

Implementation of Web-based Operational Log System at RIBF

RIKEN Nishina Center
Beam Dynamics & Diagnostics Team

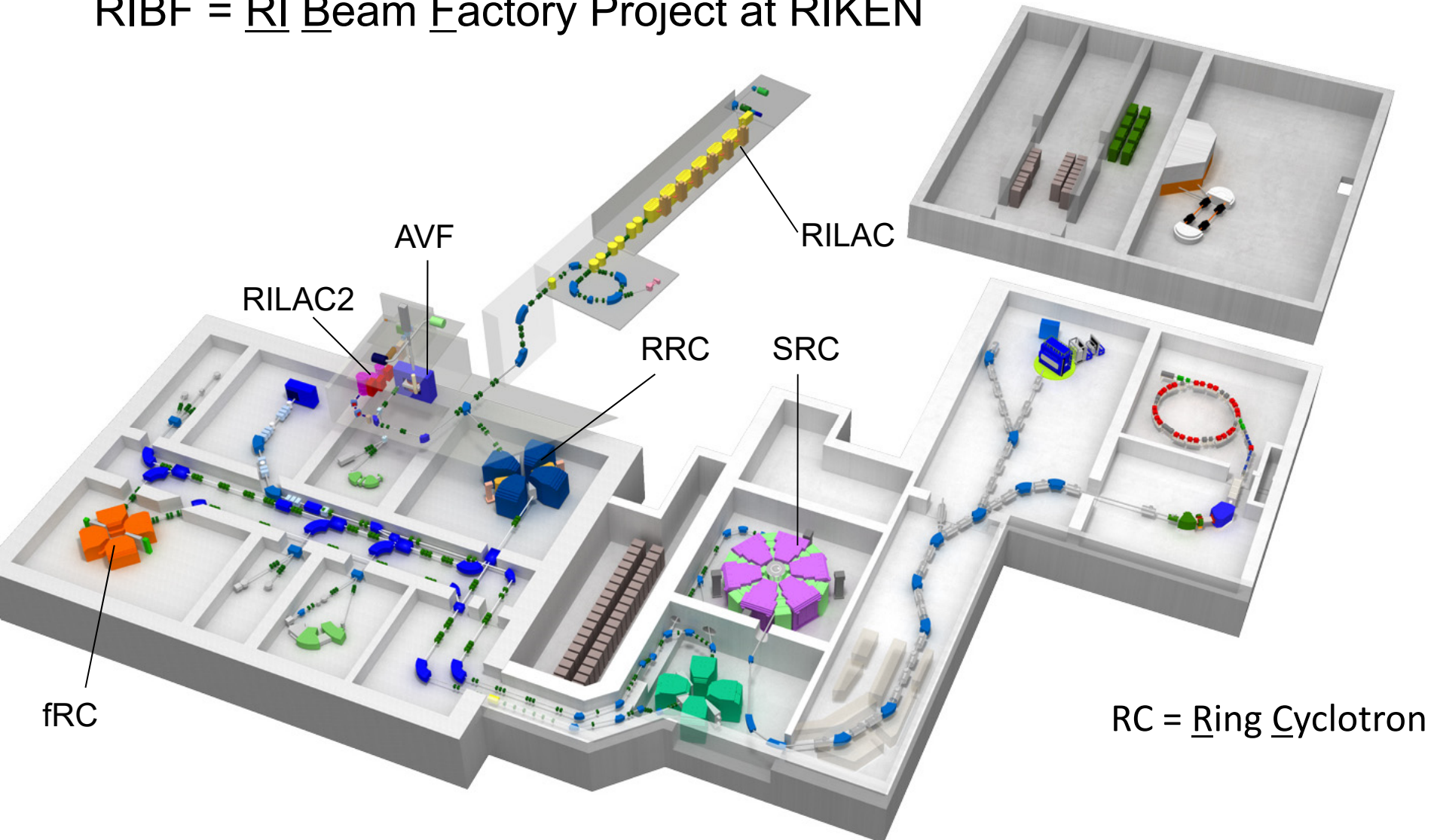
Akito UCHIYAMA, Misaki Komiyama, Nobuhisa Fukunishi

Outline

- Overview of RIBF
- Control system for RIBF
- Operational Log System
 - Zlog
 - RIBF Operational Log
 - Beam Status History
- Summary

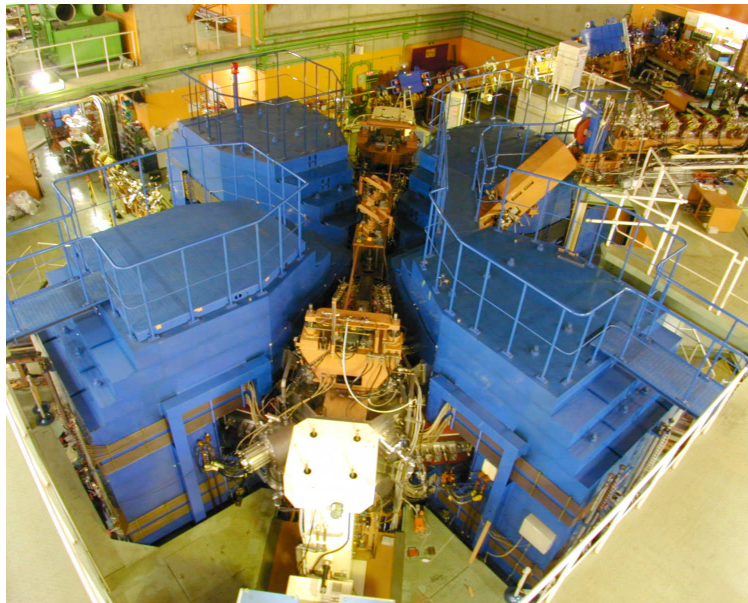
Overview of RIBF

RIBF = RI Beam Factory Project at RIKEN

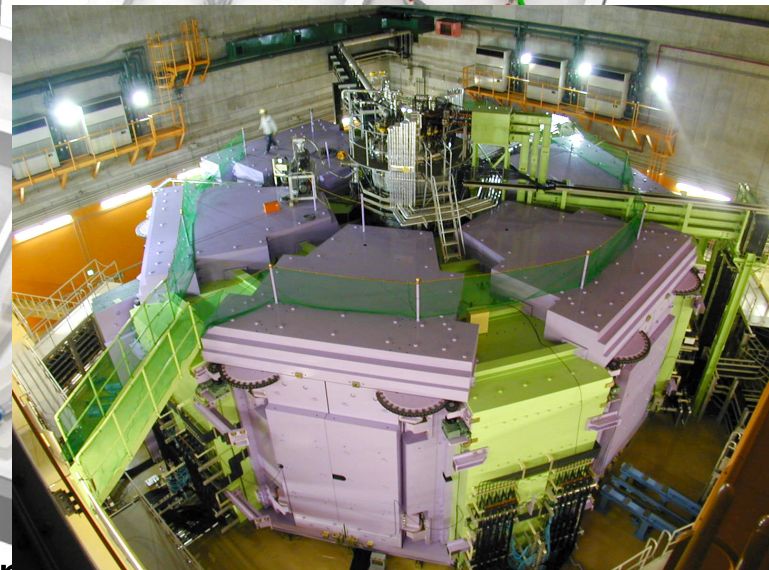
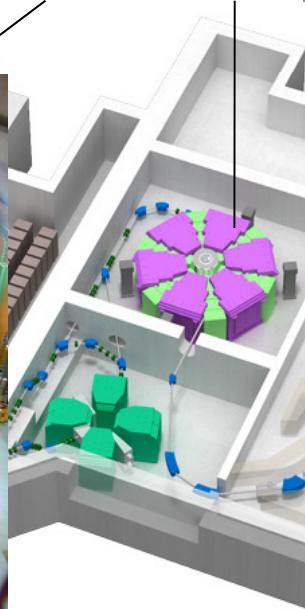
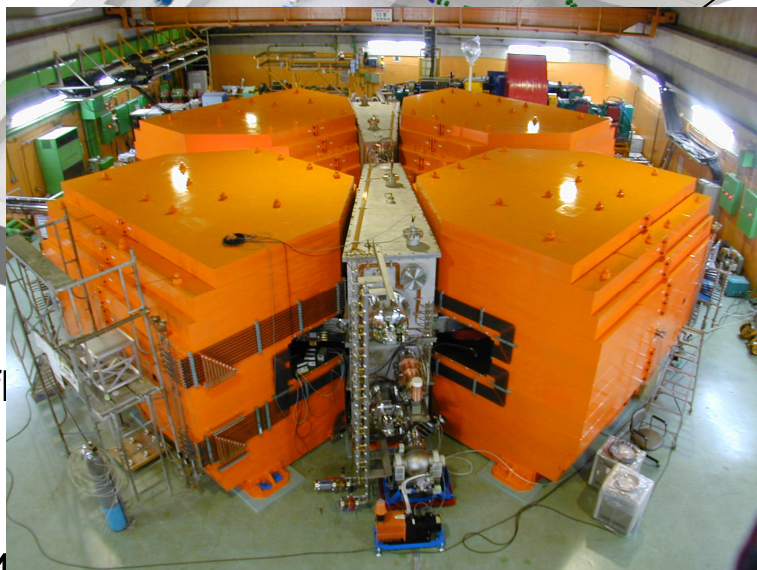
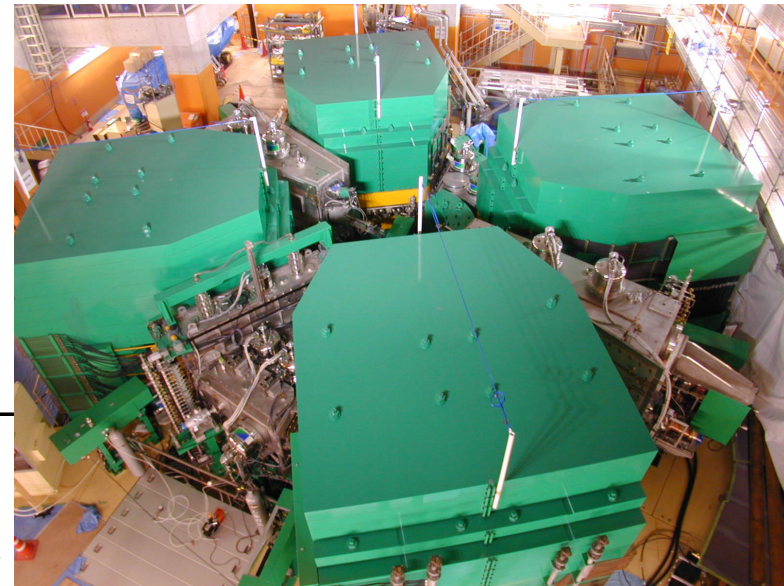
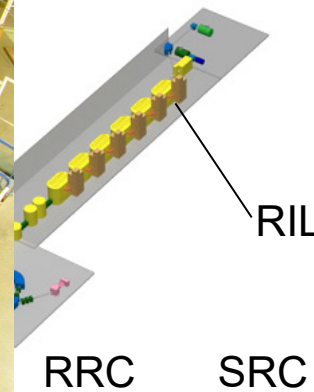


