**Stanford Linear Accelerator Center**

# EPICS Channel Configurations

## Configuring an EPICS database

http://www.slac.stanford.edu/~zelazny

# Disclaimer

Please note that this is implemented with our VMS legacy control system, but contains features we would like to see in a tool the EPICS collaboration might use!

# SCP Touch Panel

| | GOLD EPICS CONFIG | HELP | RETURN CNFMSC SL | INDEX BoundChk |
|---|---|---|---|---|
| | SAVE TYPE DES | **EPICS CONFIGS** | PRINT All Text MCCPRINT | DISPLY FIRST PAGE |

| NORMAL CONFIG | SCRTCH CONFIG | SAVE CONFIG | MOVE SCR TO NORMAL | DISPLY INDEX | INCRMT POINTR | DISPLY LOADED CONFGS | DISPLY NEXT PAGE |
|---|---|---|---|---|---|---|---|
| LOAD CONFIG | ACTI- VATE CONFIG | | DELETE CONFIG | DISPLY CONFIG (ALL) | DECRMT POINTR | | DISPLY PREV PAGE |
| | | | | DISPLY CONFIG (RED) | ENTER POINTR | INCR PAGE 1 | DISPLY LAST PAGE |

SELECT REGION

| PEP2 RF HER | PEP2 RF LER | BIC Setup | PEP2 LFB HER | PEP2 LFB LER | | | |
|---|---|---|---|---|---|---|---|
| LER RF 4-3 | LER RF 4-4 | LER RF 4-5 | | NLCTA: | Injctr RF Sta #0 | Linac- RF Sta #1 | Linac- RF Stn #2 |
| HER RF 8-1 | HER RF 8-3 | HER RF 8-5 | HER RF 12-1 | HER RF 12-3 | HER RF 12-5 | HER RF 12-6 | REGION SELECT NONE |

# Desirable Features

- Selectable by Region or IOC
- Directory Index
- Display Configuration Two Ways
- Release Escalation Scratch -> Normal -> Gold
- Display Loaded Configurations

# Selectable Region

# Directory Index

```
INDEX TO SAVED CONFIGURATIONS                    PAGE 62
                   SCRATCH PEP2RF_HER

2850  12jun02  08:04  *>day save
2851  13jun02  00:00  *>owl shift
2852  13jun02  08:31  *>day start
2853  13jun02  17:14  *>swing and a miss!
2854  14jun02  00:09  *>moon-beam (start owl)
2855  14jun02  08:06  *>ds
2856  14jun02  15:58  *>start swingin' Friday
2857  15jun02  00:06  *>owl shift
2858  15jun02  22:37  *>New save for E+ DC SOLB BCON
2859  16jun02  00:08  *>start super owl
2860  16jun02  13:01  *>swingsave
2861  17jun02  00:10  *>owl
2862  17jun02  16:02  *>Mon. swing save
2863  18jun02  00:42  *>owl: after steering in LER bypass
2864  18jun02  08:04  *>beginning day shift
2865  18jun02  16:19  *>swing
2866  19jun02  00:06  *>safety
2867  19jun02  08:02  *>morning
2868  19jun02  16:00  *>swing save
2869  20jun02  00:12  *>it's going to be a hard day's night
```

# Display Configuration

```
              SAVED CONFIGURATION DISPLAY
              PEP2RF_HER    SCRATCH# 2524

 File Channel Name:                    File:      Con:
 ------------------------------------  ---------  -----------
  !PEP2RF_HER$2524.CNF
  !27-JAN-02 04:27:10
  !DIRECTORY=SCRATCH
  !  BEAM NO.=            10
  !TITLE=*>beam to A-line; no positrons
  !
 HR81:STN:VOLT:CTRL                     2000.0       2000.0
 HR83:STN:VOLT:CTRL                     2200.0       2200.0
 HR85:STN:VOLT:CTRL                     2200.0       2200.0
 HR21:STN:VOLT:CTRL                     2000.0       2000.0
 HR23:STN:VOLT:CTRL                     2200.0       2200.0
 HR81:KLYSDRIVFRWD:POWER:SAT            55.000      55.000
 HR83:KLYSDRIVFRWD:POWER:SAT            44.000      30.000
 HR85:KLYSDRIVFRWD:POWER:SAT            42.000      42.000
 HR21:KLYSDRIVFRWD:POWER:SAT            50.000      50.000
 HR23:KLYSDRIVFRWD:POWER:SAT            50.000      50.000
 HR81:KLYSDRIVFRWD:POWER:ON             25.000      25.000
 HR83:KLYSDRIVFRWD:POWER:ON             16.000      18.000
 HR85:KLYSDRIVFRWD:POWER:ON             20.500      18.000
 HR21:KLYSDRIVFRWD:POWER:ON             16.500      25.000
 HR23:KLYSDRIVFRWD:POWER:ON             21.000      40.000
 HR81:KLYSDRIVFRWD:POWER:HIGH           26.500      24.000
 HR83:KLYSDRIVFRWD:POWER:HIGH           19.000      19.000
```

