



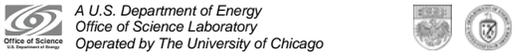
Overview of Client Tools

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Argonne National Laboratory

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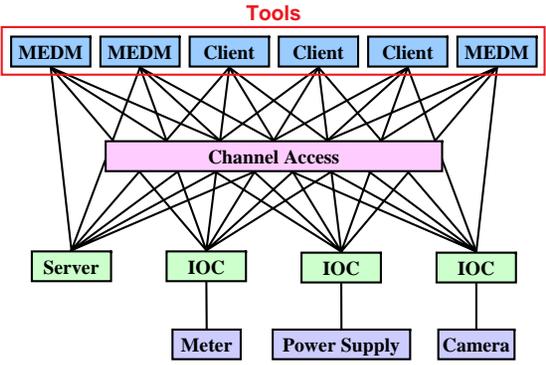
EPICS Software

- For software development EPICS is divided into several parts
- **Base**
 - Build system and build tools
 - Common and OS-interface libraries
 - Channel Access client and server libraries
 - Static and run-time database access routines
 - Database processing code
 - Standard record, device and driver support
- **Extensions**
 - Channel Access clients
 - Other tools that typically run on workstations
- **Support Modules**
 - Record, device, and driver support

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EPICS Overview



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Tools Covered in This Presentation

- **Command-Line Tools**
 - caget, caput, camonitor, cainfo
- **MEDM**
- **ALH**
- **Probe**
- **StripTool**
- **HistTool**
- **SGA**
- **ADT**
- **EPICS WIN32 Extensions**
- **Pocket PC Applications**

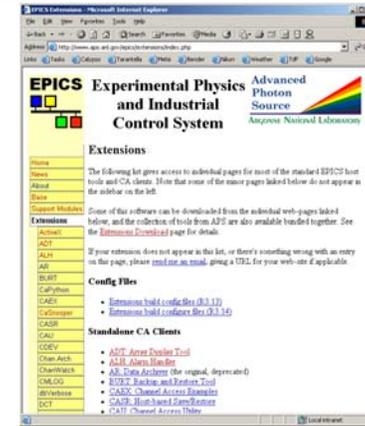
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More Information

- There is a wealth of information in the EPICS web pages
 - <http://www.aps.anl.gov/epics/index.php>
- Each of the Extensions covered here has its own page with much additional information
 - Including tar files of the latest releases
- The are many other tools described there as well
- The Extensions **executables** are typically located at
 - ...epics/extensions/bin/<platform>/<executable>
 - e.g. /usr/local/epics/bin/solaris-sparc/medm
 - Platforms are solaris-sparc, linux-x86, win32-x86, etc.
- The Base command line tools are typically at
 - ...epics/base/bin/<platform>/<executable>

EPICS Extensions Web Page



Command-Line Tools

- There are several versions of these tools
- We will discuss the ones that comes with EPICS Base
 - Starting with Base 3.14.6
 - These should become the standard ones
- The tools we will cover are:
 - Caget
 - Gets the value of one or more process variables
 - Caput
 - Sets the value of one process variable
 - Camonitor
 - Monitors the value changes of one or more process variables
 - Cainfo
 - Gets information about one or more process variables
- All accept **-h** to display usage and options

Caget Example

- Get the values of two process variables

```
caget S35DCCT:currentCC S:SRLifeTimeHrsCC
```
- Returns

```
S35DCCT:currentCC    102.037
S:SRLifeTimeHrsCC    7.46514
```

Caput Example

- Set the value of a process variable

```
caput Xorbit:S1A:H1:CurrentAO 1.2
```

- Returns

```
Old : Xorbit:S1A:H1:CurrentAO    0
New : Xorbit:S1A:H1:CurrentAO    1.2
```

Camonitor Example

- Monitor two process variables

```
camonitor evans:calc evans:bo01
```

- Returns

```
evans:calc    2004-08-05 17:23:04.623245 1
evans:bo01    2004-08-05 17:23:04.623245 On
evans:calc    2004-08-05 17:23:05.123245 2
evans:bo01    2004-08-05 17:23:05.123245 Off
evans:calc    2004-08-05 17:23:05.623245 3
evans:calc    2004-08-05 17:23:06.123245 4
evans:calc    2004-08-05 17:23:06.623233 5
evans:calc    2004-08-05 17:23:07.123183 6
```

