APPLICATION PROGRAMMING INTERFACE (API) WORKING GROUP (WG) MEETING
THURSDAY–FRIDAY, 08/25/16–08/26/16
WASHINGTON, DC

<table>
<thead>
<tr>
<th>ATTENDEES</th>
<th>VOTING MEMBERS AND RECENT ATTENDEES NOT PRESENT</th>
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<tbody>
<tr>
<td>Ralph Boaz, Pillar Consulting *</td>
<td>Craig Gardner, Intelight</td>
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<tr>
<td>Peter Shuttleworth, Econolite (for Robert Helliar) *</td>
<td>Clyde Neel, Naztec (Tues only)</td>
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<tr>
<td>Andy Zhang, Wapiti Microsystems *</td>
<td>Gary Duncan, Econolite</td>
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<td>George Chen, LADOT *</td>
<td>Neal Smith, NYSDOT</td>
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<td>Douglas Tarico, McCain *</td>
<td>Doug Spencer</td>
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<td>Herasmo Iniguez, Caltrans *</td>
<td>Frazier Groves</td>
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<tr>
<td>Peter Ragsdale, Self * (remote)</td>
<td>Joe Palsa, Clary</td>
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<td>Justin Anderson, Noblis</td>
<td>Kyle Irvin, Telvent</td>
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<td>Mike Gallagher, Intelight</td>
<td>Allen Judkiewicz, Noblis</td>
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<td>Siva Narla, ITE</td>
<td>Ken MacLeod, Naztec</td>
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<td>James Kinnard, Adaptive Solutions</td>
<td>Doug Crawford, Intelight</td>
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<td>Nicola Tavares, ITE (Thursday only)</td>
<td>Grant Gardner, Intelight</td>
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<tr>
<td>Mark Simpson, Peek (remote, Thursday only)</td>
<td>Mike Green, Trafficware</td>
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<td>Jean Johnson, NEMA (remote, Friday only)</td>
<td>Jean Johnson, NEMA</td>
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<td>Jeff Paniati, ITE (Friday only)</td>
<td>Richard Dickinson, Harris County</td>
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<td>Andy Zhang, Wapiti Microsystems *</td>
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<td>【* indicates a voting member of the Working Group.】</td>
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<tr>
<td>【Action items are assigned using the form &quot;[ACTION: LASTNAME]&quot;.】</td>
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<tr>
<td>【Motions voted on formally by the working group are identified by &quot;MOTION #&quot;.】</td>
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GENERAL
- Welcome from Siva Narla.
- Welcome from the Chairs, Douglas Tarico and George Chen.
• Introductions led by Ralph Boaz. Present were 7 of 11 voting members with 15 participants overall.
• SDO meeting conduct guidance provided by Siva Narla.
• Agenda reviewed by Ralph Boaz. The subject of the meeting is the APIRI Project Acceptance Testing. Modifications to agenda made during the meeting are included below.
  - Thursday, 8/25, 9:00 AM - 4:30 PM ET
    1. Welcome, Introductions, Meeting Conduct Guidance
    2. Agenda Review
    3. APIVS Software Acceptance Testing
    4. Lunch
    5. APIRI Software Acceptance Testing (Part 1)
    6. Adjourn Day 1
  - Friday, 8/26, 9:00 AM - 12:00 PM ET
    7. APIRI Software Acceptance Testing (Part 2)
    8. Walk through an example XML script showing how failure tests are performed
    9. Resolve issues with Configuration Manager Window and Utilities
   10. Project Status
   11. Adjourn Day 2

APIVS SOFTWARE ACCEPTANCE TESTING
• Testing led by James Kinnard and supported by Mike Gallagher.
• Document APIVS_TLOG_0104_160825.docx was distributed prior to testing containing all of the automated and interactive test procedures for the APIVS software.
• Automated tests on the APIVS software were started and run simultaneously while interactive tests were stepped through by James.
• Pass/Fail results and notes regarding the tests were captured in the APIVS_TLOG_0104_160825.docx.
• Other items discussed:
  – Discussed that it is the desire of the WG to revisit the decision to remove the `fpui_set_led` and `fpui_get_led` functions in one of the updates to the ATC 5401 Standard. There are multiple use cases and it is possible that need to be captured. This is to be added to a list of items to be discussed. [ACTION: BOAZ]
  – Discussed that it would be a good idea to put the software headers with the licensing agreements as a separate document in GitHub. [ACTION: BOAZ]
  – In APIVS Test 2 - Multiple and Concurrent Applications, the number of the applications in the test procedure and the number in the test application need to be consistent. [ACTION: KINNARD]
  – Discussed that the runAPIVS script file script should be enhanced to include a check for glibc. It currently, only checks for uClibc. [ACTION: KINNARD]
  – Discussed that it would nice to have compiled API Software (binary) for each manufacturer on the GitHub repository or a link to where one could get it from the manufacturer. Would it be possible to also have the compiled BSP for the manufacturer’s engine board? To discuss at a later time. [ACTION: BOAZ]
  – Discussed that a paragraph be added to the top of the runAPIVS script file describing what the user can do with the script file and the options that are available. [ACTION: KINNARD]

