Device Definition and Composite Device Views on Top of the Flat EPICS Namespace

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A Naming Standard Can Group Signals for a Single Device

Psy:PI-Ssy:SI-Tsy:TI{PDev:D:I}Sg:SgI-SD

SR:C23-MG{PS:CL1A} Magnet PS CL1A in Cell 23 of the Storage Ring

Analog setpoint:

- SR:C23-MG{PS:CL1A}I:Sp1-SP SR:C23-MG{PS:CL1A}I:Sp2-SP SR:C23-MG{PS:CL1A}Rate:Rmp1-SP SR:C23-MG{PS:CL1A}Rate:Rmp2-SP Analog readbacks:
- SR:C23-MG{PS:CL1A}I:Ps1DAC-I SR:C23-MG{PS:CL1A}I:Ps1DCCT1-I SR:C23-MG{PS:CL1A}I:Ps1DCCT2-I SR:C23-MG{PS:CL1A}Ps1Gnd-I SR:C23-MG{PS:CL1A}Ps1Err-I SR:C23-MG{PS:CL1A}Ps1CtrI-I SR:C23-MG{PS:CL1A}Ps1Volt

SR:C23-MG{PS:CL1A}I:Ps2DAC-I SR:C23-MG{PS:CL1A}I:Ps2DCCT1-I SR:C23-MG{PS:CL1A}I:Ps2DCCT2-I SR:C23-MG{PS:CL1A}Ps2Gnd-I SR:C23-MG{PS:CL1A}Ps2Err-I SR:C23-MG{PS:CL1A}Ps2CtrI-I SR:C23-MG{PS:CL1A}Ps2Volt

- --> Setpoint for H plane, in unit of Amp
 - --> Setpoint for V plane, in unit of Amp
- --> Ramp rate for H plane, in unit of Amp/sec.
- --> Ramp rate for V plane, in unit of Amp/sec.
- --> H plane DAC loopback readback, in unit of Amp
- --> H plane DCCT1 loopback readback, in unit of Amp
- --> H plane DCCT2 loopback readback, in unit of Amp
- --> H Plane ground current, in unit of Amp
- --> H Plane regulator loop error, in unit of Volt
- --> H Plane regulator control voltage, in unit of Volt
- --> H Plane power converter raw voltage, in unit of Volt
- --> V plane DAC loopback readback, in unit of Amp
- --> V plane DCCT1 loopback readback, in unit of Amp
- --> V plane DCCT2 loopback readback, in unit of Amp
- --> V Plane ground current, in unit of Amp
- --> V Plane regulator loop error, in unit of Volt
- --> V Plane regulator control voltage, in unit of Volt
- --> V Plane power converter raw voltage, in unit of Volt

Digital commands:

SR:C23-MG{PS:CL1A}DoutMode-Sel SR:C23-MG{PS:CL1A}CtctOff-Cmd SR:C23-MG{PS:CL1A}CtctOn-Cmd SR:C23-MG{PS:CL1A}RstFlt-Cmd SR:C23-MG{PS:CL1A}ParkOn1-Cmd SR:C23-MG{PS:CL1A}ParkOff1-Cmd SR:C23-MG{PS:CL1A}ParkOn2-Cmd SR:C23-MG{PS:CL1A}ParkOff2-Cmd

Digital status:

SR:C23-MG{PS:CL1A}CtctON-Sts SR:C23-MG{PS:CL1A}Ps1Park-Sts SR:C23-MG{PS:CL1A}Ps1-I-Sts SR:C23-MG{PS:CL1A}Ps1DCCT1-Sts SR:C23-MG{PS:CL1A}Ps1DCCT2-Sts SR:C23-MG{PS:CL1A}Ps1KLIX1-Sts SR:C23-MG{PS:CL1A}Ps1Gnd-Sts SR:C23-MG{PS:CL1A}Ps2Park-Sts SR:C23-MG{PS:CL1A}Ps2DCCT1-Sts SR:C23-MG{PS:CL1A}Ps2DCCT1-Sts SR:C23-MG{PS:CL1A}Ps2DCCT2-Sts SR:C23-MG{PS:CL1A}Ps2DCCT2-Sts SR:C23-MG{PS:CL1A}Ps2CKLIX1-Sts SR:C23-MG{PS:CL1A}Ps2KLIX1-Sts SR:C23-MG{PS:CL1A}Ps2CKLIX1-Sts

