

Automated Tracking Station Software Test Plan

Updated August 17, 1998

Scope

This test plan verifies all of the automated tracking station software with the exception of individual device graphical user interfaces. Procedures for testing and verifying those GUIs is contained in the document *General Device Interface Certification Procedure (Local Mode)*. This document is Appendix D of the User's Guide. All automated tracking station software documents are available on the internet at <http://www.wff.nasa.gov/~code584/awots.html>.

Environment

- Pentium processor or better for all Node and Master computers
- Minimum 128 megabytes RAM
- Windows NT 4.0
- Hardware devices connected to Node computers via RS232 port (and in some cases an IEEE converter) on Digiboards. The 11-meter antenna system node is on an HP computer.

Resources

Procedures for complete system software installation are listed in the document *Automated Tracking Station Software Installation Guide*. The following files need to reside on the system:

- Application executables (*.exe)
- Initialization files (*.ini)
- Device configuration files (***Default**.*)
- Informational files (*.txt)
- Device hardware information files (***HardwareSpecs.txt**)
- Device status update files (**WcDev***.status)
- Application help files (*.hlp)
- Registry files (*.reg)

The following files are also required:

- Support dynamic link libraries (*.dll)
- Applicable MFC dll's (i.e. **mfc42u.dll**), MSVC dll's (i.e. **msvert40.dll**)

Assumptions

- The tester is knowledgeable in the basics of Windows program operation including features such as pull-down menus, toolbars, and "drag and drop".
- The software has been installed on the test computers (Masters and Nodes).
- The devices to be tested have been setup and correctly connected to the Node computers.

Procedures

A checklist is provided for every item to facilitate testing. Check the box for each item that passes. If any item fails, add a comment on the form. The comment should give details about why the item failed the test.

The tester may also add any other comments to the form. If the comments pertain to another item, then cross-reference with the appropriate item number.

Checklist

A check box precedes each of the following procedures. This check box is to be checked if and only if the test passes; i.e. the statement is true.

1.0 Initialization of the computer systems (Nodes and Masters).

q 1.1 Power on all equipment attached to the Nodes.

q 1.1.1 Ensure equipment is in Remote mode (if applicable).

q 1.2 Power on all the Node computers.

q 1.3 Log in as **Operator** on all Nodes. (See system administrator for password).

q 1.4 Wait for the **General Resources Manager Devices** (GRM) to start automatically.

The GRM window displays the devices that are listed in the registry file (*GRM*.reg*) on that Node. (This was done during installation.) The GRM window will list the devices that are properly connected to the computer and ready for communication from the Node computer. Any unavailable devices will be listed as such in this window. Unavailable devices are those not connected or in remote mode.

q 1.4.1 The GRM is ready when you see **Ready.....** in the GRM window.

q 1.5 Start the **General Resources Manager Operations** (Second GRM) application by selecting it from the **Start** menu.

q 1.5.1 This GRM is also ready when you see **Ready.....** in its window. The software is now ready to monitor and control equipment remotely or locally.

Note: The software is now ready to monitor and control equipment locally (from the Node computer). For local mode testing refer to in the document *General Device Interface Certification Procedure (Local Mode)*. This procedure is not necessary to verify automation software.

q 1.6 Ensure GRM on all Remote Nodes are ready.

q 1.7 Power on the Master computer(s).

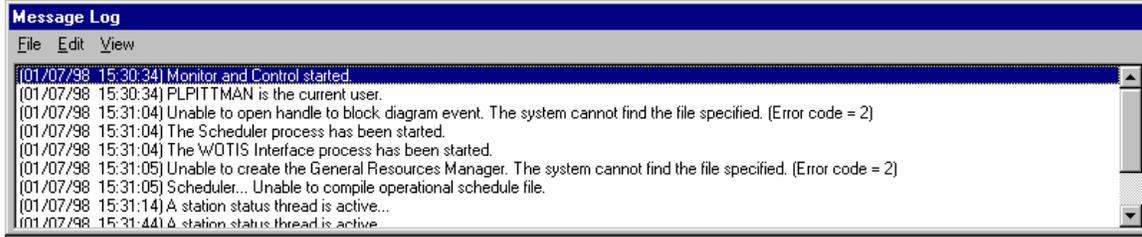
q 1.8 Log in as **Operator** on Master(s). (See system administrator for password).

q 1.9 Wait for the Master processes to start automatically.

q 1.10 On one Master (either one is fine) answer **Yes** to the question “*Should this Master become the Scheduling Master?*”

q 1.11 On one Master (either one is fine) answer **Yes** to the question “*Should this Master become the Reporting Master?*”

