ATF2 Flight Simulator Updates

- Overview of FS goals and requirements
- Summary of updates since Dec meeting
  - Core software
  - Client applications

Glen White, SLAC
8th ATF2 Project Meeting
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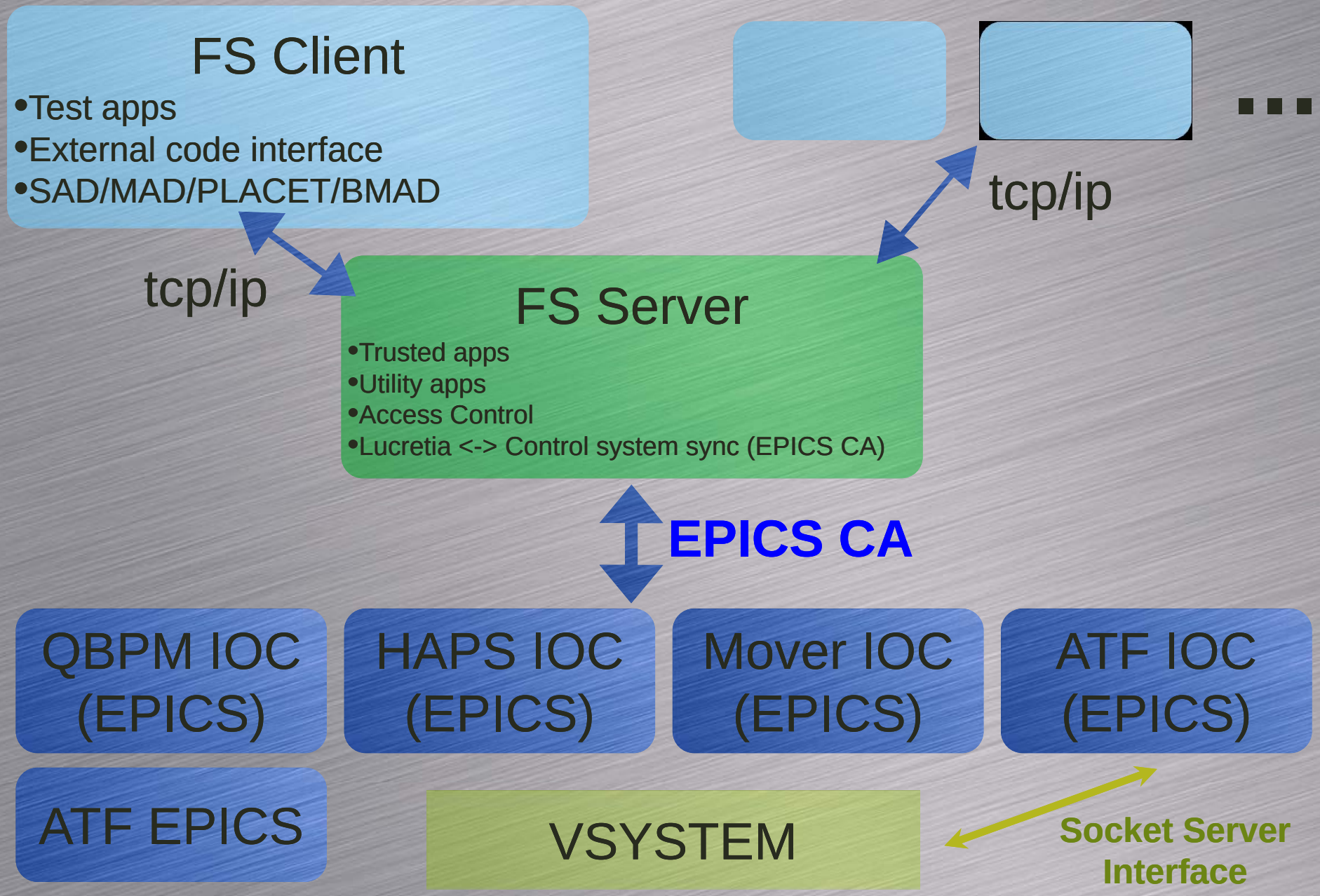
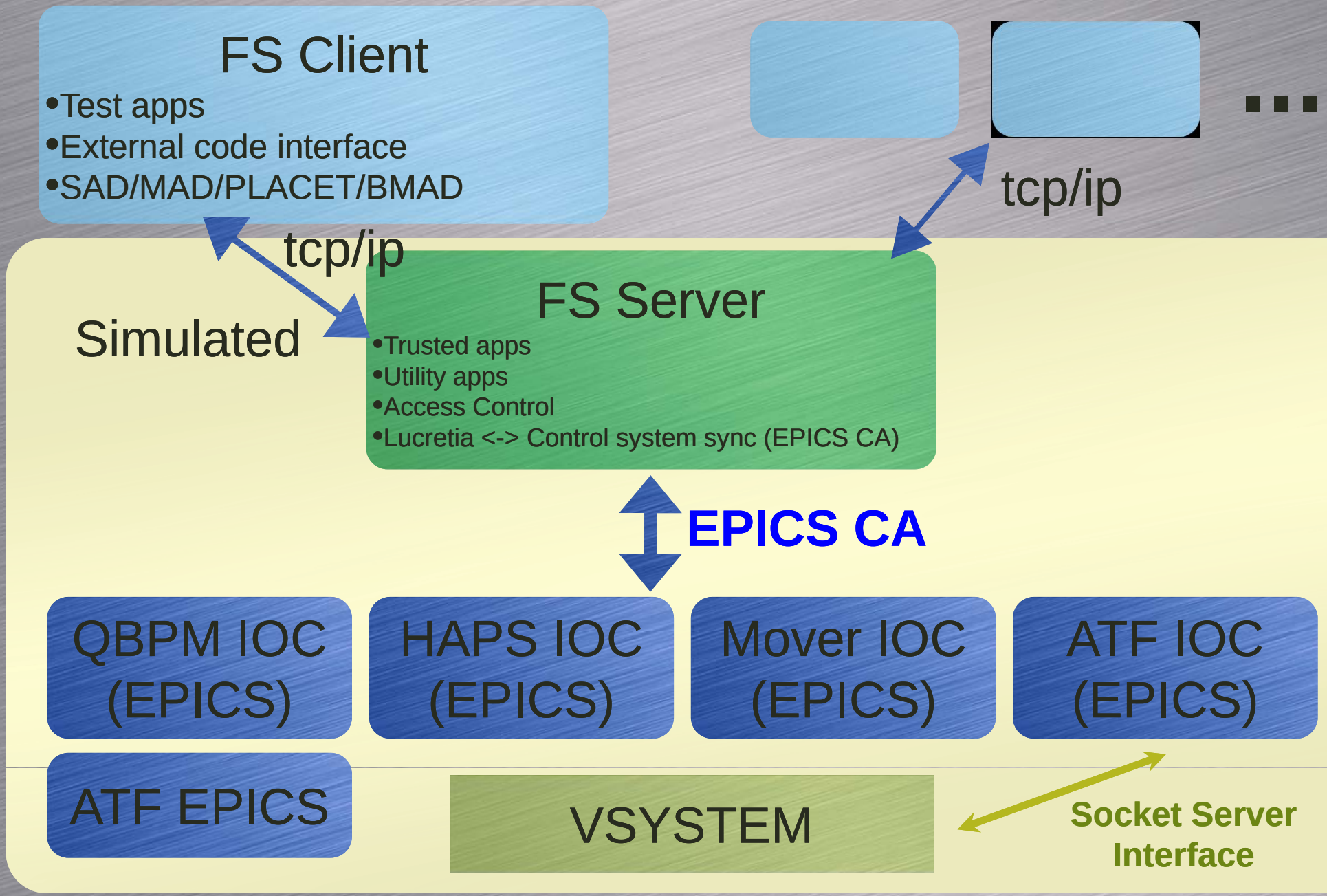
Flight Simulator Goals