- -->Digital command mode: pulse or static
- --> Power convert contact off
- --> Power convert contact on
- --> Reset fault
- --> H plane regulator park on (open loop)
- --> H plane regulator park off (close loop)
- --> V plane regulator park on (open loop)
- --> V plane regulator park off (close loop)

--> Power converter contact on --> H plane regulator park status --> H plane regulator over current fault --> H plane DCCT1 fault --> H plane DCCT2 fault --> H plane Klixon fault (magnet temperature too high) --> H plane ground current fault --> V plane regulator park status --> V plane regulator over current fault --> V plane DCCT1 fault --> V plane DCCT2 fault --> V plane Klixon fault (magnet temperature too high) --> V plane ground current fault

Approximately 300 records each for 1000 power supplies – 300,000 records

A Naming Standard Can Group Signals for a Single Device BPM

Psy:PI-Ssy:SI-Tsy:TI{PDev:D:I}Sg:SgI-SD

LN-BI{BPM:1 Beam Position Monitor 1 in the LINAC portion of Injection ---- 486 records

LI-CS{IOC:LI-BPM1}:CA CLNT CNT LI-CS{IOC:LI-BPM1}:CA CONN CNT LI-CS{IOC:LI-BPM1}:CPU CNT LI-CS{IOC:LI-BPM1}:FD CNT LI-CS{IOC:LI-BPM1}:FD MAX LI-CS{IOC:LI-BPM1}:IOC CPU LOAD LI-CS{IOC:LI-BPM1}:LOAD LI-CS{IOC:LI-BPM1}:MEM FREE LI-CS{IOC:LI-BPM1}:MEM_MAX LI-CS{IOC:LI-BPM1}:MEM USED LI-CS{IOC:LI-BPM1}:RECORD CNT LI-CS{IOC:LI-BPM1}:SUSP TASK CNT LI-CS{IOC:LI-BPM1}:SYS CPU LOAD LN-BI{BPM:1}Ampl:ASA-I LN-BI{BPM:1}Ampl:BSA-I LN-BI{BPM:1}Ampl:CSA-I LN-BI{BPM:1}Ampl:DSA-I LN-BI{BPM:1}Ampl:PtASA-I LN-BI{BPM:1}Ampl:PtBSA-I LN-BI{BPM:1}Ampl:PtCSA-I LN-BI{BPM:1}Ampl:PtDSA-I LN-BI{BPM:1}Ampl:RawAMax-I LN-BI{BPM:1}Ampl:RawAMin-I LN-BI{BPM:1}Ampl:RawAPeekAddr-I LN-BI{BPM:1}Ampl:RawBMax-I LN-BI{BPM:1}Ampl:RawBMin-I LN-BI{BPM:1}Ampl:RawBPeakAddr-I LN-BI{BPM:1}Ampl:RawCMax-I LN-BI{BPM:1}Ampl:RawCMin-I LN-BI{BPM:1}Ampl:RawCPeakAddr-I LN-BI{BPM:1}Ampl:RawDPeakAddr-I LN-BI{BPM:1}Ampl:RawSMax-I LN-BI{BPM:1}Ampl:RawSMin-I LN-BI{BPM:1}Ampl:Sum-I LN-BI{BPM:1}Bunch-SUM LN-BI{BPM:1}Bunch-X LN-BI{BPM:1}Bunch-Y LN-BI{BPM:1}Button:APwr-I LN-BI{BPM:1}Button:BPwr-I LN-BI{BPM:1}Button:CPwr-I LN-BI{BPM:1}Button:DPwr-I LN-BI{BPM:1}Cnt:TrigPrev-I LN-BI{BPM:1}Dfe:Vcc5V-I LN-BI{BPM:1}EE:FirmVer-I LN-BI{BPM:1}FA-rmsA LN-BI{BPM:1}FA-rmsB LN-BI{BPM:1}FA-rmsC LN-BI{BPM:1}FA-rmsD LN-BI{BPM:1}FA-rmsQ LN-BI{BPM:1}FA-rmsS LN-BI{BPM:1}FA-rmsX LN-BI{BPM:1}FFT:IF2-I LN-BI{BPM:1}FFT:IF3-I LN-BI{BPM:1}FFT:Mag0-I LN-BI{BPM:1}FFT:Mag1-I LN-BI{BPM:1}FFT:Mag2-I

