Development and Deployment of CSS at KEK

25 April 2012
Takashi Nakamoto – takashi.nakamoto@cosylab.com
Outline

- **Purpose**
  - Share our experiences with CSS developers/users and those who want to develop/deploy CSS in your site.

- **Agenda**
  - Development and release of CSS KEK.
  - Deployment example of CSS in various groups in KEK.
DEVELOPMENT AND RELEASE OF CSS KEK
CSS KEK

- Includes BOY, Data Browser, Probe and some features specific to KEK.
  - Does not include, Scan Engine, Channel Finder, BEAST UI.
Development

- Release history
  - 3.0.0 (11th Aug 2011, done by Kay)
  - 3.0.0 (3rd Oct 2011)
    - Launchers + more platforms.
  - 3.0.1 (21th Dec 2011)
  - 3.1.0 (26th Feb 2012)

- KEK specific features
  - Launcher for each accelerator (CSS KEK 3.0.0).
  - Archive reader for kblog (CSS KEK 3.0.1).

- Extension of Data Browser
  - Arbitrary waveform element in plot area (CSS KEK 3.1.0).
Launchers

- Launcher is prepared for each accelerator in KEK.
Launcher with default settings

- Launcher does the following things:
  - Generate preference file (*.ini) based on the default settings for each accelerator.
  - Run CSS with "-pluginCustomization" option.

```bash
echo org.csstudio.platform.libs.epics/addr_list=xxx.xxx.xxx.xxx > %TEMP%\LINAC.ini

start css.exe -pluginCustomization %TEMP%\LINAC.ini
```
Advantage of launcher approach

- Do not have to make product for each accelerator (or each site).
- Can make use of environmental variables
  - It may be useful to set EPICS address list from environmental variable EPICS_CA_ADDR_LIST.

```bash
echo "org.csstudio.platform.libs.epics/addr_list=${EPICS_CA_ADDR_LIST}" > foo.ini
./css -pluginCustomization foo.ini
```

- TER CODAC Core System benefits from this approach.
- What kind of settings are available?
  - See “preferences.ini” in the source tree of each plug-in.
    - e.g. org.csstudio.platform.libs.epics
Archive reader for kblog

- kblog
  - Archiving system specific to (Super)KEKB.

- org.csstudio.archive.reader.kblog
  - Interface to command line tool of kblog.
  - 13 Java source files
  - 1563 lines
What needs to be done to support additional archiving system

- **org.csstudio.archive.reader.ArchiveReader** interface
  - **PV Search**
    - getNamesByPattern(int key, String glob_pattern)
    - getNamesByRegEx(int key, String reg_exp)
  - **Acquiring historical data**
    - getRawValues(int key, String name, ITimestamp start, ITimestamp end)
    - getOptimizedValues(int key, String name, ITimestamp start, ITimestamp end, int count)
  - **Others**
    - getServerName()
    - getDescription()
    - etc.

- **See other implementations for more details!**
  - org.csstudio.archive.reader.*
Enhancement of Data Browser

- Became able to show an arbitrary element of waveform in plot area (in KEK 3.1.0).
- You can also benefit from this enhancement!
DEPLOYMENT AT KEK
Steps for deployment

- Study and evaluation
  - Feb 2010 -

- Release of CSS KEK
  - Aug 2011 -

- Trainings for beginners
  - Feb - Mar 2012

- http://www-linac.kek.jp/cont/epics/css/
CSS Training for beginners

- CSS Scripting with Python (1st February)
- CSS for beginners
  - Installation, Perspectives, Widgets (8th February)
  - Data Browser, Macro, Rules (15th February)
  - Script, Action, Special PVs (8th March)
Deployment examples

- SuperKEKB LLRF
- SuperKEKB safety group
- PF
Deployment at SuperKEKB LLRF

- Developing Beta version of LLRF system.
  - CSS BOY is the best tool to quickly create operator interfaces.
  - Take full advantage of “loc://” PVs, Rules and scripts.

Pictures are donated by Dr. Nakanishi (KEK) and Mr. Deguchi (Mitsubishi Denki Tokki).
Deployment at SuperKEKB safety group

- Shows status of keys and doors.
- Multiple OPIs in one window.
Deployment at PF

Pictures are donated by Dr. Obina (KEK) and Mr. Michikawa (Higashi Nihon Giken).
Deployment at PF

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- Screen monitor (nice example of Intensity Graph)
Deployment at PF

Pictures are donated by Dr. Obina (KEK) and Mr. Michikawa (Higashi Nihon Giken).

- Monitoring degree of vacuum with Data Browser
Testimonies

- Users are happy with CSS.
  - Nice look and feel. (No middle button!)
  - Able to run CSS on Windows and Mac OS X without additional effort. (Java is required, though.)
  - Quickly migrated to CSS from EDM/medm.
    - Did not use automatic converter from EDM/medm to CSS BOY.

- RDB Archiver (PostgreSQL) in PF
  - Running in parallel with Channel Archiver for evaluation.
  - Required storage:
    - RDB Archiver : 1.5 GB / day
    - Channel Archiver : 800 MB / day

- RDB Archiver (PostgreSQL) in SuperKEKB
  - Store data locally in some groups.
CONCLUSION
Conclusion

- CSS KEK has been released at the same pace as the other sites.
- Development was done for KEK-specific features and a common feature.
- CSS is penetrating KEK.
- In the future...
Acknowledgement

- **ORNL/SNS**
  - Kay Kasemir
  - Xihui Chen

- **KEK**
  - Kazuo Furukawa
  - Tatsuro Nakamura
  - Toshihiro Mimashi
  - Takashi Obina
  - Kota Nakanishi
  - Jun-ichi Odagiri

- **Mitsubishi Denki Tokki**
  - Hisakuni Deguchi

- **Mitsubishi System Service**
  - Takuya Nakamura
  - Kenzi Yoshii

- **Higashi Nihon Giken**
  - Tetsuya Michikawa