4 Ring Cyclotrons, 2 linear accelerators and AVF cyclotron.

Overview of RIBF



project

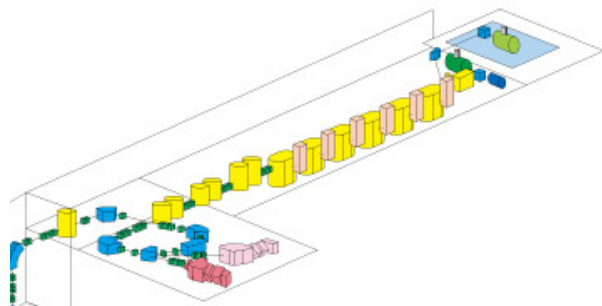


4 Ring Cyclotrons, 2 linear accelerators and AVF cyclotron.

Overview of RIBF

- Variable heavy ion beams have been provided for experiments.
- RIBF mode (RILAC2 + RRC + fRC + IRC + SRC) have been provided
* 238U, 124Xe, 48Ca, 70Zn beam = 345MeV/u.
- RILAC stand-alone mode have been provided
* 50Ti, 51V, 48Ca, 27Al, 40Ar, 70Zn, 24Mg, and 22Ne beam < 6.6 MeV/u.

New chemical element Nihonium with symbol **Nh** and atomic number **113**, were discovered in RILAC of RIBF project.



RIKEN Linear Accelerator (RILAC)

1	H	2	He	18																																											
3	Li	4	Be	13	B	14	C	15	N	16	O	17	F	18	Ne																																
d-block																																															
11	Na	12	Mg	3	4	5	6	7	8	9	10	11	12	29	Cu	30	Zn	31	Ga	32	Ge	33	As	34	Se	35	Br	36	Kr																		
19	K	20	Ca	21	Sc	22	Ti	23	V	24	Cr	25	Mn	26	Fe	27	Co	28	Ni	47	Ag	48	Cd	49	In	50	Sn	51	Sb	52	Te	53	I	54	Xe												
37	Rb	38	Sr	39	Y	40	Zr	41	Nb	42	Mo	43	Tc	44	Ru	45	Rh	46	Pd	77	Ir	78	Pt	79	Au	80	Hg	81	Tl	82	Pb	83	Bi	84	Po	85	At	86	Rn								
55	Cs	56	Ba	57	La	58	Ce	59	Pr	60	Nd	61	Pm	62	Sm	63	Eu	64	Gd	75	Re	76	Os	77	Ir	78	Pt	79	Au	80	Hg	81	Tl	82	Pb	83	Bi	84	Po	85	At	86	Rn				
87	Fr	88	Ra	89	Ac	90	Th	91	Pa	92	U	93	Np	94	Pu	95	Am	96	Cm	101	Db	102	Sg	103	Bh	104	Hs	105	Mt	106	Ds	107	Rg	112	Cn	113	Nh	114	Fl	115	Mc	116	Lv	117	Ts	118	Og
f-block																																															
				La Ce Pr Nd Pm Sm Eu Gd Tb Dy Ho Er Tm Yb																																											
				Ac Th Pa U Np Pu Am Cm Bk Cf Es Fm Md No																																											

Original picture, ScienceNews, "Four newest elements on periodic table get names"



Reference, O. Kamigaito, et al. Proc. of IPAC2016, Busan, Korea, P. 1281

It covers

- * Magnet Control
- * Beam Diagnostics
- * ECR Ion Source Control
- * Vacuum Control
- * Beam Interlock System

Komiyama-san reported
in No. TUPHA028.

Operator Interface

Other services

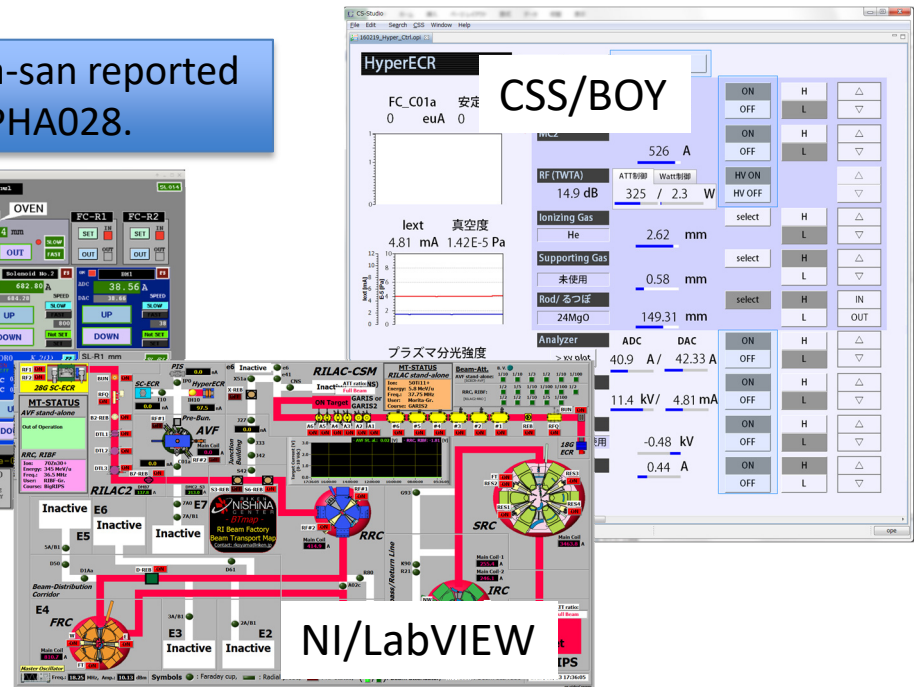
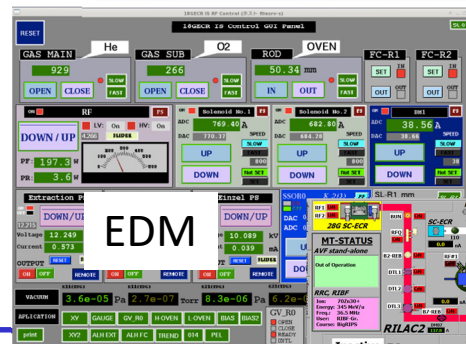
- * **Operational Log system**
- * Data archive system (PostgreSQL)
- * Management system (like IRMIS)
- * Alarm system (CSS/Beast)