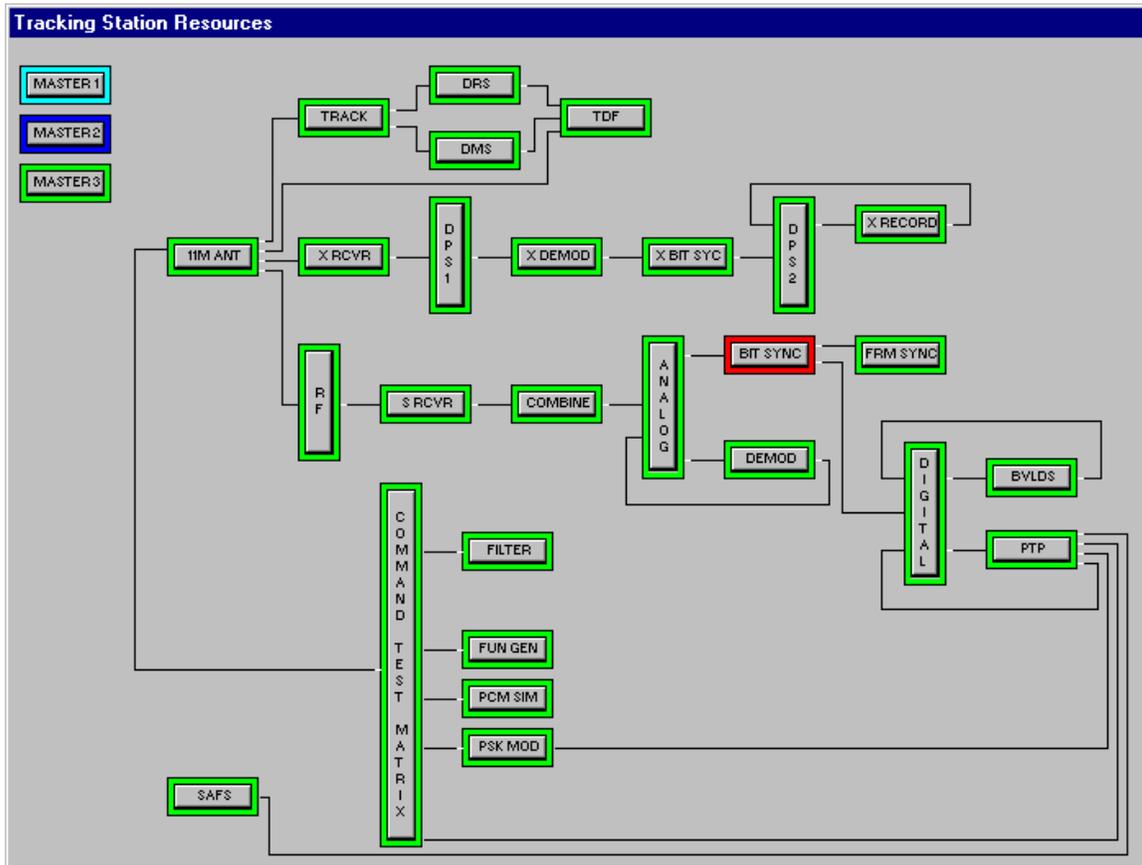
q 1.12 In the lower left-hand portion of the window in the **Message Log**, the following messages appear:



The Message Log window

“The 11mAntenna Interface has been started.”
“This Master is now the Scheduling Master.”
“11mInterface ... Send socket initialized for SA11meter#1 at WPS”
“11mInterface ... Listen socket initialized for SA11meter#1 at WPS”
“11mInterface ... Sending login request to 11meter XIFSOCK”
“11mInterface ... Remote login to 11meter system approved”

- q 1.13 From the menu **Window**, choose **11-Meter Antenna** or click on the button **11M ANT** in the block diagram window (**Tracking Station Resources**).



The Tracking Station Resources Window

- q 1.13.1 The 11meter high-level status window displays.
- q 1.13.2 The 11meter high-level status window is being updated with status packet information.

- q 1.14 In the **Message Log**, the following messages appear:

“Accepted remote socket connection.”

“Remote user logged in.”

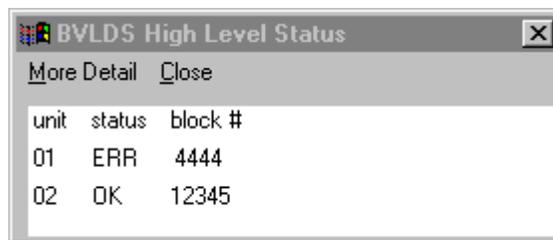
“Remote request for passlog.”

“Remote request for tapelog.”

Note: The software is now ready to automate the tracking station by monitoring and controlling equipment remotely (from the Master).

