



New TINE Java General Purpose Diagnostic Applications

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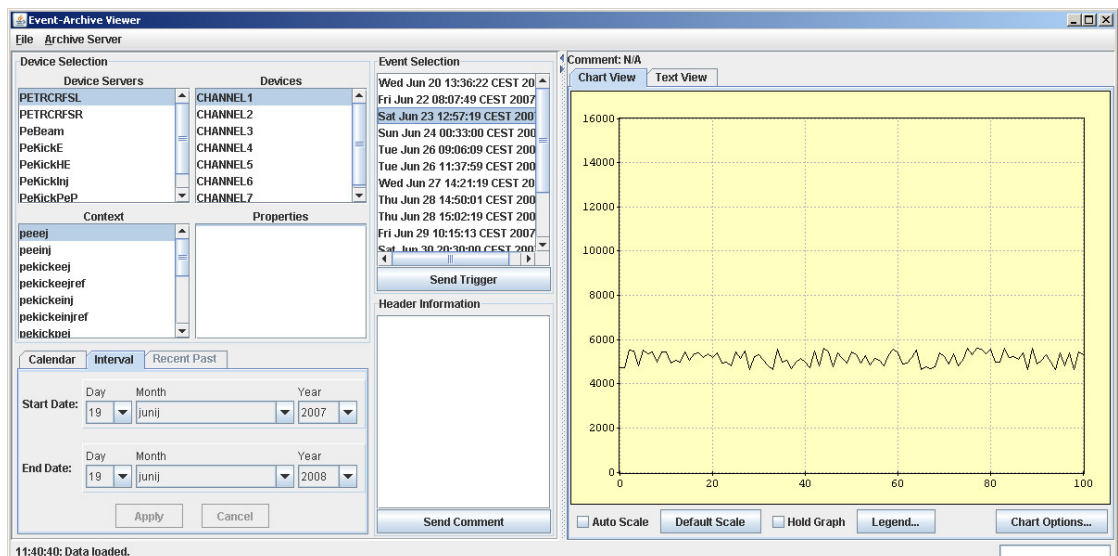


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- Archive System
- Alarm System
- Special Purpose Tools
- Administration Tools

- Three ways of data archiving:
 - Event-driven Archiving
 - Local Archive System (LAS)
 - Central Archive System (CAS)

- Archive snapshots based on scripts
 - Data centered at the time of an event
 - Very fine time raster
- Two applications available
 - Event Archive Viewer
 - Naming Service browsing
 - Transient Recorder Viewer
 - Configuration based



- Standard way of data archiving
- Data is archived continuously
 - All data pass through a data filter
- LAS
 - data stored in short- (memory) or long-term (disk) basis
 - data stored at higher rates
- CAS
 - permanent storage

Several applications use archiving services:
Archive Viewer, Multi-Channel Analyser,...