LN-BI{BPM:1}FFT:Mag3-I LN-BI{BPM:1}Fpga:FwVer-I LN-BI{BPM:1}Fpga:VccAux-I LN-BI{BPM:1}Fpga:VccInt-I LN-BI{BPM:1}LTB:MbAvgA-I LN-BI{BPM:1}LTB:MbAvgB-I LN-BI{BPM:1}LTB:MbAvgC-I LN-BI{BPM:1}LTB:MbAvgD-I LN-BI{BPM:1}LTB:MbAvgS-I LN-BI{BPM:1}LTB:MbAvgX-I LN-BI{BPM:1}LTB:MbAvgY-I LN-BI{BPM:1}LTB:MbStdA-I LN-BI{BPM:1}LTB:MbStdB-I LN-BI{BPM:1}LTB:MbStdC-I LN-BI{BPM:1}LTB:MbStdD-I LN-BI{BPM:1}LTB:MbStdS-I LN-BI{BPM:1}Pos:UsrYoffset-I LN-BI{BPM:1}Pos:Vref-I LN-BI{BPM:1}Pos:X-I LN-BI{BPM:1}Pos:Y-I LN-BI{BPM:1}Sys:Frev-I LN-BI{BPM:1}Sys:GainAdc0-I LN-BI{BPM:1}Sys:GainAdc1-I LN-BI{BPM:1}Sys:GainAdc2-I LN-BI{BPM:1}Sys:GainAdc3-I LN-BI{BPM:1}Sys:Hnum-I

LN-BI{BPM:1}Sys:IF-I LN-BI{BPM:1}Sys:Rf-I LN-BI{BPM:1}Svs:S21Adc0-I LN-BI{BPM:1}Sys:S21Adc1-I LN-BI{BPM:1}Sys:S21Adc2-I LN-BI{BPM:1}Sys:S21Adc3-I LN-BI{BPM:1}Sys:TbtDec-I LN-BI{BPM:1}Sys:Vcxo-I LN-BI{BPM:1}TBT-rmsA LN-BI{BPM:1}TBT-rmsB LN-BI{BPM:1}TBT-rmsC LN-BI{BPM:1}TBT-rmsD LN-BI{BPM:1}TBT-rmsQ LN-BI{BPM:1}TBT-rmsS LN-BI{BPM:1}TBT-rmsX LN-BI{BPM:1}TBT-rmsY LN-BI{BPM:1}TBT:AMax-I LN-BI{BPM:1}TBT:AMin-I LN-BI{BPM:1}TBT:BMax-I LN-BI{BPM:1}TBT:DMax-I LN-BI{BPM:1}TBT:DMin-I LN-BI{BPM:1}TBT:QMax-I LN-BI{BPM:1}TBT:QMin-I LN-BI{BPM:1}TBT:SMax-I LN-BI{BPM:1}TBT:SMin-I LN-BI{BPM:1}TBT:XMax-I

