
TMDD Steering Committee

WITH COMMITTEE DISCUSSION NOTES.

SEE SLIDE 14.

October 3, 2019

Agenda

13:00 PM EDT Call to Order – Rausch

13:10 PM Administrative, Anti-trust guidelines – Narla

13:12 PM Presentation of Proposed Ballot TMDD v3.04 - Chan

13:15 PM Discussion of future direction of TMDD – Rausch/Chan

14:00 PM Next Steps – Rausch

14:30 PM Adjourn

Attendees:

Steering Committee: Israel Lopez, Edward J. Seymour, Adam Clauss (for Steve Dellenback), Glenn Massarano, Raman Patel, Mike Jenkinson, Peter Thompson, Robert Rausch, Kenneth Vaughn

Friends/others: Kingsley Azubike (USDOT) Mike Mercer (Noblis), Siva R.K Narla (ITE), Venkat Nallamothu (AASHTO), Ken Drummond (McCain), Ralph Boaz (Pillar), Walter Crear (TransCore).

Contractor: Manny Insignares & Patrick Chan (ConSysTec)

Administrative

– ITE/AASHTO Meeting Anti-Trust Guidance

- The Institute of Transportation Engineers is committed to compliance with antitrust laws and all meetings will be conducted in strict compliance with these antitrust guidelines. Further if an item comes up for which you have conflict of interest, please declare that you have a conflict of interest on the matter and recuse yourself from action on that item.
- The following discussions and/or exchanges of information by or among competitors concerning are prohibited:
 - Prices, price changes, price quotations, pricing policies, discounts, payment terms, credit, allowances or terms or conditions of sale;
 - Profits, profit margins or cost data;
 - Market shares, sales territories or markets;
 - The allocation of customer territories;
 - Selection, rejection or termination of customers or suppliers;
 - Restricting the territory or markets in which a company may sell services or products;
 - Restricting the customers to whom a company may sell;
 - Unreasonable restrictions on the development or use of technologies; or
 - Any matter which is inconsistent with the proposition that each company must exercise its independent business judgement in pricing its service or products, dealing with its customers and suppliers and choosing the markets in which it will compete.

Presentation of Proposed Ballot TMDD v3.04

– Background

- First presented July 28, 2016
- Updated proposal presented on September 5, 2017
 - Some of the previously proposed changes broke backward compatibility and were fixed.
 - Addressed some additional minor comments
- A new updated proposal presented on May 3, 2018
 - Comments were received that indicated there were still issues with forwards and backwards compatibility
- Another proposal to address Backward Compatibility presented on October 19, 2018
 - Further research indicated that proposed solution also had issues in preserving backward compatibility.

Current Situation – Nature of the Problem

- The structure of the TMDD XML Schema (version 3.03d) provides for one-and-only-one extension element at the end of each data frames. The example below is typical.

```
<xs:any namespace="##other" processContents="lax"  
minOccurs="0"/>
```

The intent was to allow projects to add extension elements to the standard. If a project wants to add multiple elements as an extension it must bound the collection of new tags within a single extension tag.

The extension structure as described in 3.03d was not intended as a way to extend the standard itself.

Current Situation – Nature of the Problem

- Need a way to specify compatible TMDD extensions (i.e. for a new version) **AND** specify project extensions.
 - Mechanism for project extensions exists.
- **Add A Data Element** to an existing message (e.g., CenterVerification) to identify the **version of the message** being sent. Also, allow a center to identify which **version of the schema** it uses to verify correct TMDD messages.
- Allow a deployment to **validate messages from multiple TMDD version against multiple (corresponding) schemas.**

Proposal 1

1. Issue an errata that

```
<xs:any namespace="##other" processContents="lax"  
minOccurs="0"/>
```

should be replaced with:

```
<xs:any namespace="##other" processContents="skip"  
minOccurs="0" maxOccurs="unbounded"/>
```