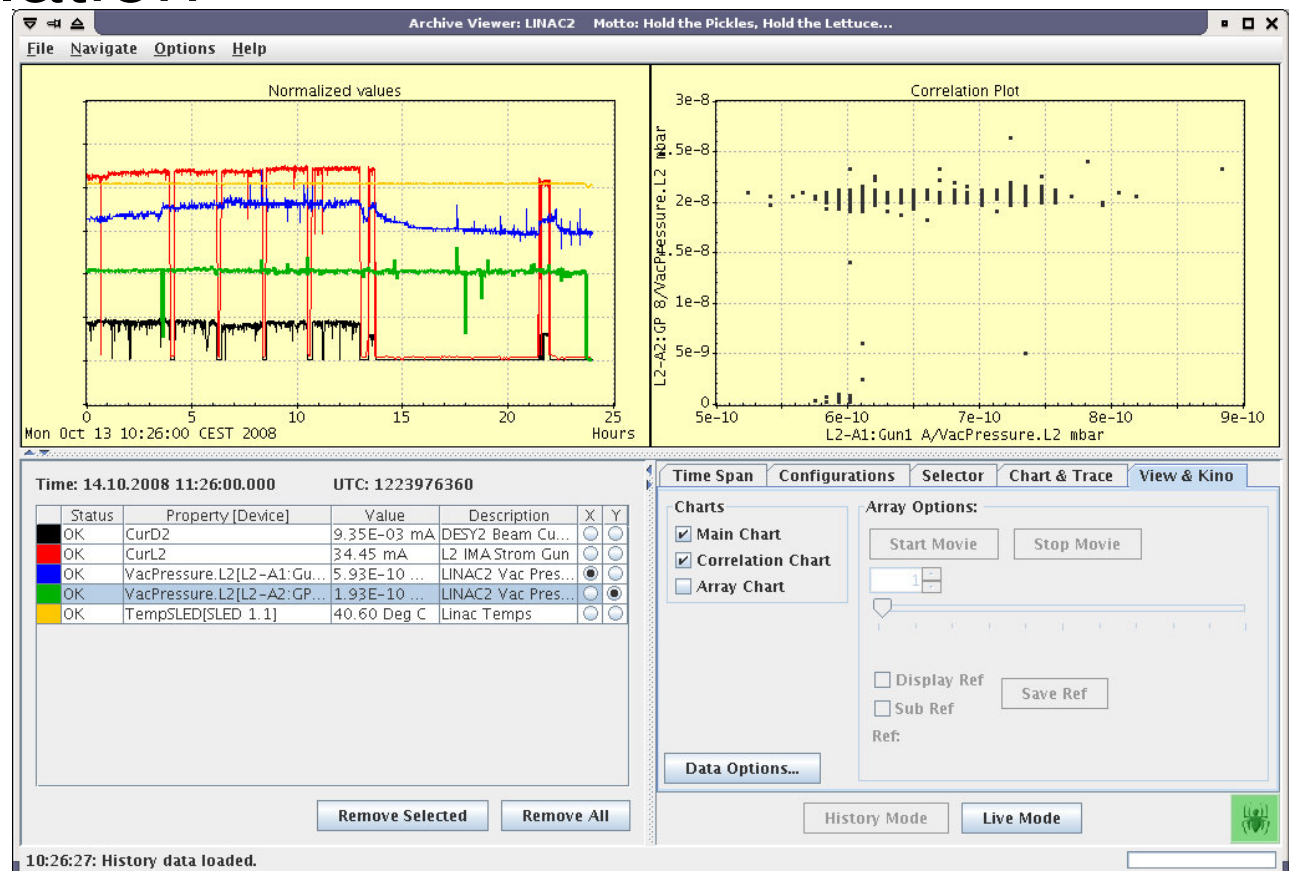
- Allows selection and display of multiple history trends on the same chart
 - selected from naming service
 - selected via configurations (pre-configured sets of properties)
- Numerous visualization features
 - Axis scale (logarithmic, linear, bounds), value offset, chart visualization (color, grid)
- Optical zoom
 - Data are re-acquired on relevant raster
- Data export as CSV files

Value normalization

- Examining different properties on the value percentage basis (displaying vacuum pressure and energy simultaneously)