LN-BI{BPM:1}TBT:XMin-I LN-BI{BPM:1}TBT:YMax-I LN-BI{BPM:1}TBT:YMin-I LN-BI{BPM:1}Temp:AfeSense0-I LN-BI{BPM:1}Temp:AfeSense1-I LN-BI{BPM:1}Temp:DfeSense0-I LN-BI{BPM:1}Temp:DfeSense1-I LN-BI{BPM:1}Temp:DfeSense2-I LN-BI{BPM:1}Temp:DfeSense3-I LN-BI{BPM:1}Temp:FpgaDie-I LI-CS{IOC:LI-**BPM1}:CA UPD TIME** LI-CS{IOC:LI-BPM1}:FD UPD TIME LI-CS{IOC:LI-BPM1}:LOAD UPD TIME LI-CS{IOC:LI-BPM1}:MEM UPD TIME LN-BI{BPM:1}Beam:Gain-SP LN-BI{BPM:1}Beam:Off-SP LN-BI{BPM:1}DDR WFM-PolIDly LN-BI{BPM:1}DDS-freq LN-BI{BPM:1}Ee:AdcGain0-SP LN-BI{BPM:1}Ee:BbaOffQ-SP LN-BI{BPM:1}Ee:BbaOffX-SP LN-BI{BPM:1}Ee:BbaOffY-SP

Approximately 500 records each for 300 BPMs– 150,000 records

Etc.....

Names Are Not Adequate for Devices

Psy:PI-Ssy:SI-Tsy:TI{PDev:D:I}Sg:SgI-SD

System Device Signal

These names are given by equipment engineers and reflect how a device is installed One could easily see all of the PVs that make up one device But if the power supply is the device, how are the magnet readings identified?

One could find all of correctors or BPMs in the storage ring But How does one determine which read back is the appropriate one – fast, fft, waveform?

One can ask for all of the devices in a given portion of the machine But How does one express that devices can be in more than lattice?

And... How does one compose a subset of these Process Variables to create arbitrary groups for for a cross system device, such as experimental end station?

