



Interaction of SSS Software *with* WIDAR Correlator



What Is “SSS”?

- SSS = Scientific Support Systems
- SSS \neq Monitor & Control
- SSS software captures what observers want to do, and how & when they want to do it.
 - Proposal Submission (formerly)
 - Observation Preparation
 - Observation Scheduling
 - Portion of Observation Execution?



Organization of SSS Software

- Applications:
 - Observation Preparation, Source Catalog, Hardware Configuration Catalog (2008), Calibrator Selector (2008), Scheduler
- Utility, Domain Model, Data Access, and some User Interface software are in common libraries shared by ALL applications
 - Knowledge of astronomy and hardware is not contained in the applications themselves, but in the libraries those applications employ

Configuring WIDAR (1 of 6)

- Upcoming “Week of Work” will determine:
 - SSS / DRAO responsibilities; i.e., which smarts go where
 - Interaction between SSS / DRAO software; e.g., SSS talking to (non-real-time instance of) Configuration Mapper for validation of configuration instructions
 - Detailed content of configuration instructions
- Rest of this section contains best guesses

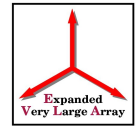
Configuring WIDAR (2 of 6)

- SSS will have object(s) that represent configuration of WIDAR. This object(s) will:
 - Know how to craft properly formed VCI messages
 - Speak correlator language of basebands and subbands
 - Be able to translate from science view (spectral windows) into correlator view (subbands)
 - Understand WIDAR specifics, e.g.: subband bandwidth restrictions, recirculation, correlator resources, etc.



Configuring WIDAR (3 of 6)

- Obs Prep Tool (OPT) will employ above object(s) to create WIDAR configuration while interacting with observer
 - Will application (eg, OPT) contact Config Mapper (w/ XML) or will this object(s) be expected to do that directly?
 - How smart will SSS object(s) be? So smart that it gains nothing from contact w/ Config Mapper?



Configuring WIDAR (4 of 6)

- OPT will deal with only a subset of VCI elements
 - subarray, basebandPair, subband
 - OPT might only *partially* populate some of these elements
 - E.g., not likely to populate stationHw
 - Probably store in DB in object-form (not XML)
- VCI messages will likely need to be completed by Executor (possibly Scheduler?)
 - By using same SSS object(s)?



Configuring WIDAR (5 of 6)

- SSS WIDAR configuration object(s) will give feedback regarding ability to support observer's requests
 - It might suggest several near-miss alternatives



Configuring WIDAR (6 of 6)

- User interaction in OPT
 - Users will be presented with hardware-neutral display that allows them to choose spectral lines and regions of continuum, and to specify various properties of these lines and regions
 - An “advanced” view will be more hardware specific
 - LO settings, baseband and subband placement, correlator resource allocation, CBE configuration, etc.

Work Schedule (1 of 2)

- User Interface
 - Group of scientists (Sjouwerman, Rupen, Owen, Hesman, Butler, van Moorsel) are guiding user interface
 - We're working with drawing programs at this point
 - User interface developers (Truitt, Rochford) have done R&D and proofs-of-concept for supporting req'ts in web browser
 - Conclusion: it can be done
 - Hardware config will be main UI focus 2008Q1



Work Schedule (2 of 2)

- Domain Model:
 - Recently created generalized and EVLA-specific code for antenna electronics
 - Prepares signals for correlator configuration
 - Can say “given input signals and LO settings, here's the outputs you get”. Cannot yet create LO settings based on known input and desired outputs.
 - WIDAR configuration will be main model focus for 2008Q1
 - Not expecting interaction w/ config mapper in that qtr



The End