Field System Topics

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FS Linux 7

- Current standard
  - Based on Debian “etch”
  - Uses RAID1 for more robust operations with two disks
  - Back-up scheme with three disks rotates disks periodically
  - Upgrade path from earlier systems is:
    - Clean install
    - Copy /usr2 partition, etc. to new system
  - Install and upgrade thoroughly documented
    - `/usr2/fs/misc/FSL7_*`
    - `atri.gsfc.nasa.gov:/docs/FSL7_*`
  - GPIB support
    - Open source driver does not support older devices
    - NI GPIB-RS232 device
- FS Linux 8, based on “lenny” coming this summer
- Older systems should use a Router/Firewall for improved security
  - Inexpensive, <US$100
- Old hard disks (> 5 years) should be replaced

Current Status - FS 9.10.3

- Mark 5A & 5B Recorder Support
- Mark 5 Sampler Module Support
  - Rack types Mark5 and VLBA5
- GNPLT bug fixes
- Systests improved and Mark5B rack/recorder support
- DRUDG
  - Support for Dymo printers under FS Linux 5 “woody”, 6 “sarge”, 7 “etch”
- TNX command expanded
  - Supports multiple forms of error messages

FS 9.11.0 (Summer 2009) I

- Slow disk warnings
- RXG file related:
  - New rxgfile SNAP command to allow RXG file updates without restart
  - Logging of RXG file identification information for better accountability
  - Two Trec (LCP and RCP) values in RXG files
- New gnplt
  - Python based
  - Much faster
  - Bug fix: handles two single polarization receivers in one log
- C++ include file changes

FS 9.11.0 (Summer 2009) II

- 30 minute periodic “BEOB” procedure in place of “MIDTP”
- Improved rack=none set-up comments
- LO_CONFIG command
- Rewritten *logpl* plotting utility
  - Python based
  - XY plots
- Routine sampling of PCal for geodesy experiments
- Updated *plotlog* plotting utility
  - Pcal amps normalized by Tsys
    - PCal amp plots
    - PCal phase versus amp plots
  - Select plots to include/exclude by regular expressions

FS 9.11.1 (Fall 2009) I

- IDL2RPC Remote Interface
- Automatic/Continuous PCal extraction with Mark IV Decoder
  - Extracts all tones from all recorded channels
  - Global control from *drudg* skedf.ctl control file
    - Able to use VEX specified extraction
  - Further expansion of *plotlog*
    - Multiple tones per channel
    - Fit sinusoids for frequency one and two in 2π phase
  - AIPS format file generated from post-processing
  - Can be expanded for Mark 5B
- Flagging for Cal and TPZERO
- VEX extension for VLBA

FS 9.11.1 (Fall 2009) II

- DBBC/DBE support
  - Client/server model?
- Multiple Mark 5 recorders
- Other possibilities:
  - CHEKR monitoring of Mark5
  - Update Mark 5 “Remaining Capacity” display while recording
  - Convert from fort77/f2c to gfortran
- 80 Hz Radiometry

FS Priority List from Previous Meeting

- Separate LCP/RCP RX temperature in .rxg files
- LO_CONFIG command
- Slow disk warning
- 80 Hz Radiometry
- Periodic monitoring (*chekr*) of Mark 5
- DBBC support
- Update Monit/Expanded Status Reporting/*erchk*
- GNPLT Update
- …

Additional Items

- VLBA field system? Not
- Collaboration with Wettzell
  - Alexander Neidhardt's IDL2RPC
    - Basis for Client/Server infrastructure in FS
    - Fits well with planned VLBI2010 software structure
      - Client/Server logging system
      - Autonomous devices can be added/removed
      - Client/server remote interface
    - Develop a plan for incremental implementation
- Mark 5C
  - Under development, may use IDL2RPC interface
- VDIF?

Longer term development items I

- Documentation Update, wiki for documentation, operations discussion, bug reports
- Improve prediction of disk pack change times
- Pointing software clean-up
  - Eliminate redundancies in pointing configuration information by introducing a source coordinate database file and reorganizing point.prc and ctlpo.ctl (*aquir* control file).
  - Documentation clean-up to reflect new procedures and utilities
- Improved Tsys
  - Most items completed
  - Post processing program to generate AIPS (ANTAB) format TSYS files from Cormac Reynolds
  - Periodic firing of calibration diode with flagging needed

Longer term development items II

- Band changes
  - Band configuration procedures added to set-up by DRUDG.
    - The DRUDG control file will be expanded to include a table of station defined procedures that can be used to set-up local station equipment for a band. These procedures can also be used manually by the operator as needed. Note that use of the existing SAVE_FILE command can be used in these procedures and INITI to recover the receiver set-up between FS terminations and restarts.
  - CALON and CALOFF SNAP variables.
    - This intended to deal with stations that have different cal control methods for different bands. The idea is that variables will be introduced into SNAP, specifically two: CALON and CALOFF. These can be defined by the band set-up procedures described above and used as $CALON and $CALOFF in procedures when the noise diode needs to be controlled.

Additional Future Items

- IF patching automation for Mark IV racks
  - EVN has hardware design, but not implemented in field yet. We will need one relatively simple SNAP command to support it:
    - A special version of PATCH and a way to control which version is used.
- Mark IV decoder support
  - This is beyond the phase-cal monitoring mentioned above, mainly a few SNAP commands to control the decoder manually. Most of the effort here is actually divining what is needed and developing documentation