# Display Configuration Differences

```
SAVED CONFIGURATION DISPLAY
PEP2RF_HER   SCRATCH# 2524

File Channel Name:                    File:       Con:
----------------------------------- ----------- -----------
 !PEP2RF_HER$2524.CNF
 !27-JAN-02 04:27:10
 !DIRECTORY=SCRATCH
 !   BEAM NO.=           10
 !TITLE=*>beam to A-line; no positrons
 !
HR83:KLYSDRIVFRWD:POWER:SAT           44.000      30.000
HR83:KLYSDRIVFRWD:POWER:ON            16.000      18.000
HR85:KLYSDRIVFRWD:POWER:ON            20.500      18.000
HR21:KLYSDRIVFRWD:POWER:ON            16.500      25.000
HR23:KLYSDRIVFRWD:POWER:ON            21.000      40.000
HR81:KLYSDRIVFRWD:POWER:HIGH          26.500      24.000
HR85:KLYSDRIVFRWD:POWER:HIGH          23.000      20.300
HR21:KLYSDRIVFRWD:POWER:HIGH          19.000      15.800
HR23:KLYSDRIVFRWD:POWER:HIGH          24.000      22.000
HR83:KLYSOUTFRWD:POWER:NORM             0.0      208.40
HR23:KLYSOUTFRWD:POWER:NORM          243.46        0.0
HR81:KLYSOUTFRWD:POWER:HIGH          800.00      750.00
HR83:KLYSOUTFRWD:POWER:HIGH          900.00      750.00
HR85:KLYSOUTFRWD:POWER:HIGH          900.00      740.00
HR21:KLYSOUTFRWD:POWER:HIGH          700.00      740.00
HR23:KLYSOUTFRWD:POWER:HIGH          900.00      840.00
```

# Release Escalation

1. "Scratch" - Configurations that may be deleted when disk space runs low
2. "Normal" – Configurations that don't ever get deleted
3. "Gold" – Only one per Configuration Region
4. "Loaded" – Configuration currently in use for the selected region

# Display Loaded Configurations

```
              LAST CONFIGURATIONS LOADED                        PAGE  2

REGION          NUMBR PRTL TYP ACT GLD    REGION          NUMBR PRTL TYP ACT GLD

BPM_P2BPMHER 7056          SCR  N         BPM_P2BPMLER 9754          SCR  N
BPM_P2IJELEC    8          NOR  N   G     BPM_P2IJPOSI 4045          SCR  N
BPM_PEP2INJF 2624          SCR  N         BPM_PEP2INJH    0          NOR  N
BPM_PEP2INJL    1          NOR  N         BPM_PEPINJLF 2572          SCR  N
BPM_PEPRINJH  172          SCR  N         BPM_PEPRINJL   27          NOR  N   G
BPM_POSIRETN    0          SCR  N         BPM_SCAVPOSI   51          NOR  N   G
BPM_SDRING      0          SCR  N         BPM_SDR_POSI    0          SCR  N
BPM_SLTRBL90    0          NOR  N         BPM_SOUTH_IP    0          NOR  N
BPM_STR2BSY_    0          SCR  N         BPM_TAXXALL    34          NOR  N   G
BPM_TEST_CNF   40          NOR  N   G     BSY_ESA       404          NOR  N
CA_TEST         0          SCR  N         CID-01       7063          SCR  N
CIDBUNCH        0          SCR  N         CID_EGLD        0          NOR  N
CID_LGLD        0          NOR  N         COLL           20          NOR  N
COLLLI18        6          NOR  N         COLLLI30      525          SCR  Y
DRTEST          0    *     SCR  N         EOSISEID       10          NOR  N
```

# Notes

- Native data type is saved and restored to preserve precision for floats and doubles.

- Operators have a "Save the World" button that they press at least once a shift.

# Desired Features

- We would like to load partial EPICS configurations

- We would like a display of a difference between two configurations

- We would like to automatically use the same plug-in file format as the Channel Watcher