CSS – Control System Studio

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Overview

• Motivation
• CSS Design
• Eclipse RCP
• CSS Core Features
• Outlook
• Getting CSS
Motivation

Existing GUI Applications for EPICS
- Running mostly on UNIX
- Individual programs
- Different Look&Feel
- Data exchange via copy / paste of strings

Requirements
- Operation system independent
- Control system independent
- Common Look&Feel
- Easy data exchange between applications
- Easy to extend
CSS Development / Collaborating

DESY – project coordination

University of Hamburg, C1-WPS (Scientific contract, CoEUD project) – CSS – Core, Synoptic Display Studio

DESY, ORNL – Applications: Databrowser, PV Table, Name Space Browser, Alarm System, …

Cosylab (contract) – Data Access Layer

Josef Stefan Institute – Student exchange
Eclipse

Eclipse Rich client platform (RCP)

- Operation system independent (JAVA)
- Implements OSGi
- Based on plugins
- Configurable workbench
- Drag and Drop, Object contribution
- Update mechanism
- CSS adds features on top of Eclipse
CSS Design

CSS Core Features

• Control system datatypes (e.g. process variable)
• Data Access Layer to use different control systems
• Logging service
• Common libraries (JDBC, JMS, …)
• Authentication, authorization
• Management for CSS instances
• Preference deployment
Pros and cons

+ CSS is based on a widely used framework (Eclipse)
+ Technically a CSS application is an Eclipse plugin
+ Many levels of integration in CSS
  ‘Wrap my Java Code in an Eclipse plugin and run it in CSS’
  ‘Using all CSS features for my plugin’
+ Quick creation of new plugins
+ Single JVM for all CSS applications / plugins

- The effort to get familiar with the Eclipse API is high
- It is difficult to use AWT / SWING for Eclipse plugins
Eclipse RCP

IDE with CSS applications

CSS UI

CSS Headless

Eclipse IDE

CSS Core UI

CSS Core

Eclipse RCP UI

Eclipse RCP

Eclipse Runtime

Java Virtual Machine
Eclipse Features

CSS definitions for

- CSS menu
- Help system
- Preference pages

CSS Datatypes for DnD and Object contribution

CSS update site

- Get new plugins for your CSS installation
- Update current plugins
- Eclipse checks for dependencies of plugins
- Easy to create an update site for your own applications
CSS Management

- Build on top of the XMPP protocol
- Query for existing CSS instances
- Control if and when CSS instances get updated from Eclipse Update Site
- Get statistical information from CSS instances
- Stop CSS instance in case of problems
Data Access Layer (DAL)

- Common API for accessing data from different control systems

CSS Core Plugins

- DAL Plugin
  - DAL Simulator
  - DAL EPICS Plugin
  - DAL TINE Plugin
  - DAL TANGO Plugin

EPICS

TINE

TANGO
Archive Access Layer (AAL)

- Defines an extension point and interfaces for archive access

Diagram:

CSS Core Plugins

- AAL Plugin
- XML-RPC
- AAPI
- Archive Record
- Archive Tine

Epics Channel Archiver

Epics Channel Archiver

Epics IOC

Tine Archive Server

Data
Synoptic Display Studio

- Many CSS applications are now available, see talk: Kay Kasemir (ORNL/SNS) “CSS Applications”
- SDS based on GEF
- All properties can be dynamic
- Rules for dynamic behavior
- Macro substitution
- Easy extensible
- ADL converter

Property View

Workspace

Editor field

Widget palette
CSS in Production

@SNS
• Data Browser
• Probe
• PV Table

@DESY
• Alarm Views
• Alarm Configuration
• Data Browser
• Probe

@DESY Spring 2008
• Synoptic Display Studio
• SNL Debugger
• SNL Language sensitive editor based on (Eclipse) CDT
Outlook

• DAL Plugs for other control systems (TANGO, …)
• Managing specific preferences via XMPP
• Wizards and example plugins for developers
• @SLAC: ‘SLAC's Save/Restore Application Development in the Eclipse RCP Architecture’
• Enabling user authorization by using existing implementation
Further information, getting CSS

• For more information or to download CSS please see the CSS website: http://css.desy.de

• To get the CSS applications please use the update mechanism: Help → Software Updates → Find and Install → Search for new features

• The CSS source code you find in the cvs repositories on kryksunc.desy.de:
  /afs/desy.de/group/m/mks/cvs/css-core,
  /afs/desy.de/group/m/mks/cvs/css-applications
  (a DESY account is necessary)

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- Thank you -