APIRI SOFTWARE ACCEPTANCE TESTING
• Testing led by James Kinnard and supported by Mike Gallagher.
• Document APIRI_TLOG_0104_160825.docx was distributed prior to testing containing all of the automated and interactive test procedures for the APIVS software.
• Automated tests on the APIVS software were started and run simultaneously while interactive tests were stepped through by James.
• Pass/Fail results and notes regarding the tests were captured in the APIRI_TLOG_0104_160825.docx.
• In APIRI Test 2 - TOD Time Handling Functions, there is a test for calling of the API Time-of-day functions from a non-root account. This has been stricken as a requirement per the API Working Group. Needs to be stricken from Test Documents. [ACTION: KINNARD]
In APIRI Test 3 - Front Panel Manager and ATC Configuration Menu:
- Step 4, the test documentation regarding the ATC Configuration Information screen needs to be updated to reflect changes agreed to by the committee. [ACTION: KINNARD]
- Step 5, need to confirm whether the backlight should be on or off. [ACTION: KINNARD]
- Step 5, appears that there may be a bug in the backlight. [ACTION: GALLAGHER]
- Step 11, on this particular screen it should not scroll. [ACTION: GALLAGHER]
- Step 16, there is a consistent issue on exiting the configuration utilities using <**Next>. It was discussed that the method identified in the standard and in the current software could not be made to work as documented. It was the consensus of the API WG that <Escape> should be used and that instead of a table for specifying utility functions, that utility functions should register for the configuration window in a similar manner that applications register for the front panel manager. This needs to written up and voted on by the API WG. [ACTION: BOAZ/GALLAGHER]
- Steps 17-21 not runnable due to error in step 16.

In APIRI Test 4 - System Configuration Utilities, Steps 6, 13, 22, 25, and 28 had the same problem as APIRI Test 3, Step 16.

APIRI Test 5 - Intrinsic API Requirements. All passed.
APIRI Test 6 – FIO Serial Ports and Status Counters. All passed.
APIRI Test 7 – FPUI Display Presence and Size. All passed.
APIRI Test 8 - FPUI Bell Activation and Application Termination. All passed.
APIRI Test 9 - FPUI Display Graphics. This test was not run. An automated test case was developed in its place. This was a draft test procedure. To be removed and archived for future reference but it was not runnable at this time. [ACTION: KINNARD]
APIRI Test 10 - FPUI Display Focus. All passed.
APIRI Test 11 - System Configuration Menu Display. All passed.
Since this test used the configuration utilities approach, it will need to change as per APIRI Test 3, Step 16.

WALK THROUGH AN EXAMPLE XML SCRIPT
- James Kinnard walked the group through an example XML script showing how testing of failure states were performed.

RESOLVE ISSUES WITH CONFIGURATION MANAGER WINDOW AND UTILITIES
- Discussed that issues exiting the Configuration Utilities were an issue with the both ATC 5401 Standard and the APIRI software.
- Discussed that Douglas Tarico had an issue posted on the APIRI repository suggesting that <Escape> be used to exit a configuration utility since <**Next> is used as a navigational feature elsewhere.
- Mike Gallagher suggested that changes be made so utility programs can register themselves instead of using a separate table as is currently used in the ATC 5401 Standard.
- If the file method of setting the Configuration Utilities is used then the location of the configuration file needs to be documented in ATC 5401. [ACTION: BOAZ]
- A proposal needs to be made for making the configuration utilities work properly so that he API WG can vote on the change. [ACTION: GALLAGHER/BOAZ]

PROJECT STATUS
- Ralph Boaz went through an up to date schedule for the project. The project is currently one week behind schedule but it is still within the period of performance of the project contract.
- Critical items are as follows:
  - Documents that require 508 compliance preparations will need time to complete. Must complete the documents and send to ITE. [ACTION: BOAZ/GARDNER/GALLAGER/KINNARD]
  - Complete any software updates. [ACTION: GALLAGHER]
Changes to the software and retesting must be confirmed via teleconference.

ADDITIONAL ITEMS
- Peter Ragsdale asked that there be better coverage of the time functions by the testing in the future. This will have to be done by the users of the repository at some point in the future.
- The requirement APIR3.1.2[1] should be revised as to not be ambiguous: The API expects to have exclusive access to the serial ports used for FIO devices (APIR3.1.2[1]). [ACTION: BOAZ]
- Raw Logs and XML from the testing needs to be distributed. [ACTION: KINNARD]
- The requirement APIR3.2.1[13] needs to be examined: When the API displays the Configuration Menu, the screen attributes of the ATC Configuration Window shall be set to the values of the controller unit at power up as described in ATC Controller Standard, Section 7.1.4. [ACTION: BOAZ]
- Enable/Disable Services does not enable/disable on the fly. The system has to be rebooted to invoke a change in status. Should be stated explicitly in the standard? [ACTION: BOAZ]
- Enable/Disable Services does not enable/disable on the fly. The system has to be rebooted to invoke a change in status. Should be stated explicitly in the standard? [ACTION: BOAZ]
- Need a better specification for the emergency mode flashing of the backlight. In a cabinet, an application could be flashing the controller backlight for months at a time and wear it out. [ACTION: BOAZ]
- Jeff Paniati led discussion on creating announcements and outreach that is easily understood by the industry. Suggest working with Michelle Birdsall and others to help develop the message. [ACTION: BOAZ/NARLA]
- The test logs from the testing need to be distributed. Also the raw logs from the automated testing. [ACTION: BOAZ/KINNARD]
- **Summarizing the results of testing is difficult due to the following:**
  - There was a change in the procedure "APIRI Test 9 - FPUI Display Graphics" to be an automated test instead of a procedural one.
  - There were multiple tests that failed due to the identical Configuration Utility error.
  - The automated tests tested significantly more of the APIRI software than the procedural tests.
- The API WG decided to summarize the testing as follows:
  - There were original 165 Pass/Fail opportunities in APIVS and APIRI testing. There were 2 anomalies discovered; 2 trivial typographical errors on configuration utilities; and 6 errors that had to do with the identical &lt;&lt;Next&gt; issue. The API WG assessed an approximate 98% correct for the APIRI and APIVS software.

NEXT MEETINGS/TELECONFERENCES
- To be determined.