**TopBraid API Calls**

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* 1. Internal API - Topbraid Live (TBL) Web Services

This section defines the web services and associated SPIN functions that can be invoked to interact internally with the Triple Store. All web services were implemented and tested locally using TopBraid Composer Maestro Edition (TBC-ME) version 6.1 from TopQuadrant and on an Amazon AWS instance using TopBraid Live (TBL) version 6.0.1.

* + 1. Listing of calls

Five insertion calls that make changes to the triple store:

* insertOadrMessagesDupCheck:XMLInsert
* insertConvertToPriceEvent:XMLInsert2Price
* epic-tariff:CreateDE
* ab:ArchiveBefore
* nmdc:nmDemandCap

Five retrieval calls (no changes made to the triple store):

* st:selectEventWithTag
* pilotBuildings:GetInfo
* sdd:selectDailyData
* sadd:selectAllDailyData
* smd:selectMaxDemand
  + 1. Environments

The entire library of supported TBL web services can be executed and tested as a Postman Collection, imported to Postman through this [link](https://www.getpostman.com/collections/332ccd02b2ab03f6b775) (<https://www.getpostman.com/collections/332ccd02b2ab03f6b775>). A documentation-companion can be accessed by clicking on the icon ▶ next to TBL Webservices Public, then “View in Web”.

Using Postman's Environment variables, you can test the collection of requests to a TBL Server running on your local machine or on the cloud instance, just by switching environments (i.e. url variable) via the dropdown menu located near the top right corner of Postman's workspace. A detailed step-by-step guide on how to setup Environments in Postman can be found in Appendix A.

* + 1. Local Server

Before testing the collection on your local machine, make sure that TBC-ME is already running. By default, a TBL Server is started and listening to : <http://localhost:8083/tbl/sparqlmotion>.  
In case of errors due to web-service ids not being recognized, you can try refreshing the SPARQLMotion web-services by clicking 'Scripts > Refresh/Display SPARQLMotion functions'. This action will try to register again all web-services and display the results to TBC-ME's Console window.  
  
It is strongly recommended to close any VOCAB\*.ttl or VOCAB.tdb files while you are testing the collection as it might lead to TBC-ME crashing/hanging. After a successful INSERT or UPDATE operation, the corresponding VOCAB file will be opened and an asterisk() will be appended next to its filename, indicating that unsaved changes to the files. To ensure stable performance, you should either save or discard the changes, close the file and continue your testing.

* + 1. Return Codes

Due to limitations of TBL SPARQLMotion development framework, the implementation of the web-services do not comply with the REST API standards and cannot return “404 Not Found” status codes but only 200 OK. To accommodate for such limitations, an empty response with status code 200 is returned in case a specific resource could not be found. In case of an incomplete or malformed request (missing required arguments), TBL platform returns a 500 Internal Server Error and indicates the reason.

* + 1. OpenADR Distribute Event (DE) Message Payload Options

Contains general user input logic and validation:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **EventID** | **ModificationNumber** | **RequestID** | **ResourceID** | **GroupID** | **"Downward" i.e. Supplier to Customer** | **"Upward" i.e. Customer to Supplier** | **Interpretation** |
| X | X | X |  |  | Yes | No | Used for payloads that are broadcast for all customers. |
| X | X | X |  | X | Yes | No | Used for customers in a group or on a particular tariff. |
| X | X | X | X |  | Yes | Yes | Used for a supplier to target a specific customer. Also can be used by customers to send demand forecasts when not part of a group or tariff. |
| X | X | X | X | X | No | Yes | Used by specific customers in a group or on a particular tariff to send demand forecasts |

* + 1. Triple Store Web Service Calls

Five calls that may change the triple store:

* insertOadrMessagesDupCheck:XMLInsert
* insertConvertToPriceEvent:XMLInsert2Price
* epic-tariff:CreateDE
* ab:ArchiveBefore
* nmdc:nmDemandCap
  + 1. insertOadrMessagesDupCheck:XMLInsert

|  |  |
| --- | --- |
| Description | Inserts an OpenADR Distribute Event message containing one or more Events as defined by the tuple eventID, modificationNumber, requestID, signalName and optionally resourceID and/or groupID, abbr. EMRS(rg) and stores only the Events that are not already present in the triplestore (based on the EMRS{r{g}}) i.e. checks for duplicate Events before inserting.  Returns the eventID, modificationNumber, signalName, resourceID, groupID, and tag of the message, whether it is a new message or a duplicate was found. |
| URL | http://epicdr.org:8080/tbl/tbl/sparqlmotion?id=insertOadrMessagesDupCheck:XMLInsert |
| Method | POST |
| Request Body Parameters | xmlStringInput : required, the OpenADR DistributeEvent XML message represented as a String |
| Sample Call  Body Parameters | <?xml version="1.0" encoding="UTF-8" standalone="yes"?> <ns2:oadrPayload xmlns="http://www.w3.org/2000/09/xmldsig#" xmlns:ns2="http://openadr.org/oadr-2.0b/2012/07" xmlns:ns3="http://docs.oasis-open.org/ns/energyinterop/201110" xmlns:ns4="http://docs.oasis-open.org/ns/energyinterop/201110/payloads" xmlns:ns5="urn:ietf:params:xml:ns:icalendar-2.0" xmlns:ns6="http://docs.oasis-open.org/ns/emix/2011/06" xmlns:ns7="urn:ietf:params:xml:ns:icalendar-2.0:stream" xmlns:ns8="http://www.w3.org/2005/Atom" xmlns:ns9="http://docs.oasis-open.org/ns/emix/2011/06/power" xmlns:ns10="http://www.opengis.net/gml/3.2" xmlns:ns11="http://docs.oasis-open.org/ns/emix/2011/06/siscale" xmlns:ns12="http://www.w3.org/2009/xmldsig11#" xmlns:ns13="http://openadr.org/oadr-2.0b/2012/07/xmldsig-properties" xmlns:ns14="urn:un:unece:uncefact:codelist:standard:5:ISO42173A:2010-04-07"> <ns2:oadrSignedObject> <ns2:oadrDistributeEvent ns3:schemaVersion="2.0b"> <ns3:eiResponse> <ns3:responseCode>200</ns3:responseCode> <ns3:responseDescription>OK</ns3:responseDescription> <ns4:requestID>R\_02</ns4:requestID> </ns3:eiResponse> <ns4:requestID>REQ1</ns4:requestID> <ns3:vtnID>EPRI\_VTN</ns3:vtnID> <ns2:oadrEvent> <ns3:eiEvent> <ns3:eventDescriptor> <ns3:eventID>test2999</ns3:eventID> <ns3:modificationNumber>0</ns3:modificationNumber> <ns3:modificationReason></ns3:modificationReason> <ns3:priority>0</ns3:priority> <ns3:eiMarketContext> <ns6:marketContext>DLAP\_SCE-APND</ns6:marketContext> </ns3:eiMarketContext> <ns3:createdDateTime>2018-05-21T07:00:02.000Z</ns3:createdDateTime> <ns3:eventStatus>active</ns3:eventStatus> <ns3:vtnComment>Module</ns3:vtnComment> </ns3:eventDescriptor> <ns3:eiActivePeriod> <ns5:properties> <ns5:dtstart> <ns5:date-time>2018-06-23T07:00:00.000Z</ns5:date-time> </ns5:dtstart> <ns5:duration> <ns5:duration>PT1440M</ns5:duration> </ns5:duration> <ns5:tolerance> <ns5:tolerate> <ns5:startafter>PT0M</ns5:startafter> </ns5:tolerate> </ns5:tolerance> <ns3:x-eiNotification> <ns5:duration>PT0M</ns5:duration> </ns3:x-eiNotification> <ns3:x-eiRampUp> <ns5:duration>PT0M</ns5:duration> </ns3:x-eiRampUp> <ns3:x-eiRecovery> <ns5:duration>PT0M</ns5:duration> </ns3:x-eiRecovery> </ns5:properties> <ns5:components xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:nil="true"/> </ns3:eiActivePeriod> <ns3:eiEventSignals> <ns3:eiEventSignal> <ns7:intervals> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>0</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.056</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>1</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.054</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>2</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.052</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>3</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