Using LogView
Course Outline

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Background

The LogView application is a multi-purpose user interface to many types of stored data within C-AD, providing graphical displays of data stored by the logging, archiving and set history systems. LogView provides the means to locate specfic device information, to select a time period of interest, and to display the selected data on one of several types of plots. LogView can also be used to create or edit logging requests and start, stop or monitor the status of loggers. As such, LogView is likely to be used by operators on a regular basis to view and analyze data relevant to the performance of the accelerator complex.

Objective

The objective of this training module is to provide novice and intermediate users of the controls system with grounding in the basic structure and features of LogView and its role in monitoring, diagnosing, and analyzing accelerator systems, components, and data generated in the C-AD controls system. The course is specifically aimed at addressing the needs of the MCR operations staff in their day-to-day responsibilities and is designed to augment their effectiveness in using LogView in order to properly control and monitor accelerator systems and functions by exposing learners to the basic features of the LogView application. Course participants for this module are assumed to have some familiarity with the use of the controls system.

Scope

The basic features of the LogView application will be explored, focusing on those features that are most relevant to day-to-day operational activities as well as those features that are helpful for diagnosing and analyzing device status, performance, and operational activity. Not all features of LogView will be discussed in this course. However, a large variety of topics will be presented, with emphasis falling on those topics that are deemed most important to MCR operators.

Prerequisites

Course participants in this module are assumed to have received training in the basic architecture, services, and terminology of the C-AD controls system. This includes, but is not limited to:

- ADOs
- ADO clients and servers
- SLDs and CLDs
- Asynchronous data delivery
- Archiving

Course Structure

The course will be taught in the Main Control Room and each course participant will be seated at a terminal with access to the LogView application. The course will be structured to provide an interactive experience for the participants, exposing students to the features of GPM by allowing them to explore those features under the guidance of the instructors and by providing students with small in-class exercises and activities that amplify the concepts.

Program Overview

A program overview for this application is available from the Help menu and can be found at http://www.cadops.bnl.gov/Controls/doc/LogView/LogView.html.

Course Outline and Topics

1. **Introduction to LogView**
    a. What is LogView?
        i. What data can be displayed in LogView?
        ii. How can LogView be used?
        iii. What kinds of logged data are available?
        iv. What is the relationship between GPM and LogView?

    b. Starting LogView –
    What are the various ways that the application can be started in MCR?
        i. From the command line
        ii. From StartUp
        iii. From the desktop icons in the Main Control Room

    Suggested exercises and activities: Open the LogView application from command line, StartUp, and the desktop. Study the command line options that are available.

2. **Using LogView**
    a. Features of the LogView main window
        i. Pulldown menus
            1. File
            2. Setup
            3. Logger
            4. Options
        ii. Logged Data tab
        iii. Archive Data tab
        iv. Set History tab
        v. Machine tree
        vi. Logging Request Files
        vii. LogView Display Setups
        viii. Run selector
        ix. Load Data From…
        x. Plotting methods

xi. Window and Plot selection radiobuttons
xii. Plot types
xiii. Display Data button
xiv. Message box

b. Viewing logged data using the Logged Data tab
   i. Selecting a LogView branch
   ii. Selecting logged items to display
      1. Understanding color coding of logged items
   iii. Selecting logged data to display
      1. Loading data from selected log files
      2. Loading data from selected RHIC fills
      3. Loading data from selected days
      4. Loading data from start and stop times
      5. Using filters
   iv. Plot types
      1. 2D stripcharts
      2. 3D stripcharts
      3. 2D colormesh stripcharts
      4. Mountain range displays
      5. Array elements stripcharts
   v. Using LogView display setups
   vi. Understanding data viewing options
      1. Adding new datasets
      2. Adding new plots to an existing plot
      3. Y-axis selection
      4. X-axis selection
      5. Marker styles
      6. Timestamps
      7. Data sampling
      8. Data averaging
      9. Status plotting
   vii. Array plots
   viii. Post-Viewing Options –
   once the plot is created, what kinds of things can be done with the displayed data?
      1. Window options
      2. Plot updating
      3. Adding event markers
      4. Aligning data to an event
      5. Creating correlation plots
      6. Cell calculations
      7. Showing expressions

Suggested exercises and activities: There are many different activities here: Have students load logged data from a variety of places within the LogView tree. Have students compare similarities and difference between the LogView tree and the PET machine tree. What branches are similar? What branches are different? What might account for differences? Compare to the GPM tree. Identify logged items of various types: critical (alarmed), active, and inactive. Have students load data using various methods of selection: by log file, RHIC fill, selected day, selected data and time. What kinds of data are associated with what methods of selection? Are data that are successfully loaded using one selection method, successfully loaded using other methods? Consider AGS and Booster data: can this data be perused by RHIC fill

number? What are the advantages and disadvantages? What can be gained by this, if anything? Have students combine datasets in various ways, creating a single plot of various datasets and separate plots. Have data examine RHIC data, adding event markers and aligning data to various events, etc…

c. Viewing data from the Archived Data tab
    i. Selecting by LD/ADO/Controller/FEC/CDEV Server
    ii. Selecting devices and device parameters
    iii. Archive types
        1. Full
        2. Local
        3. Both
    iv. PPM user

Suggested exercises and activities: Have student view various archived data. Discuss the different uses of full and local archives and the when and how both are created. Are there operational circumstances that make one more useful or appropriate than the other? Make sure students understand the differences between the kinds of devices that are found under the various LD/ADO/Controller/FEC/CDEV options, etc…

d. Viewing setpoint data from the Set History tab
    i. Date and time
    ii. Devices
    iii. Devices properties
    iv. Viewing setpoint history data

Suggested exercises and activities: Have students look up setpoint histories for various devices. Discuss the operational usefulness of such setpoint history. How can setpoint history be used to track machine operation or recover machine performance?

3. Interacting with logger processes in LogView using the Logger menu

a. Starting
b. Stopping
c. Checking status
d. Setting the PPM user

4. Concluding Remarks