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## Status of DMT Software Tasks

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- Problem: Making contributed DMT code more useful
  - Status of individual DMT tasks

# General Issues

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DMT infrastructure in great shape (see John Zweizig's talk)

Many packages given to John in recent months

- Code in various states:
  - Tool classes with sample program(s)
  - C functions callable by root macros
  - LAL-dependent functions
- Other code in development (and used) at sites as stand-alone monitors

Some priority 2 tasks have no volunteers (see below)

Two (somewhat) distinct ideals for DMT software writers:

- Provide flexible tools for general use  
(emphasis to date)
- Provide specific monitor that is useful now to IFO commissioners and operators  
(needs more work!)

# General Issues

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Glad that tools are coming together, finally

But worried that many will continue to sit idle at sites

Need effort by tool writers to ensure code is useful & used

Two categories of full-fledged background monitors:

- Performance characterization
  - Periodically writes data to trend frame file (*e.g.*, amplitude/phase of a 60 Hz harmonic)
  - May log additional information (*e.g.*, spectra) to archive
  - Serves up data on performance (and recent history) to display manager upon request
- Transient analysis
  - Aperiodically generates triggers (*e.g.*, seismic tremor)
    - \* Logging to local file
    - \* Writing entries to meta-database
    - \* Setting EPICS alarm to notify operator
  - Serves up data on recent transients to display manager upon request.

## General Issues

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Need full working templates for both monitor types:

- KR will work with JZ to make servo instability monitor into transient analysis template
- Request volunteer to work with JZ on performance characterization template
- Authors should model **deliverables** after one of these templates (or at least provide same functionality)

Designated LHO operator to test new DMT code: Rick Graff

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One more issue:

Authors not delivering code at all

- We can cajole only so much
- LIGO Lab and LSC management starting to pay more attention to this and to complain

Reminder:

MOU renewal & LSC membership subject to review

# Status of Individual DMT Tasks

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## Performance Characterization

### Priority 1 Tasks

- Line Noise
  - A. Ottewill (B. Allen) Code given to John in April as DMT-compatible C functions
  - S. Klimenko Code given to John in July as DMT-compatible C++ classes (see report)
  - A. Sintes Code given to John in August as LAL-dependent C functions (see report)
- Seismic Noise
  - E. Daw Stand-alone monitor running continuously at Livingston. Code to be given to John in August.
- Inter-channel correlations
  - A. Ottewill (B. Allen) Code given to John in June as DMT-compatible C functions
- Bilinear cross-couplings
  - S. Penn Code under development (see report)
- Operational state conditions
  - K. Riles (R. Gustafson) Code given to John in June as DMT-compatible C++ classes (see report)

# Status of Individual DMT Tasks

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## Performance Characterization

### Priority 2 Tasks

- Band-limited RMS
  - E. Daw Stand-alone monitor running continuously at LLO. Code to be given to John in August.
- Time-frequency plots
  - S. Mohanty, S. Siddiqui Code given to John in June as DMT-compatible C++ classes callable from root
  - J. Sylvestre Code running at Hanford since June as part of stand-alone TID package for transient detection. GUI interface. (see report)  

Tutorial given to LHO operators
- Non-Gaussian noise
  - S. Finn, G. Gonzalez, M. Hsu Code under development (see report)

# Status of Individual DMT Tasks

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## Transient Analysis

### Priority 1 Tasks

- Power spectral transients
  - S. Mohanty, S. Siddiqui Time-frequency part delivered (above). Remaining code to be given to John by end of August.
- Servo instability
  - K. Riles, R. Gustafson Tool class code publicly available on Hanford computer. Dedicated monitor to be given to John by September 15. Tuned config files and display manager support by November 15. (see report)
- Event catalog
  - J. Sylvestre TID code running at Hanford & Livingston (above). Filter bank under development. Will work with JZ on integrating into DMT process manager environment. (see report)

# Status of Individual DMT Tasks

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## Transient Analysis

### Priority 2 Tasks

- Flickering optical modes – NO VOLUNTEER
- Transient detection using adaptive denoising methods
  - E. Chassande-Mottin Code under development. To be given to John by October 1.
- Impulse recognition – NO VOLUNTEER  
(could be implemented as set of filter banks in event catalog)
- Magnetic field transients
  - E. Mauceli Code running at Hanford. To be given to John by August 31. (see report)