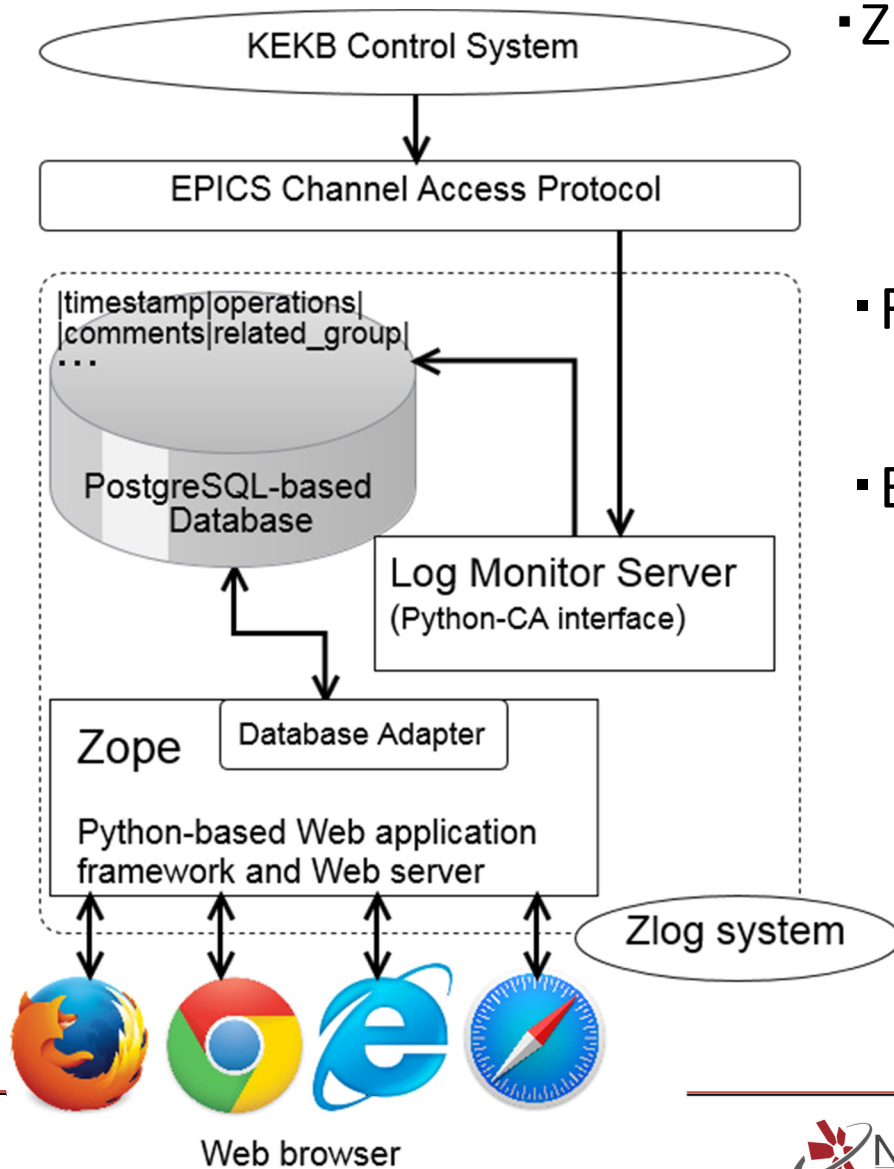
EDM

Stand Alone Control System

- RF Control (Only monitor via EPICS)
- Radiation Management System



Operational Log System (Zlog)



- Zlog has been introduced in RIBF.
Zlog = Zope-based operational **log** system.
Zlog has been developed by KEK control group.

- Frontend
Web applications provided by Zope.

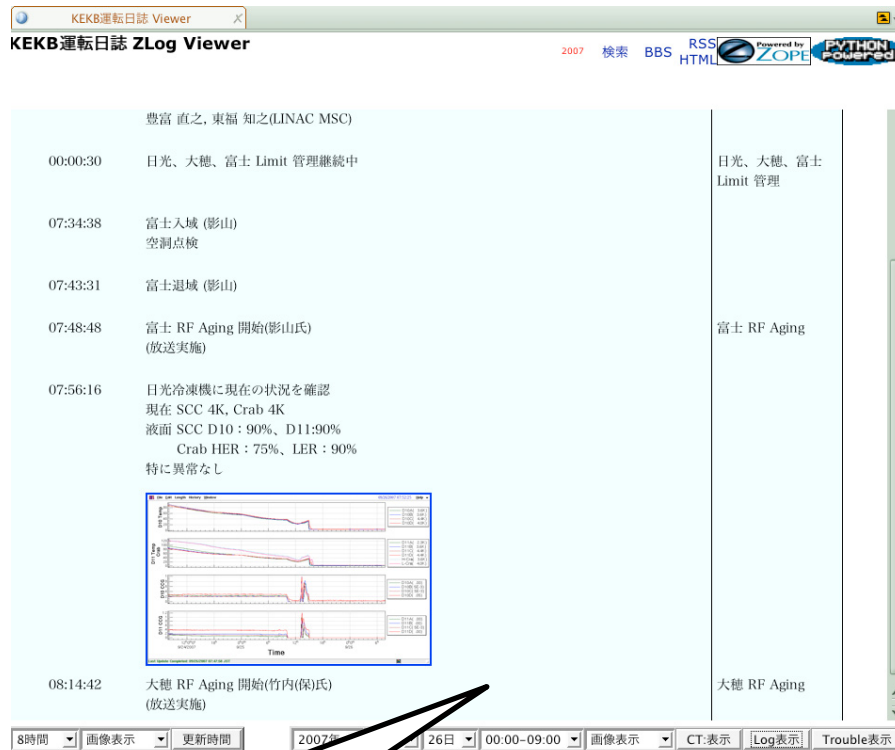
- Backend
PostgreSQL-based database.
Log Monitor Server coded in Python



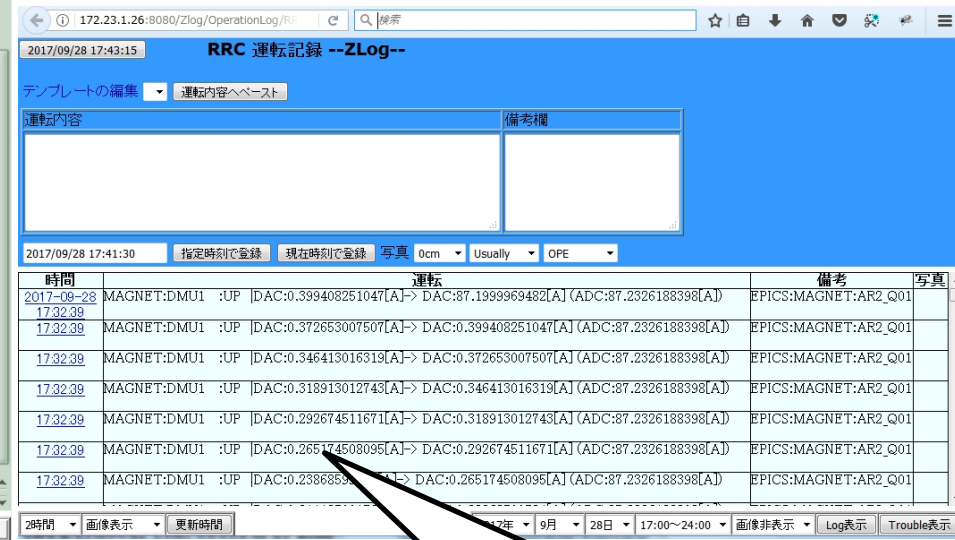
Automatically operational log Inserted
by using caMonitor.

Operational Log System (Zlog)

Zlog user interface



Log viewer for KEKB



Zlog Index page for RIBF

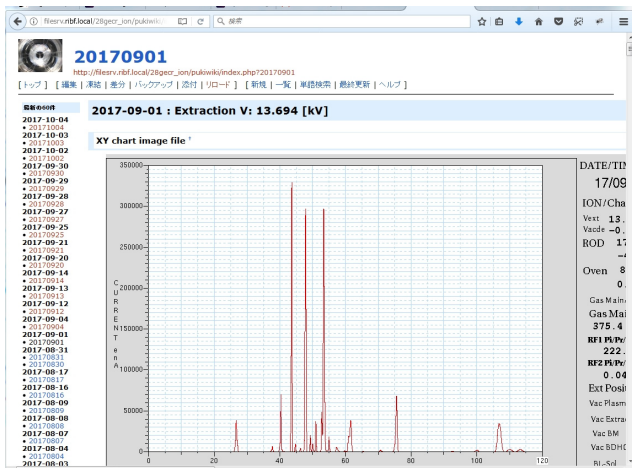
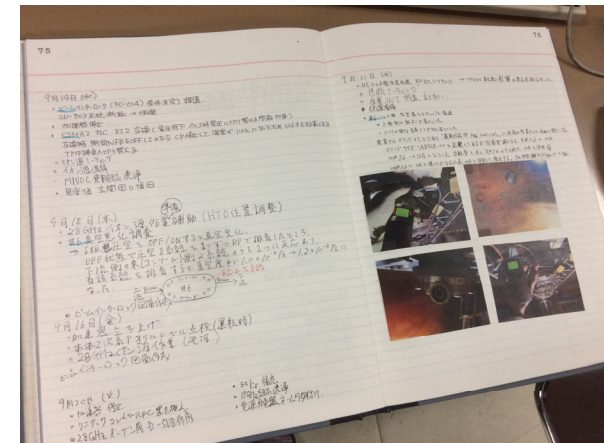
Reference, K. Yoshii et al., in Proc. ICALEPCS2007, Knoxville, Tennessee, USA, 2007, p. 299.

