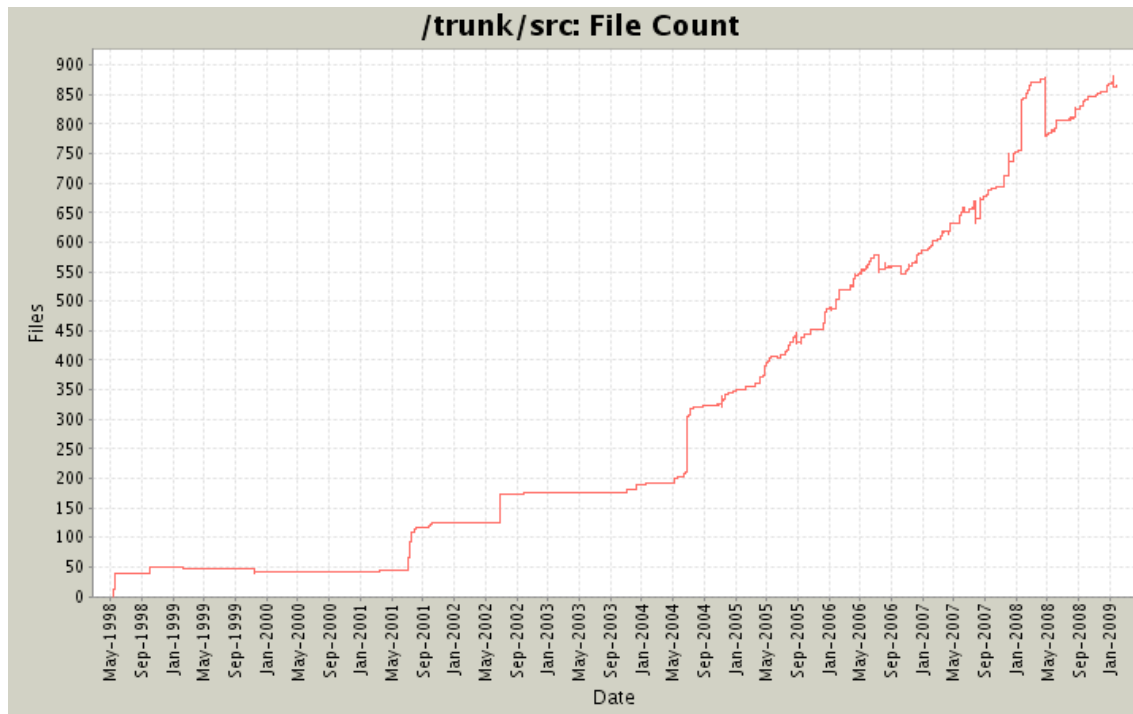


# Offline Software Status

Jan. 30, 2009

David Lawrence JLab

# Repository Activity



**Developer of the Month**

Month	Author	Lines
<a href="#">January 2009</a>	<a href="#">staylor</a>	658
<a href="#">December 2008</a>	<a href="#">davidl</a>	69991
<a href="#">November 2008</a>	<a href="#">staylor</a>	1795
<a href="#">October 2008</a>	<a href="#">davidl</a>	11666
<a href="#">September 2008</a>	<a href="#">zihlmann</a>	59062
<a href="#">August 2008</a>	<a href="#">davidl</a>	5288
<a href="#">July 2008</a>	<a href="#">zihlmann</a>	6361
<a href="#">June 2008</a>	<a href="#">davidl</a>	1255
<a href="#">May 2008</a>	<a href="#">davidl</a>	1567
<a href="#">April 2008</a>	<a href="#">davidl</a>	4625
<a href="#">March 2008</a>	<a href="#">jonesrt</a>	834
<a href="#">February 2008</a>	<a href="#">davidl</a>	6008
<a href="#">January 2008</a>	<a href="#">davidl</a>	14861
<a href="#">December 2007</a>	<a href="#">davidl</a>	2903
<a href="#">November 2007</a>	<a href="#">gen</a>	5399
<a href="#">October 2007</a>	<a href="#">bellis</a>	749
<a href="#">September 2007</a>	<a href="#">zihlmann</a>	40905
<a href="#">August 2007</a>	<a href="#">davidl</a>	1607
<a href="#">July 2007</a>	<a href="#">davidl</a>	37208
<a href="#">June 2007</a>	<a href="#">staylor</a>	1551

# Changes to Simulation Geometry

- “geomC” new baseline for CDC
- Complete update of collimator cave (currently with “review2008” suffix in repository)
  - Magnets + fields
  - Pair spectrometer
  - Collimator
- Tagger microscope moved to behind fixed array
- Active collimator detail
- 40 stave Start Counter rumored to exist

# Changes to Reconstruction

- Development on Kalman Filter (Simon)
- Development on Least Squares Global track fitter (Mark)
- (Re)Adoption of standard units
- DHelicalFit class merging multiple helical fitters
- Detector element numbering (plan)

# JLab Computing Resources

- Batch farm:
  - Until recently, Hall-D had no allocation of the JLab computer farm. We now have a guaranteed 4.4%
- Wireless Networking:
  - Major policy changes on the JLab wireless network
    - Non-managed laptops will be outside of the JLab firewall
    - All ports (protocols) disabled by default with only a few open
    - Computers registered on network through web page (may or may not require WEP key)
    - Computer to Computer communications will be blocked
- Disk Space:
  - Currently, the Hall-D work disk is 1.5TB (only using 51%)
  - Tight budgets resulted in smaller than usual increases this year so only ~14TB of usable space could be added over the whole Physics Division
    - Work disk
    - Cache disk
  - We requested 1TB to 1.5TB be allocated for Hall-D work disk space

# ACAT Conference

- SIMD/vectorization
  - Single Instruction, **M**ultiple **D**ata
  - AltiVec, MMX, SSE, 3DNow!, ...
- llvm-g++ compiler (non-commercial Apple project)
  - Drop-in replacement for g++
  - Link-time optimization (-O4) has potential speed increases of 20%
- Parameterization of Magnetic Field map
  - Current GlueX 2D map is 2.5MB
  - Expect 3D map to be at least 100x larger

# Data Rates in 12GeV era

		Front End DAQ Rate	Event Size	L1 Trigger Rate	Bandwidth to mass Storage	
JLab	GlueX	3 GB/s	15 kB	200 kHz	300 MB/s	private comm.
	CLAS12	100 MB/s	20 kB	10 kHz	100 MB/s	
LHC	ALICE	500 GB/s	2.5 MB	200 kHz	200 MB/s	CHEP2007 talk Sylvain Chapelin
	ATLAS	113 GB/s	1.5MB	75 kHz	300 MB/s	
	CMS	200 GB/s	1 MB	100kHz	100 MB/s	
	LHCb	40 GB/s	40 kB	1 MHz	100 MB/s	
BNL	STAR	8 GB/s	80 MB	100 Hz	30 MB/s	*
	PHENIX	900 MB/s	~60 kB	~ 15 kHz	450 MB/s	**

\* NIM A499 Mar. 2003 ppg 762-765

\*\* CHEP2006 talk MartinL. Purschke

# Available Projects

The following projects are not currently being worked on. All of these could be developed primarily offsite. All projects are expected to require at least 6 months of work some of which can be done by a student or post-doc.

- Magnetic Field Simulation Studies
- Full Featured Event Viewer
- Calibrations/Conditions Database
- MC Acceptance studies for specific physics channels
- Monte Carlo Meister
- Online monitoring system
- Detector Alignment