

Fun and Excitement with Local Histories

Part 1. (TINE Workshop)

HW DAQ, number crunching, “finished product” goes in **Central Archiver**
save RAW DATA in **Local History** for Offline Analysis

Part 2. (Now! Yahoo!)

HW DAQ at 6 Hz (DESY-2 Rep Rate)
mostly boring: most cycles are the same,
but any exceptional cycles are Interesting!!!
so need to keeping EVERYTHING for “event” analysis

Quick Review

- Central Archiving
 - Data collected centrally, filtered (z.B. on machine state), stored forever
- Local Histories:
 - Organize storage yourself, decide how long you want to keep the data
 - Keep EVERYTHING for DEBUGGING!!!!!!

(1) FILE STORAGE

(2) Ring Buffer (RAM)

Using (long-term) **FILE** and (short-term) **MEMORY** Storage

- Traces are important for “Pulsed” Components (beam currents, kickers, cycling magnets)
- Their curves are **NORMALLY** unchanging from one accelerator cycle to the next
- But some machine pulses have “problems” and the information from all components is needed to find the cause of the problem
- So **ALL** traces need to be stored for **ALL** pulses, but not for **VERY LONG**

An example History Config File

Microsoft Excel - history.csv

File Edit View Insert Format Tools Data Window Help

Type a question for help

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Reply with Changes... End Review...

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Index	Export Name	Local Name	Property	Device	Data Length	Format	Heartbeat	Polling Rate	Archive Rate	Tolerance	Short Depth	Long Depth	Remote Server
# id	export nam	eqpnam	eqpprp	devnam	array len	type	seconds	seconds	seconds	abs. or %	seconds	minutes	
#int	char*16	char*6	char*32	char*16	int	char	int	int	int	float	int	int	
1	L2lwegl	AADCEQ	B_Baseline	#0	12	float	180	1	1	0.001	10	4	
2	L2lwegl	AADCEQ	B_Max	#0	12	float	180	1	1	0.005	10	4	
6	L2lwegl	AADCEQ	BT_Baseline	#0	12	float	180	1	1	0.1	10	4	
7	L2lwegl	AADCEQ	BT_Max	#0	12	float	180	1	1	0.1	10	4	
17	L2lwegl	AADCEQ	LWegStrom	#0	2	float	180	1	100	0.1	10	4	4 /DESY2/DESYHISTORY[LWegCur]
18	L2lwegl	AADCEQ	LWegT	#0	2	float	180	1	100	0.1	10	4	4 /DESY2/DESYHISTORY[LWegParticles]
19	L2lwegl	AADCEQ	D2InjStrom	#0	10	float	180	1	100	0.1	10	4	4 /DESY2/DESYHISTORY[D2Cur_Inj]
20	L2lwegl	AADCEQ	D2InjT	#0	10	float	180	1	100	0.1	10	4	4 /DESY2/DESYHISTORY[D2Particles_Inj]
21	L2lwegl	AADCEQ	LWegT.AVE	#0	2	float	180	1	100	0.1	10	4	4 /DESY2/DESYHISTORY[LWegPartAVE]
22	L2lwegl	AADCEQ	D2InjT.AVE	#0	10	float	180	1	100	0.1	10	4	4 /DESY2/DESYHISTORY[D2PartInjAVE]
37	L2lwegl	AADCEQ	LWegStrom.SCH	#0	2	float	180	100	100	0.001	10	4	4 /DESY2/DESYHISTORY[LWegCur]
38	L2lwegl	AADCEQ	D2InjStrom.SCH	#0	10	float	180	100	100	0.001	10	4	4 /DESY2/DESYHISTORY[D2Cur_Inj]
49	L2lwegl	AADCEQ	Trace.SCH	IML-23	1051	float	180	100	100	0.001	25000	-1	
50	L2lwegl	AADCEQ	Trace.SCH	IML-119	351	float	180	100	100	0.001	25000	-1	
51	L2lwegl	AADCEQ	Trace.SCH	IMD2-T1	351	float	180	100	100	0.001	25000	-1	
52	L2lwegl	AADCEQ	Trace.SCH	IMD2-T2	351	float	180	100	100	0.001	25000	-1	
65	L2lwegl	AADCEQ	Trace	IML-23	1051	float	180	10	10	0.02	10	2	
66	L2lwegl	AADCEQ	Trace	IML-119	351	float	180	10	10	0.02	10	2	
67	L2lwegl	AADCEQ	Trace	IMD2-T1	351	float	180	10	10	0.02	10	2	
68	L2lwegl	AADCEQ	Trace	IMD2-T2	351	float	180	10	10	0.02	10	2	

Ready

Redirect "Prop.ARC" calls to Central-Archiver

Same Property: "Normal" and "Scheduled"

SCHEDULED Properties at HW Acq Rate, ONLY in SHORT-Term storage!

Normal Props in FILE-Storage

Same Property: "Normal" and "Scheduled"

SCHEDULED Properties at HW Acq Rate, ONLY in SHORT-Term storage!

Normal Props in FILE-Storage

Examples

- Local History Chooser: find the archived properties of your server
- “Trace” Archives: >25,000 Traces stored at the HW-Acquisition Rate in the local-history (short-term) ring buffer
 - A task monitors critical parameters, and when a pulse is “bad” then all possibly-interesting info is collected from all local histories and saved in event-archive