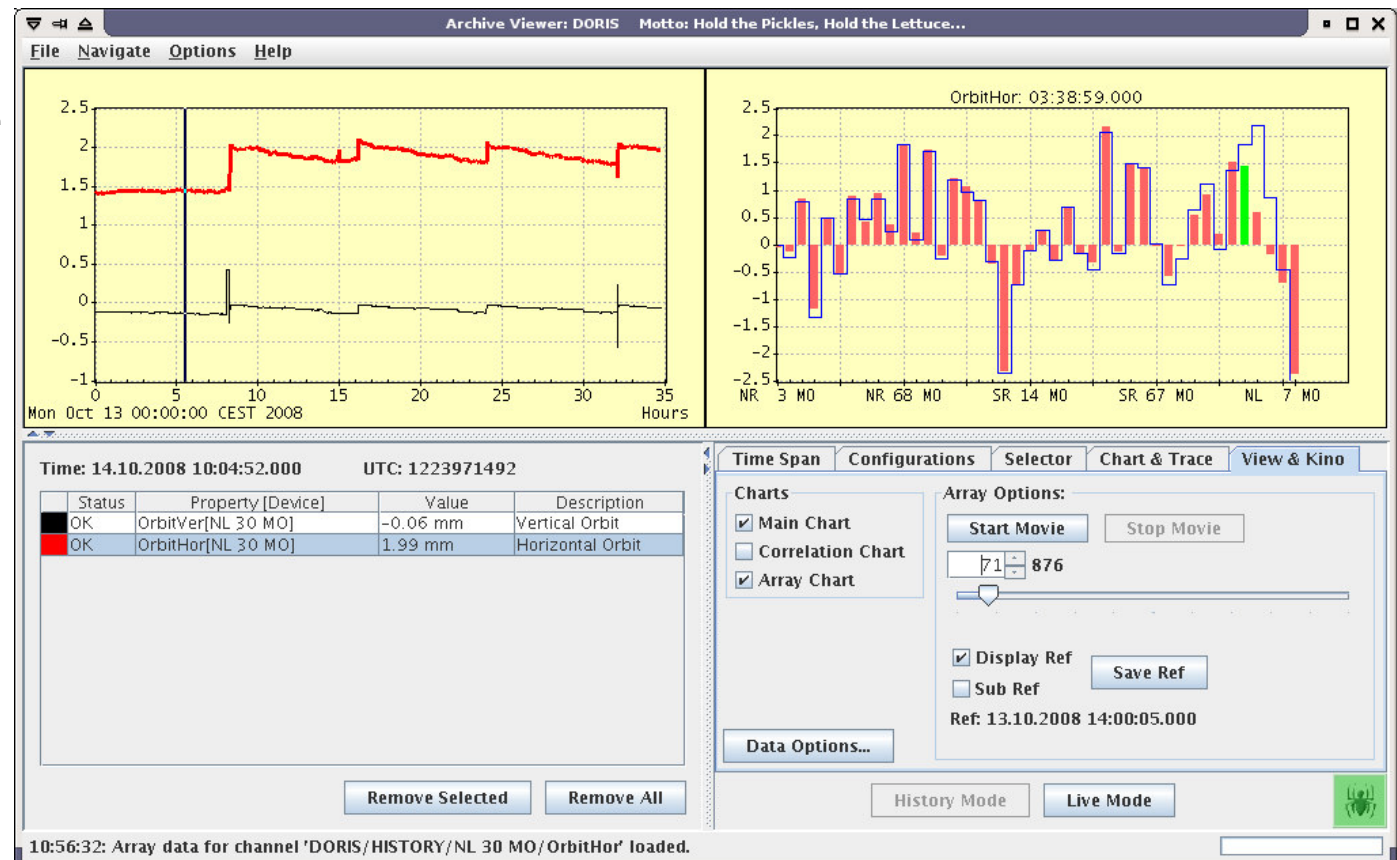
Channel correlation

- Missing values interpolated



Multi-Channel Arrays

- Similar devices (same properties, settings) can be grouped into multi-channels
 - treated as vector objects
- Archived snapshots are visible in the array chart
 - reference display
 - movie

