WZDX To tim Translator Field Mappings and Unused Fields

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# RSM to WZDx Translator Mappings

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table | Field | Source | Value(s) | Notes |
| Road Event Feed Info | **feed\_info\_id** | - | Generated GUID | Primary Key |
| **feed\_update\_date** | current time | [YYYY-MM-DDTHH:MM:SSZ] | - |
| metadata | - | - | Not available in RSM |
| version | - | 2.0 | - |
| Road Events | **road\_event\_id** | - | Generated GUID | Primary Key |
| **feed\_info\_id** | RoadEventsFeedInfo.feed\_info\_id | GUID | Foreign Key |
| subidentifier | - | - | Not available in RSM |
| **geometry\_type** | - | ‘LineString’ | Chosen value |
| **geometry** | rszContainer..rsmLanes..nodePoint..node-3Dabsolute.. [lat, long] | [lat, long] in degrees | Converted from 1/10 micro degrees |
| **road\_name** | - | - | Not available in RSM |
| road\_number | - | - | Not available in RSM |
| **direction** | rszContainer..rsmLanes..nodePoint..node-3Dabsolute.. [lat, long] for first and last nodePoints | Enum [‘northbound’, ‘eastbound’, ‘southbound’, ‘westbound’] | Calculated as direction between first and last points |
| beginning\_cross\_street | - | - | Not available in RSM |
| ending\_cross\_street | - | - | Not available in RSM |
| beginning\_milepost | - | - | Not available in RSM |
| ending\_milepost | - | - | Not available in RSM |
| **beginning\_accuracy** | - | ‘Estimated’ | Not available in RSM |
| **ending\_accuracy** | - | ‘Estimated’ | Not available in RSM |
| **start\_date** | startDateTime | [YYYY-MM-DDTHH:MM:SSZ] | - |
| **end\_date** | endDateTime | [YYYY-MM-DDTHH:MM:SSZ] | - |
| **start\_date\_accuracy** | - | ‘Estimated’ | Not available in RSM |
| **end\_date\_accuracy** | - | ‘Estimated’ | Not available in RSM |
| event\_status | - | - | Not available in RSM |
| total\_num\_lanes | length of list of rsmLanes | Int | - |
| **vehicle\_impact** | rszContainer..rsmLanes..nodePoint..nodeAttributes..laneClosed | Enum [‘all-lanes-open’, ‘some-lanes-closed’, ‘all-lanes-closed’] | - |
| workers\_present | rszContainer..roadwayGeometry..nodePoint..nodeAttributes..peoplePresent | Bool [true, false] | - |
| reduced\_speed\_limit | rszContainer..roadwayGeometry..nodePoint..nodeAttributes..speedLimit.speed | Bool [true, false] | - |
| restrictions | - | - | Not available in RSM |
| description | - | - | Not available in RSM |
| issuing\_organization | - | - | Not available in RSM |
| creation\_date | - | - | Not available in RSM |
| update\_date | - | - | Not available in RSM |
| Types of Work | **types\_of\_work\_id** | - | Generated GUID | Private Key |
| road\_event\_id | RoadEvents.road\_event\_id | GUID | Foreign Key |
| type\_name | - | ‘roadside-work’ | CauseCodes do not give further information |
| is\_architectural\_change | - | ‘false’ | Not available in RSM |
| Lanes | **lane\_id** | - | Generated GUID | Primary Key |
| road\_event\_id | RoadEvents.road\_event\_id | GUID | Foreign Key |
| **lane\_edge\_reference** | - | ‘left’ | Not available in RSM |
| lane\_number | rszContainer..roadwayGeometry..rsmLanes..lanePosition | Int | - |
| **lane\_status** | rszContainer..rsmLanes..nodePoint..nodeAttributes..[taperLeft, taperRight, laneClosed] | Enum [‘open’, ‘closed’, ‘merge-left’, ‘merge-right’] | Closed takes priority over merge-left and merge-right |
| **lane\_type** | rszContainer..roadwayGeometry..rsmLanes..lanePosition and Lanes.lane\_edge\_reference | Enum [‘right-lane’, ‘middle-lane’, left-lane’] | Evaluated from lane\_edge\_reference and lane\_number |
| Lane Restrictions | **lane\_restriction\_id** | - | Generated GUID | Primary Key |
| **Lane\_id** | Lanes.lane\_id | GUID | Foreign Key |
| **Restriction\_type** | - | - | Not available in RSM |
| Restriction\_value | - | - | Not available in RSM |
| Restriction\_units | - | - | Not available in RSM |

**Bold field** = required

Unbolded field = optional

# RSM to WZDx Translator Unused Information From RSM

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Values | Importance | Potential Uses | Notes |
| version | Int | LOW |  |  |
| eventInfo.eventRecurrence | Start and end date/time, days of week | MEDIUM | Inform when work zone is active | Describes schedule in which work zone is active |
| eventInfo.subCauseCode | Int | LOW | Could distinguish between workzone types | Not given from CAMP tool |
| regionInfo.applicableHeading.heading | Heading | LOW | unknown | - |
| regionInfo.referencePoint | lat, long, elevation | LOW | unknown | - |
| regionInfo.speedLimit | Speed limit before work zone | LOW | Capture speed limits before work zone begins | - |
| regionInfo.approachRegion..scale |  | LOW | unknown | Scale factor |
| regionInfo.approachRegion..nodePoint | lat, long, elevation | MEDIUM | Increase knowledge of approach region | - |
| rszContainer..rsmLanes..nodePoint | elevation | HIGH | Distinguish between vertical interchanges | - |
| rszContainer..rsmLanes..nodeAttributes.speedlimit | Minimum speed limits | LOW | Minimum speed limit values | - |
| rszContainer..rsmLanes..connectsTo | Lane IDs | MEDIUM | Determine if lanes are disconnected | - |
| rszContainer..rsmLanes.laneWidth | Width in cm | MEDIUM | Show decreased lane widths | This could be included as reduced-width |

