ATC API WORKING GROUP MEETING
MONDAY-WEDNESDAY, 12/14/09-12/16/09, ATLANTA, GA

ATTENDEES
  • Douglas Tarico, Siemens *
  • Neal Smith, NYSDOT *
  • Peter Skweres, Mn/DOT *
  • Steve Alonge, Noblis
  • Robert Helliar, Econolite *
  • Steve Kapp, nFocal
  • Tom Gauger, nFocal
  • Ralph Boaz, Pillar Consulting *
  • Siva Narla, ITE
  • Andy Zhang, Wapiti Microsystems * (via web conference)
  • Herasmo Iniguez, Caltrans * (via webconference)
  • Peter Ragsdale, Consultant * (via web conference)
  • Joe Palsa, Clary Corp. (via web conference, Monday/Tuesday only)
  • Doug Crawford, Intelight (via web conference, Tuesday only)
  • George Chen, LADOT * (via web conference, Wednesday only)

VOTING MEMBERS AND RECENT ATTENDEES NOT PRESENT
  • Jarrid Gross, E-VIEWS Safety Systems *
  • John Thai, City of Anaheim *
  • Ron Johnson, Harris County, TX *
  • Ken Montgomery, GADOT *
  • Bob Rausch, TransCore *
  • Kyle Irvin, Telvent *
  • Bill Brownlow, AASHTO
  • Jean Johnson, NEMA
  • Mark Clark, Siemens
  • Bruce Winner, Telegra
  • Henry Wickes, TxDOT

[* indicates a voting member of the Working Group.]
[Action items are assigned using capitalized last names in brackets.]

GENERAL
  • Introductions led by Douglas Tarico.
  • Meeting Conduct Guidance given by Siva Narla.
  • Reviewed the voting membership of the Application Programming Interface (API) Working Group (WG). No changes.
  • Additions/Modifications to the Agenda
    – Time permitting may discuss corrections to standard.

API STANDARD VERSION 2 PROJECT STATUS
  • New schedule was presented by Ralph Boaz that accelerates the project even though it is starting later than planned. This is due to the termination of the current contract vehicle between the USDOT and the SDOs.
  • The new schedule is to be circulated. [BOAZ]

API STANDARD VERSION 2 REQUIREMENTS DISCUSSION
  • Reviewed WGD API Standard 2.08 distributed prior to the meeting and draft screen designs.
  • Reviewed User needs in Section 2.2. The paragraph on API Utilities and subparagraphs "a"-"h."
- It was discussed that there are three things needed for most configuration items: a) the ability to get parameters values; b) the ability to set parameter values; and c) the ability to show parameter values.
- Possibly use Status and Configure for the menu items. [BOAZ]
- It was discussed that the draft user needs were not yet numbered. This will be done in next draft. [BOAZ]

- User need item "b" on setting time. [BOAZ]
  - Discussed that this was not the appropriate way to reference this need as that it should point to the time needs and not the time function.
  - Also, should review the time needs and requirements currently in the API Standard to make sure the API functions defined in the standard are sufficiently supported.
  - It was discussed later in the meeting that it was impractical and not a need to enter all of the time options of the API via the front panel. This user need must be modified.
  - It was also discussed that a new function could be added that would allow a table to be used to set the time in a similar fashion to the method used by NTCIP. This needs further discussion.

- User need item "c" on setting network parameters. [BOAZ]
  - Discussed that the identification of the specific network parameters at the user need level should be dropped. They should be included in the requirements, however.
  - Discussed that the requirements should include IP Address, Gateway, Subnet Mask, Host Name, DHCP, and DNS. Should it include Auto IP? Need to look at the ATC Controller Standard.
  - Discussed that there are two Ethernet ports on an ATC to be configured (see Figure 8-3 of the ATC Controller Standard p, 8-24).
  - Discussed removing the host name but WG wanted it there.
  - WG wanted to have a second DNS server listed.
  - Allowing a DHCP server on one of the controller ports was discussed. There was some concern over the use of such a feature. It was the consensus of the WG to not include it.
  - Discussed the need for basic network status info (i.e. interface up/down, packets sent, packets received).
  - Suggested appearance -