2.0 Remote control of devices.

- q 2.1 Click on the block diagram button corresponding to the type of equipment.
- q 2.1.1 The **High Level Status** window for that type of device window displays. This window can be moved anywhere on the screen



A High Level Status Window

- q 2.2 In the **High Level Status** window, double click on the specific unit to be controlled.
- q 2.2.1 A graphical user interface (GUI) low-level status window displays. This is the same GUI that is used for local control of the device and for setting up configuration files that are used in the profiles.
- q 2.2.2 The status window displays on top of a set of cascading windows in the device GUI.
- q 2.2.2.1 **Status** window(s) parameters may update/change periodically. If not now, resize the **Status** window so that all the parameters are visible. Monitor and control of a device can be further verified by observing the presence of movement of an animated pendulum.
- q 2.2.2.2 Resize the **Settings, Control** or similar window(s) and change a parameter that is also displayed in the **Status** window. Click the **Apply Now** button and it should change in the **Status** window.



Enabled Apply Now button

- q 2.2.2.3 Status light (if applicable) – In the **Status, Control** or similar window(s) this is green or red:



Status Lights

Note: All GUI functionality available in local control is now available remotely. (See *General Device Interface Certification Procedure (Local Mode)*. This document is Appendix D of the User’s Guide.)

3.0 Automation of a scheduled event.

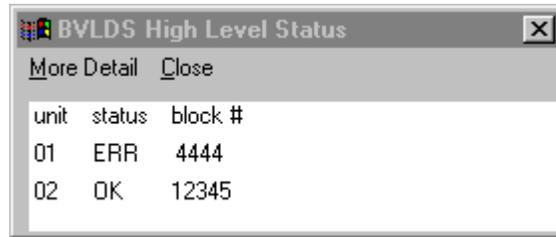
- q 3.1 Approximately 12 hours before AOS, a schedule is sent from WOTIS. The event summary is listed in the **Operational Schedule** window.
 - q 3.1.1 In the **Operational Schedule** menu, choose **View Things to do list**.
 - q 3.1.1.1 A text file displays a list of events for all scheduled supports and resource information contained in the support profile. This window can be moved anywhere on the screen.
- q 3.2 Approximately 5-10 minutes before AOS, *INITIALIZATION* occurs (verify in **Message Log** window):
 - q 3.2.1 Remote request for *control upgrade* from the 11-meter antenna node.
 - q 3.2.2 FTP of ephemeris from the Master to the 11-meter antenna node.
 - q 3.2.3 Remote request to *load* the ephemeris file at the 11-meter antenna node.
 - q 3.2.4 FTP of schedule to the 11-meter antenna node.
 - q 3.2.5 Remote request to *load* schedule file at the 11-meter antenna node.
 - q 3.2.6 Remote request for *control downgrade* in order to return control back to at the 11-meter antenna node operator.

Note: The scheduled support is displayed in the upper right of the 11-meter antenna node HP GUI at **NEXT SCHEDULED EVENT**.

- q 3.3 Device “*Request*”s are sent to the nodes (verify in **Message Log** window):
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
- q 3.4 Approximately 3 minutes before AOS, 11-meter antenna moves into position.
- q 3.5 Approximately 2 minutes before AOS, *SETUP* occurs (verify in **Message Log** window):
 - q Device:_____ Unit(s):_____ (write device name and units)

- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q 3.6 The white-colored border (no status) turns green around the device buttons in the block diagram view when each device type is successfully setup and begins returning a “good” status to the master. A red color indicates an error.
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q 3.7 Approximately 1 minute before AOS, *START* occurs (verify in **Message Log** window):
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)

- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q **3.8** High-level status continues to return to the master updating the contents of the **High Level Status** window for each device (i.e. for the Metrum BVLDS recorders, the block number updates showing tape movement):



A High Level Status Window

Note: Not all devices will show a *changing* status. If further information is needed about a device, in the **High Level Status** window, double click on the specific unit to be controlled. See steps under **2.2** for further details.

- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q **3.9** At AOS, *START* occurs (verify in **Message Log** window):
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)

- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q Device:_____ Unit(s):_____ (write device name and units)
- q **3.10** At LOS, *STOP* occurs (verify in **Message Log** window):
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
- q **3.11** At LOS minus 1 minute, *TAKEDOWN* occurs (verify in **Message Log** window):
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)
 - q Device:_____ Unit(s):_____ (write device name and units)

- q **3.12** After *TAKEDOWN* is complete reporting to WOTIS and SAFS occurs (verify in **Message Log** window).

At this time several files are FTPed to their designated destinations. These files include pass results and metadata.

Also at this time, the green/red colors around the buttons on the block diagram all turn white indicating that a status is no longer being polled from the devices.