

File system, SaveRestore and Sequencer for LINAC2, DESY2, PETRA3 and FLASH, a status report

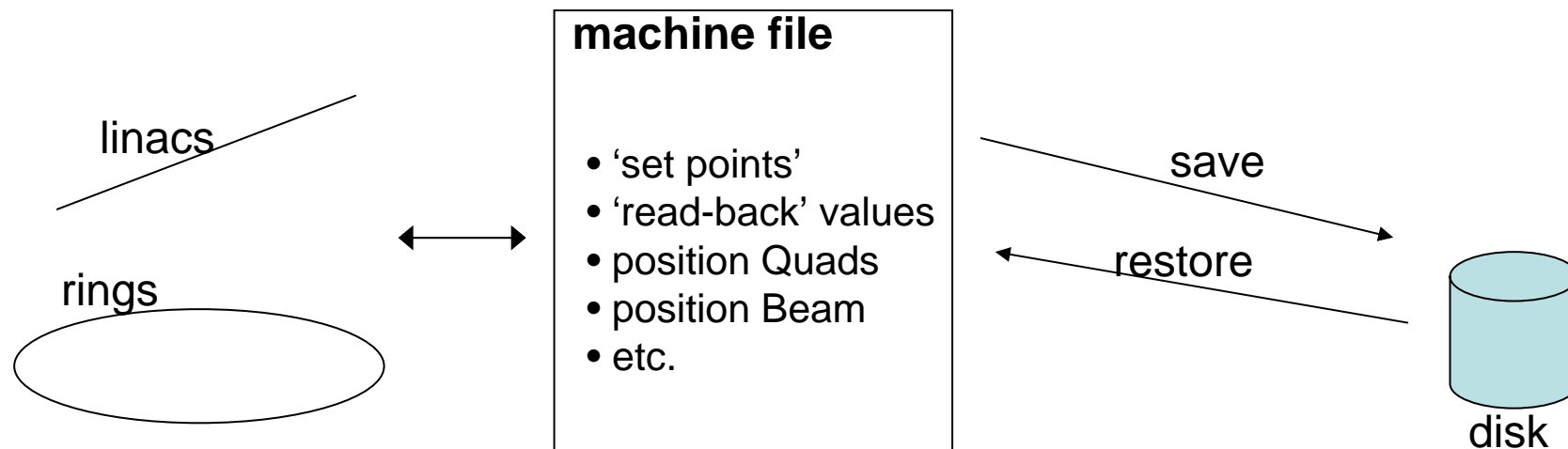
"...on the road to a more reproducible operation"

Jürgen Maass (MCS4) and Pedro Castro (MPY)

in collaboration with:

K. Rehlich, R. Kammering, O. Hensler, E. Sombrowski, S. Herb
and other people from MCS 1 and MCS 4

Basic principle of "Machine file system"



More features:

- compare: between file and machine values
- compare: between set-points ("Soll") and read-back ("Ist") values
- compare: between file 1 and file 2 values
- browse saved files: search function
- sequencer: to restore a file following a 'procedure' or sequence
- print 'main parameters' in e-logbook
- (for FLASH) scale magnets with energy changes
- same program for all machines: FLASH, Linac II, DESY II, etc

Spin-off:

- SaveRestore tool

Motivation

~~-to make the operation easier... maybe
(but it is more work for the operators, coordinators, experts)~~

-to save and later reproduce the same operation conditions
(if it is correctly configured)

for Linac II, DESY II, PETRA III :

“it is an essential tool”

for FLASH :

it will replace the “save & restore tool”

The save & restore tool

Save & Restore Version.1.5

File ▾ Show file Save Act. as Ref. Read Only (##) Update [sec]: 30

Last update: Sat Feb 10 21:54:12 2007

Comment: Printer:

File	Time	Comment
all_magnets_20070210_1.sr	Sat Feb 10 21:54:12 2007	27 nm, 12 bunches,