<table>
<thead>
<tr>
<th></th>
<th>Port Active: Y</th>
<th>CONFIGURE ETHERNET 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Packets Sent GD: # # # # # # # # # BD: # # # # # # # # #</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Packets Rcvd GD: # # # # # # # # # BD: # # # # # # # # #</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>IP Address: # # # # # # # # # # #</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Subnet Mask: # # # # # # # # # # #</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Default Gateway: # # # # # # # # # # #</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>[UP/DN ARROW]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>DNS Server 1: # # # . # # # # #</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>DNS Server 2: # # # . # # # .</td>
</tr>
<tr>
<td>4</td>
<td>Host Name: # # # . # # # . # #</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>[UP/DN ARROW]</td>
</tr>
</tbody>
</table>

- User need item "d" on setting network services.
  - Discussed issues at length. Group concluded that this user need was the ability to enable/disable services and that this capability would be extensible. Proposed wording as follows: "The user needs the Enable/Disable Services menu to be extensible with services that are not defined in the
API Standard. This is so that users can enable/disable additional services in a single location. [BOAZ]
- The WG voted that the requirement should be for an "Enable/Disable Services" menu (not just network services). [BOAZ]
- The WG voted that the default services should be Telnet and FTP. [BOAZ]
- It was requested that research into what services are available in the ATC and whether they are active. [SMITH/ZHANG]
- Suggested appearance –

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| 1 | **ENABLE** / **DISABLE** SERVICES |
| 2 | **FTP**: # |
| 3 | **TelNet**: # |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | [UP/DN ARROW] |

- User need item "e" on displaying system information. [BOAZ]
  - Discussed that the API Standard should state the format of the return string from the fpui_apiver and fio_apiver functions and that the version and vendor of the API library should be identified in the string.
  - Should probably add a (tod_apiver function).
  - Discussed that the need should be written at a higher level with the specific items listed in the requirements.
  - Suggested appearance –

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| 1 | **LINUX/API INFORMATION** |
| 2 | **Kernel Name**: |
| 3 | **Network Node Hostname**: |
| 4 | **Kernel Release**: |
| 5 | **Machine Hardware Name**: |
| 6 | **Processor Type**: |
| 7 | **Hardware Platform**: |
| 8 | [UP/DN ARROW] |

- User need item "f" on displaying all of the HOST EEPROM information.
  - Discussed removing this need. WG voted to include it but only the items identified in the ATC Standard. The screen would have to wrap to capture all of the information and allow scrolling. [BOAZ]
- Section 3.1.1 of the Front Panel Manager Requirements should add a hot key capability using sequences such as (**, [0-F]) that goes directly to a particular application window. [BOAZ]
- Reviewed Section 3.2.1 on Configuration Window requirements. [BOAZ]
  - Need to clean up names. Ex. Don't need "info", "set" or "get" in the menu items.
  - Consider removing the last sentence.
  - Discussed that the Configuration Window (CW) requirements belong with the FPUI sections.
The Configuration Menu Items are utilities. These requirements should remain in subsections section 3.2.

Requirement "g" may be expanded to support the use of "hot keys." Use {**, [0-F]} to go to a particular application window.

General concepts for using the screen: [BOAZ]
- ** <ESC> displays the Front Panel Manager Window.
- ** <NEXT> displays the Configuration Window.
- Within a utility <ESC> goes to a parent screen within the utility; <NEXT> goes forward in a sequence of menus, and <ENT> commits changes.
- The CW does not support more than one utility operating at a time.
- If the CW is about to lose focus, the utility should ask "Do you want to commit changes? Y/N" or the like. Maybe define a consistent dialog box?
- The FPM needs to send all of the character through to the utility program in focus.
- The CW may need to handle the change focus action for the utility function to be able to query the user if the changes should be saved. Need to decide how and where this goes in the document.
- May want to add design guidance to the standard on the CW concept.
- The configuration window design is for it to control one window and it passes this window to the configuration utility to use it.
- Question raised on why an application needs to know if it loses focus. It was discussed and confirmed that graphics would only work for the window in focus and that it was the application's responsibility to redraw the graphics when it came back into focus.
- Discussed that a GUI was NOT required.
- Discussed that, generally, if a line with a field value that extends past the right edge of the screen will just scroll to the next line. Need to think about where this should go into the standard.
- Menu items and screens need to be reviewed for consistency in numbering.
- Menu items and screens need to be reviewed to make sure like fields on a configuration item line up for easy reading.