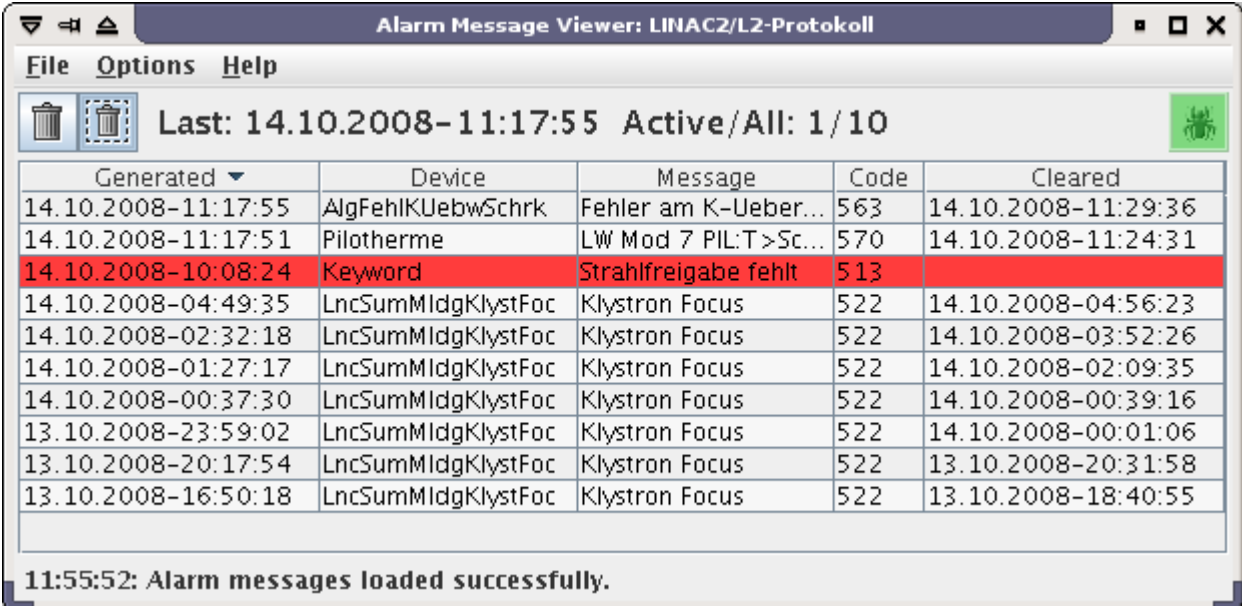


Multi-Channel Analyzer

- Similar to Archive Viewer but tailored to display Multi-Channels
 - based on configurations
 - can combine several multi-channel arrays
 - reference display, peak hold,...
- Primarily used for live data display
 - combination of archived and live data



- TINE alarms are processed at two levels
 - Local Alarm Server (generating etc.)
 - Central Alarm Server (filtering, archiving etc.)
- Two general purpose applications:
 - Alarm Message Viewer
 - Alarm Viewer



| Generated | Device | Message | Code | Cleared |
|---------------------|--------------------|----------------------|------|---------------------|
| 14.10.2008-11:17:55 | AlgFehlKUebwSchrk | Fehler am K-Ueber... | 563 | 14.10.2008-11:29:36 |
| 14.10.2008-11:17:51 | Pilotherme | LW Mod 7 PIL:T>Sc... | 570 | 14.10.2008-11:24:31 |
| 14.10.2008-10:08:24 | Keyword | Strahlfreigabe fehlt | 513 | |
| 14.10.2008-04:49:35 | LncSumMldgKlystFoc | Klystron Focus | 522 | 14.10.2008-04:56:23 |
| 14.10.2008-02:32:18 | LncSumMldgKlystFoc | Klystron Focus | 522 | 14.10.2008-03:52:26 |
| 14.10.2008-01:27:17 | LncSumMldgKlystFoc | Klystron Focus | 522 | 14.10.2008-02:09:35 |
| 14.10.2008-00:37:30 | LncSumMldgKlystFoc | Klystron Focus | 522 | 14.10.2008-00:39:16 |
| 13.10.2008-23:59:02 | LncSumMldgKlystFoc | Klystron Focus | 522 | 14.10.2008-00:01:06 |
| 13.10.2008-20:17:54 | LncSumMldgKlystFoc | Klystron Focus | 522 | 13.10.2008-20:31:58 |
| 13.10.2008-16:50:18 | LncSumMldgKlystFoc | Klystron Focus | 522 | 13.10.2008-18:40:55 |

11:55:52: Alarm messages loaded successfully.

