



EVLA Overall Software Design Final Internal Review

System-wide Services: User Interface

14 June 2004

System-wide Services: User Interface

Rich Moeser 1



Topics



- Design Goals
- Languages and Technologies
- Application Types
- Deployment
- EVLA Subsystem User Interface Needs
- Active Development
- Demo: Device Browser

14 June 2004

System-wide Services: User Interface

Rich Moeser 2



Design Goals



- Where possible, prefer general purpose UIs
 - Not hard-wired to a known interface
 - Resistant to changes in the EVLA System
- Thin (lightweight) rather than thick clients
 - Use thick (or rich graphic) applications only when necessary
- Simple and Intuitive
 - Easy to learn
 - Reduces the time it takes to train users
- Cater to both expert and novice users



Design Goals (cont.)



- Consistent Look and Feel
 - Adhere to prescribed set of user interface guidelines
- Easy to deploy
- Common EVLA Communication Infrastructure
 - Communicate with all EVLA devices in the same manner
 - Will be determined by the recently established Distributed Object Communication team



Languages and Technologies



- Most of our development will be done using the Java programming language
 - Platform Independent, “Write once, run anywhere”
 - Object-oriented
 - Extensive tool and library availability
 - Strong industry support
 - Many years combined experience of EVLA developer staff



Languages and Technologies (cont.)



- Java environments downloadable from Sun
 - J2SE (JRE)
 - Includes JVM, Java Plug-in and Java Web Start
 - JDBC, JFC/Swing
 - J2SE (SDK)
 - Same as JRE, adds compilation and debugging tools
 - J2EE (Enterprise Edition)
 - Adds JSP, Servlets and XML tools



Languages and Technologies (cont.)



- Castor
 - Java/XML data binding framework
- HTML
- Jython
 - A Java Python interpreter
- Thinlet
 - Lightweight GUI library (< 38KB)
- Maven
 - Project management and comprehension tool



Application Types



- Web-based Applications
 - Ubiquitous
 - Most often used for static form-based applications
 - Easy to deploy
 - Supporting Technologies: Java Applets, JSP, Servlets, JDBC
- Standalone Java Applications
 - Typically run on desktop or laptop PCs
 - More dynamic than Web-based applications
 - Provide richer graphics and tend to be more full featured than Web-based applications



Deployment



- Web-based Applications
 - Need only deploy HTML files, Servlets to Web server
- Java Web Start (for standalone Java applications)
 - A Java application deployment mechanism
 - JWS applications can be launched from a browser or from the desktop, but unlike Applets, JWS applications do NOT require a browser
 - Automatically checks and downloads any changes to the application



Subsystem UI Needs



- Proposal Construction, Submission and Management
 - Users: Astronomers and NRAO personnel
- Program and Observation Preparation
 - Users: Astronomers
- Observation Scheduling
 - Users: Operators (Astronomers)
- Observation Executor
 - Users: Operators
- Monitor and Control of AMCS/CMCS
 - Operators, Engineers, Techs, Developers
- Observation Status Screen
 - Users: Astronomers



Active Development: LabVIEW Adapter



- Provides a means of monitoring and controlling EVLA devices via LabVIEW screens
- The first version of the LabVIEW Adapter was released the first week of June
- LabVIEW screens are currently being developed for T304 module
- The same code used by the Device Browser to connect to the MIBs is also used by the LabVIEW Adapter
- Deployed using Java Web Start. See <http://www.aoc.nrao.edu/asg-internal/maven-test/jnlp/jnlp.html>



Active Development: Device Browser



- The Device Browser is a general-purpose GUI that displays hierarchical information about the device to which it is connected
- Being used for Ant 13 testing
- Capable of connecting to any MIB and the CBE. In the future it will connect to any EVLA device
- Provides both monitor and control capabilities
- Default screens exist for Devices, Monitor Points and Control Points
- Custom screen generation
- Deployed using Java Web Start
- Runs on Desktop and PDAs



Demo: Device Browser



JETS: edu.nrao.evla.ets.plugins.Navigator

File Edit View Go Tools Help

Source: evla-mib-19 TCP UDP TCP/MIB

evla-mib-19 evla-mib-d

- AZPos
- Mode
- ELPos
- AzPosCmd
- MtrCtrlCmd
- EIPosCmd
- LimitTime
- MAX_RDY_CLEAR_TRIES
- FRM
- PSV
- Gnd
- P15V

Property Sheet

value	261
min	90
aa_period	300
max	630
intercept	0
p7	0
p6	0
p5	0
name	AzPosCmd

evla-mib-10:null

File Options

ACU.AzPosCmd 53.166.5982.17

AzPosCmd 67

67.0 Go

Plot

67.0

14 June 2004

System-wide Services: User Interface

Rich Moeser 13