Name	Actual	Reference
== TTF2.MAGNETS/SOL/1CATH/PS	22.5373	22.5373
!= TTF2.MAGNETS/SOL/1GUN/PS	281.9	282.1
!= TTF2.MAGNETS/STEERER/H1GUN/PS	-0.202686	-0.20757
!= TTF2.MAGNETS/STEERER/V2GUN/PS	-1.03541	-1.07937
!= TTF2.MAGNETS/STEERER/H3GUN/PS	0.205128	0.210012
!= TTF2.MAGNETS/STEERER/V3GUN/PS	-0.319902	-0.30525
== TTF2.MAGNETS/DIPOLE/D1IDUMP/PS	0	0
== TTF2.MAGNETS/QUAD/Q9ACC1/PS	3.74279	3.74279
== TTF2.MAGNETS/QUAD/Q10ACC1/PS	-4.15296	-4.15296
== TTF2.MAGNETS/STEERER/H10ACC1/PS	-0.227058	-0.227058
== TTF2.MAGNETS/STEERER/V10ACC1/PS	-1.05106	-1.05106
== TTF2.MAGNETS/STEERER/V1UBC2/PS	0.0119658	0.0119658
== TTF2.MAGNETS/STEERER/H1UBC2/PS	0.0259829	0.0259829
== TTF2.MAGNETS/QUAD/Q1UBC2/PS	-38.8153	-38.8153
== TTF2.MAGNETS/QUAD/Q2UBC2/PS	5.28267	5.28267
== TTF2.MAGNETS/QUAD/Q3UBC2/PS	34.5562	34.5562
== TTF2.MAGNETS/DIPOLE/D1BC2/PS	61.5994	61.5994
== TTF2.MAGNETS/STEERER/H1BC2/PS	0	0

Selected items 0 Different Items: 52 Error #: 0 All items INT Format

Selected set to: Restore all

Selected delete Selected Save: Actual → Ref. Selected Restore: Actual ← Ref. Clear list Show array

Copy to devices with merge address: Selected Ref→Dev All Ref→Dev Save to file Help

Comparison accuracy (float only): 4 Scaling factor: 1.0 Selected Rescale: Act. Selected Rescale: Ref.

Scope of this presentation:

- status of the project
- show how you work in FLASH with the file system
- show the new possibilities: Catalog, Sequencer, symbolic files

out of scope:

to explain in detail how to use the program:

- because the program must be intuitive and self-explained
- because it DOES changes operation parameters
- because it is not yet available for FLASH

Present status of File System

Linac II and **DESY II** : file Catalog and Sequencer are in use
(with a long list of modifications, wishes, bugs to fix)

FLASH : files are being saved
some tests with the sequencer have been made

Next steps

FLASH : make Catalog available for operation

PETRA III : file Catalog and Sequencer are expected for day 1

List of files saved (> 10000 in 4 years)

...
all_magnets_20070312_4.sr
all_magnets_20070313_1.sr
all_magnets_20070314_1.sr
all_magnets_20070314_2.sr
all_magnets_20070314_3.sr
all_magnets_20070314_5.sr
all_magnets_20070315_1.sr
all_magnets_20070315_2.sr
all_magnets_20070315_3.sr
all_magnets_20070315_4.sr
all_magnets_20070315_5.sr
all_magnets_20070315_6.sr
all_magnets_20070315_7.sr
all_magnets_20070315_8.sr
all_magnets_20070326.sr

in "save & restore tool"
format

procedure_wavelength_change_ben: TTF2.MAGNETS///

Reference Files / Wavelength change

***** under test *****
Tool to scale magnet files Scale magnets files with energy (only creates SR files)
P. Castro

Anleitung

Energies

Magnets 700 MeV BVP/FEL
See logbook 2007-09-11 afternoon 22.54h

Magnets 970 MeV BVP/FEL
See logbook 2007-09-11 afternoon 21.13h

Magnets 900 MeV BVP, BC2&BC3=on 2008-09-17T07:03:54

General Remark:
Use DIP0LES to change between modes
Transmission should be nearly to 100 % magnets cycled

NEW SASE magnets

Magnet Setting	Mover Setting	Date
Changed dump optics: use files below		
Magnets 9.65 nm, 819 MeV	uMovers 9.65 nm	2008-10-23T08:34:29
Magnets 25.9 nm, 502 MeV	uMovers 25.9 nm	2008-10-09T12:04:53
Magnets 33.5 nm, 440 MeV	uMovers 33.5 nm	2008-10-09T18:02:03
Magnets 13.5 nm, 694 MeV	uMovers 13.5 nm	2008-10-24T14:53:10
Magnets 15.7 nm, 639 MeV	uMovers 15.7 nm	2008-10-22T13:52:18

Magnets 700 MeV BVP, BC3=off 2008-01-11T20:30:28
Magnets 700 MeV BVP, BC2&BC3=off 2008-01-09T15:24:22
Magnets 700 MeV BVP, BC2&BC3=on 2008-06-16T21:03:07

Optics Material Teststand:
Magnets 700 MeV BVP, BC2&BC3 off 2008-01-11T14:50:11

Optics Optical diffraction Radiation:
Magnets 900 MeV BVP, BC2=on &BC3=off 2008-01-17T15:05:04

