

Draft MINUTES

COMBINED ATMS DATA DICTIONARY (TMDD) and MESSAGE SET FOR EXTERNAL TMC COMMUNICATION STEERING COMMITTEE MEETING

Chicago, Illinois
May 15, 2002

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I. Welcome, Introduction and Review Agenda – Jim Wright

Chair Wright welcomed the members of the committee and started the round of self introductions.

7 of the 15 TMDD committee members were present.

II. General Progress/Status Report – Les Jacobson

Les Jacobson summarized progress since the February meeting in Las Vegas. The action items from that meeting were reviewed and all had been accomplished:

- Send schedule for new message set work to TMDD list (Cheeks)
- Place notice of requirements workshop in ITE Journal (Cheeks)
- Recommend John Wintermute as submitter to data registry (Jacobson)

Les also presented highlights since the February meeting:

- Contract for the expedited message set work was signed.
 - Work is underway.
 - The requirements documents were drafted.
 - The requirements workshop was planned.
- Message set review group was established.
- Data registry and harmonization efforts made progress.

III. Organization Reports

James Cheeks provided the ITE report.

A. ITE – James Cheeks

- Passed out the registration form for the requirements workshop.
- James passed out a document on Mitretek's role. They can support the committee. We should ask if we need them.

- The spec wizard will be out shortly to help in writing specs for standards.
- There were meetings in Long Beach with ITSA. ITS America will be taking a more active role in standards development.
- The Board of Directors for the Data registry met in Long Beach.
- James stressed the importance of committee members participating in the expedited effort and sharing information for coordination within their organizations and with other standards efforts. Committee members should let James know if they can't attend meetings.

B. AASHTO – Bo Strickland

- Bo presented results from a survey of ITS standards projects in AASHTO – 80 percent were very happy with the standards effort (19 responses). Respondents identified 6 applications where they'd be using standards – DMS, signals, traffic management, traveler information, IM, and ESS. 3 voiced dissatisfaction regarding:
 - inadequate testing,
 - should go to XML (still in dark ages),
 - leave states alone and let vendors do standards.
- FHWA has asked AASHTO to develop a strategic plan for ITS standards development. AASHTO is proposing to do one for the standards of interest to AASHTO members. The proposal will identify 5 initiatives, one of which is standards.
- Recognition of Joe Stapleton, who will be leaving TMDD when he retires. Jim Wright and Ed Seymour presented a plaque to Joe. GDOT has identified a replacement for Joe, Chris Jones.

C. IEEE Incident Management

- The IM group is working on 3 documents – hazmat, police and fire, and transportation.
 - HazMat – entering re-circulation phase of IEEE ballot.
 - Transportation document is close to complete on requirements. Some overlap with TMDD. Trying to remove all of the network related elements and messages. Will focus on public safety coordination.
 - Police and fire – don't have a consistent view of requirements within the public safety community.

- APCO is developing standards for CAD and is using many TMDD items.

D. SAE ATIS – Dave Kelley

- XML went to ballot (recommended practice). (30-day electronic ballot. Dave doesn't anticipate any issues.) There may be some comments that will relate to TMDD.
- SAE is re-balloting an updated 2354 (base ATIS standard) to bring it up to date with other efforts and correct a few things.
- DSRC – SAE is tasked with developing a few short messages for roadside to vehicle messages. The draft is out. It is based on ITIS codes. Discussion of the future need for coordination with TMDD.
- Location Referencing – several on the registry. Will be made into SAE standard. Dave said he'd like a broader range of people to look at this. TMDD expedited work project should look at profiles and data concepts to see how well it fits with TMDD, how to incorporate, and what comments should be fed back to SAE.
ACTION: John Wintermute and Farhad will review and try to incorporate with TMDD work.
- The User Guide work is still under development. The draft should be out by mid-summer.

E. National Architecture (Charnita Wilson)

- Charnita provided a presentation on Version 4.0 from the CSO meeting.
- There are some changes in architecture entities (subsystems/terminators) and interfaces (wireline for C2C).
- It updated supporting definition and documentation (standards requirements packages and market packages & theory of operations)
- Major functional areas modified or added:
 - Maintenance and construction operations (maintenance vehicle fleet management, roadway management, conditions and work plan dissemination, work zone management and safety). Discussion of where this fits into TMDD and what division of work should be. Some thoughts within expedited team, but nothing formalized yet. This could be a breakout discussion at the workshop in June, especially to determine the boundaries of the expedited effort. Peter suggested two approaches – either do no aspect of the work or address at concept of operations level and leave the detailed work to the related efforts (particularly ESS). There may be some of the related areas not represented at the workshop that could lead to gaps or overlaps. May not have time to address this at the

workshop. Leaning toward identifying in the concept of operations and determining what should be included in the expedited effort after the workshop, considering scope and budget.