- Provide simple to use, beam dynamics oriented, portable control access framework for ATF2 tuning tasks.
- Simple and reversible transition from beam dynamics simulation to accelerator ready code.
- Ability for international collaborators to develop beam tuning tools without need for expert level knowledge of control systems.
- Flight simulator operates in simulation mode at external location in the same way as the production system deployed at ATF2.

ATF2 Implementation

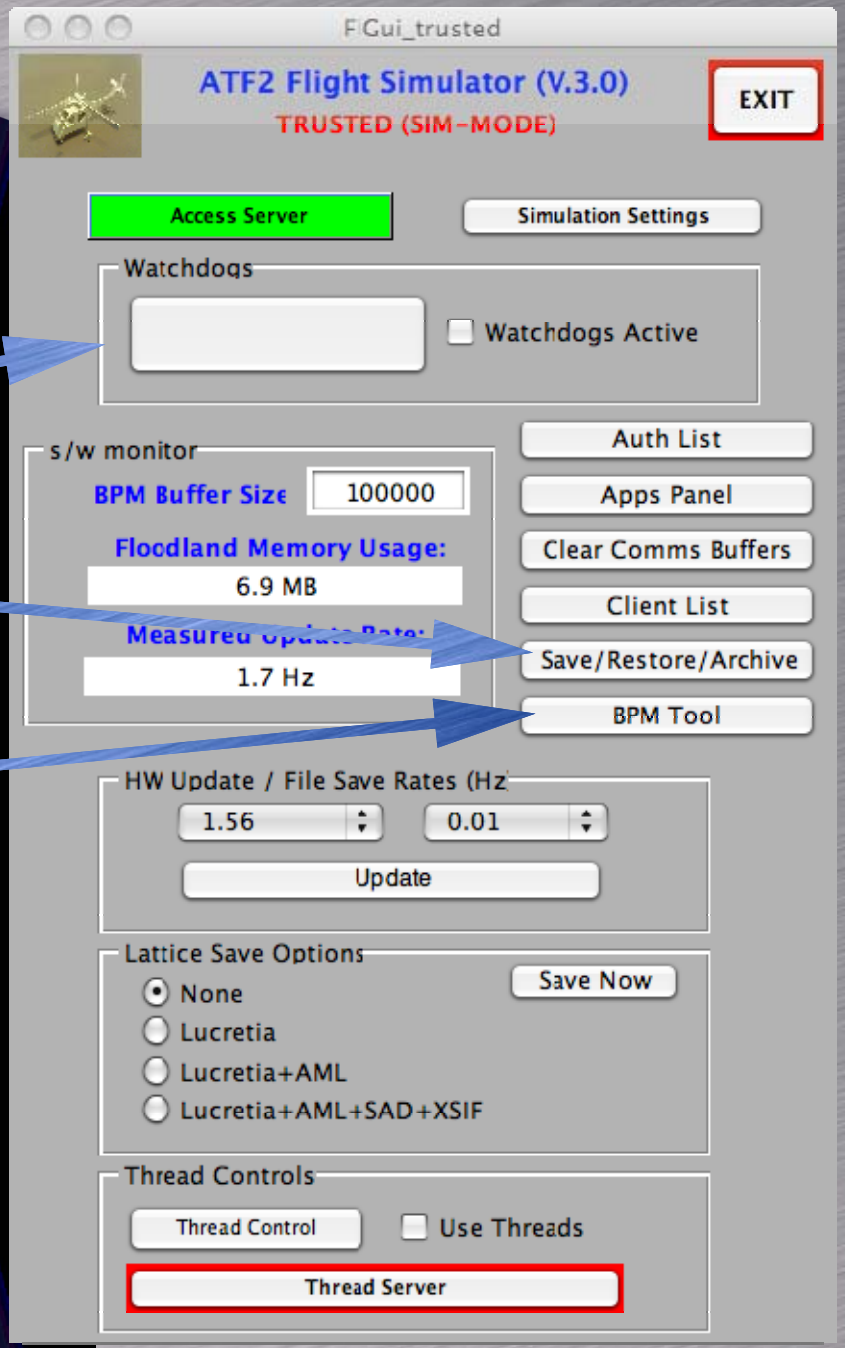


Simulation Mode



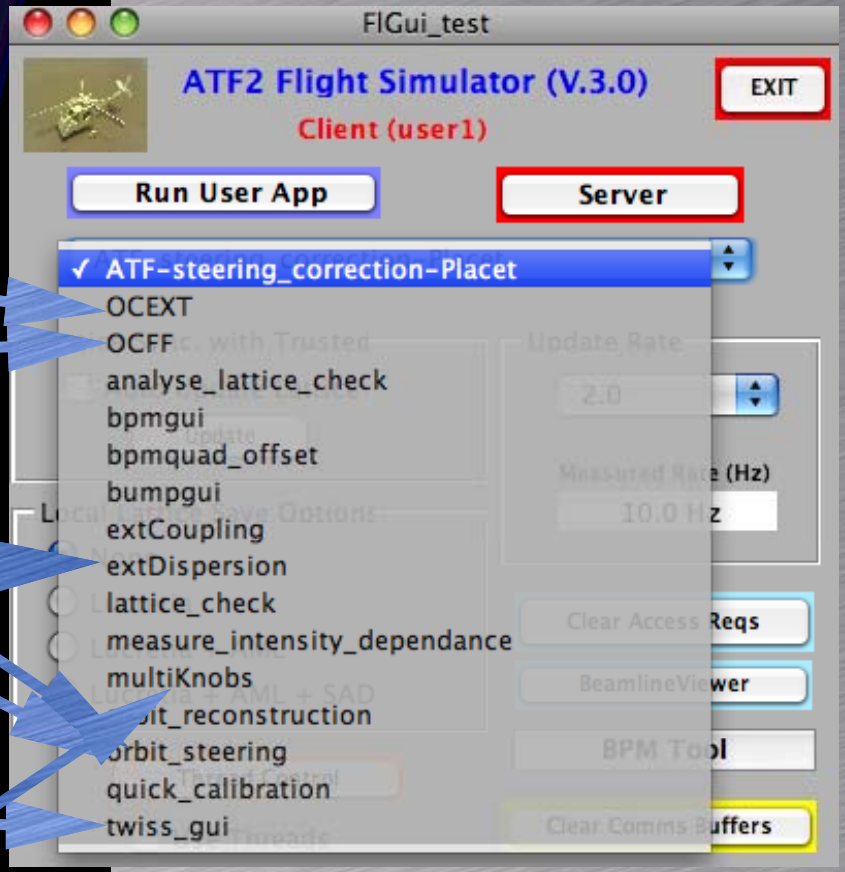
Server Development

- Watchdog apps
- Improved Archiver tool
- BPM tool
- Server available through VNC on controls subnet.

