
Field System Topics

Ed Himwich, John Gipson,
and Jonathan Quick

Cagliari, Italy
October 6, 2014

FS Linux Distribution

- ◆ FSL9
 - ⊕ Current Standard
 - ⊕ Based on Debian “wheezy”
 - ⊕ Older systems should upgrade or be replaced
- ◆ Prologix Ethernet GPIB Controller
 - ⊕ Less expensive, US\$200
 - ⊕ Some success with Legacy GPIB devices
 - ⊕ Replacement for NI RS232-GPIB
 - ⊕ Not yet integrated into FS
- ◆ Lantronics EDS Ethernet Serial Converter
 - ⊕ 4 port version, US\$400
 - ⊕ Replacement for serial board
 - Wheezy serial driver seems to have some issues
 - ⊕ Will not replace serial for MCB
 - ⊕ Not yet integrated into FS

Current FS Release

- ◆ FS 9.11.6
- ◆ Includes:
 - ⊕ Fixed TPICD bug that caused crash on DBBC communication error
 - ⊕ FLAGR reports if previous source was not reached when a new one is commanded
 - ⊕ FMSET improvements for `jive5ab` and DBBC
 - ⊕ Mark 5B clock rate is set from `equipctl`
 - ⊕ Support for FSL9
- ◆ All stations are encouraged to upgrade to this version as soon as possible to make future upgrades easy
 - ⊕ I am following up with stations still on FS 9.10.4

(soon to be) Current Release

- ◆ FS 9.11.7
- ◆ Fixes Mark IV formatter communication bug
 - ⊕ Thanks to Paul Burgess for finding and fixing
- ◆ DBBC v105
 - ⊕ 32 MHz BW
- ◆ DRUDG Improvements
 - ⊕ Increase limit to 100 modes
 - Note: DRUDG currently supports 20000 scans
 - ⊕ Relax assumption that all stations are in all modes
 - Remove consistency check when the schedule is read
 - Add consistency check when `.prc` / `.snp` generated
 - Remove unused modes from `.prc`
 - ⊕ Other minor improvements

FS Current Developments

- ◆ Single Mark 5C recorder support
 - ⊕ Works as Mark 5B if `jive5ab` is used
 - ⊕ Is multiple Mark 5C recorder support needed?
- ◆ RDBE support – PFB 3.0 – designing
 - ⊕ Radiometry working with 1.4
- ◆ Mark 6 support – starting design
- ◆ DBBC support – PFB (80 Hz not available yet)
 - ⊕ Basic design done
- ◆ FILA10G support
 - ⊕ Need design
- ◆ Mark 5 support
 - ⊕ CHEKR - Status bits/error messages

Multi-device support

- ◆ Parallel support for multiple Mark 6s and RDBEs
 - ⊕ Single command for parallel commanding of similar devices, e.g., to start all Mark 6s recording:
 - `disk_record=on`
 - ⊕ Control is actually parallel, if one device times-out the others are not affected
 - ⊕ Commands for individual devices available as well, e.g.,
 - `disk_recorda=on`
 - `disk_recordb=on`
 - ...

Additional Items

- ◆ eRemoteControl
- ◆ RXG file related:
 - ⊕ New rxgfile SNAP command to allow RXG file updates without restart
 - ⊕ Logging of RXG file identification information for better accountability
- ◆ RDBE DDC Support
- ◆ Improved rack=none set-up comments
- ◆ Source scanning on the fly
 - ⊕ Improvement on FIVPT for antennas that can scan in rate

Additional Items II

- ◆ TLE Satellite pointing

- ⊕ Currently

- Generates ephemeris that can be sent to antenna
 - Fixed RA/Dc and Az/EI pointing

- ⊕ Future

- Periodic Satellite Commands in RA/Dc and Az/EI
 - Satellite visibility output
 - Expand to other non-sidereal sources

- ◆ Band switching

- ◆ 30 minute periodic “BEOB” procedure in place of “MIDTP” for periodic monitoring functions

GMSEC

- ◆ Goddard Mission Services Evolution Center
- ◆ Middleware product to providing sampling of data, presentation, archiving, and plotting
- ◆ Provide local display and monitoring
- ◆ Provide centralized display and monitoring
- ◆ Provide web based plotting
- ◆ Could be used outside NASA
- ◆ Possible monitoring tool for VGOS
- ◆ There may be a control aspect of this for VGOS

VEX2

- ◆ Draft design was released, September 16
- ◆ Major Features
 - ⊕ Explicit support for VSI-H, \$BITSTREAMS
 - ⊕ Support for VDIF, \$DATASTREAMS
 - ⊕ Completely new method for describing equipment and connections, \$DAS
 - ⊕ Not backward compatible with VEX1
 - Removed obsolete features
 - Prevent redundant ways to define schedule
 - ⊕ Documentation consists of a single Wiki page
- ◆ Implementation has three phases
 - ⊕ Development of test implementations
 - ⊕ Transition period of both VEX1 and VEX2 usage
 - ⊕ Eventual elimination of VEX1

VEX2 cont'd

◆ Timeline

⊕ Currently in community comment period

- This will nominally close November 21
- Any needed changes by December 19

⊕ Test phase begins

- This will take many months
- Further changes to VEX2 can be made
- At end, VEX2.0 is finalized

⊕ Transition period starts

◆ VEX2 mailing list

⊕ Discussion of the proposal

⊕ Current topic is handling of non-sidereal sources

- This centers primarily on distributing pointing information

Conclusion

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