Reviewed Section 3.2.12 on Configuration Window Software Interface Requirements. [BOAZ]
- Need to reword according to the new Configuration Window concept.
- May need to define what happens when the configuration options fail.
- Question was raised regarding the level in which we induce errors. What if the utility doesn't start? What if it doesn't close?
- Add what happens if a utility app closes in a normal fashion.
- Note that return keys are needed to close out utility programs properly and allow choices.

Steve Kapp presented some sequence diagrams on how the menu system might work. See FPMDesignForCfgA.vsd, FPMDesignForCfgBvsd, and FPMDesignForCfgC.vsd.

Need to define a standard method for entering alphanumeric characters from the front panel. Need a first draft on this ASAP. [HELLIAR/INIGUEZ]

It was suggested that a separate style guideline be developed that users need to adhere to when they add a configuration item. It was discussed that this was out of scope for the current activity. To be added to a list of future things to do (Parking Lot). [BOAZ]

API VALIDATION SUITE PROJECT STATUS
- Schedule was presented by Ralph Boaz.
- The schedule is to be revised moving out the development of the TDSs and TCSs by the committee. Finalized versions of these are needed by the contractor by summer. [BOAZ]
- Remove the user's guide as a deliverable. The test procedures will support this user need. [BOAZ]
- Added demonstration to project.
- Send out schedule following the above revisions. [BOAZ]

API VALIDATION SUITE REQUIREMENTS AND TDS/TCS DISCUSSION
- Need an open request to the community for test fixture and API library to go out.
- Check the risks in the PMP and SEMP especially in regards to fixture, libraries, etc.
• Reviewed the form of the TDSs.
• Reviewed the high level requirements with contractor (nFocal).
  - The VS software is a separate standalone application(s).
  - Rebooting the system may be done to clear tests.
  - Requirement is that the software meet the limitations of the engine board in terms of file sizes and operationally.
  - Should have a test case that does some sort of test on three libraries simultaneously.
  - Discussed the format of the test cases. Specifically talk about were XML and CUnit. WG voted and agreed to the use of XML (to be called API VS XML).
  - Test cases in XML need to have a comment field that explains what it is doing in English.
  - Must use an open source XML. Obtainable at no cost.
  - Need to develop schema. [nFocal]
  - nFocal can do the low level unit test cases. [nFocal]
  - The WG needs to develop the higher (integrated) test cases. [API WG]
  - Need to put into the requirements the need for VT100 emulation. Put in the limitations (ex. Non-graphic characters, LED).
  - Need to find an off the shelf VT100 emulator for our Linux environment. [nFocal]
  - Inputs
    ▪ Test cases in the form of API VS XML.
  - Outputs
    ▪ Would like the trace or log to contain things like:
      o Library, function and arguments on the call and return values
      o If fails, why does the VS think it failed.
      o Time stamps
      o The test case being executed
      o Line # in the XML file.
    ▪ Want results in ASCII text files in XML or HTML. Schema files also to be provided.
    ▪ Discussed configurable outputs that were very flexible but the consensus was that the outputs will have three levels as follows:
      a) a pass/fail (-1/0 from the VS process);
      b) a summarized result; and
      c) all of the details that one can get.
• Need to confirm the membership of the Quick Response Group.
• Get H/W and software setup in for nFocal in Rochester.
• Each test design and test output should have a similar look and feel whenever possible.
  - Output should be in the form of summary only, details only, summary and details.
• Need to confirm membership of the Quick Response Group. [BOAZ]
• Do a couple example unit Test Cases. [nFocal]
• Do a couple example integrated Test Cases. [API QRG]
• Put request for final test/demonstration? Needs to be discussed. Possibly just do it in New York. [BOAZ/WG]
• Update the PMP regarding the new deliverables. [BOAZ]

ADDITIONAL PROJECT / PROGRAM DISCUSSION ITEMS
• Corrections to Existing API Standard
  - Ran out of time to discuss. [BOAZ]
• Parking Lot
  - Reference Implementation of the API
  - Style Guide for the Configuration Items of the Configuration Window

TASK ASSIGNMENTS/ACTION ITEMS
• See individual sections.

NEXT MEETINGS/TELECONFERENCES
• Teleconference, Tuesday 01/26/10 1:00 ET.