- Use Ctrl-C to stop monitoring

Cainfo Example

- Get information about a process variable

```
cainfo S35DCCT:currentCC
```

- Returns

```
State:    connected
Host:     ctlapps41188:5064
Access:   read, no write
Data type: DBR_DOUBLE (native: DBF_DOUBLE)
Element count: 1
```

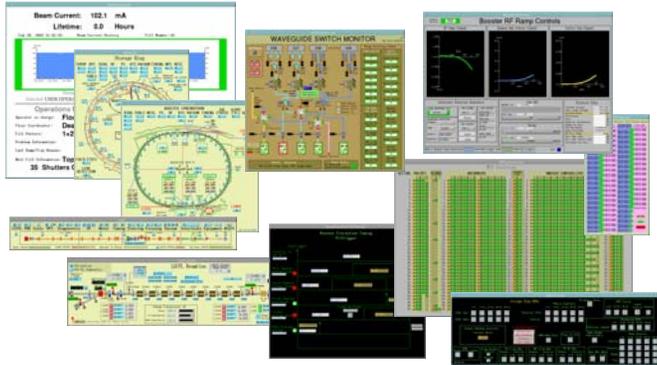
- Currently there is not as much information as with Probe or Pvinfos in MEDM

MEDM

- Stands for Motif Editor and Display Manager
- The principal human interface to the control system
- What you see on the television monitors around the site
- Used by most of the technical staff
- Used worldwide at many facilities
- Both runs and creates control screens



MEDM Screens



- And thousands of others

MEDM

- MEDM will be covered more fully in another session

ALH

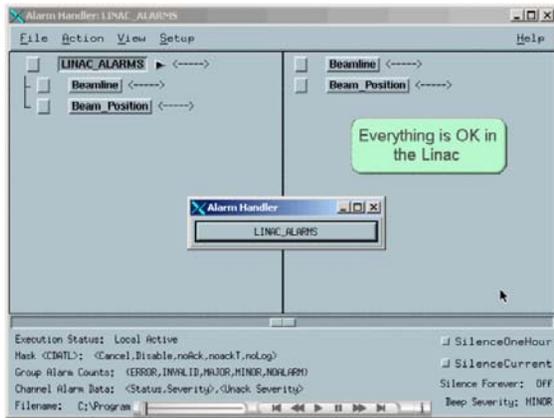
- Stands for Alarm Handler
- Important GUI application in the Control Room
- Brings alarms to the operators' attention
 - It dings and flashes
- Allows the operator to globally acknowledge alarms
- Provides a hierarchical display
 - Allows managing alarms in overview or in detail
- Provides guidance for handling specific alarms
- Logs alarms and displays alarm history



Flash Demos

- The demos in this presentation use Flash
- The Flash Player is installed on most computers
- If you do not see the demos, try right clicking where they should be and check if Play is selected
- If there is no right-click menu, you do not have the Flash Player
- If the version on the right-click menu is not 7 or above, you may have trouble with the slides, particularly advancing them
 - The advance arrow at the bottom left of the slide may work
- You can get or update the Flash Player via the link at:
 - <http://macromedia.com>
 - It is a Plug-in for Netscape/Mozilla and an ActiveX Control for IE
 - You need the IE version for PowerPoint
 - (Use IE to visit the link)

ALH Demo



ALH

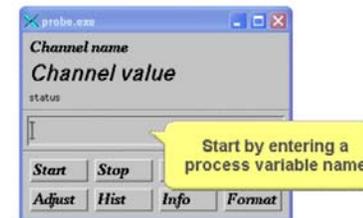
- ALH will be covered more fully in another session

Probe

- Simple way to get information about a single process variable
- Combines the features of caget, caput, camonitor, and cainfo in a graphical interface
- Very useful in diagnosing problems