- Two new subsystems – management and vehicle.
- CVISN and international border clearance alignment included in 4.0.
- Improved rural user needs coverage (care facility and remote area surveillance).
- Toll administration coordination changes.
- Discussion of some of the architecture flows and where they may fit.
- TMDD should look into what items may be incorporated in TMDD. Charnita will come back at a future meeting.

IV. Update on Project to Expedite Message Set

John is looking for a considerable number of comments from the requirements workshop. The team will present information on Events, Device Control, and Signal Control & Other. The team really needs the major comments by end of June so it can be incorporated in the effort.

Events

The team wants the committee to concur with the path the team is on and empower the review group to work any additional issues between now and the workshop.

- Events are shared locally/regionally, statewide, multi-state, nationally.
- Events are shared for:
 - Local/regional – incident response, traffic ops, traveler information
 - Statewide and multi-state – traffic operations, maintenance operations, traveler information.
 - National – traveler information and border security.
 - Really a continuum with few unique needs.
- Events are shared by:
 - Local/regional – concentrated data (filter for highest priorities), detailed exchanges, frequent updates, send changes only.

- Statewide, multi-state, national – full reports / bulletins (filter for relevance), summaries or detailed, exchanged as needed, send full information.
- Team is proposing to preserve this distinction.
- SAE ATIS coordination – a great deal was accomplished.
 - ATIS national table
 - TMDD event descriptions
 - Coordinated lists
 - Code synchronization
 - New work aims to minimize changes to coordinated event descriptions
 - Need to add some important data elements
- Terminology
 - Event – has its own location and duration (roadwork, a delay, and accident)
 - Compound event – two or more related events (roadwork causing delay). Roadwork and delay have different durations and could have different location (physical range)
 - Status report – a report on traffic, road, or weather conditions whether usual or unusual.
 - Situation – any or all of above.

Committee discussion – Joel has a concern that the concept of event (delay) and cause (collision) might be lost. Peter said that the terminology is slightly different, but the concept still links events and causes.

- Design goals – report consistently, report clearly, cover wide range of circumstances, encourage coordinated response, identify urgent / high priority events (alarms), support different user groups, allow automated processing.
- Message design agreement
 - Full report message – includes the logical superset of partial report messages
 - Partial report messages

- Can be full information, e.g. initial report.
- Can be just the changes.
- Partial message boundaries – logical content; may also be different users
 - Locations – logical content
 - Planned vs unplanned – may be different users and/or different filters
- Message design agreement benefits deployment – goes beyond minimum scope to use the same data elements. System-to-system connections don't translate messages – they filter in one direction and they focus or streamline in the other. Converging systems over time:
 - Systems starting as regional get extended to wide areas. When they do they need to filter.
 - Systems starting as wide area have “hotspots” of detailed deployment. When they do, they need to focus.
- Structuring event exchanges
 - Full reports – one event, simple/compound, all current information.
 - Partial reports – supports frequent updating
 - Unplanned events – primary focus is incident response
 - Planned events – primary focus is coordinated management
 - Schedules – primary focus is complex forward planning
 - Detours – primary focus is detailed diversion info
 - Locations – primary focus is additional location details

There may be additional reports, such as history.

Committee discussion – what is the model for inputting/updating information? The approach proposed by the team can support assigning responsibility by facility or area or it can support a more open authority to input and update. The documentation will include a discussion of “ownership” of the various reports.

Locations are not necessarily lat/lon or route/mile marker. Can be landmarks.

Question about where disaster response plans fits in? Could be either through full or partial reports. Joe Stapleton suggested that the documentation address how to include disaster response.

Question about whether phrase-cause-advice still fits – especially with frequent updates to response advice. The team said that it could be handled under either full or partial reports. It is still incorporated in this concept.

Dave Kelley suggests that these partial reports be coordinated with IM partial reports, which are really focused on incidents. The team will look into the coordination.