Alarm Viewer

- Supports several different views, for different usage levels
- Used as a live alarm monitor, or for archived alarms inspection
- Offers options to suspend view, acknowledge alarms, etc.

Alarm Viewer: LINAC2

File View Options Navigate Help

Fatal: 1 Error: 16 Warning: 1

Alarm Display: ☒ Live ☐ Archive

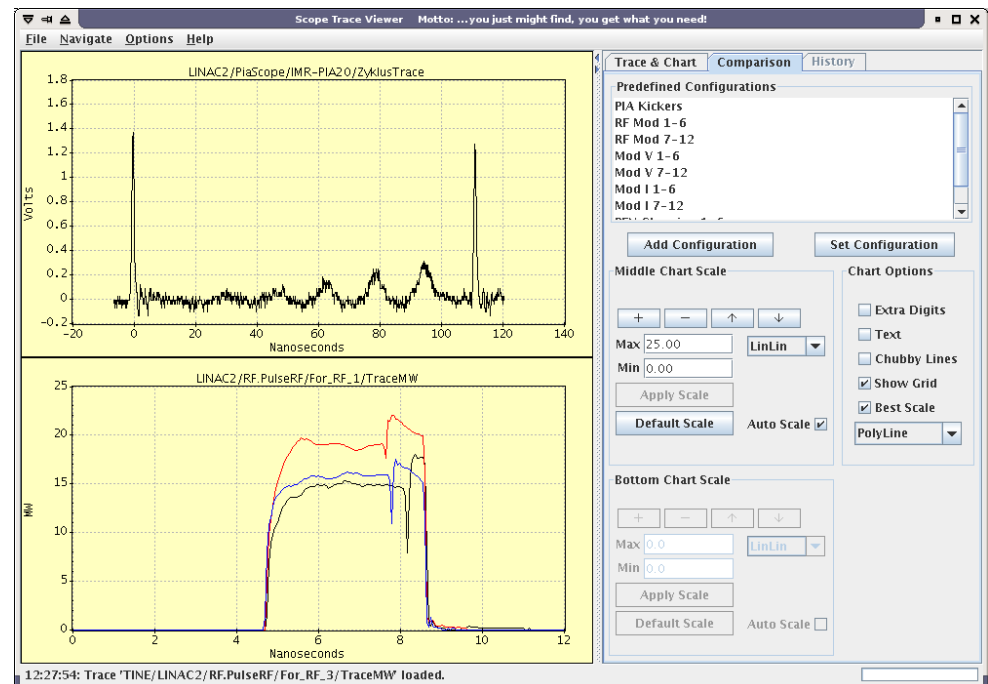
Mon Oct 06 09:32:50 Warning Severity >= 0 Selected/Total Number of Alarms: 18/18 Active Alarms Only

| | | | | | |
|--------------|-------|----------------|-------|--------------|-------|
| Magnete | 0 0 0 | Kicker-Septa | 0 0 0 | Kontrollen | 0 0 0 |
| Korrekt.Mag. | 0 0 0 | Chopper | 0 4 0 | Front-End | 0 0 0 |
| Steerer | 0 0 1 | Timing | 0 0 0 | Diagnose | 0 0 0 |
| PIA-HF | 0 0 0 | Temperaturen | 0 0 0 | L2-Protokoll | 0 3 0 |
| L2-HF | 1 9 0 | Piloth.-Wasser | 0 0 0 | Interlock | 0 0 0 |
| | | Vakuum | 0 0 0 | | |