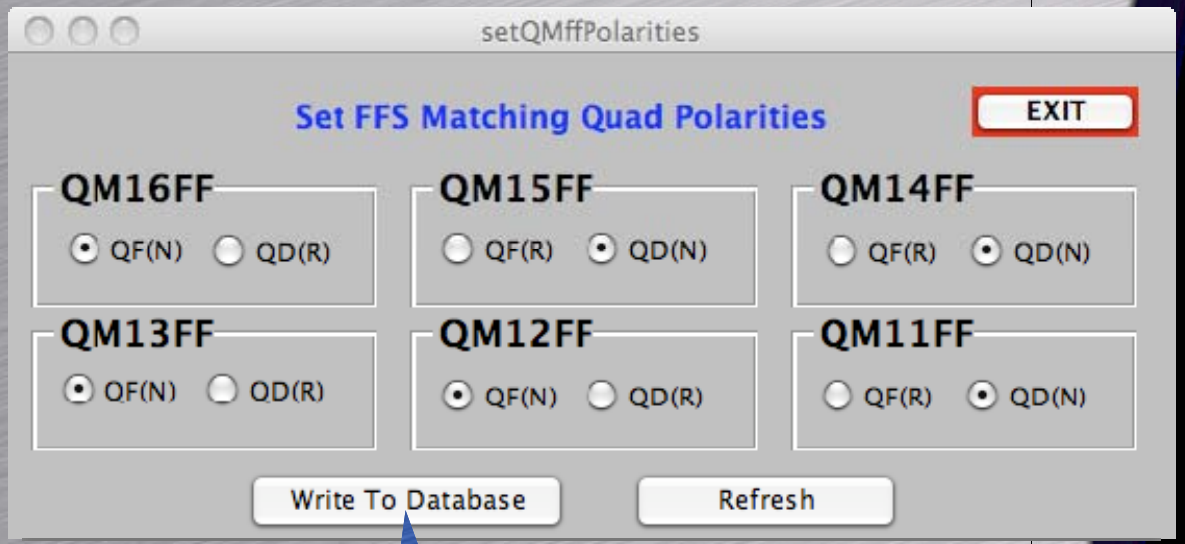


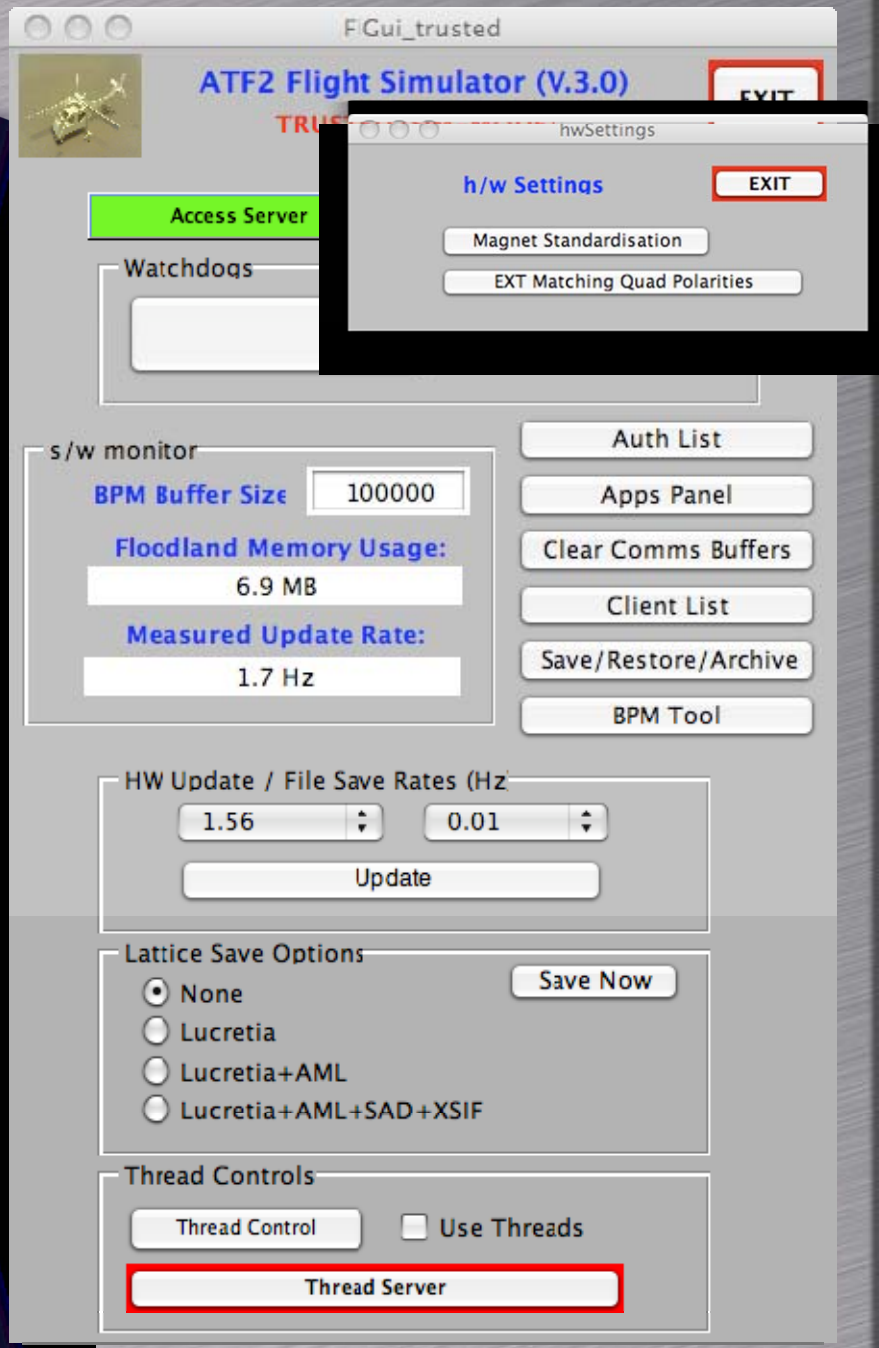
Client Apps Development

- EXT Steering
- FFS Steering
- Improved EXT dispersion tool
- Improved Twiss Tool with MAD interface
- IP multiknobs (functional interface only)