Physicists and Operators Have Different Views Than Equipment Engineers

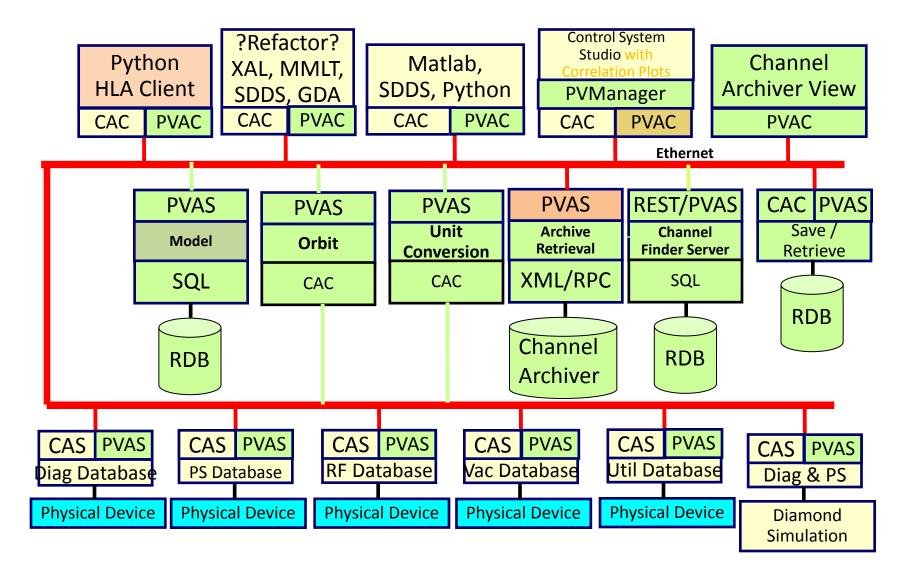
Lattice header and description for lattice (id: 4)												
lattice	format:		txt									
latti	ce type:		plain									
latti	ce name: CD3-0	ct3-12-30	Cell-addID-p	ar-plain								
lattice version: 20121003												
lattice version: design												
initially created by: Weiming												
initially created on: 2013-07-12T12:58:48 description: This is a design lattice released on Oct 3rd, 2012 with plain format												
desc	ription: This	is a desi	gn lattice r	eleased on	Oct 3rd, 2	012 with plain format						
Lattice data	for lattice CD	3-0ct3-12	-30Cell-addI	D-par.txt								
ElementName	ElementType	L	s	K1	К2	Angle						
		m	m	1/m2	1/m3	rad						
BEG DH05G1C30A	MARK DRIF	0 4.29379	0	0	0	0 0						
FH2G1C30A	FTRIM	0.044	4.33779	0	0	0						
DH1G1A	DRIF		4.65	0	0	0						
GEG1C3ØA	MARK	0	4.65	0	0	ø						
GSG2C30A	MARK	0	4.65	0	0	0						
SH1G2C3ØA	SEXT	0.2	4.85	õ	24.1977	0						
DH1AG2A	DRIF	0.085	4.935	0	0	0						
PH1G2C3ØA	BPM	0	4.935	0	0	0						
DBPM01	DRIF	0.0775	5.0125	0	0	0						
QH1G2C3ØA	QUAD	0.275	5.2875	-0.633004	0	0						
DH2AG2A	DRIF	0.145	5.4325	0	0	0						
SQHHG2C3ØA	QUAD	0.1	5.5325	0	0	0						
CH1G2C3ØA	SQ_TRIM	0	5.5325	0	0	0						
SQHHG2C3ØA	QUAD	0.1	5.6325	0	0	0						
DH2BG2A	DRIF	0.4595	6.092	0	0	0						
QH2G2C3ØA	QUAD	0.448	6.54	1.47765	0	0						
DH3AG2A	DRIF	0.19	6.73	0	0	0						
SH3G2C3ØA	SEXT	0.2	6.93	0	-4.1557	0						
DH3BG2A	DRIF	0.1825	7.1125	0	0	0						
QH3G2C3ØA	QUAD	0.275	7.3875		0	0						
DH4AG2A	DRIF	0.07252	7.46002	0	0	0						
PH2G2C3ØA	BPM	0 0.08998	7.46002 7.55	0	0	0						
DBPM02 SH4G2C30A	DRIF SEXT	0.2	7.75	0	-20.4869	0 0						
DH4BG2A	DRIF	0.2485	7.9985	0	0	0						
CH2G2C3ØA	TRIMD	0.3	8.2985	0	0	0						
GEG2C3ØA	MARK	0	8.2985	0	õ	ø						
DH4CG3A	DRIF	0.0315	8.33	ø	0	0						
GSG3C3ØA	MARK	0	8.33	0	0	0						
B1G3C3ØA	DIPOLE	2.62	10.95	0	0	0.10472						
GEG3C3ØA	MARK	0	10.95	0	0	0						
GSG4C3ØA	MARK	0	10.95	0	0	0						
DM1AG4A	DRIF	0.501	11.451	0	0	0						
CM1G4C30A	TRIMD	0.2	11.651	0	0	0						
DM1BG4A	DRIF	0.274	11.925	0	0	0						
QM1G4C30A	QUAD	0.25	12.175	-0.803148		0						
DM2AG4A	DRIF	0.2	12.375	0	0	0						
SM1G4C30A	SEXT	0.2	12.575	0	-24.131	0						
DFT1	DRIF	0.2332	12.8082	0	0	0						
FM1G4C3ØA	FTRIM	0.044	12.8522	0	0	0						
DM2BG4A	DRIF	0.2924	13.1446	0	0	0						
PM1G4C3ØA	BPM	0	13.1446	0	0	0						
DBPM03		0.0839	13.2285	0	0	0						
QM2G4C3ØA	QUAD	0.283	13.5115	1.2223	0	0						

Views Can Be Created By Associating Attributes Using Tags and Properties

device FM1G4C02A

Channel Name	SR:C02-MG:G0	4A{HFCor:FM1}	SR:C02-MG:G04A{VFCor:FM1}						
	Fld-I	Fld-SP	Fld-I	Fld-SP					
handle	READBACK	SETPOINT	READBACK	SETPOINT					
elemName	FXM10	64C02A	FYM1G	64C02A					
elemType	HFC	COR	VFCOR						
elemField		ĸ	У						
devName		FM1G	4C02A						
sEnd	65.5222								
cell									
girder		C	54						
symmetry			A						
length	0.044								
ordinal	20	63	264						
	eget	eput	eget	eput					
tags	3	ĸ	y						
		sys	s.SR						