| System | Device Name | Message | Sev | Alarm Descriptor | Alarm Time | Duration |
|--------------|--------------------|---------------------|-----|--------------------------|-----------------------|----------|
| Steerer | ST_3V | PS IST-SOLL WARNUNG | 4 | Oscillating Data Changed | 09:49:25.355 - Oct 06 | 7.7 hr |
| L2-HF | Mod-5 | Cabinet_Door | 10 | Heartbeat Data Changed | 09:48:04.599 - Oct 06 | 3.2 hr |
| L2-HF | Mod-5 | Min_Pre_Mag_V | 10 | Heartbeat Data Changed | 09:48:04.599 - Oct 06 | 3.2 hr |
| L2-HF | Mod-5 | Foc_Mag_1_Min_V | 10 | Heartbeat Data Changed | 09:48:04.599 - Oct 06 | 3.2 hr |
| L2-HF | Mod-9 | Ion_Getter_Pump | 10 | Heartbeat Data Changed | 09:48:04.599 - Oct 06 | 3.2 hr |
| L2-Protokoll | LncSumMIdgModDoors | Modulator Doors | 9 | Heartbeat | 09:43:10.111 - Oct 06 | 3.7 hr |
| L2-Protokoll | LncSumMIdgKlystFoc | Klystron Focus | 9 | Heartbeat Oscillating | 09:41:24.044 - Oct 06 | 4.9 hr |
| L2-HF | Mod-1 | KlyHV <> File | 10 | Heartbeat | 09:38:08.734 - Oct 06 | 2.6 hr |
| L2-HF | Mod-5 | KlyHV <> File | 10 | Heartbeat | 09:38:08.734 - Oct 06 | 2.6 hr |
| L2-HF | Mod-6 | KlyHV <> File | 10 | Heartbeat | 09:38:08.734 - Oct 06 | 2.6 hr |

08:51:23: Alarms loaded.

- Archive Viewer and Multi-Channel Analyser
 - can be used as live data viewers
 - combine archived data with live data
- Trend Viewer
 - stripped down Archive Viewer
- Scope Trace Viewer
 - displays multiple 'oscilloscope' traces
 - configuration based

