SunGuide^{SM} Hot Wash-up Minutes
January 11-13, 2005, 8:30 am to 5:00 pm CDT
Southwest Research Institute
CDRL 6-4

Testing Attendees:

Liang Hsia, FDOT	Steve Corbin, FDOT
David Chang, PBS&J	Craig Vahle, FDOT
John Bonds, PBS&J	KaLung Man (Peter), MDX
Walt Townsend, ITS-Siemens	Bruce Farmer, SwRI
Steve Dellenback, SwRI	Lynne Randolph, SwRI
Robert Heller, SwRI	Roger Strain, SwRI
John Brisco, SwRI	John Schumitz, PBF

The following attended the TRR and participated in various times during the testing:

Steve Novosad, SwRI	Mike Brown, SwRI
Susan Crumrine, SwRI	

Subject: **Factory Acceptance Testing for SunGuide^{SM} Release 1**

Item #1 – TRR

- Steve Dellenback presented the TRR slides
- FDOT approved the SICP procedures as being adequate to test the Release 1 requirements

Item #2 – Testing Day 1 – January 11, 2005

- The following tests cases were executed:

  - User Administration (AS-1)
  - Device Administration (AS-2)
  - User and Device Database Tables (AS-3)
  - Log Configurability (SL-1)
  - Message Fields Logged (SL-2)
  - Log Viewer Capabilities (SL-3)
  - Status Logger ASCII Export (SL-4)
  - Display Software Version / System Health (SL-5)
  - Starting and Stopping SunGuideSM Services (EH-1)
  - Executive Handler Configurability (EH-2)
  - SunGuideSM Auto Restart (EH-3)
  - Data Abstraction and XML Support (DD-1)
  - Data Distribution (DD-2)

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- o Data Subscriptions (DD-3)
- o Data Bus Updates (DD-4)
- o Snapshots in the Data Bus (DD-6)
- o Map Access to DMS (DMS-1)
- o Send DMS Message (DMS-2)
- o Support NTCIP and Mark IV (DMS-3)
- o Support Message Libraries (DMS-4)
- o High Level DMS Status Support (DMS-5)
- o Amber Alert Support (DMS-6)
- o Internal DMS Operating Parameters (DMS-7)
- o DMS Sequences (DMS-8)
- o Support Portable DMS (DMS-9)
- o Map Access to Cameras (CCTV-1)
- o Barco Wall and IP Video Switching Support (CCTV-2)

- The following is the result of executing the 27 test cases:

  - o 25 of 27 test cases passed in their entirety. The other two were deferred:
    - (DD-4: observation of IM events being displayed) was deferred until the IM test cases are executed.
    - (DD-6: video snapshot capture) was deferred until the hardware and configuration files were updated.

- The following observations occurred during testing:

Test Case	Test Step	Comment
AS-1	Step 1	Administrative GUI failed to start. Discussion: Using Microsoft ASP and IIS sometimes requires web pages to be "reloaded" (for no fault of the application). This is commonly seen in web applications as one utilizes the Internet.
AS-2	Step 1	The test case says to select the camera, open the GUI, verify control of the camera via exercising the controls. Discussion: the test step is asking for a pass/fail on an operation that does not occur until test case DD-4 – the pass/fail was not entered until after DD-4 was completed.
AS-2	Step 2	The test case says to select the sign, open the GUI verify control of the sign. Discussion: the test step is asking for a pass/fail on an operation that does not occur until test case CCTV-1 – the pass/fail was not entered until after CCTV-1 was completed.

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Test Case	Test Step	Comment
SL-1	Step 2	Selecting the "Browse" button causes an exception. The use of the button was not part of the test so the test passed. Discussion: the problem noted was fixed in the TxDOT version of the product (but SwRI failed to get it into the FDOT version). SwRI applied the fix and demonstrated that it worked – the fix will be in the District 4 release.
SL-3	General	Would like the Status Log Viewer to query multiple log files. Discussion: enhancement request.
SL-3	General	Would like the Status Log Viewer to limit the number of days that files are stored (when the application is not in weekly roll-over mode). Discussion: enhancement request.
EH-1	Step 1	There is no security on EH viewer. Discussion: enhancement request – SwRI will evaluate if Windows security can be used on the application or if the application should be modified to include Windows credential checking.
EH-3	Step 2	Question was asked concerning how many attempts to start a process are implemented in the code. SwRI indicated that the software will attempt to restart indefinitely. Discussion: enhancement request.
EH-3	Step 3	During the initial test the email notification did not work Discussion: the testers had deviated from the script and as a result some of the SunGuide^{SM} processes were not running. The process "notify manager" was one of these and this is the process that generates the email. Once the process was started the email notifications worked.
DD-4	Step 4	IM had no events to demonstrate filtering required by the test case. Discussion: Need to retest after the IM subsystem has generated events (so the test can be accomplished).