Operational Log System (Zlog)

In use of Zlog for RIBF,

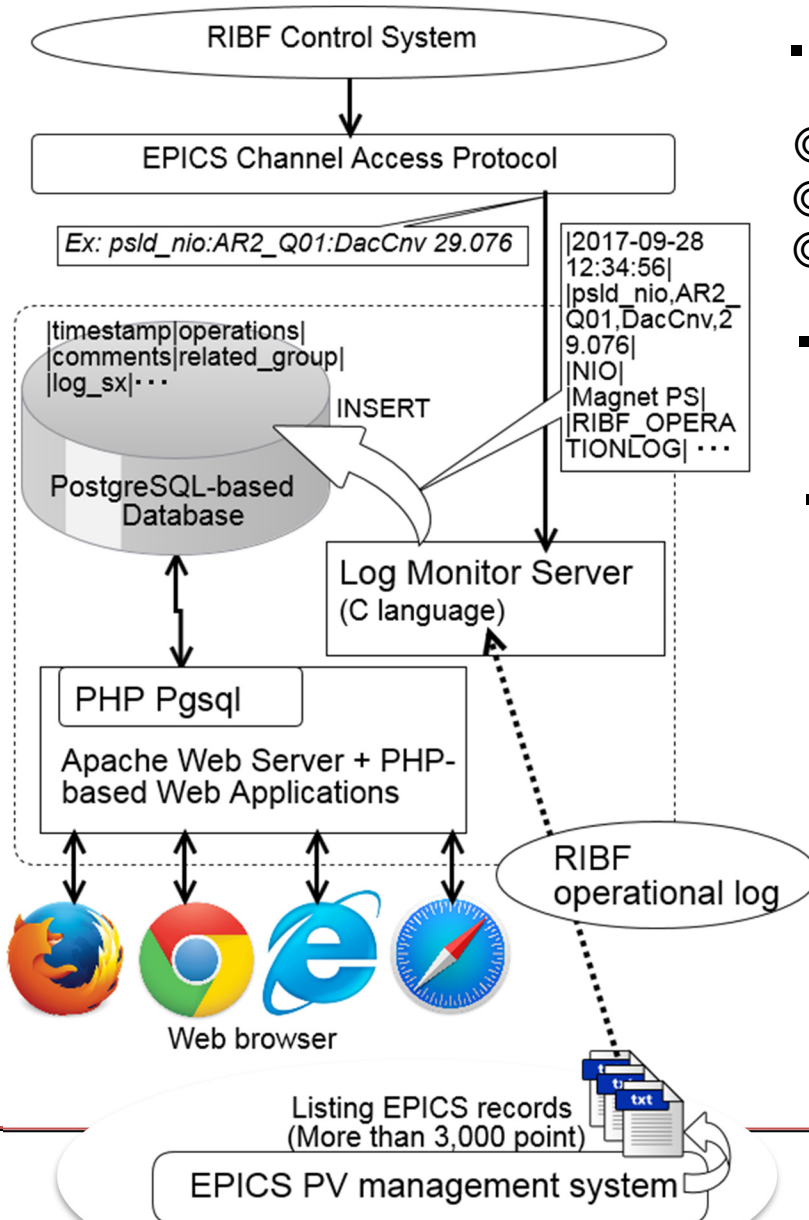
- Automatically inserted operational logs are often required.
- On the other hand, writing by hand is a little.

- * Wiki-based system and paper-based logbook are also usually utilized for comment-writing still now.
- * Various kind of user interface is required for operational log system.

Development of new RIBF operational log system

RIBF Operational Log System (Architecture)



▪ Zlog compatible system.

- ◎ Web application + Log monitor server + database
- ◎ Same table structure with Zlog database.
- ◎ Zlog user interface is available with RIBF operational log.

▪ Frontend

Web applications developed with PHP and jQuery.

▪ Backend

PostgreSQL-based database.

Log Monitor Server coded in C language

Listing more than 3,000 EPICS records using PV management system



Automatically inserted operational log is a comma-separated character string.

ex : *psld_nio,AR2_Q01,DacCnv,29.076,*

RIBF Operational Log System (User Interface)

Electromagnet power supply operation

RIBF Lognote
BEAM STATUS HISTORY
OPERATION LOG
PSLOG
COURSE INFO
CONTROL SYSTEM INFO
Logged in as Guest

RIBF OPERATION LOG
VER.1.3.8

RIBF
RRC
AVF
RILAC

MAGNET PS
BT
VACUUM
RF
ECRIS
INTERLOCK
STRIPPER
CONTROL
ALL (Raw)
Logged EPICS PVs
DB
PostgreSQL

NIO PS OPE
← 2017年05月 →
日月火水木金土
1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27

RIBF Magnet PS OPERATION 2017-05-23
CAMAC
NDIM
NIO
F3RP61
GPIB

« - 12 hours 0 1 2 3 4 5 6 7 8 9 10 11 + 12 hours »

Control Device NIO ✓ DATE: 2017-05-23 09:00:00 ~ 2017-05-23 10:00:00
Show Chart Clear Chart

DAC Operation

PS (magnet) / DATE	09:00~	09:10~	09:20~	09:30~	09:40~	09:50~
AR2_Q01 (DMU1)	⇒	⇒	0~113.52	87.2~141.05	⇒	⇒
J_S10 (SVA01b)	0.1~0.2	⇒	⇒	⇒	⇒	⇒
J_S11 (SHA02)	1.1~1.1	1.3~1.3	⇒	⇒	⇒	⇒
J_S12 (SVA02)	⇒	0.5~0.5	⇒	⇒	⇒	⇒
J_S7 (SHA01a)	2.3~2.3	2.1~2.1	⇒	⇒	⇒	⇒
J_S8 (SVA01a)	1.3~1.8	1.5~1.7	⇒	⇒	⇒	⇒
J_S9 (SHA01b)	0~0	0.1~0.4	⇒	⇒	⇒	⇒

PS Status

DATE	PS (magnet)	Status
06:00:02	NIO I_T3S (IRC_T3S)	Remote Off More
06:00:02	NIO I_T1W (IRC_T1W)	Remote Off More
06:00:12	NIO I_T3S (IRC_T3S)	Remote Off More

EPICS PVs名で検索
Search

日付からリスト一覧(AVF/RRC/RIBFコース全て)

現在EPICSで選択されているコースID
AVF ID 21 SCECR-AVF-E7B
RRC ID 18 SCECR-AVF-RRC-E6
RIBF ID 0

検索するコースIDと日付の指定
18 SCECR-AVF-R RRC/AVF
0 None RIBF
2017-10-03_6:00
オペレーション1日検索
1ヵ月検索 (約2分かかります)

RIBF Operational Log System (User Interface)

Electromagnet power supply operation

Search by
device type

RIBF Magnet PS OPERATION 2017-05-23

CAMAC NDIM **NIO** F3RP61 GPIB

« - 12 hours 0 1 2 3 4 5 6 7 8 9 10 11 + 12 hours »

⚙ Control Device **NIO** ✓ DATE: 2017-05-23 09:00:00 ~ 2017-05-23 10:00:00

Show Chart ▼ Clear Chart

DAC Operation

PS (magnet) / DATE	09:00~	09:10~	09:20~	09:30~	09:40~	09:50~
AR2_Q01 (DMU1)	⇒	⇒	0~113.52	87.2~141.05	⇒	⇒
J_S10 (SVA01b)	0.1~0.2	⇒	⇒	⇒	⇒	⇒
J_S11 (SHA02)	1.1~1.1	1.3~1.3	⇒	⇒	⇒	⇒
J_S12 (SVA02)	⇒	0.5~0.5	⇒	⇒	⇒	⇒

RIBF Operational Log System (User Interface)

Electromagnet power supply operation

RIBF Magnet PS OPERATION 2017-05-23
 CAMAC NDIM **NIO** F3RP61 GPIB

« - 12 hours 0 1 2 3 4 5 6 7 8 9 10 11 + 12 hours »

⚙ Control Device **NIO** ✓ DATE: 2017-05-23 09:00:00 ~ 2017-05-23 10:00:00

Show Chart ▼ Clear Chart

DAC Operation

PS (magnet) / DATE	09:00~	09:10~	09:20~	09:30~	09:40~	09:50~
AR2_Q01 (DMU1)	⇒	⇒	0~113.52	87.2~141.05	⇒	⇒
J_S10 (SVA01b)	0.1~0.2	⇒	⇒	⇒	⇒	⇒
J_S11 (SHA02)	1.1~1.1	1.3~1.3	⇒	⇒	⇒	⇒
J_S12 (SVA02)	⇒	0.5~0.5	⇒	⇒	⇒	⇒

Search by operation time

RIBF Operational Log System (User Interface)

