Corrélateur WIDAR Correlator

# Correlator GUI

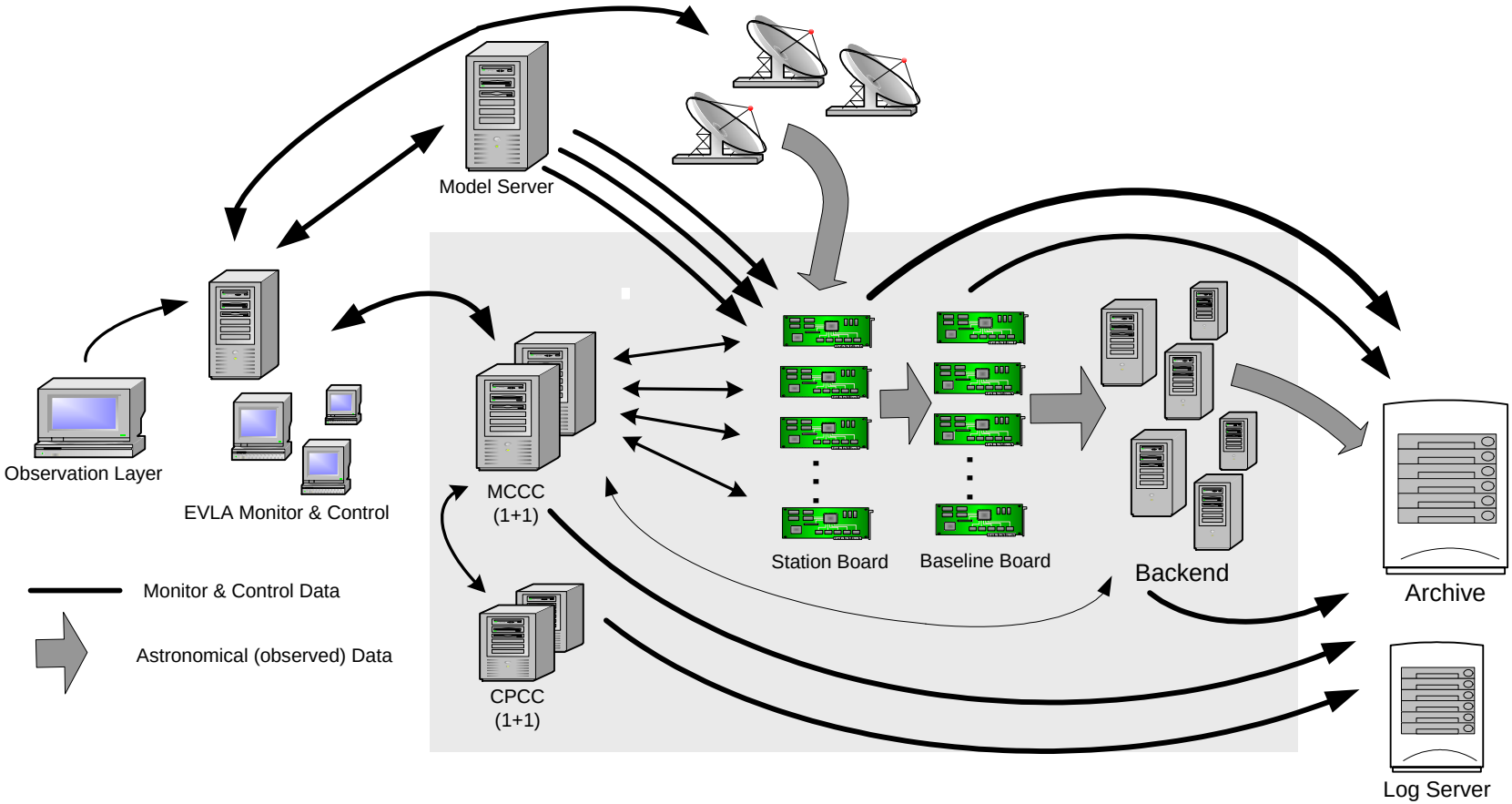
*Sonja Vrcic*

Expanded Very Large Array

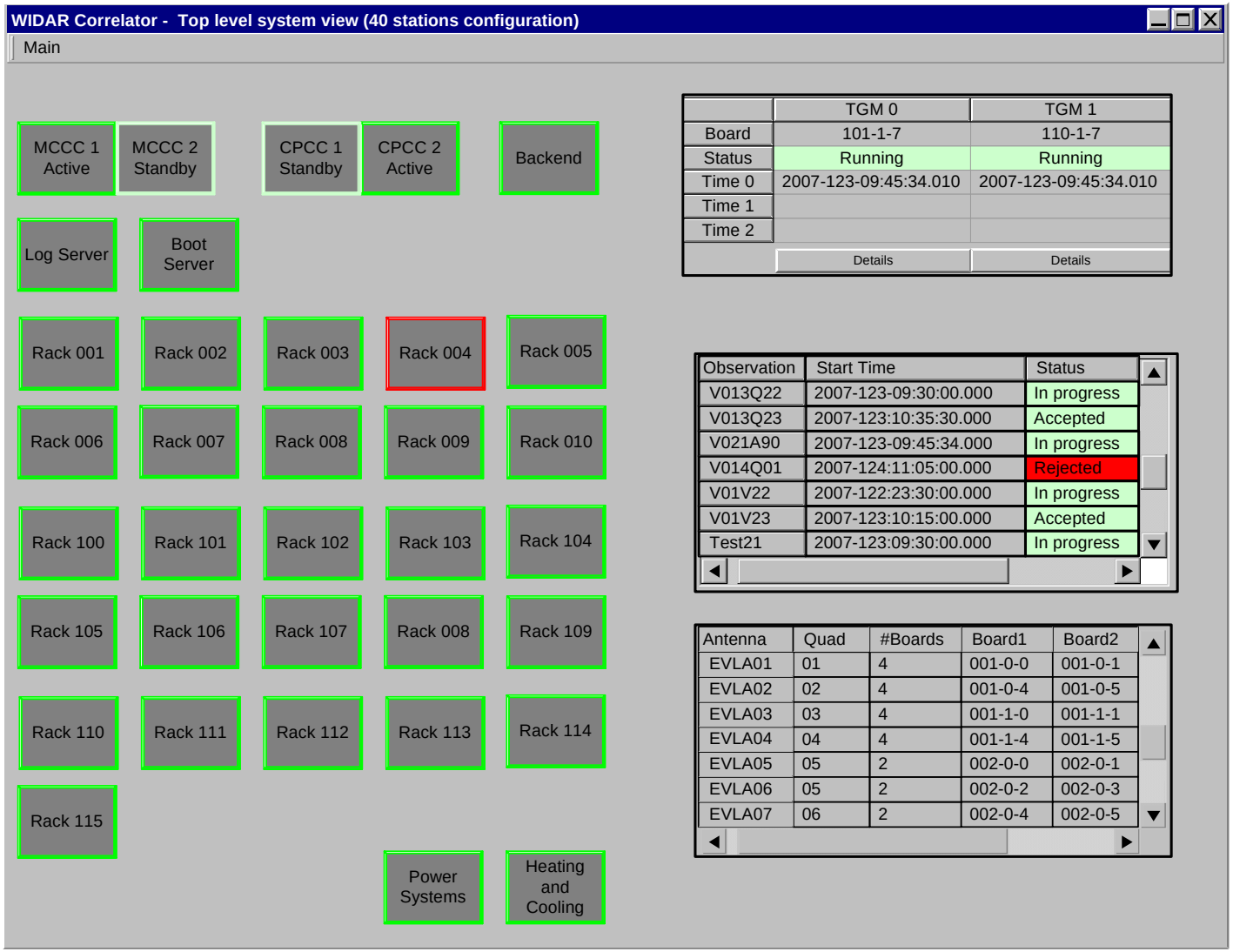
# Outline

- Top level WIDAR Correlator GUI
- Requirements for the testing of the board prototypes
- Concept of the observation configuration
- Station Board GUI – Demonstration