Optics 9 mA, 1 or 3 nC:
Magnets 900 MeV BVP, 9 mA 2008-09-24T05:28:23

D1BYP Personal interlock Cycling status (FEL mode)

in the file system → the Machine File Catalog

FLASH File System/Sequencer 1.35

File Edit Options Help

Machine File Catalog Sequence files Symbolic files

Last file resto

FLASH Catalog has 2321 files. With the following filters: 2300 files listed in the table below. [remove all filters](#)

FILTERS

Show files with BEAMLINE: gun analysis bypass seed undulator Show files with energy [MeV]= 700 within +/- 10

Show with TYPE: temp normal reference special optics Search text (in Comment):

Show with CLASSIFICATION: 0 1 Search text (in Authors):

Show newer than 01.May.2007 Show with: errors errors in writables

<input checked="" type="checkbox"/> File ID	ID	Age [d...]	Restored	File type	Beamline	Comment	Authors	Errors	Wr.errors	e-energy [MeV]	λ [nm]	e-log link
<input type="checkbox"/> Timestamp	11464	5.002	0	temp	undulator			0	0	653.2	14.77	http://ttfinfo.desy.de/TTFelog/sho...
<input checked="" type="checkbox"/> Age	11463	5.018	0	temp	undulator			0	0	653.2	14.77	http://ttfinfo.desy.de/TTFelog/sho...
<input checked="" type="checkbox"/> Restored count	11462	5.053	0	temp	undulator			0	0	653.2	14.77	http://ttfinfo.desy.de/TTFelog/sho...
<input type="checkbox"/> Restored date	11461	5.230	0	temp	undulator			0	0	653.2	14.77	http://ttfinfo.desy.de/TTFelog/sho...
<input checked="" type="checkbox"/> File type	11460	5.300	0	temp	undulator			0	0	653.2	14.77	http://ttfinfo.desy.de/TTFelog/sho...
<input checked="" type="checkbox"/> Beamline	11459	5.437	0	temp	undulator			0	0	653.8	14.74	http://ttfinfo.desy.de/TTFelog/sho...
<input checked="" type="checkbox"/> Comment	11458	5.530	0	temp	undulator			0	0	653.7	14.74	http://ttfinfo.desy.de/TTFelog/sho...
<input checked="" type="checkbox"/> Authors	11457	6.338	0	temp	undulator			0	0	833.8	9.06	http://ttfinfo.desy.de/TTFelog/sho...
<input type="checkbox"/> Operators	11456	6.367	0	temp	undulator			0	0	833.8	9.06	http://ttfinfo.desy.de/TTFelog/sho...
<input checked="" type="checkbox"/> Errors	11455	6.652	0	temp	undulator			0	0	833.8	9.06	http://ttfinfo.desy.de/TTFelog/sho...
<input checked="" type="checkbox"/> Wr.Errors	11454	6.671	0	temp	undulator			0	0	833.8	9.06	http://ttfinfo.desy.de/TTFelog/sho...
	11453	6.929	0	temp	undulator			0	0	831.0	9.12	http://ttfinfo.desy.de/TTFelog/sho...
	11452	6.988	0	temp	undulator			0	0	831.0	9.12	http://ttfinfo.desy.de/TTFelog/sho...
	11451	7.335	0	temp	undulator			0	0	831.0	9.12	http://ttfinfo.desy.de/TTFelog/sho...
	11450	7.370	0	temp	undulator			0	0	831.0	9.12	http://ttfinfo.desy.de/TTFelog/sho...
	11449	7.449	0	temp	undulator			0	0	831.0	9.12	http://ttfinfo.desy.de/TTFelog/sho...
	11448	7.668	0	temp	undulator			0	0	831.0	9.12	http://ttfinfo.desy.de/TTFelog/sho...
	11447	8.003	0	temp	undulator			0	0	831.0	9.12	http://ttfinfo.desy.de/TTFelog/sho...
	11446	8.012	0	temp	undulator			0	0	831.0	9.12	http://ttfinfo.desy.de/TTFelog/sho...
	11445	8.028	0	temp	undulator			0	0	831.0	9.12	http://ttfinfo.desy.de/TTFelog/sho...