Electromagnet power supply operation

RIBF Magnet PS OPERATION 2017-05-23

CAMAC

NDIM

NIO

F3RP61

GPIB

« - 12 hours

0

1

2

3

4

5

6

7

8

9

10

11

+ 12 hours »

⚙ Control Device **NIO** ✓ DATE: 2017-05-23 09:00:00 ~ 2017-05-23 10:00:00

Show Chart ▾

Clear Chart

DAC operation
for 10min

DAC Operation

PS (magnet) / DATE	09:00~	09:10~	09:20~	09:30~	09:40~	09:50~
AR2_Q01 (DMU1)	⇒	⇒	0~113.52	87.2~141.05	⇒	⇒
J_S10 (SVA01b)	0.1~0.2	⇒	⇒	⇒	⇒	⇒
J_S11 (SHA02)	1.1~1.1	1.3~1.3	⇒	⇒	⇒	⇒
J_S12 (SVA02)	⇒	0.5~0.5	⇒	⇒	⇒	⇒

RIBF Operational Log System (User Interface)

Electromagnet power supply operation

DATE: 2017-05-23 09:00:00 ~ 2017-05-23 10:00:00

09:00~	09:10~	09:20~	09:30~	09:40~	09:50~
⇒	⇒	<u>0~118.52</u>	87.2~141.05	⇒	⇒
⇒	⇒	⇒	⇒	⇒	⇒
⇒	⇒	⇒	⇒	⇒	⇒
⇒	⇒	⇒	⇒	⇒	⇒
⇒	⇒	⇒	⇒	⇒	⇒
⇒	⇒	⇒	⇒	⇒	⇒
⇒	⇒	⇒	⇒	⇒	⇒
⇒	⇒	⇒	⇒	⇒	⇒
⇒	⇒	⇒	⇒	⇒	⇒

② 日付からリスト一覧(AVF/RRC/RIBFコース全て)

現在EPICSで選択されているコースID

AVF ID 21 SCECR-AVF-E7B

RRC ID 18 SCECR-AVF-RRC-E6

RIBF ID 0

検索するコースIDと日付の指定

When click, all operational logs for that time range are displayed.

AR2_Q01 OPE HISTORY

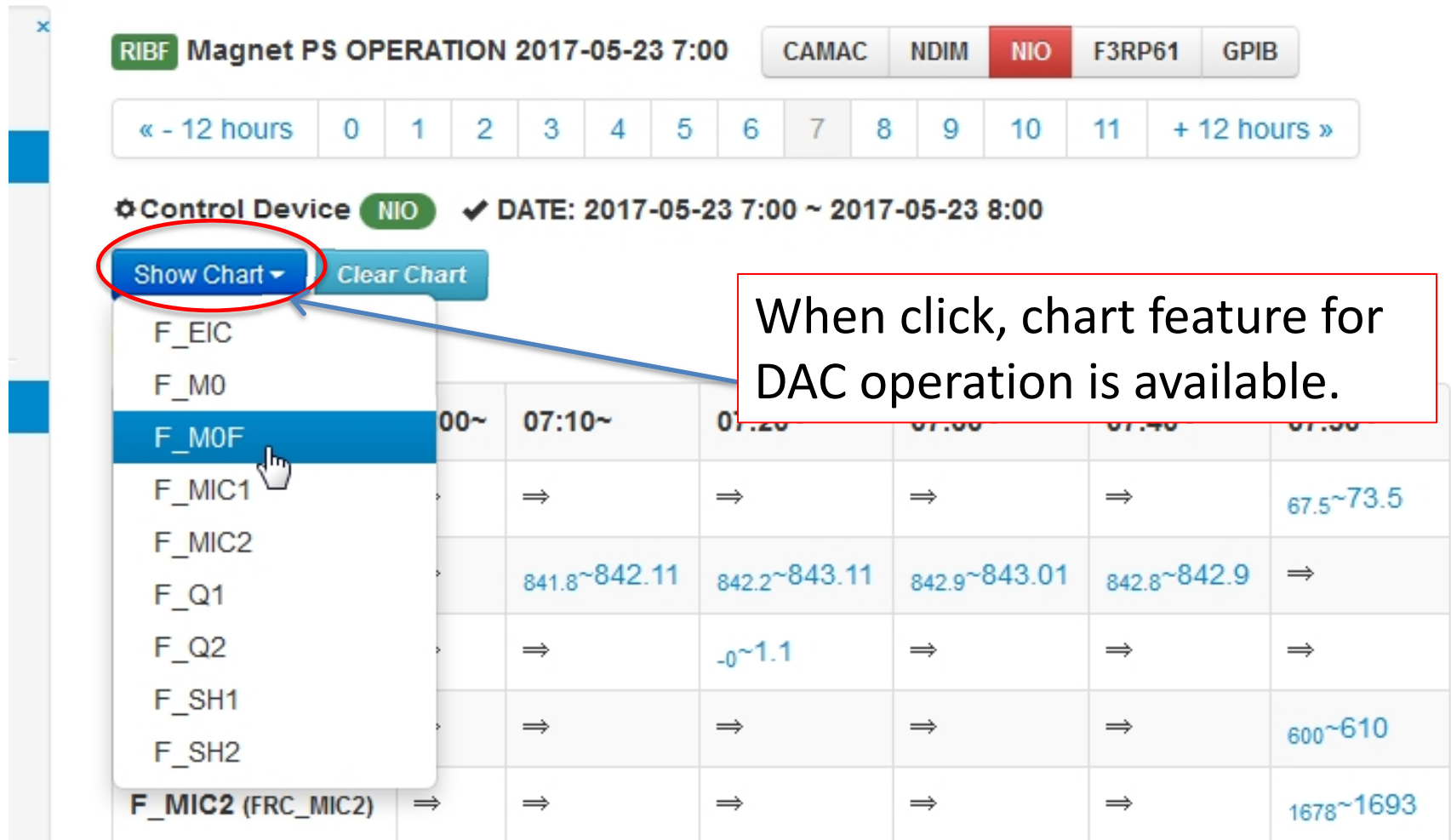
05/23 09:22:06 DAC 85.6086 [A]
 05/23 09:22:06 DAC 83.1204 [A]
 05/23 09:22:06 DAC 82.0545 [A]
 05/23 09:22:07 DAC 79.9260 [A]
 05/23 09:22:07 DAC 81.7014 [A]
 05/23 09:22:07 DAC 77.4378 [A]
 05/23 09:22:07 DAC 79.5696 [A]
 05/23 09:22:07 DAC 75.3060 [A]
 05/23 09:22:07 DAC 74.5965 [A]
 05/23 09:22:07 DAC 68.2011 [A]
 05/23 09:22:07 DAC 69.2670 [A]

gnet)	Status
F3S (IRC_T3S)	Remote Off More
F1W (IRC_T1W)	Remote Off More
F3S (IRC_T3S)	Remote Off More
F3E (IRC_T3E)	Remote Off More
F2W (IRC_T2W)	Remote Off More

ionlog&start_time=2017-10-03_6:00&end_time=2017-10-03_7:00&key1=psld_nio&key2=DacCnv&device=NIO#

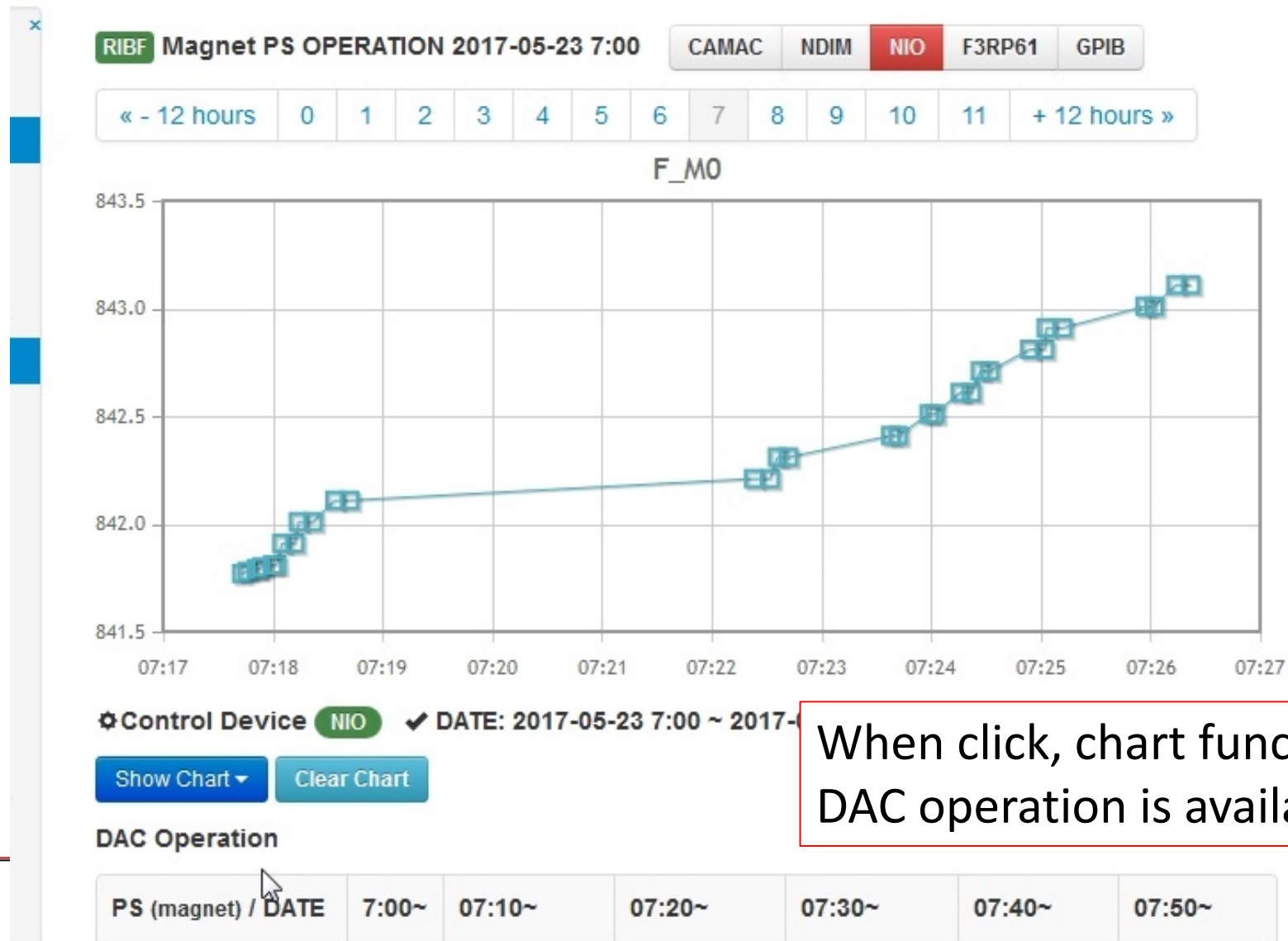
RIBF Operational Log System (User Interface)