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Test Case	Test Step	Comment
DD-6	Step 1	Video snapshots not working. Discussion: Video Snapshots require considerable configuration to match the hardware setup and the configuration files were not correctly setup. SwRI will fix the configuration file and retest later during the SICP process.
DMS-4	General	District 4 would like to be able to query, filter, search the message library. Some type of capability to type in a couple of letters and have some auto-sorting would be preferred. Discussion: enhancement request.
DMS-5	Step 8	The software does not report enhanced diagnostics failures automatically (e.g., fan, bulb, etc.). These failures are reported when a detailed status is requested. Discussion: SwRI will evaluate the impact to modifying the driver to request enhanced status rather than a simple status. Note that different protocols provide varying functionality when requesting detailed status.
DMS-5	Step 9	The neutral message did not replace the high priority message, but there was no priority resolution conflict displayed. This did not affect the test. Discussion: SwRI believes a message should be displayed, this will be evaluated and should be available for a District 4 installation.
DMS-5	Step 9	District 4 would like three priority message levels (low, medium, high) – system currently has two (neutral, high). Following priorities are desired: • Sequence should be low priority • IM should be neutral priority message • Operator should be high priority message Discussion: enhancement request.
DMS-5	Step 9	The operator default is high priority – should this be some other priority level? Discussion: when an operator enters manual message mode it is assumed that they are doing high priority messaging. No change is planned.

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Test Case	Test Step	Comment
DMS-5	General	Mark IV GUI or driver should always pick a default page time. District 4 recommends 2.6 and 3.0 seconds. Discussion: enhancement request.
CCTV-1	Step 1	Could the GUI select a lock automatically when the camera is selected? Steve Corbin does not want a single operator to have two cameras locked. • Select a camera – issue the lock (if not currently locked by someone). • All operators will have override permission enabled in D4. Discussion: Enhancement request.
CCTV-1	Step-10	Could the joystick have a button that goes to the next camera or previous camera? Discussion: Enhancement request.
CCTV-1	Step 10	How are different joystick configurations to be addressed? Discussion: Enhancement request to develop a joystick configuration tool.

Item #3 – Testing Day 2 – January 12, 2005

- The following tests cases were re-executed from the previous day

    o Data Bus Updates (DD-4)
    o Snapshots in the Data Bus (DD-6)

  Both test cases successfully passed.

- The following tests cases were executed:

    o CCTV GUI High Level Status (CCTV-3)
    o NTCIP Driver Support (CCTV-4)
    o Portable CCTV (CCTV-5)
    o DMS Video Verification (CCTV-6)
    o Supported Technology (CCTV-7)
    o Map Display of TSS Data (TSS-1)
    o TSS Data Updates (TSS-2)
    o TSS Device Drivers (TSS-3)
    o TSS Generated Alarms (TSS-4)
    o Configuration of TSS Devices (TSS-5)
    o TSS Error Logging (TSS-6)
    o TSS Data Elements (TSS-7)
    o Travel Time and Delay Display (TSS-8)

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- o SVG and ESRI Support (TSS-9)
- o Event Creation (IM-1)
- o Event Management (IM-2)
- o Recording Event Notifications (IM-3)
- o Diversion Route Maintenance (IM-4)
- o Response Plan Implementation (IM-5)
- o Associate Events (IM-6)
- o Response Plan Generation (IM-7)
- o Documentation Review (DR-1)
- o System General (SYS-1)
- o Conflicting Direction (SYS-2)

- The following is the result of executing the 24 test cases:

  - o 20 of 24 passed in their entirety.
  - o The following test steps were either skipped, failed or will be waived by FDOT:
    - ▪ Step 1 of CCTV-3 (power on/power off of NTCIP camera): this test failed, but will be waived by FDOT because the hardware devices do not support the feature. The software sends the appropriate command.
    - ▪ Step 4 of CCTV-4 (save PTZ, focus and iris on a preset): this test failed will be waived because the focus and iris were not stored with the preset. This test will be waived by FDOT because the hardware devices (Vicon and IDI/Pelco) only support storing of PTZ in a preset. The software sent the proper command. SwRI will gather documentation from the vendors on this issue.
    - ▪ Steps 6-11 of CCTV-4 were skipped (tests were verifying various NTCIP features): these tests required sending/receiving XML and the capability could not be exercised from the GUI so FDOT chose to skip these tests.
    - ▪ Steps 9-12 of IM-7 (displaying IM response plans with multiple lanes blocked): this test failed because the messages generated used a numeric "2" rather than a textual "two". SwRI will implement a modification.
  - o The following tests were deferred until the next day of testing:
    - ▪ Step 8 of SYS-1 (text of test: "*Based on the testing in IC-1, IC-2, IC-3, IC-4 and IC-5 does the SunGuide^SM system provide software tools that can be used to reduce congestion and delays while responding to traffic incidents in a rapid, accurate, and effective manner*").