SELECTED FROM TABLE

Selected file: 2008-10-22T02:25:05+02 [RESTORE: Selected File ==> Sequencer FLASH](#) [WRITE into a symb. file](#)

Server status: free [SAVE: Machine FLASH ==> File](#)

→ users (operators) need to give: file type, comment, name

Save file + print 'Main parameters' in e-logbook

Print Main Parameters into Logbook

Progress of reading:

Please, type a comment:

select a classification:

TEMP file (scratch file)

reading in progress, be patient

saves
and prints



```
08.03.2007 22:51 ttflinac      Main linac parameters

Laser
Number of bunches ..... 15
Bunch frequency ..... 100 kHz
Macropulse rep'rate .... 5 Hz
Flashlamp current ..... 2
Flashlamp start time ... 2.16 ms
Attenuator SP ..... 5488
Iris diameter ..... 1.95 mm
Piezo Voltage ..... 4.944 V

Gun
Feedforward/Feedback ... on/on
Pfld SP ..... 3.25
Phase SP ..... -112.68 deg
Pfld (peak) ..... 3.509 MW
Prefl (peak) ..... 1.711 MW
Pfld (sample point 700) 3.6264 MW
Prefl (sample point 700) 0.053319 MW
Flat top ..... 200 us
Water temperature SP ... 60.31 deg C
Main solenoid ..... 294.6953 A
Bucking coil ..... 26.0018 A
Gun dipole ..... 0 A
Charge 3GUN(T1) ..... 0.91614 nC

ACC1
Feedforward/Feedback ... on/on
Pfld SP ..... 15.21
Phase SP ..... 176.9183
Pfld C1.ACC1 ..... 54.1813 kW
Pfld C5.ACC1 ..... 251.9692 kW
Flat top ..... 100 us
Beam loading comp. (BLC) off
BLC current/duration ... 0.8 mA/70 us
Dipole BC2 ..... 61.5994 A
Pyro 9DBC2 ..... -0.060908 V
Radiator 9DBC2 ..... open

ACC2/3
DSP trigger rate ..... 5 Hz
Feedforward/Feedback ... on/on
Pfld SP ..... 21.9
Phase SP ..... 88.7419
Pfld C5.ACC2 ..... 0.1567 kW
Pfld C1.ACC3 ..... 0.09197 kW
Flat top ..... 188 us
Beam loading comp. (BLC) off
BLC current/duration ... 0.8 mA/600 us
Dipole BC3 ..... 40.694 A
Pyro 14BC3 ..... -0.097174 V
Pyro 4DBC3 ..... -0.065883 V
Radiator 4DBC3 ..... open

ACC4/5
DSP trigger rate ..... 5 Hz
Feedforward/Feedback ... on/on
Pfld SP ..... 18.06
Phase SP ..... 178.7218
Pfld C1.ACC4 ..... 0.05278 kW
Pfld C2.ACC5 ..... 0.000939 kW
Flat top ..... 185 us
Beam loading comp. (BLC) off
BLC current/duration ... 0.8 mA/660 us

Bypass
Dipole D1BYP ..... 0 A
Energy bypass ..... 2.6006 MeV

Dump
Dipole D1DUMP ..... 133.5912 A
Dipole D6DUMP ..... 147.0176 A
Radiation level (wall) . 163 counts/ms

Feedbacks
Charge feedback ..... off
Charge feedback SP ..... 0.2 nC
PTO feedback ..... on

Magnets saved to:
/home/ttflinac/save_restore/Magnets/autosaved/all_Magnets_20070308T225118.sr
uMovers saved to:
/home/ttflinac/save_restore/Micromovers/autosaved/uMovers_20070308T225122.sr
Orbit reference saved in
/home/ttflinac/bin/matlab/orbit_stability/2007-03-08T225123-orbit-stability
```

in the file system → search using filters

FLASH File System/Sequencer 1.35

File Edit Options Help

Machine File Catalog Sequence files Symbolic files

Last file restored: |

FLASH Catalog has 2321 files. With the following filters: 2300 files listed in the table below. remove all filters

FILTERS

Show files with BEAMLINE: gun analysis bypass seed undulator Show files with energy [MeV]= within +/-

Show with TYPE: temp normal reference special optics Search text (in Comment):

Show with CLASSIFICATION: 0 1 Search text (in Authors):