Electromagnet power supply operation



RIBF Operational Log System (User Interface)

Electromagnet power supply operation



When click, chart function for DAC operation is available.

RIBF Operational Log System (User Interface)

Electromagnet power supply operation

8:00 CAMAC NDIM **NIO** F3RP61 GPIB

5 6 7 8 9 10 11 + 12 hours »

-05-8 8:00 ~ 2017-05-8 9:00

Search by EPICS record

EPICS PVs名で検索

Search

日付からリスト一覧(AVF/RRC/RIBFコース全て)

現在EPICSで選択されているコースID

AVF ID 21 SCECR-AVF-E7B

18 SCECR-AVF-RRC-E6

検索するコースIDと日付の指定

18 SCECR-AVF-R ▼ RRC/AVF

0 None ▼ RIBF

2017-05-8_8:00

オペレーション1日検索

1ヵ月検索 (約2分かかります)

08:10~	08:20~	08:30~	08:40~	08:50~
⇒	⇒	⇒	115.2~116.7	115.2~115.2
⇒	⇒	⇒	83~83.1	82.7~83.1
⇒	⇒	⇒	⇒	65.6~66
⇒	⇒	⇒	68.7~68.9	⇒
⇒	⇒	⇒	⇒	-1.7~1.7
⇒	3~3.05	3~3.05	3~3.05	3~3.06

RIBF Operational Log System (User Interface)

Electromagnet power supply operation

PSLOG COURSE INFO CONTROL SYSTEM INFO Logged in as Guest

3:00 CAMAC NDIM **NIO** F3RP61 GPIB

5 6 7 8 9 10 11 + 12 hours »

05-8 8:00 ~ 2017-05-8 9:00

08:10~	08:20~	08:30~	08:40~	08:50~
⇒	⇒	⇒	115.2~116.7	115.2~115.2
⇒	⇒	⇒	83~83.1	82.7~83.1
⇒	⇒	⇒	⇒	65.6~66
⇒	⇒	⇒	⇒	⇒
⇒	⇒	⇒	⇒	⇒
3~3.05	3~3.05	3~3.05	3~3.05	3~3.06
⇒	52~52.2	⇒	⇒	⇒

Autocomplete feature is available.

EPICS PVs名で検索

Search psld_nio.

psld_nio:AR2_Q01:A_DacCn
psld_nio:AR2_Q01:DacCnv
psld_nio:AR2_Q01:Status
psld_nio:AR2_Q02:A_DacCn
psld_nio:AR2_Q02:DacCnv
psld_nio:AR2_Q02:Status
psld_nio:AR2_Q11:A_DacCn
psld_nio:AR2_Q11:DacCnv
psld_nio:AR2_Q11:Status
psld_nio:AR2_Q12:A_DacCn
psld_nio:AR2_Q12:DacCnv
psld_nio:AR2_Q12:Status
psld_nio:AR2_Q13:A_DacCn
psld_nio:AR2_Q13:DacCnv
psld_nio:AR2_Q13:Status

現在EPIK
AVF ID 2
RRC ID
RIBF ID
検索す
18 SC
0 None
2017-0
オペレ
1ヵ月検

CENTER

RIBF Operational Log System (User Interface)

Electromagnet power supply operation

RIBF View Last Updated PS Operation (2017-05-22 07:00 ~ 2017-05-23 7:00) Clear CSV GET

	LAST Update	PS Name	Magnet Name	DAC VAL [A]
RRC/AVF ID	2017-05-23 02:44:52	RP IR2_S15	SHU0	0.5600
RRC/AVF ID	2017-05-23 02:44:26	RP IR2_S16	SVU0	-3.46945e-18
RRC/AVF ID	2017-05-23 02:04:14	NIO AR2_Q01	DMU1	87.2400
RRC/AVF ID	2017-05-23 02:45:16	RP IR2_S17	SHU10	0.4500
RRC/AVF ID	2017-05-23 02:45:29	RP IR2_S18	SVU10	0.0500
RRC/AVF ID	2017-05-23 04:42:01	NIO AR2_Q11	SOU11ab	229.0000
RRC/AVF ID	2017-05-23 04:42:03	RP IR2_S11	QQB12a	7.4000
RRC/AVF ID	2017-05-23 04:42:12	RP IR2_S12	QQB12b	22.6000
RRC/AVF ID	2017-05-23 04:42:16	RP IR2_S13	QQB12c	30.0000
RRC/AVF ID	2017-05-23 04:42:22	RP IR2_S14	QQB12d	25.0000
RRC/AVF ID	2017-05-23 02:47:42	RP IR2_S21	SHB12a	2.77556e-17
RRC/AVF ID	2017-05-23 02:48:18	RP IR2_S22	SVB12a	0.1500
RRC/AVF ID	2017-05-23 02:48:05	RP IR2_S23	SHB12b	0.1000
RRC/AVF ID	2017-05-23 02:49:44	RP IR2_S24	SVB12b	1.0400
RRC/AVF ID	2017-05-23 04:41:37	NIO AR2_Q12	SOB13ab	212.8000
RRC/AVF ID	2017-05-23 04:41:21	NIO AR2_Q13	QDB21a	151.0000
RRC/AVF ID	2017-05-23 04:41:26	NIO AR2_Q14	QDB21b	124.8000

EPICS PVs名で検索

Search

日付からリスト一覧(AVF/RRC/RIBFコース全て)