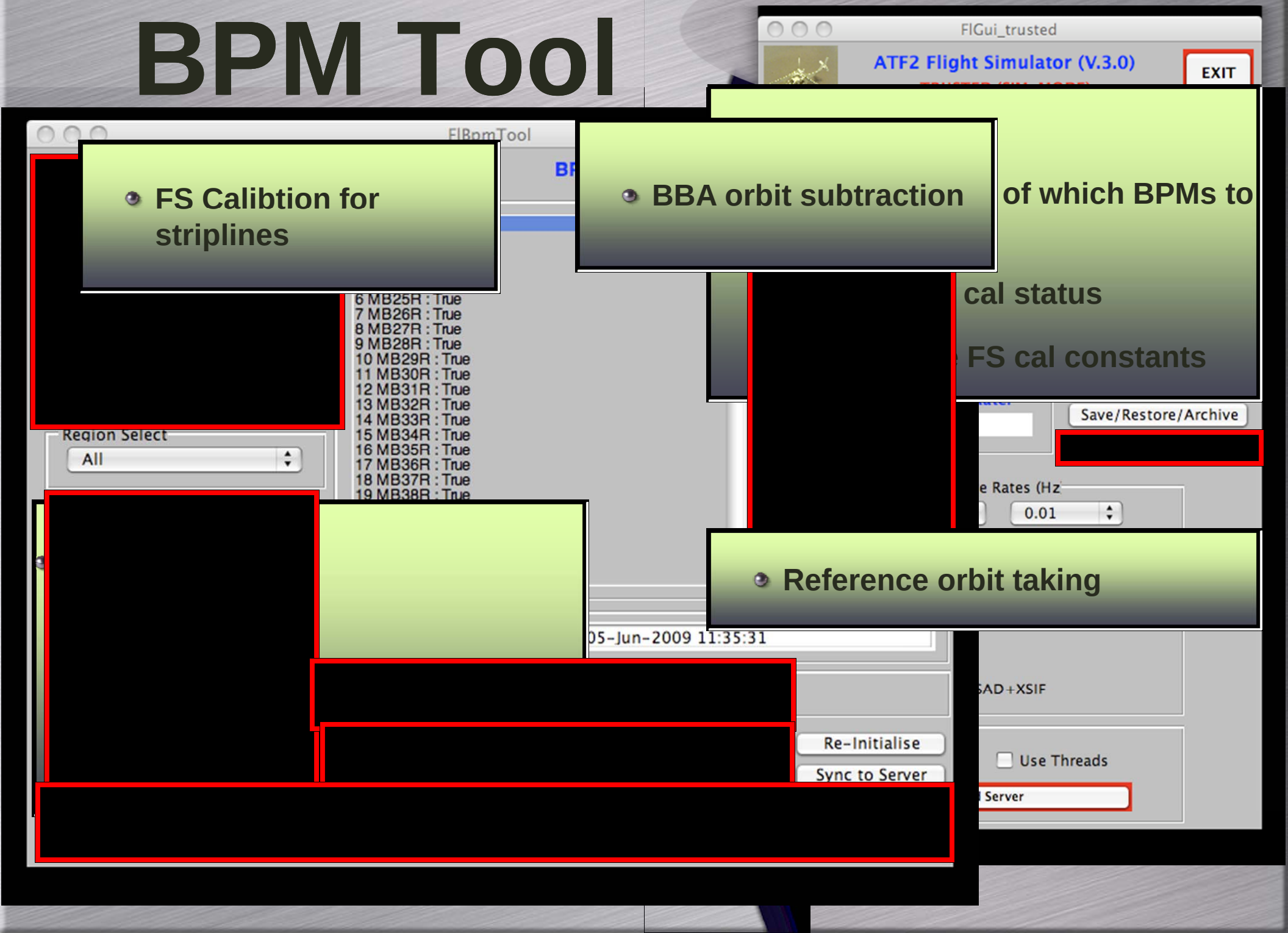
FFS Matching Quad Polarities





- Panel writes polarities (QF=1, QD=-1) to EPICS on pressing button

BPM Tool