# Full Configuration



# Correlator Top Level GUI



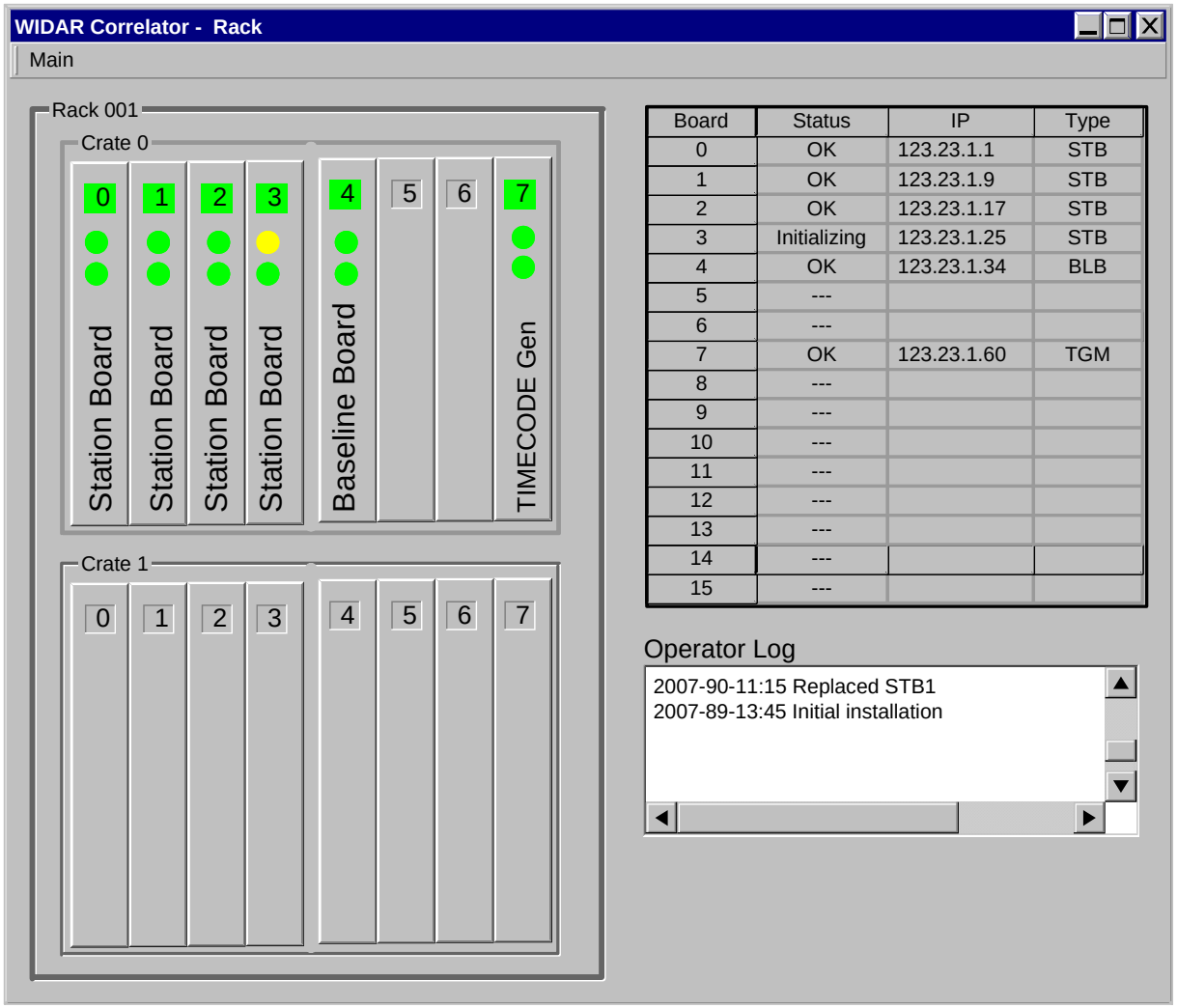
# Components

- Some subsystems, such as MCCC, CPCC, Backend, Log Server, should be always present in the system, and are always shown in the GUI.
- The number of racks that contain Station, Baseline, and Phasing Boards may vary.
- Racks that contain Station, Baseline and Phasing Boards may be added as they are detected.
- A new rack is added to the GUI screen when a newly detected board is located in a rack that does not already exist on the screen.
- A new rack can be added manually. For example, when user wants to configure in advance boards that are not currently not active, or not yet installed.

# Functionality

- Color is used to indicate component status.
- Double click on the component opens a window with configuration parameters and status for the selected component.
- Time: When M&C GUI (and system) is fully implemented, time on the main screen should be read-only. For testing purposes, user may be allowed to change time via the main Correlator GUI.
- Observation builder will be used to configure observations.
- Antenna to Station Board connections: In the fully implemented system, antenna table in the Correlator GUI should be read-only.