# Fields Missing in CAMP Tool Generated RSM Messages

|  |  |  |  |
| --- | --- | --- | --- |
| Field Name | Importance | Notes | Collected in CAMP Tool? |
| rszContainer.laneStatus | LOW | This is only useful if a lane is closed/open for the entire work zone | Yes |
| rszContainer.roadClosureDescription | LOW | - | No |
| rszContainer.roadWorkDescription | LOW | - | No |
| rszContainer.flagman | MEDIUM | - | No |
| rszContainer.trucksEnteringLeaving | LOW | - | No |
| curveContainer | HIGH | There is a massive amount of information here | No |

These fields were found in the Connected Vehicle Message Builder Document located here: <https://github.com/TonyEnglish/V2X-manual-data-collection/blob/master/CAMP%20Tools/CVMsgBuilder%20v1.4%20distribution/ConnectedVehicleMessageBuilder%20User%20Guide%20v1.4%20June%202018%20Final.pdf>

# WZDx(4.0) To TIM Translator Mappings

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Object | TIM Field Name | Values | WZDx Mapping | Notes |
| request | sdw | Object | Calculated | Data to send to SDX |
| rsus | Object array | Calculated | RSUs to send TIM to. Calculated |
| snmp | Object | Calculated | SNMP config information. |
| sdw | **ttl** | string enum | N/A | oneday/oneweek/onemonth… |
| **recordId** | string | N/A | Hex value (4 bytes) |
| **serviceRegion** | Object | Calculated | Bounding box for area affected. |
| serviceRegion | **nwCorner** | Object | Calculated | latitude/longitude values |
| **seCorner** | Object | Calculated | latitude/longitude values |
| rsus | **latitude** | BigDecimal | N/A |  |
| **longitude** | BigDecimal | N/A |  |
| **rsuId** | integer | N/A | Arbitrary ID |
| **route** | string | N/A | Primary route associated with RSU |
| **milepost** | double | N/A | Known associated milepost |
| **rsuTarget** | string | N/A | IPv4 Address |
| **rsuRetries** | integer | N/A | Number of retry attempts to send TIM to this RSU |
| **rsuTimeout** | integer | N/A | Timeout value for sending SNMP request to deposit TIM |
| **rsuIndex** |  | N/A |  |
| snmp | **rsuid** | string representing integer | N/A | Set to “83” |
| **msgid** | integer | N/A | 31 |
| **mode** | integer | N/A | 1 |
| **channel** | integer | N/A | 178 |
| **interval** | integer | N/A | 2 |
| **deliverystart** | DateTime | Feature -> properties.start\_date | UTC |
| **deliverystop** | DateTime | Feature -> properties.end\_date | UTC |
| **enable** | bit | N/A | 1 |
| **status** | integer | N/A | 4 |
| tim | **msgCnt** | integer (0..127) |  |  |
| timeStamp | DateTime | Road\_event\_feed\_info -> update\_date | UTC Time (“2020-04-30T14:24:11.581Z”) |
| packetID | octet string (size(9)) | N/A | Random 9 byte hex |
| urlB | IA5String (1..45) | N/A |  |
| **dataframes** | TravelerDataFrame (1..8) |  | See below object definition |
| dataframes | **startDateTime** | DateTime | Feature -> properties.start\_date | UTC |
| **durationTime** | integer | Feature -> properties.end\_date – properties.start\_date |  |
| **sspTimRights** | integer | N/A |  |
| **frameType** | string enum |  | unknown/advisory/roadSignage/commercialSignage |
| **msgId** |  |  | See below definition |
| **priority** | integer |  |  |
| **sspLocationRights** | integer |  |  |
|  | **regions** |  |  | See below definition |
| **sspMsgTypes** | integer |  |  |
| **sspMsgContent** | integer |  |  |
| **content** |  |  |  |
| **items** | Array of string representing ITIS codes |  |  |
| **url** | string |  |  |
| msgId | **roadSignID** | Object |  | See below definition |
| roadSignID | **mutcdCode** | string enum |  | regulatory/warning |
| **viewAngle** | string |  | HeadingSlice showing direction of travel. Calculated from lat/long values in order |
| **position** | Object |  | latitude/longitude values in big decimal. Same as anchor position |
| regions | **name** | string |  |  |
| **anchorPosition** | Object |  | latitude/longitude values in big decimal. This is before the first coordinate and will require navigation integration |
| **laneWidth** | string representing integer |  | Can be default value |
| **directionality** | string representing integer | Assume forward (1) | Enum int for unavailable/forward/reverse/both |
| **closedPath** | bool | N/A | String representing bool, false |
| **description** | string | N/A | path/geometry/oldregion. Typically path |
| **path** | Object | Feature -> geometry | See below definition |
| **direction** | string | Feature -> geometry (Calculated) | HeadingSlice showing direction of travel. |
| path | scale | string representing integer | N/A | Zoom level, default 0 |
| **nodes** | Object array | Feature -> geometry.coordinates | See below definition |
| **type** | string |  | xy/ll. ll for offsets |
| nodes | **nodeLong** | BigDecimal | Feature -> geometry.coordinates[0] |  |
| **nodeLat** | BigDecimal | Feature -> geometry.coordinates[1] |  |
| **delta** | string | N/A | node-LL for offsets. Can also be node-LatLon for full values |

**Bold field** = required

Unbolded field = optional

= additional integration required

Basic process:

* Ingest stream
* Loop over features in featureCollection
  + Check start\_date and end\_date for valid message