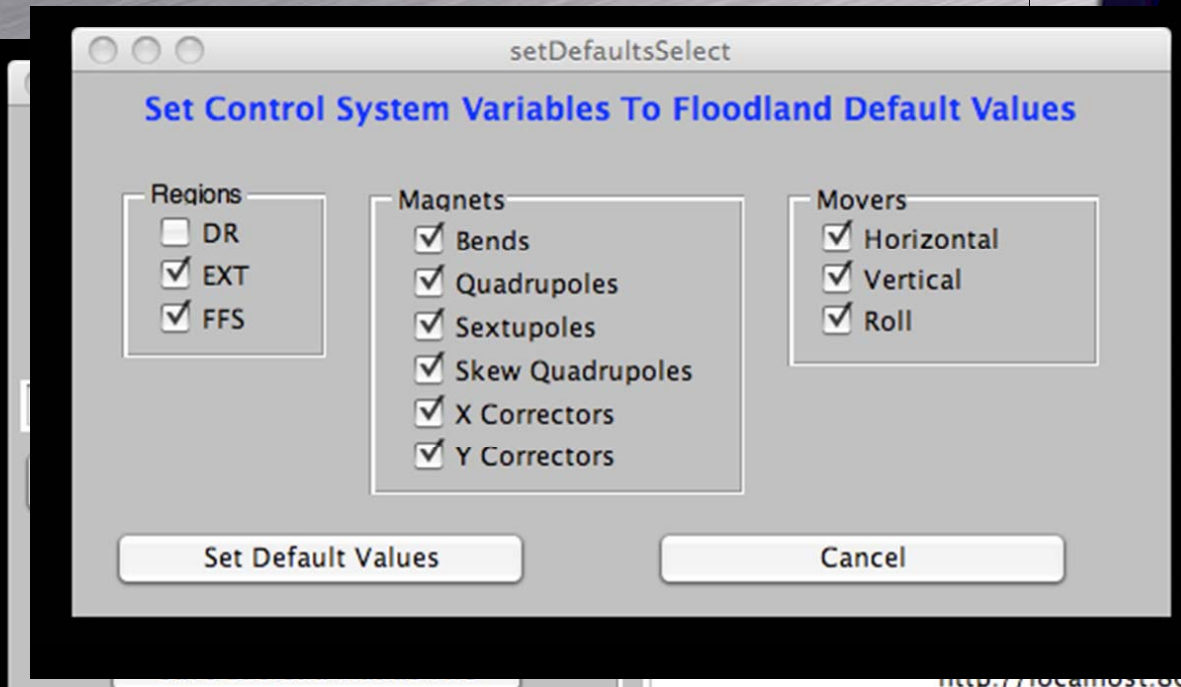


- FS Calibtion for striplines
- BBA orbit subtraction
- of which BPMs to
- cal status
- FS cal constants
- Reference orbit taking