現在EPICSで選択されているコースID

AVF ID 21 SCECR-AVF-E7B

RRC ID 18 SCECR-AVF-RRC-E6

RIBF ID 0

検索するコースIDと日付の指定

50 28G-RILAC2-R RRC/AVF

1 IRC_SRC_BigRII RIBF

2017-05-23_7:00

オペレーション1日検索

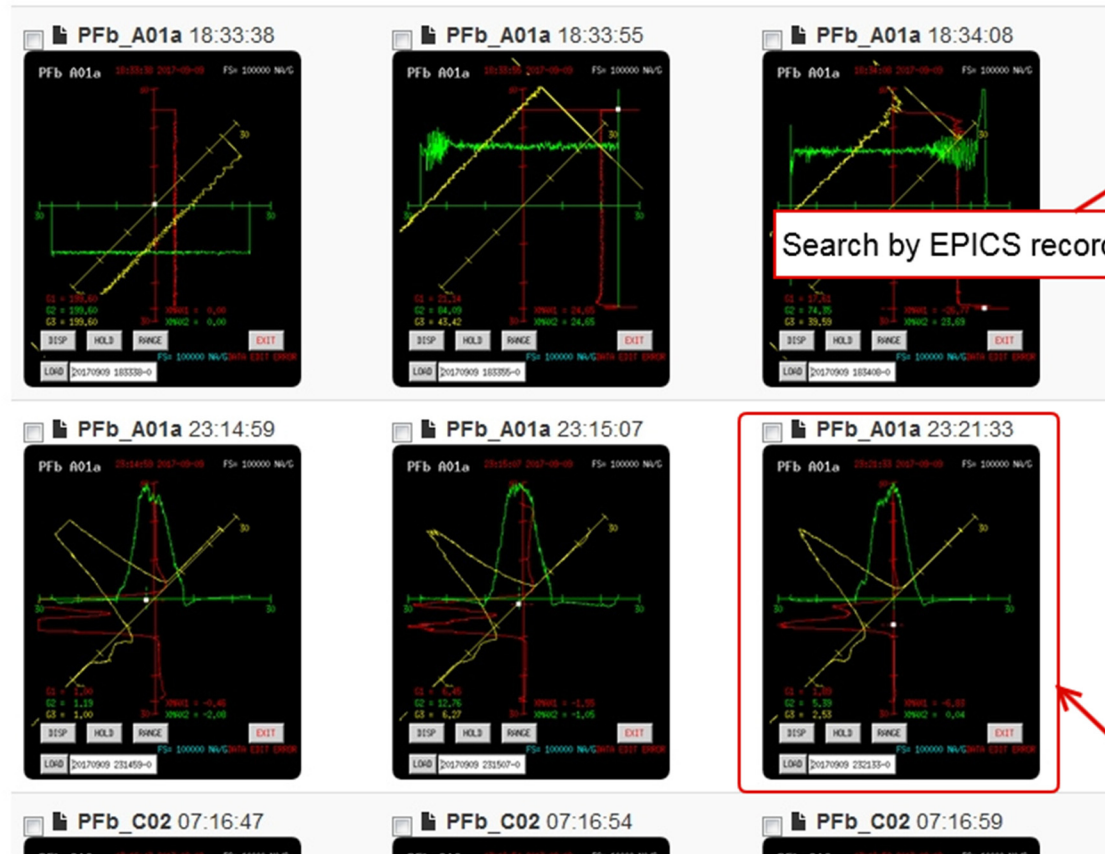
1か月検索 (約2分かかります)

Display all operational log as list for one day.

RIBF Operational Log System (User Interface)

Beam diagnostics device operation

Beam Profile Monitor Image (2017-09-9)



デバイスの選択

PF FC SLIT ATT

EPICS PVs名で検索

2017-09-28_23:00

オペレーション検索

Beam Profile Monitor Operation
(2017-09-9) RRC

TIME	OPERATION
23:26:13	Profile PFb_S23 set
23:26:09	Profile PFb_S31b set
23:26:04	Profile PFb_S41 set
23:26:03	Profile PFb_S61 set
23:25:59	Profile PFb_S71 set
23:25:58	Profile PFb_S64 set
23:21:31	Profile PFb_A01a set
23:21:30	Profile PFb_RRC_EBM s

Not only the operational logs but also measured data is displayed.

RIBF Operational Log System (User Interface)

Beam diagnostics device operation

te BEAM STATUS HISTORY OPERATION LOG PSLOG COURSE INFO CONTROL SYSTEM INFO Logged in					
RIBF Faraday Cup OPERATION (2017-10-2)					
TIME	FC TYPE	FC NAME	OLD STATUS	OPERATION	
16:53:33	NDIM	FC_T21	Moving ...(16:53:32) →	SET	
16:53:32	NDIM	FC_T21	OUT(16:53:31) →	Moving ...	
16:53:31	NDIM	FC_T21	Moving ...(16:53:29) →	OUT	
16:53:29	NDIM	FC_T21	SET(16:53:28) →	Moving ...	
16:53:28	NDIM	FC_T11	Moving ...(16:53:26) →	SET	
16:53:26	NDIM	FC_T11	OUT(16:53:25) →	Moving ...	
16:53:25	NDIM	FC_T11	Moving ...(16:53:23) →	OUT	
16:53:23	NDIM	FC_T21	(Yesterday) →	SET	
16:53:23	NDIM	FC_T11	(Yesterday) →	Moving ...	
16:53:20	NDIM	FC_G01b	Moving ...(16:53:19) →	SET	
16:53:20	NDIM	BF_SEBM	Moving ...(16:53:19) →	SET	
16:53:19	NDIM	FC_G01b	OUT(16:53:16) →	Moving ...	
16:53:19	NDIM	BF_SEBM	OUT(16:53:16) →	Moving ...	

デバイスの選択

PF FC SLIT ATT

EPICS PVs名で検索

2017-10-05_08:00

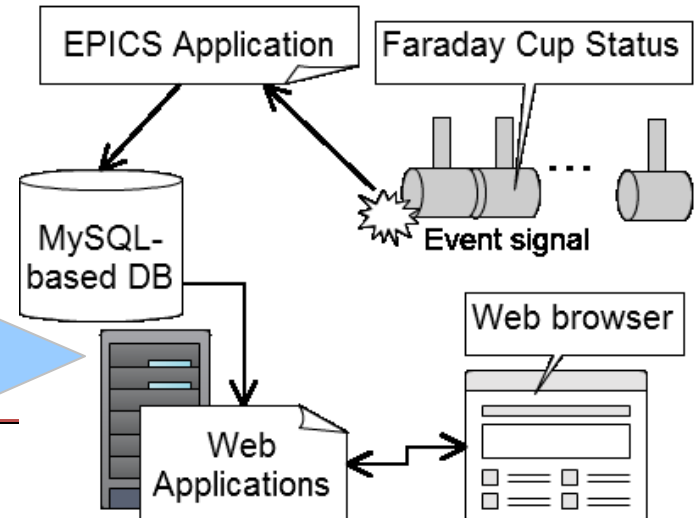
オペレーション検索

Faraday cup operational logs (Set or Out or Moving)

Faraday cup operation monitoring is closely related to measurement of the beam service time; therefore, we also implement another dedicated system.

Beam Status History

- ◎ Visualization system for beam service time by using Faraday cup operational logs.
 - Faraday cup is a destructive beam monitor, is utilized for beam current measurement in RIBF.
- ◎ Beam availability is an essential factor for performance of accelerator.
- ◎ Beam service time is measured automatically by Beam Status History System.
 - When beam service interruption occurs because of hardware troubles of the accelerators, etc., the top priority is fixing the problem and resuming the beam service again as soon as possible.
 - Previously, hand-written log note book was used.
- ◎ As event signal, Faraday cup status (Set or Out) is used.
- ◎ The events are stored into MySQL-based database.
- ◎ The Web applications are developed with JavaScript chart library and JQuery.
- ◎ Same concept with Zlog
 - Log monitor server + Web application + RDB



Beam Status History (User Interface)

http://www...8437.d.dGY x Login complete - WebM... x B RIBF Logbook by Boots... x +

ope_log.ribf.local/beam_status_v2/history_ribf.html#

RIBF Lognote BEAM STATUS HISTORY OPERATION LOG COURSE INFO CONTROL SYSTEM INFO CONTACT Logged in as Guest

Mail 1直 Mail 2直 Mail Clear 履歴表示 (非表示)

20141019 $^{238}\text{U}^{86+}$ 345 MeV/u 36.5 MHz BigRIPS Gr

BEAM ON TARGET
RIBF/RRC
AVF
RILAC

BEAM STATUS HISTORY
VER. 2.2.1

RIBF
AVF
RILAC

TRIGGERED PVS LIST

AVAILABILITY
RIBF
AVF
RILAC

CONFIGURATION
要認証
RIBF config
AVF config
RIBF/AVF course
RILAC config

ID	ユーザ	停止時間 (Beam OFF)	再開時間 (Beam ON)	中断時間 (OFF~ON 間)	Trigger	コメント欄
	BigRIPS		09:35:04			
1	✓	09:37:43	09:38:03	00:00:20	FC_K51	
2	✓	09:42:03	09:44:19	00:02:16	FC_BRPSF0	
3	✓	09:47:46	09:53:03	00:05:17	FC_G01b	
4	✓	10:03:36	10:25:46	00:22:10	FC_BRPSF0	
5	✓	10:34:09	10:45:16	00:11:07	FC_G01b	User
6	✓	10:58:41	10:58:46	00:00:05	FC_U10	10:57にBIS: BRPS_PRIMが立ち、BISをリセットしても解除されない。FC_U10を入れてビームが居ることを確認。
7	✓	11:12:54	11:13:17	00:00:23	FC_K51	IRC/RFDWN
8	✓	12:05:21	12:15:10	00:09:49	FC_G01b	User
9	✓	13:00:13	13:25:09	00:24:56	FC_U10	SRC RES#2 DOWN. IRC, SRCインクロ確認。トランスミッション確認。
10	✓	13:25:10	13:29:42	00:04:32	FC_G01b	SRC-RF DOWN
11	✓	13:36:23	13:39:16	00:02:53	FC_G01b	User
12	✓	13:42:20	13:47:30	00:05:10	FC_G01b	User
13	✓	14:05:04	14:25:54	00:20:50	FC_U10	User
14	✓	14:46:29	14:54:23	00:07:54	FC_U10	User

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Beam Status History (User Interface)

Input Comment
(Not Automatic)

Beam ON or OFF

Beam Service Time
&
Beam On/Off Time

Trrigered Faraday
Cup Name

http://www...8437.d.dGY x Login complete - WebM... x RIBF Logbook by Boots... x +

ope_log.ribf.local/beam_status_v2/history_ribf.html#

OPERATION LOG COURSE INFO CONTROL SY

Mail 1直 Mail 2直 Mail Clear 履歴表示 (非表示)