Channel Finder Service Enables Other Services to Use These Views



Query: Tags=aphla.sys.SR cell=C	01	▼ Row: devName ▼ Column: elemField
devName \ elemField	x	У
CH1G6C01B	0.0	0.0
CH2G6C01B	0.0	0.0
CL1G2C01A	0.0	0.0
CL2G2C01A	0.0	0.0
CM1G4C01B	0.0	0.0
FL1G1C01A	0.0	0.0
FL2G1C01A	0.0	0.0
FM1G4C01A	0.0	0.0
PH1G6C01B	-7.216569742425744E-7	0.0
PH2G6C01B	-2.1431258791651994E-7	0.0
PL1G2C01A	-1.500986653185494E-6	0.0
PL2G2C01A	-1.806087679109317E-6	0.0
PM1G4C01A	1.6492499142893348E-6	0.0
PM1G4C01B	1.3008445367347664E-6	0.0
SQMG4C01A	0.0	0.0

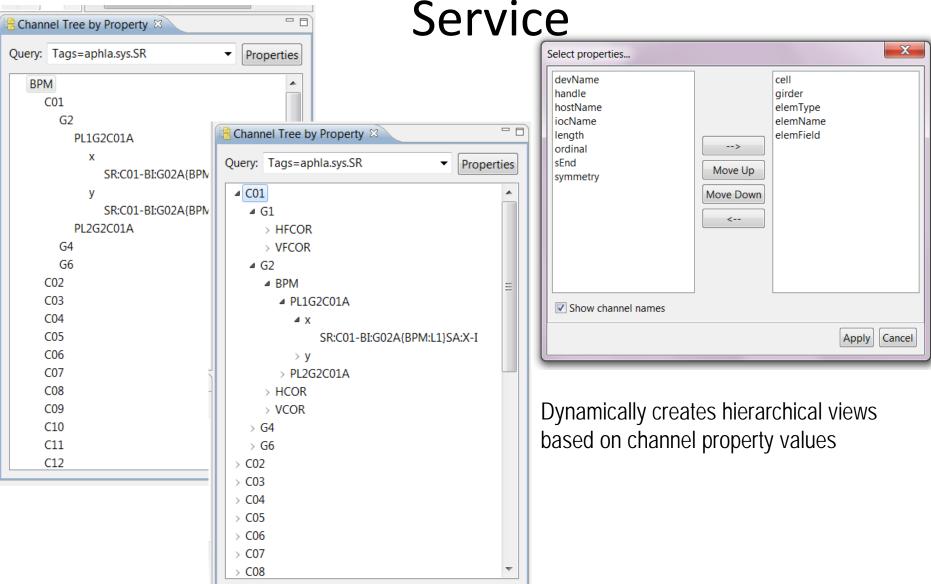
R:CO* elemType=HCOR,BPM Tag	=aphla.sys.SR									*	Search
Channel Name Owner	handle	girder	cell	ordinal	devName	elemName	elemField	elemType	sEnd 💌	length	^
5R:C01-BI:G02A cf-update	READBACK	G2	C01	120	PL1G2C01A	PL1G2C01A	х	BPM	29.9886	0.0	
5R:C01-BI:G02A cf-update	READBACK	G2	C01	120	PL1G2C01A	PL1G2C01A	У	BPM	29.9886	0.0	_
5R:C01-BI:G02A cf-update	READBACK	G2	C01	120	PL1G2C01A	PL1G2C01A		BPM	29.9886	0.0	
R:C01-BI:G02A cf-update	READBACK	G2	C01	120	PL1G2C01A	PL1G2C01A		BPM	29.9886	0.0	
5R:C01-BI:G02A cf-update	SETPOINT	G2	C01	120	PL1G2C01A	PL1G2C01A		BPM	29.9886	0.0	
5R:C01-BI:G02A cf-update	SETPOINT	G2	C01	120	PL1G2C01A	PL1G2C01A		BPM	29.9886	0.0	
5R:C01-MG:G02 cf-update	SETPOINT	G2	C01	125	CL1G2C01A	CXL1G2C01A	х	HCOR	30.6673	0.2	
SR:C01-MG:G02 cf-update	READBACK	G2	C01	125	CL1G2C01A	CXL1G2C01A	х	HCOR	30.6673	0.2	
5R:C01-MG:G02 cf-update	READBACK	G2	C01	133	CL2G2C01A	CXL2G2C01A	х	HCOR	32.1047	0.2	
SR:C01-MG:G02 cf-update	SETPOINT	G2	C01	133	CL2G2C01A	CXL2G2C01A	х	HCOR	32.1047	0.2	