- The following observations occurred during testing:

Test Case	Test Step	Comment
CCTV-3	Step 1	Power on/power off of NTCIP camera failed. Discussion: this test failed but will be waived by FDOT because the hardware devices do not support the feature. The software sends the appropriate command.

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Test Case	Test Step	Comment
CCTV-3	Step 3	Run-time error displayed on a GUI not under test (did not cause a test failure). Discussion: SwRI will fix (it is related to a GUI receiving a Video Wall update and if the dialog is not open the run-time error will occur).
CCTV-4	Step 4	Save PTZ, focus and iris on a preset: test failed because the focus and iris were not stored with the preset. Discussion: this test will be waived by FDOT because the hardware devices (Vicon and IDI/Pelco) only support storing of PTZ in a preset. The software sent the proper command. SwRI will gather documentation from the vendors on this issue.
CCTV-5	Step 5	XML response was missing in Appendix I – no test failure occurred. Discussion: SwRI will supply the missing XML.
CCTV-4	Steps 6-11	Test steps were skipped. Discussion: these tests required sending/receiving XML and the capability could not be exercised from the GUI so FDOT chose to skip these tests. An enhancement to add a screen to the CCTV GUI to support the display of the data will be generated.
CCTV-4	Step 12	The GUI listed "minutes" rather than "seconds. No test failure occurred. Discussion: SwRI will modify the GUI.
CCV-4	General	Control of iris and Focus on the Vicon (NTCIP version) may not have been working. No test failure was noted. Discussion: SwRI has verified that focus works, but manual iris does not work. SwRI is contacting Vicon.
TSS-2	Step 1	Requirement 5.2.3 was listed as tested and the test group agreed the requirement was not tested and should be removed from the test. Discussion: Since the requirement is report generation, it should be moved to the SYS-2 tests; SwRI will move this requirement.

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Test Case	Test Step	Comment
TSS-8	Step 1	XML for the test was included in the SICP. No test failures were noted. Discussion: SwRI will supply the XML.
IM-1	Step 1	The first time the test was run an authentication error (to IM) occurred. Logged in as a different user and the test passed. Request was made to allow the user to "drag" an incident icon to a different location. Discussion: the authentication error was related to a user being logged in more than once. An enhancement request for the icon dragging will be generated.
IM-2	Step 5	Recommendation was made (no effect on tests): • IM should associate roadway and direction with an automatically generated event. • IM should associate lane configuration with roadway locations. • IM should associate cross streets with location of an incident. Discussion: enhancement.
IM-2	Step 7	The email message was received (test passed), but a comment was made that the message would be far too long for users wishing to receive the message as a text message to their phone. Discussion: an enhancement will be requested that would allow a user configuration to specify whether or not the email should be short (i.e., a text message to a phone) or verbose (a traditional email).
IM-7	Steps 9-12	Displaying IM response plans with multiple lanes blocked: this test failed because the messages generated used a numeric "2" rather than a textual "two". Discussion: SwRI will implement a modification to the IM software.
IM-7	General	If an incident with a "duplicate name" was created the message created in the message box showed "informational" rather than "error". Discussion: the recommendation was to show this as an "error" rather than informational, SwRI will generate an enhancement request.
SYS-1	Step 8	FDOT postponed executing this test until the next day.

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Test Case	Test Step	Comment
SYS-1	Step 11	Text for the expected result stated "Did the tests pass?" This text did not match the test step. Discussion: change the text for expected result to "Were all the tests perform?"
DR-1	Step 2	FDOT asked for the basis for the computer sizing estimates contained in the SunGuide^SM *Computer Sizing Estimates* document. Discussion: SwRI will provide a short write-up to FDOT (the write-up will be placed in the *Computer Sizing Estimates* document).
SYS-2	Step 5	The test step was removed from the SICP by mutual consent.

Item #4 –Day 3 Final Wrap-up Meeting – January 11, 2005

- Resolution on signing the final test case was discussed:
  - o System General (SYS-1), step 8: text of test: "*Based on the testing in IC-1, IC-2, IC-3, IC-4 and IC-5 does the SunGuideSM system provide software provide tools that can be used to reduce congestion and delays while responding to traffic incidents in a rapid, accurate, and effective manner*".
    - FDOT failed this test step due to the fact that failures were noted in other test cases (see Day 2 notes).

- FDOT signed the front witness page indicating that the tests were executed.

- Summary of test results:
  - o Total of 47 (out of 51 test cases) passed in their entirety
  - o The fours test cases had issues with 12 test steps, a summary of those issues:
    - 2 failed: will be waived by FDOT because the available hardware will not support the FDOT requirement.
    - 4 failed: because a numeric "2" was displayed rather than "two" – SwRI will modify the software.
    - 1 failed: this was an umbrella test case that could not be passed if any other failures were noted; once the above failures are addressed this test case should pass.
    - 5 were skipped: they will be tested after FDOT modifies requirements to include GUI level access to the required functionality.