NDOR HCRS Integration Using SAE J2354 ATIS XML

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ITS Integration Manager
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Agenda

- Overview of HCRS
- Overview of SAE ATIS Standard
- Implementation Overview
HCRS Data Flow

511Nebraska.org
Event ID: 30013
Location: On Nebraska 4, East and Westbound from milepost 48 at FRANKLIN-WEBSTER COUNTY LINE to milepost 59 at WEST JCT US-281 NORTH OF RED CLOUD
511 Phone & Web Contacts

Phone Calls

Web Visits

2002 2003 2004 2005 2006 2007
Highways & Colored Segments

Highway Location

Highway System: Interstate
Highway: 80
Direction: EW

Milepost: 0, Offset: 0.0, Units: miles, Direction: East
Crosses: WYOMING-NEBRASKA STATE LINE
Int’l Traveler Info Standard

- **Lane Restrictions**: lane closed. Stop and go traffic
- **Incidents/Accidents**: accident. Left lane blocked
- **Road Conditions**: snow chains required
- **Information**: rest area closed
Restrictions

<table>
<thead>
<tr>
<th>Duration</th>
<th>Restrictions</th>
<th>Public Notes</th>
<th>Internal Notes</th>
<th>Priority</th>
<th>Entered By</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Vehicle Height: 0 ft 0 in
- Vehicle Width: 0 ft 0 in
- Vehicle Length: 0 ft 0 in
- Vehicle Gross Wt: 0 Tons

- HazMat Prohibited
- Escort Vehicle Required
Public Notes

Airport conducting random vehicle inspections.

Contact Phone: 402.555-1234
### Internal Notes

<table>
<thead>
<tr>
<th>Duration</th>
<th>Restrictions</th>
<th>Public Notes</th>
<th>Internal Notes</th>
<th>Priority</th>
<th>Entered By</th>
</tr>
</thead>
</table>

Special operations supervisor Ron Smith.

- **Reference No.:**
- **Contact Phone:** 402-555-2345
- **Alternate Phone:** 402-555-2346 cell
* Any chain-reaction incident where more than 20 vehicles are involved, regardless of the number of injuries, period of road closure, or national media interest.

* Any incident involving a school bus resulting in serious injuries or deaths.
National ITS Architecture

Travelers
- Remote Traveler Support
- Personal Information Access

Centers
- Traffic Management
- Emergency Management
- Toll Administration
- Commercial Vehicle Administration
- Maintenance & Construction Management

Wide Area Wireless (Mobile) Communications
- Vehicle
- Emergency Vehicle
- Commercial Vehicle
- Transit Vehicle
- Maintenance & Construction Vehicle

Wireline (Fixed-Point to Fixed-Point) Communications
- Roadway
- Toll Collection
- Parking Management
- Commercial Vehicle Check

Vehicles

Roadside
The ATIS XML Schema Structure

- The official ATIS schema is provided by the SAE and it matches the messages of the adopted standard. (SAE also provides ITIS and LRMS)
- It in turn uses schema content from other SDOs.
- SAE provides schemas for the parts it uses from other SDOs until they provide official schemas they adopt in future revisions.
- You can develop similar schemas, or use the ones provided. Local needs to “extend things” happen within your local schema.
Standards of Interest

- SAE J2354 – ATIS
  - Message Sets for Advanced Traveler Information System (Feb 2004)
- SAE J2266 – LRMS
  - Location Referencing Message Specification (Oct 2004)
- SAE J2540-2 – ITIS
  - International Traveler Information Systems (May 2004)
## Mini-Edit Tool

### Table of Contents
- Data Elements
- Foreign Elements
- Select a Table

### Table to View

<table>
<thead>
<tr>
<th>DESCRIPTIVE NAME</th>
<th>DEFINITION</th>
<th>ASN1-NAME</th>
<th>DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE_ADAAccess</td>
<td>Handicap access</td>
<td>ADA-Access</td>
<td>ENUMER</td>
</tr>
<tr>
<td>DE_ATIS_Date</td>
<td>Date for which a</td>
<td>Date</td>
<td>IA5Strin</td>
</tr>
<tr>
<td>DE_ATIS_Day_of_week</td>
<td>An 8-bit value, wherein, Day-of-week</td>
<td>BIT</td>
<td>STF</td>
</tr>
<tr>
<td>DE_ATIS_SearchOp</td>
<td>Used to specify a</td>
<td>SearchOperator</td>
<td>ENUMER</td>
</tr>
<tr>
<td>DE_ATIS_Time</td>
<td>Time for which a</td>
<td>Time</td>
<td>IA5Strin</td>
</tr>
<tr>
<td>DE_ATIS_TimeInterval</td>
<td>Used as part of sending</td>
<td>TimeInterval</td>
<td>INTEGER</td>
</tr>
<tr>
<td>DE_ATIS_TimeOffset</td>
<td>Time zone, or offset, for</td>
<td>TimeOffset</td>
<td>IA5Strin</td>
</tr>
<tr>
<td>DE_BROADCAST_Wrap</td>
<td>A wrapper to contain</td>
<td>BroadcastWrapper</td>
<td>BIT</td>
</tr>
<tr>
<td>DE_CharSet</td>
<td>A default character set</td>
<td>CharSet</td>
<td>ENUMER</td>
</tr>
<tr>
<td>DE_ConfirmationNumber</td>
<td>A confirmation string</td>
<td>ConfirmationNumber</td>
<td>UTF8Str</td>
</tr>
</tbody>
</table>

### Entry

**DE_ATIS_Time ASN.1: DE_ATIS_Time**

**FaddReg:** IEEE Reg: 1007/1 By SV on 10/24/2003 12:52:12 PM

**Description:**

Time for which a directory entry is being requested by a Traveler or used in a returned message.

**Remarks:**

**Harmonization:**

None yet.
HCRS ATIS

- Reduced from 100’s of elements
- Kept mandatory
- Removed optional
- Added missing
  - “Cattle Drive”
  - HazMat Prohibited
  - Escort Vehicle Required
<soapenv:Envelope>
  <soapenv:Body>
    <getHcrsEventsResponse>
      <getHcrsEventsReturn>
        <statusMessage>
          <informationResponse>
            <messageHeader>
              <sender>
                <agencyIdentifier>511nebraska.org</agencyIdentifier>
              </sender>
            </messageHeader>
            <messageID>9146</messageID>
            <timeStamp></timeStamp>
          </informationResponse>
          <responseGroups>
            <responseGroup>
              <events>
                <event>
                  <id>32017</id>
                  <issuingAgency>211 Omaha 108th</issuingAgency>
                  <updateTime></updateTime>
                </event>
              </events>
              <location locationID="Freeway">
                <locationName>
                  On Interstate 80, Westbound At milepost 451 (0 miles West of OMAHA 42ND STREET INTERCHANGE NO. 451)
                </locationName>
              </location>
            </responseGroup>
          </responseGroups>
        </statusMessage>
      </getHcrsEventsReturn>
    </getHcrsEventsResponse>
  </soapenv:Body>
</soapenv:Envelope>
Authorized Connections

- Meridian – 511
- Mitretek
- Battele
- Delcan
- Google
NDOR provided a robust package of documentation, specifications and data as it related to their implementation of the ATIS, LRMS and ITIS standards and HCRS. This documentation was examined and compared with the standards to determine percentage of coverage and to identify any exceptions or customizations to the standards. The results of this analysis indicated that, with the exception some minor local customization, the NDOR deployment **strongly adheres to the ITS standards** and shows a commitment to **use of the features of the standards as defined in the standards**.
Questions?

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