.054</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>4</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.076</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>5</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.099</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>6</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.107</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>7</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.093</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>8</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.073</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>9</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.054</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>10</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.055</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>11</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.056</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>12</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.055</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>13</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.055</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>14</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.058</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>15</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.055</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>16</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.066</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>17</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.087</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>18</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.113</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>19</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.147</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>20</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.213</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>21</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.146</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>22</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.097</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> <ns3:interval> <ns5:duration> <ns5:duration>PT60M</ns5:duration> </ns5:duration> <ns5:uid> <ns5:text>23</ns5:text> </ns5:uid> <ns3:signalPayload> <ns3:payloadFloat> <ns3:value>0.08</ns3:value> </ns3:payloadFloat> </ns3:signalPayload> </ns3:interval> </ns7:intervals> <ns3:signalName>ENERGY\_PRICE</ns3:signalName> <ns3:signalType>price</ns3:signalType> <ns3:signalID>c2e45b1f3c1b1e51775a</ns3:signalID> <ns2:currencyPerKWh> <ns2:itemDescription>currencyPerKWh</ns2:itemDescription> <ns2:itemUnits>USD</ns2:itemUnits> <ns11:siScaleCode>none</ns11:siScaleCode> </ns2:currencyPerKWh> <ns3:currentValue> <ns3:payloadFloat> <ns3:value>0.056</ns3:value> </ns3:payloadFloat> </ns3:currentValue> </ns3:eiEventSignal> </ns3:eiEventSignals> <ns3:eiTarget> <ns3:groupID>PGEPDP</ns3:groupID> </ns3:eiTarget> </ns3:eiEvent> <ns2:oadrResponseRequired>always</ns2:oadrResponseRequired> </ns2:oadrEvent> </ns2:oadrDistributeEvent> </ns2:oadrSignedObject> </ns2:oadrPayload> |
| Sample Response | {  "head": {  "vars": [ "eventID" , "modificationNumber" , "signalName" , "resourceID" , "groupID" , "tag" ]  } ,  "results": {  "bindings": [  {  "eventID": { "type": "literal" , "value": "test2999" } ,  "modificationNumber": { "type": "literal" , "datatype": "http://www.w3.org/2001/XMLSchema#integer" , "value": "0" } ,  "signalName": { "type": "literal" , "value": "ENERGY\_PRICE" } ,  "groupID": { "type": "literal" , "value": "PGEPDP" } ,  "tag": { "type": "uri" , "value": "http://siemens.com/2019-02-01T09:27:37.529-08:00\_EPIC#test2999" }  }  ]  }  } |