Show newer than Show with: errors errors in writables

<input checked="" type="checkbox"/> File ID	ID	Age [d...]	Restored	File type	Beamline	Comment	Authors	Errors	Wr.errors	e-energy [MeV]	λ [nm]	e-log link
<input type="checkbox"/>	11464	5.002	0	temp	undulator			0	0	653.2	14.77	http://ttfnfo.desy.de/
<input type="checkbox"/>	11463	5.018	0	temp	undulator			0	0	653.2	14.77	http://ttfnfo.desy.de/
<input checked="" type="checkbox"/>	11462	5.053	0	temp	undulator			0	0	653.2	14.77	http://ttfnfo.desy.de/
<input checked="" type="checkbox"/>	11461	5.230	0	temp	undulator			0	0	653.2	14.77	http://ttfnfo.desy.de/
<input checked="" type="checkbox"/>	11460	5.300	0	temp	undulator			0	0	653.2	14.77	http://ttfnfo.desy.de/
<input checked="" type="checkbox"/>	11459	5.437	0	temp	undulator			0	0	653.8	14.74	http://ttfnfo.desy.de/
<input type="checkbox"/>	11458	5.530	0	temp	undulator			0	0	653.7	14.74	http://ttfnfo.desy.de/
<input type="checkbox"/>	11457	6.338	0	temp	undulator			0	0	833.8	9.06	http://ttfnfo.desy.de/
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<input checked="" type="checkbox"/>	11452	6.988	0	temp	undulator			0	0	831.0	9.12	http://ttfnfo.desy.de/
<input checked="" type="checkbox"/>	11451	7.335	0	temp	undulator			0	0	831.0	9.12	http://ttfnfo.desy.de/
<input type="checkbox"/>	11450	7.370	0	temp	undulator			0	0	831.0	9.12	http://ttfnfo.desy.de/
<input type="checkbox"/>	11449	7.449	0	temp	undulator			0	0	831.0	9.12	http://ttfnfo.desy.de/
<input checked="" type="checkbox"/>	11448	7.668	0	temp	undulator			0	0	831.0	9.12	http://ttfnfo.desy.de/
<input checked="" type="checkbox"/>	11447	8.003	0	temp	undulator			0	0	831.0	9.12	http://ttfnfo.desy.de/
<input checked="" type="checkbox"/>	11446	8.012	0	temp	undulator			0	0	831.0	9.12	http://ttfnfo.desy.de/
<input type="checkbox"/>	11445	8.028	0	temp	undulator			0	0	831.0	9.12	http://ttfnfo.desy.de/

-SELECTED FROM TABLE-

open file saved, compare with 'machine values' and restore

with save & restore tool

...
all_magnets_20070312_4.sr
all_magnets_20070313_1.sr
all_magnets_20070314_1.sr
all_magnets_20070314_2.sr
all_magnets_20070314_3.sr
all_magnets_20070314_5.sr
all_magnets_20070315_1.sr
all_magnets_20070315_2.sr
all_magnets_20070315_3.sr
all_magnets_20070315_4.sr
all_magnets_20070315_5.sr
all_magnets_20070315_6.sr
all_magnets_20070315_7.sr
all_magnets_20070315_8.sr
all_magnets_20070326.sr

Name	Actual	Reference
== TTF2.MAGNETS/SOL/1CATH/PS	22.5373	22.5373
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!= TTF2.MAGNETS/STEERER/V3GUN/PS	-0.319902	-0.30525
== TTF2.MAGNETS/DIPOLE/D1IDUMP/PS	0	0
== TTF2.MAGNETS/QUAD/Q9ACC1/PS	3.74279	3.74279
== TTF2.MAGNETS/QUAD/Q10ACC1/PS	-4.15296	-4.15296
== TTF2.MAGNETS/STEERER/H10ACC1/PS	-0.227058	-0.227058
== TTF2.MAGNETS/STEERER/V10ACC1/PS	-1.05106	-1.05106
== TTF2.MAGNETS/STEERER/V1UBC2/PS	0.0119658	0.0119658
== TTF2.MAGNETS/STEERER/H1UBC2/PS	0.0259829	0.0259829
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== TTF2.MAGNETS/DIPOLE/D1BC2/PS	61.5994	61.5994
== TTF2.MAGNETS/STEERER/H1BC2/PS	0	0

machine values

file values

in the file system → open, compare and ...

FLASH File System/Sequencer 1.35

File Edit View Options Help

Filename: <machine snapshot> Comment:

ID= 114 Timestamp: 2008-10-22T09:36:55+02 Age: 5.2 days Authors:

File type: temp Beamline: undulator electron Beam Energy [MeV] 653.177125901

SYSTEM-SET: ALL Diag Feedbacks Laser MPS MagnetMovers Magnets RF

facility	device	location	dev. property	file value	device value	diff.
TTF2.UTIL	LASER.CONTROL	GUN	PULSE_NUM	30	error	
TTF2.UTIL	LASER.CONTROL	GUN	PULSE_FREQ	1000.00000000	error	
TTF2.DIAG	REPRATE	MASTER	N_RATE	5.00000000	5.00000000	0.00000000
TTF2.UTIL	LASER	LASER1	UCTR_0	1.79999995	2.00000000	0.20000005
TTF2.UTIL	LASER	LASER1	T_DELAY4	1.69996500	1.9999797	0.30003297
TTF2.UTIL	LASERLINE	GUN.ATTENUAT	MOTOR.POS	16496	error	
TTF2.UTIL	LASERLINE	GUN.IRIS	MOTOR.POS	17280	17376	96
TTF2.UTIL	LASER	GUN	RESO_LENGTH_0	4.33400154	error	
TTF2.RF	LLRF.FPGA	GUN	FFORWARD_SWITCH	1	1	0
TTF2.RF	LLRF.FPGA	GUN	FB_SWITCH	1	1	0
TTF2.RF	LLRF.FPGA	GUN	SP_AMP	3.25000000	3.40000010	0.15000010
TTF2.RF	ADC	GUN.CH24	CH00.CALC	4.42847157	4.41653442	-0.01193714
TTF2.RF	LLRF.FPGA	GUN	SP_PHASE	7.40000010	6.00000000	-1.40000010
TTF2.RF	ADC	GUN.CH28	CH00.CALC	-26.75096703	-25.52057457	1.23039246
TTF2.RF	ADC	GUN.PM_PFOR	CH00	3.77116394	3.80582523	0.03466129
TTF2.RF	ADC	GUN.PM_PREFL	CH00	0.13176346	0.13826180	0.00649834
TTF2.RF	ADC	GUN.CH24	CH00.CALC	4.42985535	4.41653442	-0.01332092
TTF2.RF	ADC	GUN.CH25	CH00.CALC	0.03055048	0.03269095	0.00214047
TTF2.RF	LLRF.FPGA	GUN	FLATTOP_LEN	220	220	0

all listed values

521 FILE values → 322 diffs. ← 521 DEVICE values

4 errors → 9

selected values

0 FILE values selected ← Copy → 0 DEVICE values selected

Restore →

Next update in 10 sec. update completed ✖ abort server reading Last update: Mon Oct 27 14:20:07 CET 2008 age: 20 sec. update NOW

more systems: Diagnostics, Feedbacks, Laser, MPS, RF

→ coordinators and experts need to configure it

Compare floats: difference in percent
 Compare currents: difference in bits

System/Sequencer 1.35

w Options Help

Machine snapshot: _____ Comment: _____

Timestamp: 2008-10-22T15:05:23+02 Age: 5.1 days Authors: _____

Beamline: undulator electron Beam Energy [MeV] 771259014423

ALL
 Diag
 Feedbacks
 Laser
 MPS
 MagnetMovers
 Magnets
 RF

	device	location	dev. property	file value	device value	diff.	diff. [%]	diff. [bits]
	SOL	1CATH	PS	-32.00048828	-17.99981689	14.00067139	-43.75	3823.0
	SOL	1GUN	PS	300.20001221	302.50000000	2.29998779	.77	358.9
	STEERER	H1GUN	PS	1.99755812	-0.00300000	-2.00055814	-100.15	-819.2
	STEERER	V1GUN	PS	-2.00000000	-4.00000000	-2.00000000	100.00	-819.0
	STEERER	H2GUN	PS	0.00000000	0.00000000	0.00000000	.00	.0
	STEERER	V2GUN	PS	0.00000000	0.00000000	0.00000000	.00	.0
	DIPOLE	D1DUMP	PS	0.00000000	0.00000000	0.00000000	.00	.0
	STEERER	H3GUN	PS	3.00122118	1.00100005	-2.00022125	-66.65	-819.1
	STEERER	V3GUN	PS	0.49816853	0.89700001	0.39883149	80.06	163.3
	QUAD	Q9ACC1	PS	6.57368708	6.57368708	0.00000000	.00	.0
	QUAD	Q10ACC1	PS	-6.71651363	-6.71651363	0.00000000	.00	.0
	STEERER	H10ACC1	PS	-0.64455092	-0.94485307	-0.30030215	46.59	-82.0
	STEERER	V10ACC1	PS	-1.59672844	-1.49784839	0.09888005	-6.19	27.0
	STEERER	V1UBC2	PS	0.01598291	0.01300000	-0.00298291	-18.66	-34.9
	STEERER	H1UBC2	PS	0.00598291	-0.00700000	-0.01298291	-217.00	-151.9
	QUAD	Q1.1UBC2	PS	-23.09396553	-23.09396553	0.00000000	.00	.0
	QUAD	Q1.2UBC2	PS	8.48536682	8.48536682	0.00000000	.00	.0
	QUAD	Q1.3UBC2	PS	15.53514194	15.53514194	0.00000000	.00	.0
	DIPOLE	D1BC2	PS	66.25020672	66.25020672	0.00000000	.00	.0

all listed values

240 FILE values

diffs. 107

240 DEVICE values

0

errors

0

select all

unselect

selected values

0 FILE values selected

Copy

0 DEVICE values selected

Restore

Restore

in the file system → restore

FLASH File System/Sequencer: Restore Overview

timestamp: 2008-10-22T15:05:23+02 has 521 values. Comment:

values selected= 521 for restoring= 240 still to restore= 236 skipped by user= 0 error(s)= 4 differ= 0

address	status	error code	error message
TTF2.MAGNETS/QUAD.MOVER/Q5UND5/H...	value not writable (flag 'write' i...	0	
TTF2.MAGNETS/QUAD.MOVER/Q5UND5/V...	value not writable (flag 'write' i...	0	
TTF2.MAGNETS/QUAD.MOVER/Q6UND5/H...	value not writable (flag 'write' i...	0	
TTF2.MAGNETS/QUAD.MOVER/Q6UND5/V...	value not writable (flag 'write' i...	0	
TTF2.MAGNETS/QUAD.MOVER/Q5UND6/H...	value not writable (flag 'write' i...	0	
TTF2.MAGNETS/QUAD.MOVER/Q5UND6/V...	value not writable (flag 'write' i...	0	
TTF2.MAGNETS/...			
TTF2.MAGNETS/...			
TTF2.MAGNETS/...			
TTF2.MAGNETS/...			
TTF2.MAGNETS/...			
TTF2.MAGNETS/...			
TTF2.MAGNETS/...			
TTF2.MAGNETS/...			
TTF2.MAGNETS/DIPOLE/D1ECOL/PS.RBV	value not writable (flag 'write' i...	0	
TTF2.MAGNETS/DIPOLE/D14SEED/PS.RBV	value not writable (flag 'write' i...	0	
TTF2.MAGNETS/DIPOLE/D1DUMP/PS.RBV	value not writable (flag 'write' i...	0	
TTF2.MAGNETS/DIPOLE/D6DUMP/PS.RBV	value not writable (flag 'write' i...	0	
TTF2.UTIL/BIS/BEAM/BIT.0	value not writable (flag 'write' i...	0	
TTF2.UTIL/BIS/BEAM/BIT.1	value not writable (flag 'write' i...	0	
TTF2.UTIL/BIS/BEAM/BIT.2	value not writable (flag 'write' i...	0	
TTF2.UTIL/BIS/BEAM/BIT.3	value not writable (flag 'write' i...	0	
TTF2.UTIL/BIS/DW.122/BIT.5	value not writable (flag 'write' i...	0	
TTF2.MAGNETS/SOL/1CATH/PS	restoring ...	0	

Restore selected items

Device: TTF2.MAGNETS/SOL/1CATH/PS
restore -32.00049 (actual= -17.999817)

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

Print FULL table Print ONLY summary Close this Window

in the file system → restore using the sequencer

enabled	description	status	remarks	user actions
<input checked="" type="checkbox"/>	Check for magnet current interlock	-		
<input checked="" type="checkbox"/>	Check for magnet ground removed	-		
<input checked="" type="checkbox"/>	File to restore	-	Selected file: 2008-06-03T06_45_13+02	<input type="button" value="list 'to restore'..."/> <input type="button" value="list 'to check'..."/> <input type="button" value="select file..."/>
<input checked="" type="checkbox"/>	Beamline to use	-	Selected beamline:	<input type="button" value="list 'to restore'..."/> <input type="button" value="list 'to check'..."/>
<input checked="" type="checkbox"/>	Set file current set-points	-		

more time needed for test (last test was in July)

to change SASE wavelength

procedure_wavelength_change_ben: TTF2.MAGNETS///

Reference Files / Wavelength change

Anleitung

***** under test *****

Tool to scale magnet files

Scale magnets files with energy (only creates SR files)
[P. Castro](#)

Energies

Magnets 700 MeV BVP/FEL

See logbook 2007-09-11 afternoon 22.54h

Magnets 970 MeV BVP/FEL

See logbook 2007-09-11 afternoon 21.13h

Magnets 900 MeV BVP, BC2&BC3=on

2008-09-17T07:03:54

General Remark:

Use DIPOLES to change between modes
Transmission should be nearly to 100 % magnets cycled

Magnets 700 MeV BVP, BC3=off

2008-01-11T20:30:28

Magnets 700 MeV BVP, BC2&BC3=off

2008-01-09T15:24:22

Magnets 700 MeV BVP, BC2&BC3=on

2008-06-16T21:03:07

Optics Material Teststand:

Magnets 700 MeV BVP, BC2&BC3 off

2008-01-11T14:50:11

Optics Optical diffraction Radiation:

Magnets 900 MeV BVP, BC2=on &BC3=off

2008-01-17T15:05:04

Optics 9 mA, 1 or 3 nC:

Magnets 900 MeV BVP, 9 mA

2008-09-24T05:28:23

NEW SASE magnets

Magnet Setting	Mover Setting	Date
Changed dump optics: use files below		
Magnets 9.65 nm, 819 MeV	uMovers 9.65 nm	2008-10-23T08:34:29
Magnets 25.9 nm, 502 MeV	uMovers 25.9 nm	2008-10-09T12:04:53
Magnets 33.5 nm, 440 MeV	uMovers 33.5 nm	2008-10-09T18:02:03
Magnets 13.5 nm, 694 MeV	uMovers 13.5 nm	2008-10-24T14:53:10
Magnets 15.7 nm, 639 MeV	uMovers 15.7 nm	2008-10-22T13:52:18

D1BYP

Personal interlock

Cycling status (FEL mode)

Scaling magnet files

Scale FLASH Magnets

show Energy Gain Per Module Energy Gain Ratios

Starting Energy

	BC2	BC3	UND		λ [nm]
from Vector Sum	131.0 MeV	462.0 MeV	824.1 MeV		9.28 nm
from Energy server			692.3 MeV		13.15 nm
from SR file (dipole)			700.8 MeV		12.83 nm
User input	130.0 MeV	460.0 MeV	700		12.86 nm

Scaled Energy

UND	λ [nm]
980	6.56 nm

load a SR file file selected: all_Magnets_20081027T152504.sr scale steerers (except H*UND3)

full address	file value	scaled value	diff.	diff. [%]
TTF2.MAGNETS/SOL/1 CATH/PS	-17.9998	-17.9998	0.0	0.0
TTF2.MAGNETS/DIPOLE/D14SEED/PS	0.0	0.0	0.0	0.0
TTF2.MAGNETS/SOL/1 GUN/PS	303.5	303.5	0.0	0.0
TTF2.MAGNETS/STEERER/H1 GUN/PS	-0.0030	-0.0030	0.0	0.0
TTF2.MAGNETS/STEERER/V1 GUN/PS	-4.0	-4.0	0.0	0.0
TTF2.MAGNETS/STEERER/H2 GUN/PS	0.0	0.0	0.0	0.0
TTF2.MAGNETS/STEERER/V2 GUN/PS	0.0	0.0	0.0	0.0
TTF2.MAGNETS/STEERER/H3 GUN/PS	1.001	1.001	0.0	0.0
TTF2.MAGNETS/STEERER/V3 GUN/PS	0.897	0.897	0.0	0.0
TTF2.MAGNETS/DIPOLE/D1 DUMP/PS	0.0	0.0	0.0	0.0
TTF2.MAGNETS/QUAD/Q9 ACC1/PS	6.57369	6.57369	0.0	0.0
TTF2.MAGNETS/QUAD/Q10 ACC1/PS	-6.71651	-6.71651	0.0	0.0
TTF2.MAGNETS/STEERER/H10 ACC1/PS	-0.944853	-0.944853	0.0	0.0
TTF2.MAGNETS/STEERER/V10 ACC1/PS	-1.49785	-1.49785	0.0	0.0
TTF2.MAGNETS/STEERER/V1 UBC2/PS	0.013	0.013	0.0	0.0
TTF2.MAGNETS/STEERER/H1 UBC2/PS	-0.0070	-0.0070	0.0	0.0
TTF2.MAGNETS/QUAD/Q1.1 UBC2/PS	-23.094	-23.094	0.0	0.0
TTF2.MAGNETS/QUAD/Q1.2 UBC2/PS	8.48537	8.48537	0.0	0.0
TTF2.MAGNETS/QUAD/Q1.3 UBC2/PS	15.5351	15.5351	0.0	0.0
TTF2.MAGNETS/DIPOLE/D1 BC2/PS	66.2504	66.2504	0.0	0.0
TTF2.MAGNETS/STEERER/H1 BC2/PS	0.0	0.0	0.0	0.0
TTF2.MAGNETS/STEERER/H2 BC2/PS	-0.761742	-0.761742	0.0	0.0
TTF2.MAGNETS/STEERER/H3 BC2/PS	-0.970489	-0.970489	0.0	0.0
TTF2.MAGNETS/STEERER/H4 BC2/PS	1.02908	1.02908	0.0	0.0

SAVE scaled values onto a file EXIT program

Summary and outlook

Main features:

- it is 'universal' : same for all machines (rings and linacs)
 - easy to search for files
 - compare file-to-machine or file-to-file
 - run procedures (with the sequencer)
 - run in all OS: Unix, Linux, Windows, etc.
-
- FLASH can already now profit from it
 - decision has to be taken
 - we need the help of coordinators and experts to configure it correctly
 - feedback (bug reports, ideas) from all users is very welcome

Thank you for your attention

pedro.castro@desy.de