- General reporting activities – create, update, exchange, clear, cancel, reopen.

Question about archiving or keeping a history and exchanging history. This is still an open question on how and where this resides (ADUS?). A suggestion was made that the assumption for final direction on history be documented.

Open question about whether you have to take action to finish a report (close, cancel, etc.) or allow it to expire. The team wants to allow either approach.

- Unplanned events – general reporting activities plus receive reports of unplanned events, investigate and confirm unplanned events, merge events, associate events, split events. Committee comment – some may also be applied to planned events.
- Planned events– general reporting activities plus enter planned activities before they start, cancel planned events
- Schedules – general reporting plus monitor scheduled activity for becoming active, adjust scheduled activity reports.
- Message, event, and other references – tables in report will present what information (data element) is optional or required for full and partial reports.

Committee discussion – is this consistent with C2C (1601)? The team feels C2C level of detail moves into system design. This difference needs to be resolved and the team will include this in their comments on 1601.

- Event description – table in report that presents what information is optional or required in full and partial reports.
- Locations: areas, links report has a table that presents what information is optional or required in full and partial reports.
- Event times, event lanes, event quantities, event indicators, information source, additional text – tables in report that presents what information is optional or required in full and partial reports.

Committee is satisfied with this work and approved moving forward.

Chair Wright recessed the meeting.

TMDD Meeting May 16, 2002

Chair Wright called the second day of the meeting to order. Eight committee members were in attendance.

V. Device Control

- General comments – messages are targeting 95 % of C2C activity. Device uniqueness and naming – Organization ID, device ID. Security – 2 levels of credentials (organization and user level). Credentials passed through a security token.

Comment – need to deal with organization IDs across regions so there aren't conflicts in data sharing. Currently, the system could identify conflicts and flag it. However, there should be something in the document that identifies how to name and develop IDs. In CARS, the state code (e.g., MN) is appended at the beginning of the organization name.

- Philosophical view of device control – level of control is high level C2C control, no specific device control. Specifics are more a design detail.
- DMS inventory information – includes information about the sign, its capabilities, who owns and operates, location, etc. Incorporates URL address to display contents of the sign.

Question – Does the system provide information on when the sign message was put up, last changed or updated, etc. The team indicated that this is covered in DMS sharing.

- DMS sharing – provides information on the message and status of the sign. Won't support unique fonts.
- DMS control request – request that a center display a message on DMS) either text (NTCIP MULTI format) or message number.

Question about security regarding who puts up messages. The concept is that the standard provides the security tokens and system design determines how to use the security features. Suggestion that there be some discussion that describes some of the options and how different situations and designs could be handled

(institution and people oriented). The committee thought this would best be handled through examples.

- DMS cancel request.
- DMS message library request – allows a center to retrieve the contents of a DMS library for a specific sign (useful if sign only supports fixed messages).
- DMS control response – the response that a center sends when a request has been received to control one of its signs. Would provide reasons for action.
- DMS message library response. Includes message number and message content for each message in the library.

Question about response that is “message queued”. Doesn’t that mean that a second response should come back that states when the message is displayed? Steve said that this gets into too much detail and brings into question the level of detail in the concept of operations. The approach is to say that how to deal with message queuing and responses is a design issue. Discussion of how to handle this in the workshop. The team will lay out philosophy and take comments on differences of opinion.

- DMS message cancellation response – asynchronous message that a center may transmit to indicate that they have cancelled the message requested earlier and some reason.
- CCTV inventory request – same as DMS inventory. What type of control should be supported? Joystick type of continuous control won’t work C2C. Right now, the proposal is to support presets, jog, and compass direction. Need to deal with zoom, focus, wiper control, etc. The approach has the ability to identify a URL that contains CCTV image.
- CCTV status – snapshot is possible, need to add JPEG quality indicator.
- Video switch inventory request – informs other centers of available inputs and outputs of a video switch. Need input on the types of request to be supported.
- Video switch status
- CCTV control request – allows a center to request a CCTV to be repositioned.

Question of time synchronization. Committee indicated that this should be supported. The Public Safety community has a tenth of a second accuracy.

- Responses – would like input to see if any additional responses are needed.

VI. Rest of the Sections except Signal Control

- Reminders – 95% of C2C activity. Device and organization uniqueness. The team wants to know if we have gone far enough or too far.
- Administrative scope – agency information, org information, contact information. No systems inventory.

