
Field System Status

Ed Himwich, Dave Horsley,
John Gipson, and Jonathan Quick

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FS Linux Distribution

- ◆ FSL9
 - ⊕ Current standard
 - ⊕ Based on Debian “wheezy”
 - ⊕ Has some minor serial issues, but so far we have solutions
- ◆ FSL10
 - ⊕ Next standard
 - ⊕ **Based on Debian “stretch”, which will be released soon**
 - ⊕ Beginning of 64-bit architecture support
 - 32-bit FS will still be available
 - Development **may** stop if it is too hard to maintain 32/64-bit source
 - Will continue to get critical bug fixes
 - ⊕ Availability TBD, hopefully this year

Old Mark IV/VLBA/VSI-4 modules

- ◆ Still needed for spares
- ◆ Please contact Ed Himwich (Ed.Himwich@nasa.gov) before recycling/disposing

Current Release - FS 9.11.19

- ◆ DBBC support for PFB personality (but no continuous cal, yet)
- ◆ Unification of station procedures for DBBC: continuous vs. noncontinuous cal, DDC vs PFB (but no continuous cal for PFB, yet)
- ◆ New `fetch` script to fetch/DRUDG IVS schedules
- ◆ New `plog` script to push logs to IVS servers
- ◆ FiLa10G configuration set-up in FMSET
- ◆ HOLOG program improved
- ◆ `s_client` for simple socket transactions from SNAP
- ◆ Other improvements

VGOS Branch - FS 9.12.11

- ◆ RDBE-G Support
 - ⊕ Up to four RDBEs individually or in parallel
 - ⊕ Low-level 'rdbex=...' **command**
 - X is 'a', 'b', 'c', or 'd' for individual devices
 - X is missing for all
 - ⊕ Radiometry
 - ⊕ Multicast data logging of Tsys/Pcal/Time
 - ⊕ Display of Tsys/Pcal/Time
- ◆ Mark 6 Support
 - ⊕ Up to two Mark 6s individuals or in parallel
 - ⊕ Low-level 'mk6X=...' **command**
- ◆ FMSET support for second DBBC2/FiLa10g
- ◆ Experiment SNAP Procedures in .skd file

Summer Release (Aug 2017) - FS 9.11.20

- ◆ DBBC Continuous Cal support
- ◆ Hot/Cold-load and chopper wheel cal support
- ◆ Include checkdata.py and add sampler statistics, phase-cal
- ◆ Pub/Sub access to log file output
- ◆ Pub/Sub access to log display output
- ◆ New Makefile structure
- ◆ Mark 5C non-bank mode support?
- ◆ Bug fixes and urgent features for things we hear **about ...**

Proposed cal control improvements

- ◆ Add a line to RXG file for cal method
 - ⊕ Allows specification per receiver
 - ⊕ Options: continuous, on/off, hot/cold, none
 - ⊕ Requires changes to gnplt and antabfs.py
- ◆ **Use “if” command to select method in caltsys**
- ◆ Chopper wheel and hot/cold load support
 - ⊕ caltsys will take longer
 - Schedulers should consider allowing more PREOB time
 - ⊕ Station provides a local program to calculate Tcal
 - ⊕ Command line input: LO freq., pol., center frequency, met. **temp, ...**
 - ⊕ Output: Tcal value
- ◆ What if different bands have different on/off cal control methods?
 - ⊕ Stations should implement local control
 - ⊕ It might be possible to pass LO freq. information

Fall Release - FS 9.13.x

- ◆ Integrate VGOS support from 9.12.x:
 - ⊕ Up to four RDBE-G racks (in parallel)
 - ⊕ Up to two Mark 6 recorders (in parallel)
 - ⊕ VGOS Observing with experiment procedures inline in .skd file
- ◆ Input will be case sensitive
- ◆ 64-bit support?
- ◆ ...

Other features that are coming ...

- ◆ Fuller eRemoteControl integration
- ◆ RXG file related:
 - ⊕ New rxgfile SNAP command to allow RXG file updates without restart
 - ⊕ Logging of RXG file identification information for better accountability
- ◆ Periodic Satellite Commands in Az-El and RA-Dec
- ◆ More mature RDBE-G, Mark 6, UDC, and VGOS observing support
- ◆ VEX2 support
- ◆ Ethernet/serial converter support
- ◆ Ethernet/GPIB converter support

Also coming ...

- ◆ 30 minute periodic “BEOB” procedure in place of “MIDTP” for periodic monitoring functions
- ◆ Improved rack=none set-up comments
- ◆ Source scanning on the fly
 - ⊕ Improvement in FIVPT for antennas that can scan in rate
- ◆ Band switching

TIG

- ◆ Telegraf-InfluxDB-Grafana – monitor data system
 - ⊕ Being developed by Dave Horsley at GSFC
 - ⊕ Very nice graphical display tools - Grafana
 - ⊕ Time oriented database - InfluxDB
 - ⊕ Adapters for devices/systems – Telegraf **and** “go”
- ◆ Driven by internal NASA requirements
 - ⊕ Hope it will have utility for other stations
- ◆ Looking into how to combine TIG with Alexander **Niedhardt’s** Zabbix based system

Clock Offsets for UT1

- ◆ fmout-gps is needed at all stations
 - ⊕ Not just for correlation, it also affects UT1
- ◆ Correlator corrects fmout-gps with **“peculiar” offset**
 - ⊕ This represents unmeasured delays at the station
 - ⊕ Referenced to Kokee Park with VLBA formatter in the 1990s as 0 μs .
- ◆ Correlator aligns clocks to about 0.1 μs or less
- ◆ An overall shift in the clocks will move UT1 by the same amount
 - ⊕ e.g., if clocks shift +1.0 μs then UT1 shifts by -1.0 μs
 - ⊕ Peculiar offset consistency must be maintained to keep UT1 from having jumps
 - IVS Correlators implementing system to do this
- ◆ Current reference probably causes a bias of a few microseconds in UT1, this needs to be measured

Conclusion

- ◆ It would be very helpful to have:
 - ⊕ Feedback on bugs that are occurring in the field
 - ⊕ Input on what features are still needed or need to be changed for DBBC support
 - ⊕ **Any other requests ...**