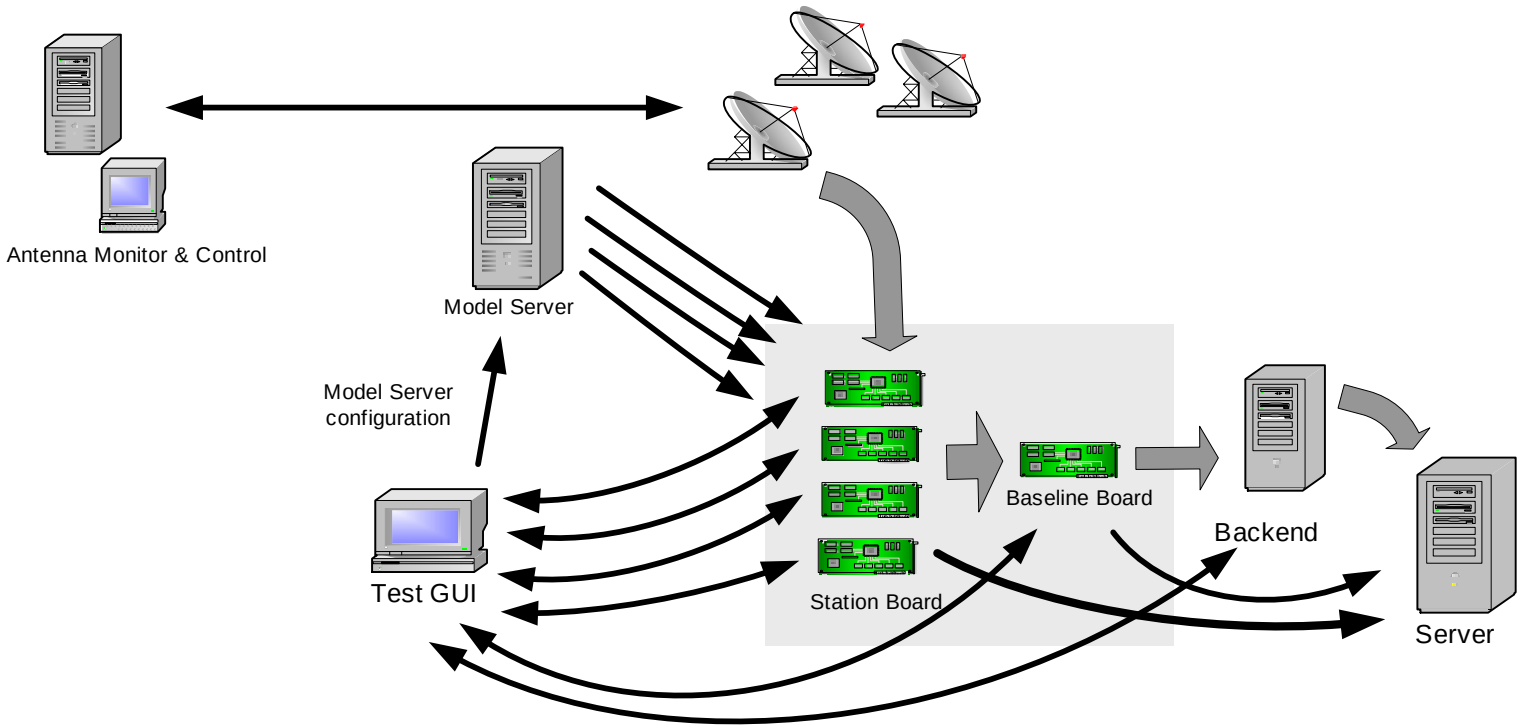
# Rack



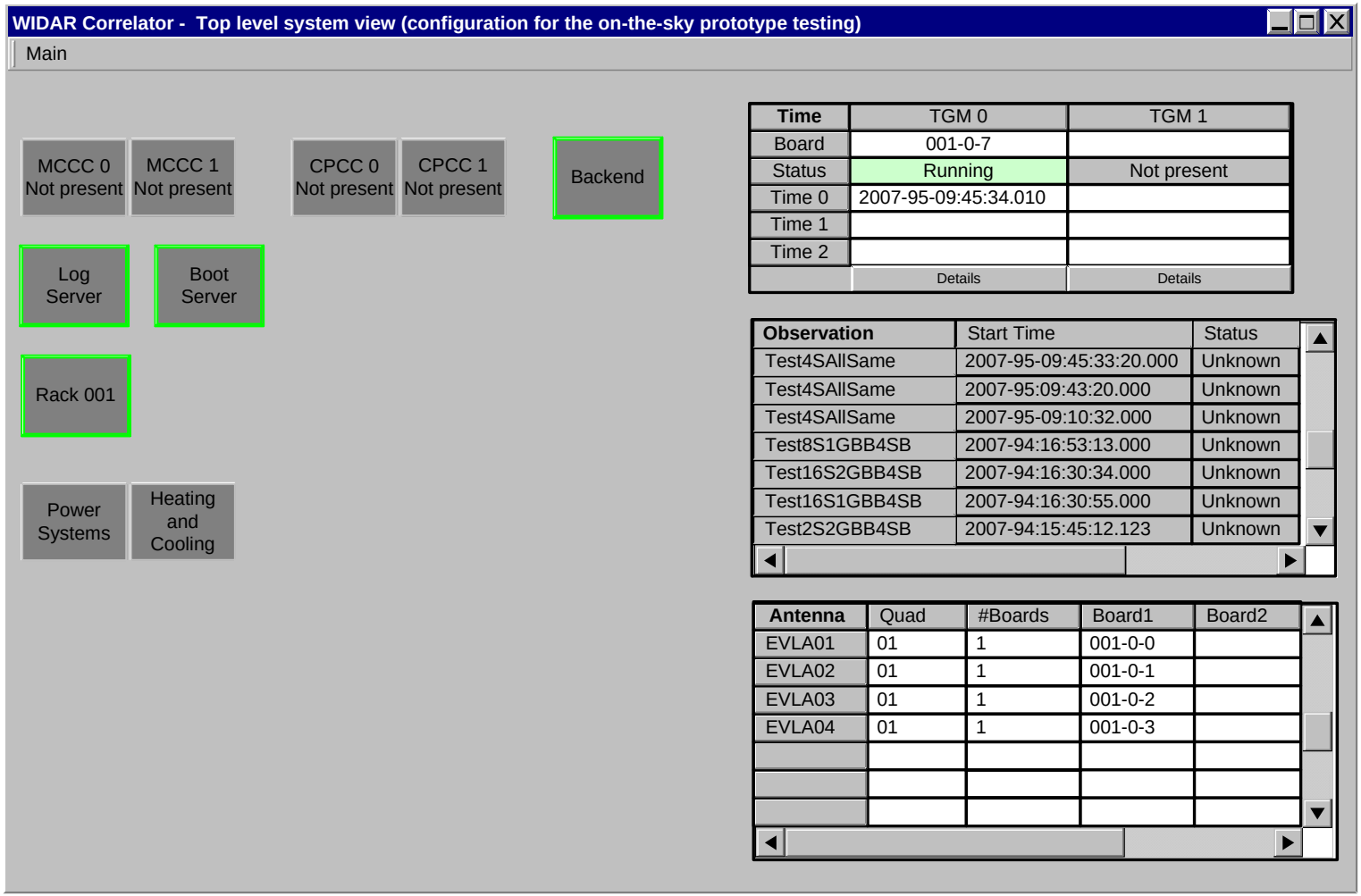

**IP address:**
**x.y.rack.crate+slot+type**

**For this example:**
**STB_1 00 000 001**
**STB_2 00 001 001**
**STB_3 00 010 001**
**STB_4 00 011 001**
**BLB_1 00 100 010**
**TGM_1 00 111 100**

# Test Configuration



# Single Rack Configuration



# Boards

- GUIs for the Baseline Board and Station Board are in the final phase of development.
- Station Board and Baseline Board GUIs are not included in this document - the actual implementation will be demonstrated.
- Similar interface will be (*should be*) provided for the other correlator subsystems.

# Prototype Testing: Configuration

- In fully implemented system, the correlator will receive configuration as a series of messages that define:
  - basebands / subbands, and
  - required products.
- Sophisticated software will be provided to translate high-level observation description to correlator configuration. Translation may be performed in two (or more) steps.
- For the testing of the prototype boards (including on-the-sky test) each Station and Baseline Board must configured individually.
- To expedite configuration process GUI interface allows user:
  - to copy configuration from one board to the other.
  - to copy configuration from one component (chip) to the other.
  - to save board configuration as an XML file.
  - to re-load configuration from the file and modify it.

# Observation

- Observation may be defined as a list of parameters and files that contain configuration for the boards and other elements of the system.
- In addition to the Station Board and Baseline Board configuration, observation may contain the time setting, models, antenna to Station Board connections, etc.
- Observation can be saved as an XML file.
- Observation file is a repository that contains references to *all* the files that are needed to configure and run an observation.
- Observation file may include references to files that are not created and interpreted by the Correlator GUI.