20141019 ²³⁸U⁸⁶⁺ 345 MeV/u 36.5 MHz BigRIPS Gr

ID	ユーザ	停止時間 (Beam OFF)	再開時間 (Beam ON)	中断時間 (OFF~ON 間)	Trigger
	BigRIPS		09:35:04		
1	✓	09:37:43	09:38:03	00:00:20	FC_K51
2	✓	09:42:03	09:44:19	00:02:16	FC_BRPSF0
3	✓	09:47:46	09:53:03	00:05:17	FC_G01b
4	✓	10:03:36	10:25:46	00:22:10	FC_BRPSF0
5	✓	10:34:09	10:45:16	00:11:07	FC_G01b User
6	✓	10:58:41	10:58:46	00:00:05	FC_U10 10:57にBIS: BRPS_PRIMが立ち、BISをリセットしても解除されない。FC_U10を入れてビームが居ることを確認。
7	✓	11:12:54	11:13:17	00:00:23	FC_K51 IRC/RFDWN
8	✓	12:05:21	12:15:10	00:09:49	FC_G01b User
9	✓	13:00:13	13:25:09	00:24:56	FC_U10 SRC RES#2 DOWN。IRC, SRCインクロ確認。トランスミッション確認。
10	✓	13:25:10	13:29:42	00:04:32	FC_G01b SRC-RF DOWN
11	✓	13:36:23	13:39:16	00:02:53	FC_G01b User

User

10:57にBIS: BRPS_PRIMが立ち、BISをリセットしても解除されない。FC_U10を入れてビームが居ることを確認。

IRC/RFDWN

User

SRC RES#2 DOWN。IRC, SRCインクロ確認。トランスミッション確認。

SRC-RF DOWN

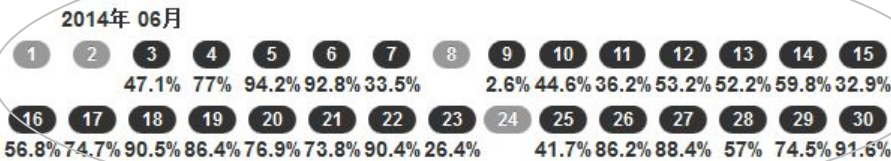
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FC_G01b

FC_F01b

FC_F51

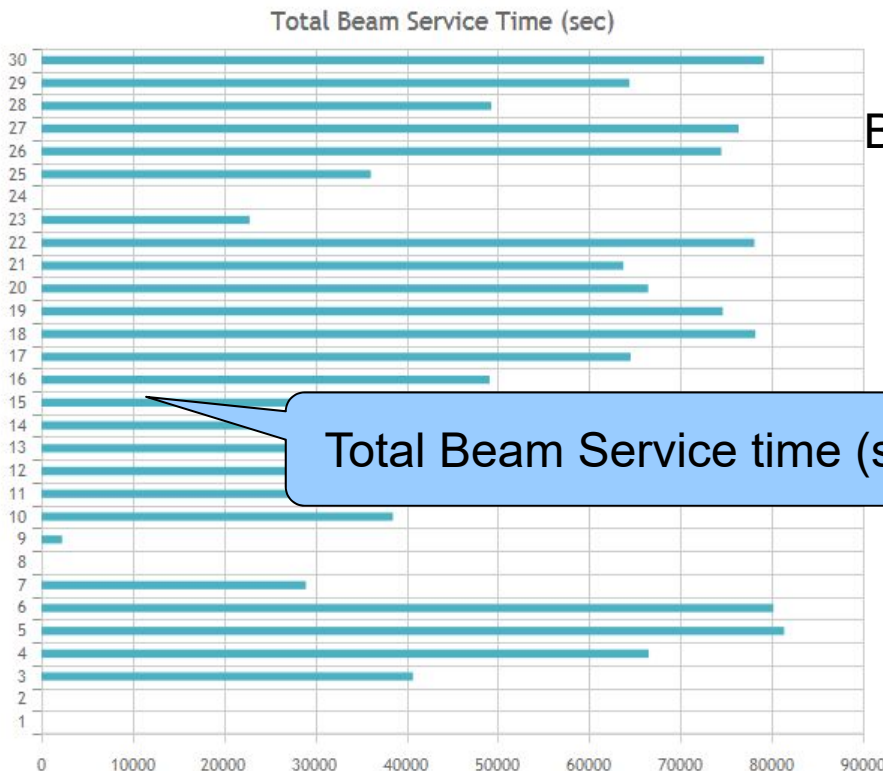
Beam Status History (User Interface)



Beam-On-Time Ratio

We can check the Beam Availability more easily than before.

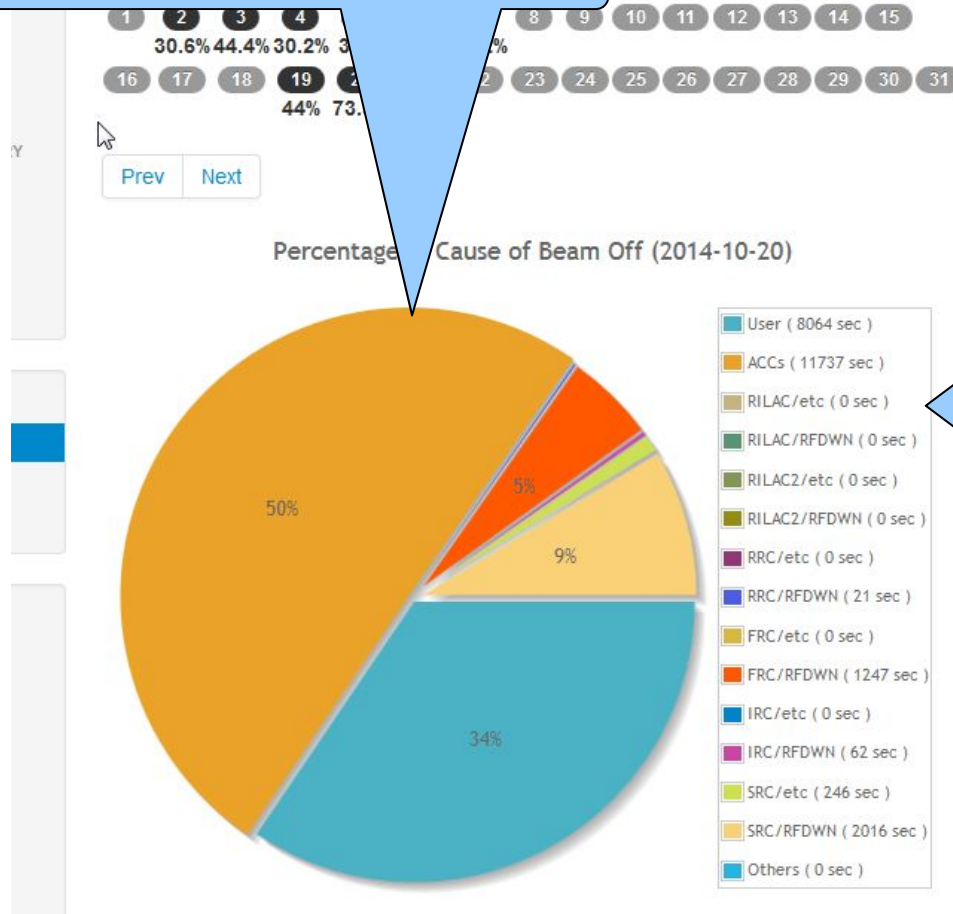
$$\text{Beam Availability} = \frac{\text{Beam Service Time}}{\text{Beam Request Time}}$$



Total Beam Service time (second) in 1 day are shown by bar chart.

Beam Status History (User Interface)

Ratio in cause of beam-off



We can check the accelerator's conditions more easily than before.

Beam-off time are calculated by input comments.

時間 (ON間)	Trigger	コメント欄
		Auto generated: Keep beam-on-target.
		ACCs
0:05	FC_F51	ACCs
0:28	FC_F51	FRC/RFDWN
0:23	FC_G50	SRC/etc
0:45	FC_G01b	ACCs
0:34	FC_G01b	SRC/RFDWN
0:15	FC_F51	FRC/RFDWN
0:20	FC_S71	RRC/RFDWN
0:27	FC_G01b	ACCs
0:11	FC_G01b	User
	FC_G01b	User

Results of Implementation

- To restore the previous parameters during the beam tuning, the accelerator operators utilize the RIBF operational log.
- It allows easy comparison of all past parameters, such as the electromagnet power supplies, with the current parameters.
- When some trouble, the operator can restore the accelerator condition as soon as possible.
- More than 3,000 EPICS record are monitored without problem.

Summary

- We have developed a new Web-based RIBF operational log system, which is compatible with Zlog, based on requests from the RIBF accelerator operators.
- It has provide various user interface for the operational log.
- In the case of problems during beam tuning in particular, it is useful for analyzing and restoring.

Thank you