* + 1. insertConvertToPriceEvent:XMLInsert2Price

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Description | Converts and inserts a “simple” OpenADR DistributeEvent message in XML format into a price-based message, giving the caller the option of specifying the price of a demand event, and the associated groupID value. The constructed message retains all the same intervals as the incoming message, but changes the following properties:   |  |  |  | | --- | --- | --- | | **Property name** | **Incoming value** | **Amended value** | | signalName | simple | ENERGY\_PRICE | | signalType | level | price | | basePrice | <varies> | 0.0 | | intervalPrice | <none> | user-argument (.90) | | groupID | <none> | user-argument (PGEPDP) | | resourceID | <varies> | <deleted> | | venID | <varies> | <deleted> |   Returns:   * the tag and groupID of the new signal |
| URL | http://epicdr.org:8080/tbl/tbl/sparqlmotion?id=insertConvertToPriceEvent:XMLInsert2Price |
| Method | POST |
| Request Body Parameters | xmlStringInput : required, the OpenADR DistributeEvent XML message represented as a String requestedPrice: optional argument (If left blank, by default 0.90 is used). groupID: optional argument (If left blank, by default “PGEPDP” is used). |
| Sample Call  Body Parameters | xmlStringInput: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>  <ns1:oadrPayload xmlns:ns2="http://docs.oasis-open.org/ns/energyinterop/201110/payloads" xmlns:ns1="http://openadr.org/oadr-2.0b/2012/07" xmlns:ns4="urn:ietf:params:xml:ns:icalendar-2.0:stream" xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0" xmlns:ns6="http://www.w3.org/2005/Atom" xmlns:ns5="http://docs.oasis-open.org/ns/energyinterop/201110" xmlns:ns8="http://www.opengis.net/gml/3.2" xmlns:ns7="http://docs.oasis-open.org/ns/emix/2011/06/power" xmlns:ns13="urn:un:unece:uncefact:codelist:standard:5:ISO42173A:2010-04-07" xmlns:ns9="http://docs.oasis-open.org/ns/emix/2011/06" xmlns:ns12="http://naesb.org/espi" xmlns:ns11="http://www.w3.org/2000/09/xmldsig#" xmlns:ns10="http://docs.oasis-open.org/ns/emix/2011/06/siscale">  <ns1:oadrSignedObject>  <ns1:oadrDistributeEvent ns5:schemaVersion="2.0b">  <ns5:eiResponse>  <ns5:responseCode>200</ns5:responseCode>  <ns5:responseDescription>Success</ns5:responseDescription>  <ns2:requestID>test2Insert2Price</ns2:requestID>  </ns5:eiResponse>  <ns2:requestID>AKUACOM.7.REQ:350775524</ns2:requestID>  <ns5:vtnID>HONEYWELL.PGE2.VTN</ns5:vtnID>  <ns1:oadrEvent>  <ns5:eiEvent>  <ns5:eventDescriptor>  <ns5:eventID>test2Insert2Price</ns5:eventID>  <ns5:modificationNumber>1</ns5:modificationNumber>  <ns5:priority>89</ns5:priority>  <ns5:eiMarketContext>  <ns9:marketContext>PDPTest Day-of</ns9:marketContext>  </ns5:eiMarketContext>  <ns5:createdDateTime>2018-05-31T18:39:45Z</ns5:createdDateTime>  <ns5:eventStatus>near</ns5:eventStatus>  <ns5:testEvent>false</ns5:testEvent>  <ns5:vtnComment></ns5:vtnComment>  </ns5:eventDescriptor>  <ns5:eiActivePeriod>  <ns3:properties>  <ns3:dtstart>  <ns3:date-time>2018-05-31T20:00:00Z</ns3:date-time>  </ns3:dtstart>  <ns3:duration>  <ns3:duration>PT3H</ns3:duration>  </ns3:duration>  <ns3:tolerance>  <ns3:tolerate>  <ns3:startafter>PT0S</ns3:startafter>  </ns3:tolerate>  </ns3:tolerance>  <ns5:x-eiNotification>  <ns3:duration>PT1H20M15S</ns3:duration>  </ns5:x-eiNotification>  <ns5:x-eiRampUp>  <ns3:duration>PT1H20M15S</ns3:duration>  </ns5:x-eiRampUp>  </ns3:properties>  <ns3:components xsi:nil="true" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>  </ns5:eiActivePeriod>  <ns5:eiEventSignals>  <ns5:eiEventSignal>  <ns4:intervals>  <ns5:interval>  <ns3:duration>  <ns3:duration>PT3H</ns3:duration>  </ns3:duration>  <ns3:uid>  <ns3:text>0</ns3:text>  </ns3:uid>  <ns5:signalPayload>  <ns5:payloadFloat>  <ns5:value>2.0</ns5:value>  </ns5:payloadFloat>  </ns5:signalPayload>  </ns5:interval>  </ns4:intervals>  <ns5:signalName>simple</ns5:signalName>  <ns5:signalType>level</ns5:signalType>  <ns5:signalID>LEVEL:Signal0</ns5:signalID>  <ns5:currentValue>  <ns5:payloadFloat>  <ns5:value>0.0</ns5:value>  </ns5:payloadFloat>  </ns5:currentValue>  </ns5:eiEventSignal>  </ns5:eiEventSignals>  <ns5:eiTarget>  <ns5:resourceID>CMU\_SV.3</ns5:resourceID>  <ns5:venID>AKUACOM.7.VEN.ID:1527284930930</ns5:venID>  </ns5:eiTarget>  </ns5:eiEvent>  <ns1:oadrResponseRequired>always</ns1:oadrResponseRequired>  </ns1:oadrEvent>  </ns1:oadrDistributeEvent>  </ns1:oadrSignedObject>  </ns1:oadrPayload>  requestedPrice: <not provided> groupID: PGEA01 |
| Sample Response | {  "head": {  "vars": [ "tag" , "resourceID" , "groupID" ]  } ,  "results": {  "bindings": [  {  "tag": { "type": "uri" , "value": "http://siemens.com/2019-01-28T11:38:35.085-08:00\_EPIC#test2Insert2Price" } ,  "groupID": { "type": "literal" , "value": "PGEA01" }  }  ]  }  } |