Question: is a “Seek” command is supported? Public Safety and enforcement sometimes will want to know terminal and operator currently active. Existing standard also doesn’t include hours of operation. Need to be able to pass information on which center takes on functions if original one closes. John indicated that his concept is the system will simply forward messages to the new operating center. How does this work if phone contact is needed? Don’t have a scheme for handling responsibilities that switch from one center to another. Admin functions are static and definitional. May need to provide some sort of status of changes in the responsibilities. John wants to schedule a follow discussion on this issue to flesh this out. John asked Al to set up a conference call next week.

Question about whether the document should include some guidance on how to do agency name/ID and organization name/ID. Team could give some suggestions or examples. Can get into a trouble if the standard requires a particular convention.

A suggestion was made to add role to organization.

- Security scope – discusses login, but not a part of C2C (OS, S/W comm.). Tokens and authentication – user level. Request security token, authentication interrogation, authentication response, grant/reject security token.

Discussion of security. Token appears to be more detailed design than rest of standard. Are there other design options that this approach would preclude? John couldn’t think of any valid alternative. Also, there needs to be a discussion of how this fits in with encryption and other security techniques. The document currently has some discussion of needs for security design. The concept is that the token is a “blob” that really is a design detail of what that blob entails. Could be userID and password or anything else determined by the system design. Suggest that John provide two or three examples of how security can be supported. Need to identify needs more clearly first.

- HAR scope – inventory information and status information. C2C HAR control commands not supported.

Question about not including HAR control. Suggestion is that HAR control could simply be through telephone to make recordings. Why not include transmitter and beacon control? Could also send text for HAR, request a specific message

number, or send an audio file. Need to also think about multiple messages that could be played and rotated. John would like to find a deployment example or set of examples to work from. Probably can't incorporate control before the workshop. CHART has very complex HAR control. CARS states are implementing new generation HAR. Will seek input on HAR at the workshop.

- Ramp Metering scope – inventory, status, device control request, device control response.

Lane control is missing from the document.

- Traffic network scope – network inventory info, node inventory info, link inventory info, node status, link data, link data request.

Question about updating network data. If update a network element, transmit entire network list, but only the detail on the new or modified element.

Question about whether we need to transmit the network data in order to pass detector information. Could we use an event-type message instead? May need to support both approaches. Need more thought, consideration, and discussion off-line to determine if we can eliminate one of the approaches. May want to look at two-level type of system – within region or dense network require link-node description. For out of region transmission or loosely coupled systems, provide more of the event message type approach. Need to reflect this in the concept of operations for the standard.

Question about transmitting historical network information (what the network was at a particular time). Need date and time stamping to allow this. Need date/time attached to all inventory changes.

- Traffic Data – detector inventory, detector status (includes data), detector data request, link status, link status request, probe data sharing
- ESS scope – inventory and status.
- System and facilities alarms scope – alarm inventory, alarm inventory request, system alarms (hardware and software), network alarms (break in connectivity), service alarms (e.g., data degraded to the extent that traffic data could no longer be trusted and the entire system would be suspect or terminated), facility alarms (intrusion, fire, etc.)
- Parking data scope – inventory, status.

May not need this in the standard. The TMDD concept of operations needs to cover this, but the TCIP standard probably has sufficient elements and messages to handle. ERM also has parking, therefore need to coordinate overall.

VII. Signal Control

- Farhad started by describing why signal control is different – more complex, safety critical, variety of controller types and models, firmware selection, functionality, control modes, preemption and priority.
- Where signal control is shared – coordination along jurisdictional boundaries, multi-center agencies, shared signal controllers (owned by one agency, owned and/or operated by another).
- Signal control scope – inventory, status, control request. Different levels of control interest – intersection control or section control.
- Inventory – network ID, network section id list, network link id, network node id.

Should owning and operating/maintaining organization be added, instead of just organization ID.

- Intersection status – includes controller model and type, comm. status, operation status, control mode, intersection plan ID/name, Intersection timing pattern, TOD schedules.

Need to add firmware to the status message.

- Section status sharing – section id, section controller list, control mode, section pattern ID, section timing pattern, TOD schedules.

Discussion of what level of detail is needed to present at the workshop.

We need to start with identifying needs. In the workshop, we need to focus on needs. Suggestion a more fully described set of needs and use cases.

