 1 data | |
| ☑ | 4 | Extract permanent magnet I1 | - | | 2 data | +2 data | |
| ☑ | 5 | Await PI NOK for I1 permanent magnet | - | | | 1 data | |
| ☑ | 6 | Make injector dipole writable | - | | 2 data | +2 data | |
| ☑ | 7 | Switch off CBB.62.I1 | - | | 1 data | +1 data | |
| ☑ | 8 | Cycle BB.62.I1 to zero current | - | | 1 data | 3 data | |
| ☑ | 9 | Switch off BB.62.I1 | - | | 1 data | +1 data | |
| ☑ | 10 | Switch on CBB.62.I1 | - | | 1 data | +1 data | |
| ☑ | 11 | Set CBB.62.I1 to 1.81 mrad | - | | 1 data | 1 data | |
| ☑ | 12 | Write-protect BB.62.I1 | - | | 1 data | +1 data | |
| ☑ | 13 | Open injector 1 valve | - | | 1 data | 1 data | |

**each step:**
1) **first: it sends value(s) to server(s)**
2) **second: it checks (compares) values with values from server(s)**
3) **finally: if all compared values are 'ok', then goes to next step**

## Example of Sequencer XFEL: Separate injector 1 and XTL



Screenshot: File Operator XFEL

File   Edit   View   Options   Help

**XFEL**

**SEQUENCE: Separate injector 1 from XTL**
Filename: separate_i1_xtl.xml

**Sequencer Control**

▷ START sequence      ▢ STOP sequence      **STATUS: idle**      ◀ CLOSE window

**User Parameters**

Close valve: yes ▾

| enabled | | description | status | remarks | restore | check | user actions |
|---|---|---|---|---|---|---|---|
| ✔ | 1 | Make injector dipole writable | - | | 2 data | +2 data | |
| ✔ | 2 | Switch CBB.62.I1 off | - | | 1 data | +1 data | |
| ✔ | 3 | Switch BB.62.I1 on | - | | 1 data | +1 data | |
| ✔ | 4 | Cycle BB.62.I1 to -30 deg | - | | 1 data | 3 data | |
| ✔ | 5 | Write-protect injector dipole | - | | 2 data | +2 data | |
| ✔ | 6 | Await PI OK for BB.5.I1D | - | | | 1 data | |
| ✔ | 7 | Insert permanent magnet I1 | - | | 2 data | +2 data | |
| ✔ | 8 | Await PI OK for I1 permanent magnet | - | | | 1 data | |
| ✔ | 9 | Close injector 1 valve | - | | 1 data | 1 data | |
| ✔ | 10 | Await closing of beam shutter I1 | - | | | 1 data | |

sometimes there is one or more user options

# Example of Sequencer PETRA: top-up



File Operator PETRA

**File  Edit  View  Options  Help**

**PETRA**

**SEQUENCE: TopUp Betrieb: Petra**
Filename: TopUp_Petra.xml

Sound alarm server (in BKR) (sound file = PE_TOPUP_2...

set ON    set OFF    error    snooze
                     error

**Sequencer Control**

▷ START sequence    ⬛ STOP sequence    **STATUS: idle**    ⬅ CLOSE window

**User Parameters**

oberes Stromlimit [mA] = 50.0

unteres Stromlimit [Prozent] = 1.0

Wert=0: Fuellen ohne TimingAutomatik moeglich = 1

**here: user options are values**

| enabled | description | status | remarks | restore | check | user actions |
|---|---|---|---|---|---|---|
| ☑ | Generierung BunchPattern definieren | - | | 1 data | | |
| ☑ | TopUp-Betrieb Vorbereiten | - | | 1 data | | |
| ☑ | BPM's, autom. gain control behandeln | - | | 1 data | | |
| ☑ | Start Pruefung auf unteres StromLimit | - | | 1 data | | |
| ☑ | Oberes Stromlimit setzen (auf 50.0 mA) | - | | 1 param. | | |
| ☑ | Unteres StromLimit setzen (auf 1.0 %) | - | | 1 param. | | |
| ☑ | Fuellen ohne TimingAutomatik moegl... | - | | 1 param. | | |
| ☑ | Warten auf unteres StromLimit | - | | | 1 data | |
| ☑ | Topup Modus setzen | - | | 1 data | | |
| ☑ | Linac2 Gun ein? | - | | | 1 data | |
| ☑ | Check auf Bunche in Petra | - | | | 1 data | |
| ☑ | Unteres StromLimit erreicht? | - | | | 1 data | |
| ☑ | Zurueck zum Pruefung des Injektors | - | | | | |
| ☑ | Start Injektion | - | | 1 data | | |
| ☑ | Warten auf Injektion | - | | | 1 data | |

# Example of Sequencer PETRA: top-up



sequences can have 'gotos' and loops

http://doc.desy.de/elog/XMLlist?file=/DOC/data/doc/common/applications/SaveRestore&xsl=/elogbook/xsl/elog.xsl&picture=true

http://bkr-wiki.desy.de/index.php/Sequenzer

https://xfel-wiki.desy.de/Sequencer

# Thank you for you attention

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