* + 1. epic-tariff:CreateDE

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Description | Creates an OpenADR DistributeEvent message in XML format having the caller-specified eventID, modificationNumber, requestID and optionally resourceID or groupID. The constructed message contains 24 1-hour ENERGY\_PRICE intervals which are calculated based on a tariff specified using tariffCode, a date (format: YYYY-MM-DD) and the timezoneID (which defines the LocalTime and requires possible time adjustments due to Daylight Saving Time (DST) being in effect).   |  |  | | --- | --- | | US Time | timezoneID | | Eastern | America/New\_York | | Central | America/Chicago | | Mountain | America/Denver | | Pacific | America/Los\_Angeles |   To avoid confusions between different timezones and DST, all date-times in the XML message are presented in Zulu Time. The start-time of the first of the 24 consecutive intervals corresponds to midnight (00:00:00) in LocalTime but is expressed in Zulu Time. For example, given the following assignments: date=2018-05-12 and timezoneID=America/Los\_Angeles the first interval starts at 2018-05-12T00:00:00 PDT (Pacific Time) but is represented as 2018-05-12T07:00:00Z (Zulu Time) in the XML message.  Returns:   * the OpenADR DistributeEvent message in XML message if no other message exists in the triplestore having the same eventID, modificationNumber, requestID. * an empty response, otherwise.   Note: There still seems to be a bug on days near the transition from/to Daylight Savings Time. |
| URL | http://epicdr.org:8080/tbl/tbl/sparqlmotion?id=epic-tariff:CreateDE |
| Method | POST |
| Request Body Parameters | eventID : required argument requestID: required argument modificationNumber :required argument tariffCode:required argument date:required argument - format : YYYY-MM-DD  timezoneID: optional argument (If left blank, by default "America/Los\_Angeles" is used). resourceID: optional argument\*  groupID: optional argument\*  (\*) one of resourceID and groupID should be specified |
| Sample Call  Body Parameters | eventID:EVENT\_TARIFF\_16 requestID:REQ\_TARIFF\_16 modificationNumber:0 tariffCode:PGEA01 date:2018-05-30 groupID:PGEA01 timezoneID:America/Los\_Angeles |
| Sample Response | <p2012-07:oadrPayload xmlns:energyinterop="http://docs.oasis-open.org/ns/energyinterop/201110" xmlns:icalendar="urn:ietf:params:xml:ns:icalendar-2.0" xmlns:icalendar-stream="urn:ietf:params:xml:ns:icalendar-2.0:stream" xmlns:p2012-07="http://openadr.org/oadr-2.0b/2012/07" xmlns:payloads="http://docs.oasis-open.org/ns/energyinterop/201110/payloads" xmlns:siscale="http://docs.oasis-open.org/ns/emix/2011/06/siscale">  <p2012-07:oadrSignedObject>  <p2012-07:oadrDistributeEvent>  <payloads:requestID>REQ\_TARIFF\_16</payloads:requestID>  <energyinterop:vtnID>EPIC1</energyinterop:vtnID>  <p2012-07:oadrEvent>  <p2012-07:eiEvent>  <energyinterop:eventDescriptor>  <energyinterop:eventID>EVENT\_TARIFF\_16</energyinterop:eventID>  <energyinterop:modificationNumber>0</energyinterop:modificationNumber>  <energyinterop:priority>0</energyinterop:priority>  <energyinterop:eiMarketContext/>  <energyinterop:createdDateTime>2018-05-24T17:19:59.950-07:00</energyinterop:createdDateTime>  <energyinterop:eventStatus>active</energyinterop:eventStatus>  <energyinterop:vtnComment>No comment</energyinterop:vtnComment>  </energyinterop:eventDescriptor>  <energyinterop:eiActivePeriod>  <energyinterop:properties>  <icalendar:dtstart>  <icalendar:date-time>2018-05-30T07:00:00.000Z</icalendar:date-time>  </icalendar:dtstart>  <icalendar:duration>  <icalendar:duration>PT24H</icalendar:duration>  </icalendar:duration>  </energyinterop:properties>  </energyinterop:eiActivePeriod>  <energyinterop:eiEventSignals>  <energyinterop:eiEventSignal>  <p2012-07:currencyPerKWh>  <p2012-07:itemDescription>currencyPerKWh</p2012-07:itemDescription>  <p2012-07:itemUnits>USD</p2012-07:itemUnits>  <siscale:siScaleCode>none</siscale:siScaleCode>  </p2012-07:currencyPerKWh>  <energyinterop:intervals>  <icalendar-stream:interval>  <energyinterop:dtstart>  <icalendar:date-time>2018-05-31T02:00:00.000Z</icalendar:date-time>  </energyinterop:dtstart>  <energyinterop:signalPayload>  <energyinterop:payloadFloat>  <energyinterop:value>0.24016</energyinterop:value>  </energyinterop:payloadFloat>  </energyinterop:signalPayload>  <energyinterop:duration>  <icalendar:duration>PT60M</icalendar:duration>  </energyinterop:duration>  <energyinterop:uid>  <icalendar:text>19</icalendar:text>  </energyinterop:uid>  </icalendar-stream:interval>  ... multiple other intervals ....  </energyinterop:intervals>  <energyinterop:signalName>ENERGY\_PRICE</energyinterop:signalName>  <energyinterop:signalType>price</energyinterop:signalType>  <energyinterop:signalID>1234</energyinterop:signalID>  <energyinterop:currentValue/>  </energyinterop:eiEventSignal>  </energyinterop:eiEventSignals>  <energyinterop:eiTarget>  <energyinterop:groupID>PGEA01</energyinterop:groupID>  </energyinterop:eiTarget>  </p2012-07:eiEvent>  </p2012-07:oadrEvent>  </p2012-07:oadrDistributeEvent>  </p2012-07:oadrSignedObject>  </p2012-07:oadrPayload> |