- Intersection control request – includes security token, request identifier, operator name, time of request, duration, requested mode, set time, requested pattern ID.
- Section control request – similar to intersection control request.
- Signal control request response – did system accept request and act on it. What was the system response to the request.
- Signal control cancellation response – why request was cancelled.

VIII. Future Meetings

- A. Workshop either June 6 & 7 or 11 & 12.
- B. Meeting September 19 – 20 in San Diego.

IX. Message Set Requirements Workshop

Committee discussion of what should be included in the workshop and how it should be presented. For example, need lots of graphics.

Jeris asked if the team could use UML. Team wanted to keep it simpler and not discuss “use cases”. The team has looked at two types of attendees: system operators and those involved in standards development. Want to hear from system operators. May even need to “gag the geeks”. May separate the two groups instead. Peter suggests that the workshop have illustrations of real systems that work with standards.

Possibility of starting with a presentation to identify the context of the program. Then ask people to identify their needs. Perhaps through a number of specific questions, such as:

- What information do I need from another center?
- What information do I need to provide to another center?
- Under what circumstances do you need to share control?

The time for the workshop is 8:00 to 5:00 both days.

After having the group discuss their needs, can show some tools to help them and maybe go into what the team has developed, as time allows.

Could run through some scenarios to help identify needs. For example, within a region for signal control or statewide or multi-state.

Discussion of time for workshop. Suggestion of starting at 10:00 am on the first day and end by 3:00 on the second. Begin with a background on the standards effort.

X. Message Set Review Group

Al Karoly – tight time schedule to begin with and any hiccup in logistics and coordination creates delays. The schedule is probably doomed. Perhaps the review group should review in parallel with the whole committee. Open the review to people outside of the committee.

Version control is very important as is being able to determine if a comment on an earlier version was covered in a later one.

Team will make document available to the review team and the committee at the same time. Comments should go back to both the review group and the project team.

XI. Schedule

Team will re-tune schedule based on comments from this meeting and the input from the workshop.

Web conference June 28. James indicated that there won't be any decisions needed between web conference and the September meeting. May need another web conference between June 28 and September meeting. Set July 25 and August 15.

Meeting after September meeting: January 23 and 24 in San Diego. Change September meeting to DC.

XII. Testing Group

Steve and Joe are looking for people to participate in the NTCIP testing working committee. Discussion of people who might be good candidate. Perhaps look at those who attended NEMA testing conference. If committee members can think of other possibilities, e-mail to Steve or Joe.

XIII. Update on Center-to-Center CORBA Effort

Concern over the overlap with the NTCIP C2C group's 1601 document. Seems to duplicate TMDD effort and sometimes contradicts. The 1601 document was intended to address CORBA implementation of C2C. This effort started before the expedited message set effort began and represents the completion of a deliverable before the work to develop the reference model, sequence diagrams, and IDL. Committee sense is to recommend that the 1601 document should be held and not sent for user comment in light of both the TMDD and C2C expedited efforts.

XIV. Data Registry Issues

- Meetings/web conferences/ conference calls
 - March 1 web conference
 - April 10 – 11 Meeting
 - May 10 conference call
- Work on agreement for “qualified” status
 - Allow either P1489 or ISO 14817
 - Until action on 14817

- Suggestion to state in the standard what a short name should be – this currently exists in P1489 called symbolic name. TMDD should establish these.
- User Guide draft complete and comments in
- Data Registry tool enhancements
 - Continue to identify problems and add to the fix list
- Updated Functional Operating Procedures
 - Comments in

Also covered the changes that need to be made in the TMDD data elements to be promoted to qualified:

- Data type (enumerated) should be all caps
- Valid Value Rule needs to be valid ASN.1. Valid Value Rule changed to ASN.1 = (any-other (0), n (1), ne (2), e (3), se (4), s (5), sw (6), w (7), nw (8), not-directional (9), positive-direction (10), negative-direction (11), both-drections (12) , ...).
- Valid Value Rule should be in the Data Type field. (Not required if we accept Bob Barret's suggestion.)
- Should create a valid value domain that the DE will use.

XV. Forward Plan

- New message set work
 - Extensive effort, need the focus of the committee
- Respond to comments from the Spring
 - Parallel effort with the new work
 - Target a ballot with new work and response to comments
- Emergence of XML
 - Next effort after new message set work

Chair Wright adjourned the meeting.