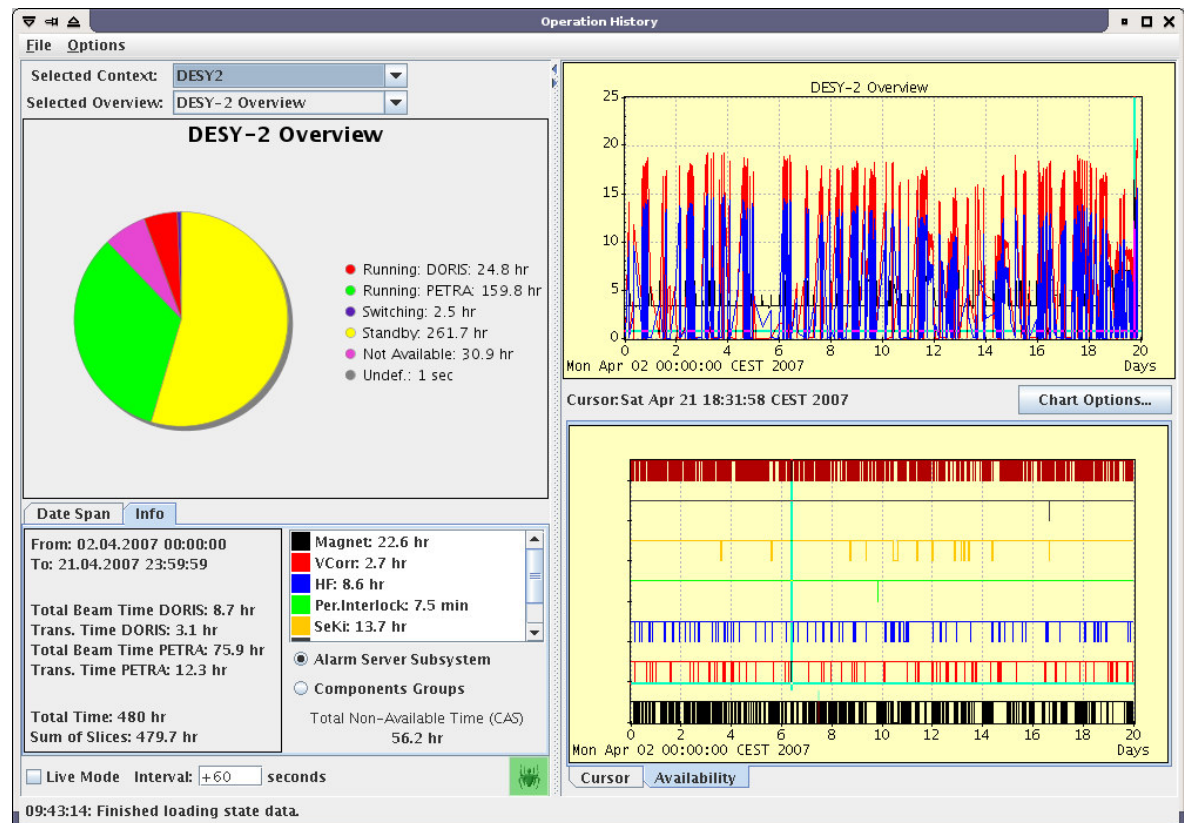


■ Operation History Viewer

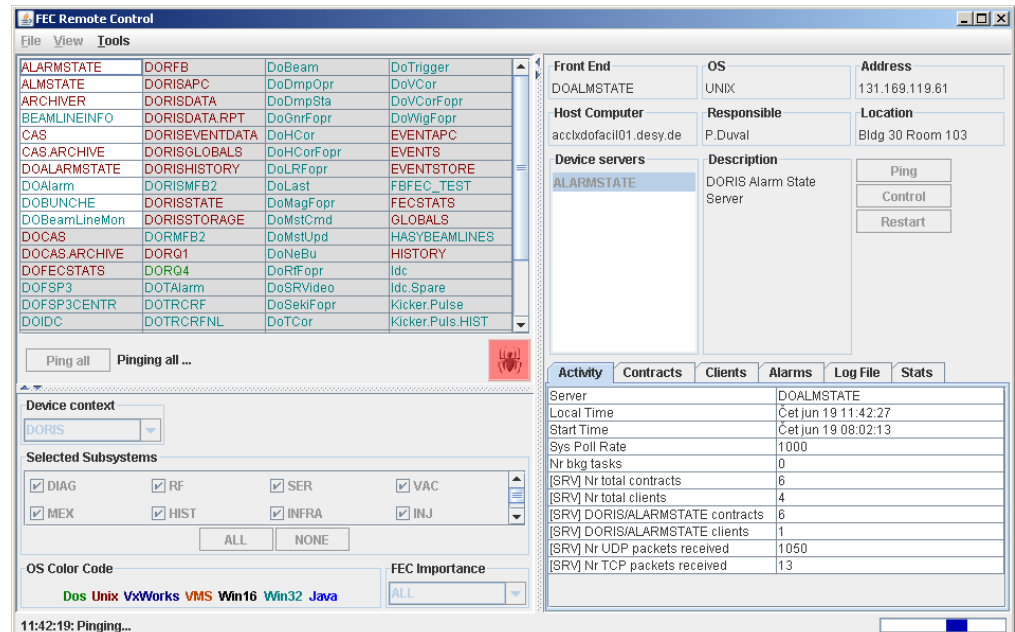
- gathers data from several central services
- displays the machine status in a specified time frame

■ TINE Video

- pure java rendering



- **FEC Remote Control Panel**
 - monitor for Front End Controllers
 - allows remote logins and process control
- **ENS Administration**
 - tool for administration of the TINE naming service
- **Archive Database Manager**
 - generates and maintains the archive database configuration files



Thank you for your attention!

<http://cosylib.cosylab.com/pub/acop/site>