* + 1. ab:archiveBefore

|  |  |
| --- | --- |
| Description | Moves all event triples from the <http://siemens.com/vocab/kps/epic_instances> triple store to the <http://siemens.com/vocab/kps/epicArchive> triple store, for all events where the Active Period end value falls before a given date.  This service is used to keep the instance triple store reasonably small for performance reasons. |
| URL | http://epicdr.org:8080/tbl/tbl/sparqlmotion?id=ab:archiveBefore |
| Method | POST |
| Request Body Parameters | date:required argument (string) - format : YYYY-MM-DD |
| Sample Call  Body Parameters | 2018-09-09 |
| Sample Response | Archived 4 namespaces  or  Archived 0 namespaces  ...if no matching events are found. |

* + 1. nmdc:nmDemandCap

|  |  |
| --- | --- |
| Description | The nmDemandCap script/web service takes two arguments:  eventID - the string value for the event, which may have multiple versions in the DB with different modificationNumber and different signalName (BID\_LOAD or ENERGY\_PRICE), but is presumed to always be referring to the same Event in the sense of OpenADR.  maxDemand - the maximum allowed demand in kW for the total group or set of resources receiving this event.  The script returns "No change" unless all the following are true:  1. There exists an event with eventID and a signalName of "ENERGY\_PRICE"  2. There exists at least one demand forecast for this event, with a signalName of "BID\_LOAD"  3. The sum of the demand forecasts for any interval in the Event exceeds the value of maxDemand  If all the above conditions are met, then the script returns the retrieval tag of an updated ENERGY\_PRICE signal for each affected building (resource). This updated signal contains prices of 110% of the most recent (i.e. largest modificationNumber) ENERGY\_PRICE signal with this eventID.  The intention is that the calling service would pass this updated signal on to the affected buildings, who would in turn respond with updated demand forecasts. This iteration would continue until the total demand forecasts fall below the value of maxDemand for all intervals. |
| URL | http://epicdr.org:8080/tbl/tbl/sparqlmotion?id=nmdc:nmDemandCap |
| Method | POST |
| Request Body Parameters | eventID: the string value for the eventID, which may have multiple versions in the DB with different modificationNumber and different signalName (BID\_LOAD or ENERGY\_PRICE), but is presumed to always be referring to the same Event in the sense of OpenADR.  maxDemand: the maximum allowed demand in kW for the total group or set of resources receiving this event. |
| Sample Call  Body Parameters | eventID: test1  maxDemand: 4.5 |
| Sample Response | No change  or  {  "head": {  "vars": [ "eventID" , "resourceID" , "newPriceTag" ]  } ,  "results": {  "bindings": [  {  "eventID": { "type": "literal" , "value": "campus\_avenalTest1" } ,  "resourceID": { "type": "literal" , "value": "AAS" } ,  "newPriceTag": { "type": "uri" , "value": "http://siemens.com/2019-03-23T12:12:12.106-07:000.9559359348803291e0\_EPIC#campus\_avenalTest1" }  } ,  {  "eventID": { "type": "literal" , "value": "campus\_avenalTest1" } ,  "resourceID": { "type": "literal" , "value": "AMT" } ,  "newPriceTag": { "type": "uri" , "value": "http://siemens.com/2019-03-23T12:12:14.441-07:000.9929835936527533e0\_EPIC#campus\_avenalTest1" }  }  ]  }  } |

Five calls that do not change the triple store:

* st:selectEventWithTag
* pilotBuildings:GetInfo
* sdd:selectDailyData
* sadd:selectAllDailyData
* smd:selectMaxDemand
  + 1. st:selectEventWithTag