Archive Tool

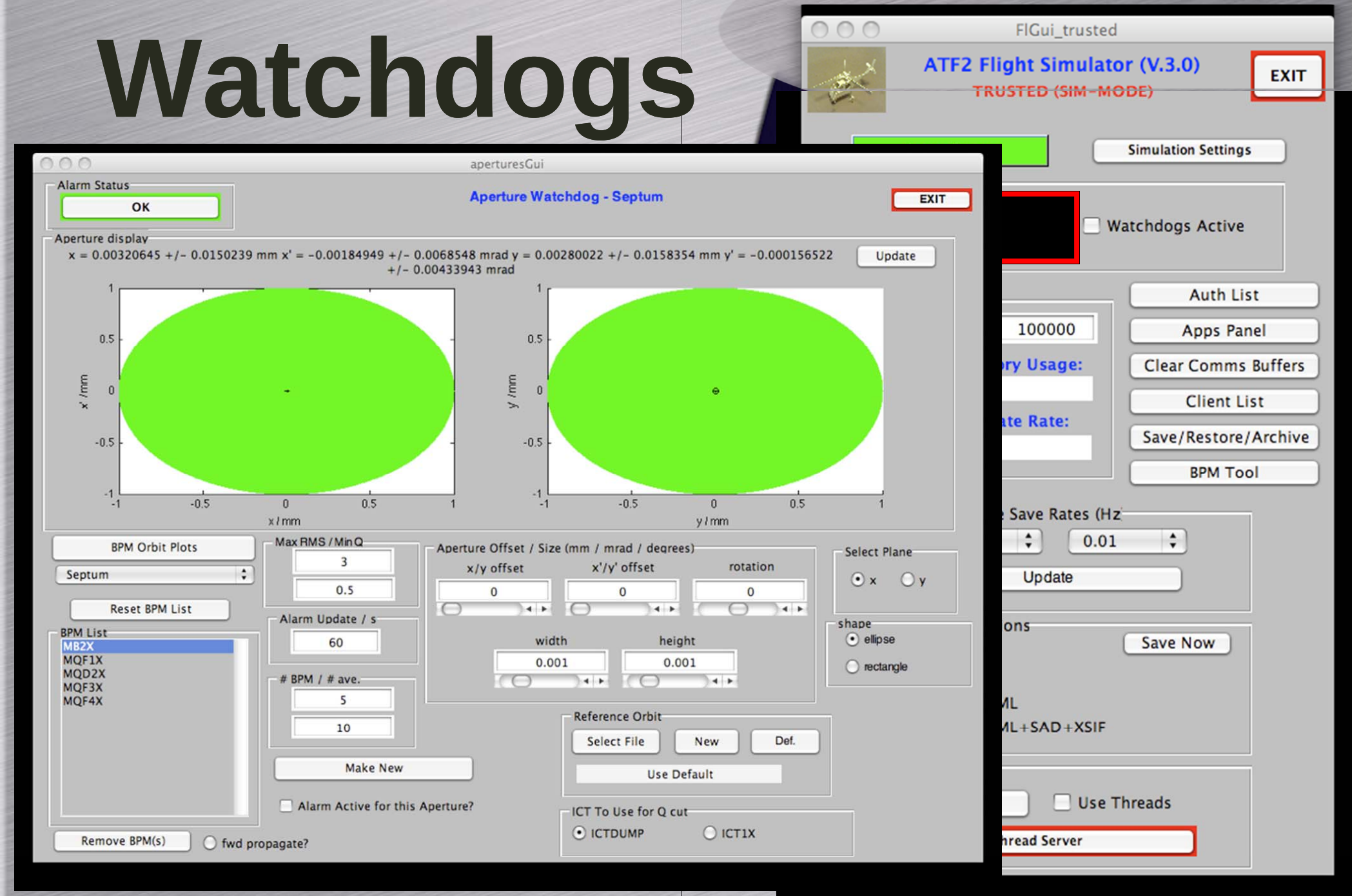
- Save/Restore from/to Matlab file or EPICS archive

- After restoring a known good file
- Set as default optics file
- Then option to restore some or all settings to control system.



- Ability to zero all movers simultaneously

Watchdogs


FlGui_trusted
ATF2 Flight Simulator (V.3.0)
TRUSTED (SIM-MODE)
EXIT
Simulation Settings
Watchdogs Active
Auth List
Apps Panel
Clear Comms Buffers
Client List
Save/Restore/Archive
BPM Tool
100000
Save Rates (Hz
0.01
Update
Save Now
Use Threads
aperturesGui
Alarm Status
OK
Aperture Watchdog - Septum
EXIT
Aperture display
x = 0.00320645 +/- 0.0150239 mm x' = -0.00184949 +/- 0.0068548 mrad y = 0.00280022 +/- 0.0158354 mm y' = -0.000156522 +/- 0.00433943 mrad
Update
x' /mm
x / mm
y /mm
y / mm
BPM Orbit Plots
Septum
Reset BPM List
BPM List
MB2X
MQF1X
MQD2X
MQF3X
MQF4X
Remove BPM(s)
fwd propagate?
Max RMS / Min Q
3
0.5
Alarm Update / s
60
BPM / # ave.
5
10
Make New
Alarm Active for this Aperture?
Aperture Offset / Size (mm / mrad / degrees)
x/y offset
x'/y' offset
rotation
0
0
0
width
height
0.001
0.001
Select Plane
x
y
shape
ellipse
rectangle
Reference Orbit
Select File
New
Def.
Use Default
ICT To Use for Q cut
ICTDUMP
ICT1X

Summary

- FS in use during 2009 run periods.
- Most debug issues now resolved
  - Connections to correct PSs / Movers / BPMs
  - Consistent co-ordinate system
  - FS stability
- Compiled list of core and test apps tweaks to do over summer shutdown period.
  - Also work on documentation.
- Planned more major developments to be reported on in next talk.