5R:C01-BI:G02A cf-update	READBACK	G2	C01	138	PL2G2C01A	PL2G2C01A	У	BPM	32,5523	0.0	
5R:C01-BI:G02A cf-update	READBACK	G2	C01	138	PL2G2C01A	PL2G2C01A	X	BPM	32,5523	0.0	
5R:C01-BI:G02A cf-update	SETPOINT	G2	C01	138	PL2G2C01A	PL2G2C01A		BPM	32,5523	0.0	
5R:C01-BI:G02A cf-update	SETPOINT	G2	C01	138	PL2G2C01A	PL2G2C01A		BPM	32,5523	0.0	
5R:C01-BI:G02A cf-update	READBACK	G2	C01	138	PL2G2C01A	PL2G2C01A		BPM	32,5523	0.0	
5R:C01-BI:G02A cf-update	READBACK	G2	C01	138	PL2G2C01A	PL2G2C01A		BPM	32,5523	0.0	
5R:C01-MG:G04 cf-update	READBACK	G4	C01	150	SQMG4C01A	CXMG4C01A	х	HCOR	36.7222	0.2	
5R:C01-MG:G04 cf-update	SETPOINT	G4	C01	150	SQMG4C01A	CXMG4C01A	х	HCOR	36.7222	0.2	
5R:C01-BI:G04A cf-update	SETPOINT	G4	C01	161	PM1G4C01A	PM1G4C01A		BPM	38.3018	0.0	
5R:C01-BI:G04A cf-update	SETPOINT	G4	C01	161	PM1G4C01A	PM1G4C01A		BPM	38.3018	0.0	
SR:C01-BI:G04A cf-update	READBACK	G4	C01	161	PM1G4C01A	PM1G4C01A	Х	BPM	38.3018	0.0	
SR:C01-BI:G04A cf-update	READBACK	G4	C01	161	PM1G4C01A	PM1G4C01A		BPM	38.3018	0.0	
5R:C01-BI:G04A cf-update	READBACK	G4	C01	161	PM1G4C01A	PM1G4C01A		BPM	38.3018	0.0	
SR:C01-BI:G04A cf-update	READBACK	G4	C01	161	PM1G4C01A	PM1G4C01A	У	BPM	38.3018	0.0	
SR:C01-BI:G04B cf-update	SETPOINT	G4	C01	171	PM1G4C01B	PM1G4C01B		BPM	40.5345	0.0	
SR:C01-BI:G04B cf-update	SETPOINT	G4	C01	171	PM1G4C01B	PM1G4C01B		BPM	40.5345	0.0	
SR:C01-BI:G04B cf-update	READBACK	G4	C01	171	PM1G4C01B	PM1G4C01B		BPM	40.5345	0.0	×
		Ш			J						>
PM1G4C01B			1.3	0084453673	347664E-6		0	.0			
SQMG4C01A			0.0				0	.0			