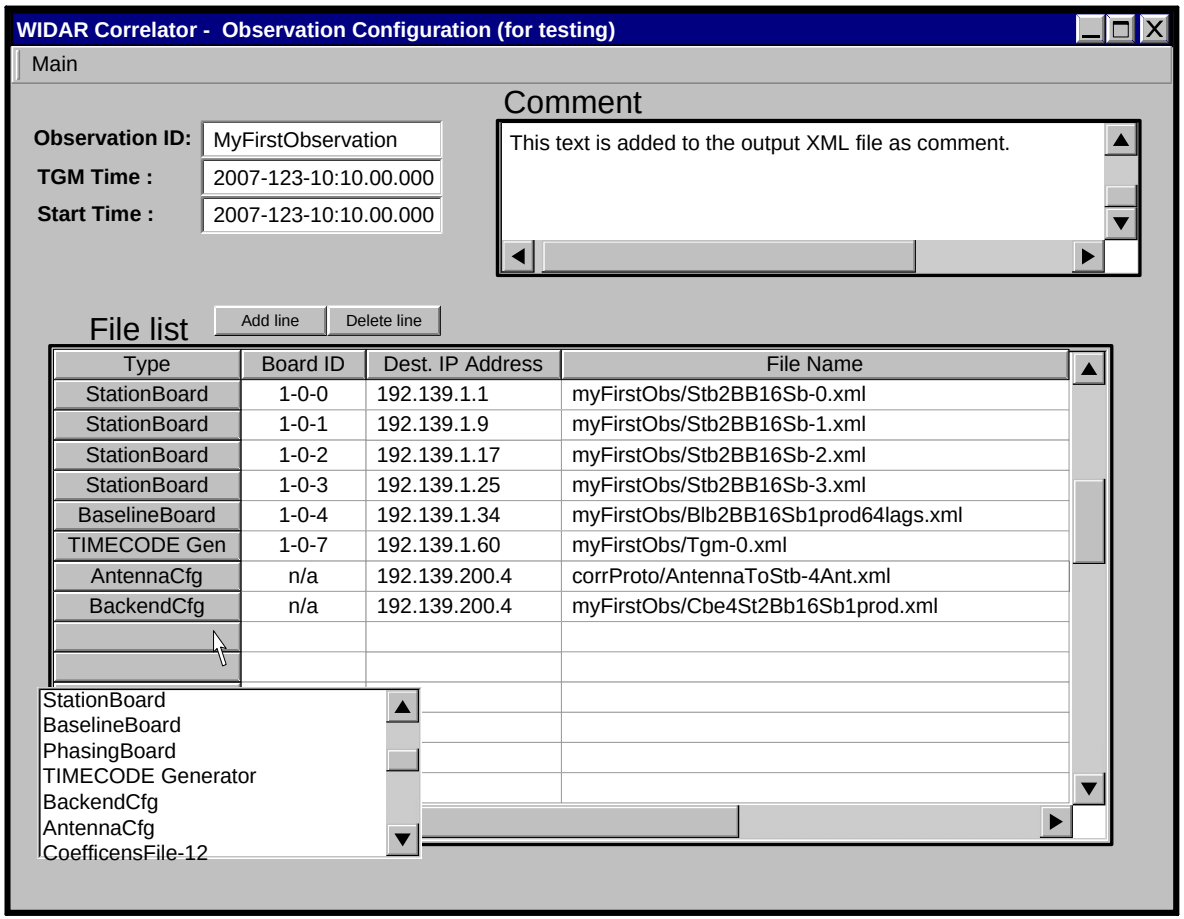
# Observation File

- For each file user must specify:
  - File name (path)
  - IP address (or name) of the target system and
  - Type.
- When "*save observation*" is selected, an XML element is created for each specified file, as follows:

  <File destination="123.23.1.009" type="StationBoard" fileName="stb3.xml" />

  <File destination="123.23.200.001" type="AntCfg" fileName="ant3.xml" />
- If GUI does not recognize file type, it does not read the content of the file. When "configure" command is selected, the file name is forwarded to the target system.
- This scheme does not require the GUI to be updated each time when a new file type is introduced by one of the correlator subsystems.

# Test GUI: Observation Configuration




Main Menu:
Save to file
Read from file
Configure
Close this window

# Status

- Top level GUI and configuration of observation – design proposal
- Baseline Board - to be completed in April 2006
- Station Board - to be completed in April 2006
- TIMECODE Generator (test version) – Completed
- Phasing Board – board development postponed
- Graphical representation of the correlator output – design completed
- Monitor & Control functionality for the following subsystems has not been integrated:
  - Station Board Fiber Optic Receiver Module (FORM)
  - Backend
  - Model Server (not part of the correlator, will be needed for on-the-sky testing)
- FORM and Backend provide each own CLI.
  - To allow for automatic re-configuration, CLI commands could be specified in the text file and added to the observation file.

# The End