- This errata allows us to add a tag with future extensions to TMDD, followed by a second tag to add project extensions
- Another possibility is:

```
<xs:any namespace="##other" processContents="lax" minOccurs="0"  
maxOccurs="unbounded"/>
```

Proposal 1

Example changes to the TMDD:

To add an extension, the following would be added at the bottom of the DeviceInventoryHeader data frame:

```
<xs:element ref="tmddExt:deviceInventoryHeaderExt" minOccurs="1"/>
```

```
<xs:any namespace="##other" processContents="lax" minOccurs="0"  
maxOccurs="unbounded"/>
```

Where:

`<xs:element ref="tmddExt:deviceInventoryHeaderExt" minOccurs="1"/>` is a TMDD extension defined in another schema (referenced by tmddExt), and

`<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>` can be used to support project extensions.

Proposal 1

There would be a new schema, proposed to be called [TMDDvX.xsd](#), which includes the following:

`<xs:element name="deviceInventoryHeaderExt" type="DeviceInventoryHeaderExt"/>` as an extension element for external referencing.

```
<xs:complexType name="DeviceInventoryHeaderExt">
  <xs:annotation>
    <xs:documentation>
      <definition>Data frame extension containing additional information content
header included with all device inventories.</definition>
    </xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="device-url2" type="tmdd:UrlReference" minOccurs="0"/>
    <xs:element name="last-update-time" type="tmdd:DateTimeZone" minOccurs="0"/>
    <xs:element name="extension" type="TMDDExtension" minOccurs="1"/>
  </xs:sequence>
</xs:complexType>
```

Proposal 1

The TMDDExtension data frame allows future extensions to the TMDD.

```
<xs:complexType name="TMDDExtension">  
  <xs:sequence>  
    <xs:any namespace="##local" processContents="skip" minOccurs="0"  
maxOccurs="unbounded"/>  
  </xs:sequence>  
</xs:complexType>
```

Proposal 2

2. Add new dialogs, messages, data frames and elements to support new requirements.

```
<xs:element name="hARMessageInventory2Msg">
  <xs:complexType>
    <xs:sequence maxOccurs="10240">
      <xs:element name="har-message-inventory-item"
type="HARMessageInventory2"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>

<operation name="dlHARMessageInventoryRequest2">
  <input message="tns:MSG_DeviceInformationRequest"/>
  <output message="tns:MSG_HARMessageInventory2"/>
  <fault name="errorReport" message="tns:MSG_ErrorReport"/>
</operation>
```

Proposal 3

3. Consider stop maintaining minor updates to TMDD
 - TMDD has continued to receive comments and proposals for update, but they've been minor in nature
 - Regions have created project/regional extensions
 - STOP at version 3.04 and move to a Version 4.00, which may break backwards compatibility.

Next Steps (conclusion)

- TMDD v3.04 – Using Proposal #1 (Maintenance)
 - Prepare ballot for an **Addendum** for the TMDD Steering Committee
 - To include description of how it is to be used and impact on backward compatibility.
 - Includes extensive examples and recommendations as to how to apply the addendum
 - Review and resolve any comments received during the ballot process.
 - Develop and publish the Addendum for TMDD Version 3.04 when approved by the TMDD Steering Committee.
- TMDD 4.0 (New Development)
 - It was suggested that we develop a task for additional funding to create Version 4.0 which addresses Proposal #1, changes already in the domain, and to consider alternative transport mechanisms.

Meeting Notes

- After a presentation (above) by Manny, and a general discussion by the Steering Committee members and friends, it was decided that we will proceed with an **Addendum to TMDD Version 3.04** in lieu of Proposal #2, and avoid the delays that what will occur with the development of Version 4.0; it was felt that Proposal #1 would close a gap with the current extension mechanism and could be distributed quickly since many agencies are currently deploying the TMDD.
- It was also suggested that we develop a work plan for the development Version 4.0 which should consider other issues and extensions being introduced and consider additional transport protocols depending on the results of other developments and testing currently underway (e.g. DDS).
- At the conclusion of the discussion, with a quorum, the steering committee voted to move forward with Proposal #1