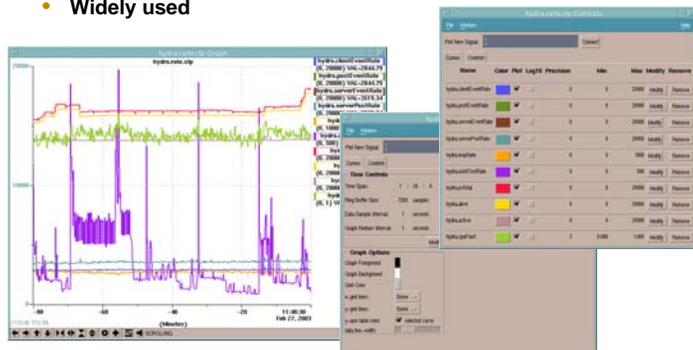


Probe Demo



StripTool

- Plots process variables in real time on a strip chart
- Widely used



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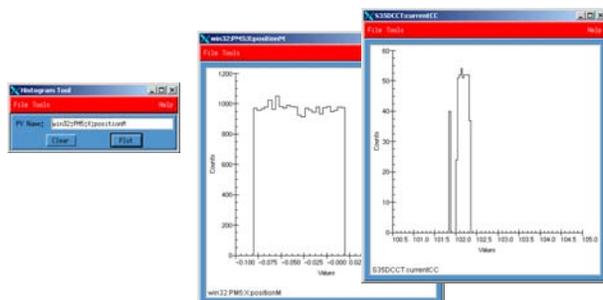
StripTool Demo



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HistTool

- An easy way to get a histogram of a process variable
- Drag and drop a process variable name from MEDM
- As many times as you want



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HistTool Demo

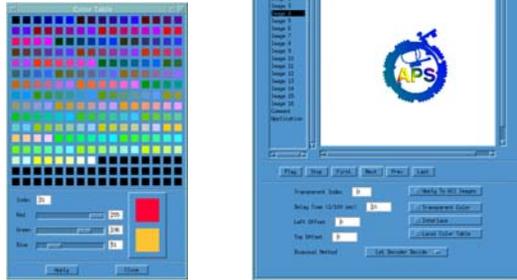
This is the HistTool Main Window



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SGA

- Stands for Simple GIF Animator
- Use it to make animated GIFs for MEDM
- You need to already have the images

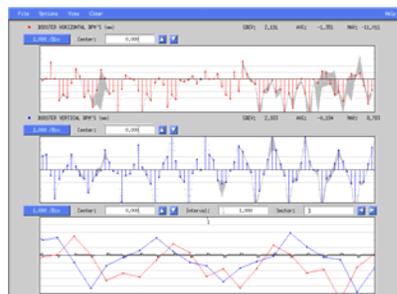


SGA Demo



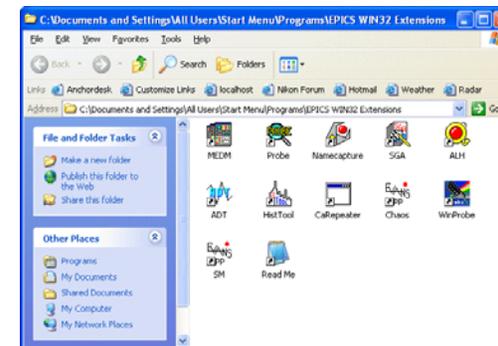
ADT

- Stands for Array Display Tool
- A way to display arrays of single process variables
 - Such as BPM or vacuum readings around the ring
 - Not waveforms
- Configurable menus and displays
- Uses SDDS extensively
- Many features
- Primarily used by Physicists
- Will not be covered further in this presentation



EPICS WIN32 Extensions

- Package of the important EPICS applications
 - Built to run on Windows



EPICS WIN32 Extensions

- **Require Hummingbird Exceed**
 - Arguably the best Windows X Server
 - The only viable source of Motif libraries for Windows
 - Possible to use other Windows X Servers but it is not supported
- **There is an InstallShield installer located at**
 - <ftp://ftp.aps.anl.gov/pub/extensionsStatic/win32>
 - You usually want the latest version there
- **The installation is easy and should not mess up your computer**
- **Uninstalling them is also easy**
 - If you be sure to stop all running programs first
 - Closing Exceed stops all except CaRepeater
- **Read the README before starting!**
- **Historical Note: The EPICS Logo was designed for and first used with the installer for the EPICS WIN32 Extensions**

Pocket PC Applications

- **EPICS has been ported to the Pocket PC**
- **Two EPICS applications are available**
 - ProbeCE
 - BeamDisplay
- **There are better ways to access EPICS with a Pocket PC**
 - E.g. Citrix Metaframe
 - Can give access to all the EPICS WIN32 Extensions
 - Covered in the presentation on Remote Access



Virtual Linac



- **The Virtual Linac includes examples and startup scripts for**
 - MEDM
 - StripTool
 - Probe
 - ALH
- **You can use the other tools with it as well**
- **You are encouraged to go out and play with it**

Thank You

*This has been an
APS Controls Presentation*

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