COLHIGOZA d-update READBACK G2 COI 120 PLIG2COIA PLIG2COIA Y BPM 29.9866 0.0 COLHIGIZZA d-update READBACK G2 COI 120 PLIG2COIA PLIG2COIA BPM 29.9866 0.0 COLHIGIZZA d-update READBACK G2 COI 120 PLIG2COIA PLIG2COIA BPM 29.9866 0.0 COLHIGIZZA d-update SETPOINT G2 COI 120 PLIG2COIA PLIG2COIA BPM 29.9866 0.0 COI-HIGIZZA d-update SETPOINT G2 COI 120 PLIG2COIA PLIG2COIA BPM 29.9866 0.0 COI-HIGIZZA d-update SETPOINT G2 COI 125 CLIG2COIA PLIG2COIA X HCOR 30.6673 0.2 COI-HIGIZZA d-update READBACK G2 COI 125 CLIG2COIA COI BPM 29.9866 0.0 COLHING:02 d-update READBACK G2 COI I25 CLIG2COIA<	:0* elemType=	HCOR, BPM Tags=	aphla.sys.SR									V Search	-
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5R:C01-BI:G02A 5R:C01-BI:G02A		V:2-SR:C01-MG:G2{SL3:148}Fld:I	cf-update		SEXT	1	G2	C01	virtac	0.2	get	32.4622	sl3g2c01a	srvirtac2		
SR:C01-61:G024 SR:C01-MG:G02		V:2-SR:C01-MG:G4{SM1:183}Fld:SP	cf-update		SEXT	1	G4	C01	virtac	0.2	put	40.2722	sm1q4c01b	srvirtac2		
5R:C01-MG:G02		V:2-SR:C01-MG:G6{SH4:207}Fld:I	cf-update		SEXT	1	G6	C01	virtac	0.2	get	45.2472	sh4g6c01b	srvirtac2		
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		V:2-SR:C01-MG:G2{SL3:148}FId:SP		148	SEXT	1	G2	C01	virtac	0.2	put	32.4622	sl3g2c01a	srvirtac2		
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CS-Studio Uses Channel Finder



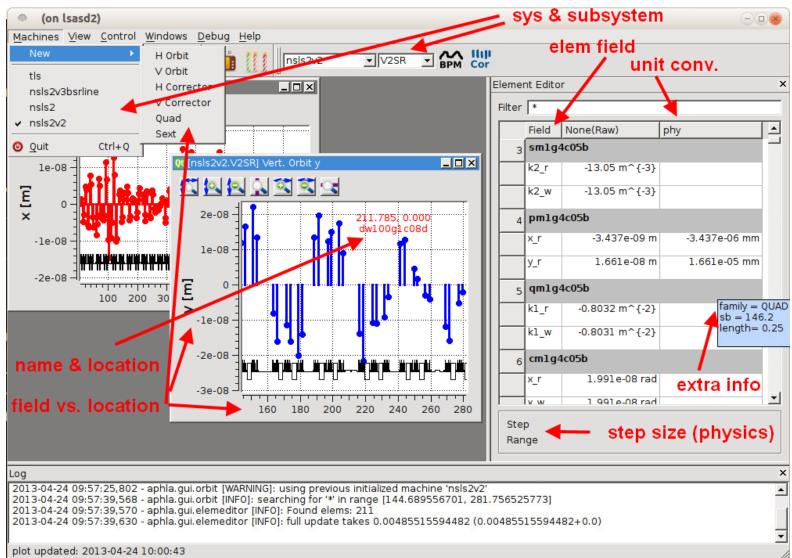
Thin Clients Can Be Developed for Physics and Beam Line Applications

get Pvs from element name and field tuple
 bpmpvs = [getExactElement(b).pv(field=f)[0] for b,f in bpmrec]
 trimpvs = [getExactElement(t).pv(field=f, handle='setpoint')[0]
 for t,f in trimrec]

correct orbit using ORM (from current lattice)
for i in range(repeat):

```
ret = caRmCorrect(bpmpvs, trimpvs, m, ref=np.array(bpmref), **kwargs)
```

Thin Clients Can Be Developed for Physics and Beam Line Applications



Conclusions

- More than a flat name space is needed to satisfy the needs of equipment engineers and machine users conveniently.
- Tags and Properties provide a flexible way to associate functionality with a particular signal and also provide additional useful information associated with that signal, such as position and length.
- A network service to provide these views has been deployed in all of our python physics applications.
- Acknowledgement: This work is part of a large push to develop a set of middle layer of services for physics commissioning, machine operations, experiment control, data acquisition, and data analysis. It uses the Normative Type for a table as does many of the RPC services and is integrated into Control System Studio through that Normative Type..

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