|  |  |
| --- | --- |
| Description | Retrieves a single OpenADR Distribute Event message containing one or more Events using the unique ?tag as the retrieval parameter.  Returns:   * an OpenADR DistributeEvent message in XML format corresponding to the supplied ?tag. * an empty response in case such a message does not exist. |
| URL | http://epicdr.org:8080/tbl/tbl/sparqlmotion?id=st:selectEventWithTag |
| Method | POST |
| Request Body Parameters | tag: required (string) |
| Sample Call  Body Parameters | tag: http://siemens.com/2018-12-20T09:12:23.126-08:00\_EPIC#test2 |
| Sample Response | <p2012-07:oadrPayload xmlns:emix="http://docs.oasis-open.org/ns/emix/2011/06" xmlns:energyinterop="http://docs.oasis-open.org/ns/energyinterop/201110" xmlns:icalendar="urn:ietf:params:xml:ns:icalendar-2.0" xmlns:icalendar-stream="urn:ietf:params:xml:ns:icalendar-2.0:stream" xmlns:p2012-07="http://openadr.org/oadr-2.0b/2012/07" xmlns:payloads="http://docs.oasis-open.org/ns/energyinterop/201110/payloads" xmlns:siscale="http://docs.oasis-open.org/ns/emix/2011/06/siscale">  <p2012-07:oadrSignedObject>  <p2012-07:oadrDistributeEvent>  <payloads:requestID>test1</payloads:requestID>  <energyinterop:vtnID>EPRI\_VTN</energyinterop:vtnID>  <p2012-07:oadrEvent>  <p2012-07:eiEvent>  <energyinterop:eventDescriptor>  <energyinterop:eventID>test2</energyinterop:eventID>  <energyinterop:modificationNumber>2</energyinterop:modificationNumber>  <energyinterop:priority>0</energyinterop:priority>  <energyinterop:eiMarketContext>  <emix:marketContext>PGEA01</emix:marketContext>  </energyinterop:eiMarketContext>  <energyinterop:createdDateTime>2018-05-21T07:00:02.000Z</energyinterop:createdDateTime>  <energyinterop:eventStatus>active</energyinterop:eventStatus>  <energyinterop:vtnComment>Module</energyinterop:vtnComment>  </energyinterop:eventDescriptor>  <energyinterop:eiActivePeriod>  <energyinterop:properties>  <icalendar:dtstart>  <icalendar:date-time>2018-06-23T07:00:00Z</icalendar:date-time>  </icalendar:dtstart>  <icalendar:duration>  <icalendar:duration>PT1440M</icalendar:duration>  </icalendar:duration>  </energyinterop:properties>  </energyinterop:eiActivePeriod>  <energyinterop:eiEventSignals>  <energyinterop:eiEventSignal>  <p2012-07:currencyPerKWh>  <p2012-07:itemDescription>currencyPerKWh</p2012-07:itemDescription>  <p2012-07:itemUnits>USD</p2012-07:itemUnits>  <siscale:siScaleCode>none</siscale:siScaleCode>  </p2012-07:currencyPerKWh>  <energyinterop:intervals>  <icalendar-stream:interval>  <energyinterop:signalPayload>  <energyinterop:payloadFloat>  <energyinterop:value>0.065340005</energyinterop:value>  </energyinterop:payloadFloat>  </energyinterop:signalPayload>  <energyinterop:dtstart>  <icalendar:date-time>2018-06-23T08:00:00Z</icalendar:date-time>  </energyinterop:dtstart>  <energyinterop:duration>  <icalendar:duration>PT60M</icalendar:duration>  </energyinterop:duration>  <energyinterop:uid>  <icalendar:text>1</icalendar:text>  </energyinterop:uid>  </icalendar-stream:interval>  ...many other interval payloads…  <icalendar-stream:interval>  <energyinterop:signalPayload>  <energyinterop:payloadFloat>  <energyinterop:value>0.06655</energyinterop:value>  </energyinterop:payloadFloat>  </energyinterop:signalPayload>  <energyinterop:dtstart>  <icalendar:date-time>2018-06-23T22:00:00Z</icalendar:date-time>  </energyinterop:dtstart>  <energyinterop:duration>  <icalendar:duration>PT60M</icalendar:duration>  </energyinterop:duration>  <energyinterop:uid>  <icalendar:text>15</icalendar:text>  </energyinterop:uid>  </icalendar-stream:interval>  </energyinterop:intervals>  <energyinterop:signalName>ENERGY\_PRICE</energyinterop:signalName>  <energyinterop:signalType>price</energyinterop:signalType>  <energyinterop:signalID>c2e45b1f3c1b1e51775a</energyinterop:signalID>  <energyinterop:currentValue>  <energyinterop:payloadFloat>  <energyinterop:value>0.067760006</energyinterop:value>  </energyinterop:payloadFloat>  </energyinterop:currentValue>  </energyinterop:eiEventSignal>  </energyinterop:eiEventSignals>  <energyinterop:eiTarget>  <energyinterop:groupID>PGEA01</energyinterop:groupID>  </energyinterop:eiTarget>  </p2012-07:eiEvent>  </p2012-07:oadrEvent>  </p2012-07:oadrDistributeEvent>  </p2012-07:oadrSignedObject>  </p2012-07:oadrPayload> |

* + 1. pilotBuildings:GetInfo

|  |  |
| --- | --- |
| Description | Retrieves the basic information of every Pilot Building stored in the triplestore at <http://siemens.com/vocab/kps/epic/pilot-buildings> including: name (plab), geo-coordinates (lat, lon), elevation (elev), resourceID and groupID.  Returns a JSON structure containing the above fields. |
| URL | http://epicdr.org:8080/tbl/tbl/sparqlmotion?id=pilotBuildings:GetInfo |
| Method | POST |
| Request Body Parameters | None |
| Sample Call  Body Parameters | None |
| Sample Response | {  "head": {  "vars": [ "plab" , "lat" , "lon" , "elev" , "resourceID" , "groupID" ]  } ,  "results": {  "bindings": [  {  "plab": { "type": "literal" , "value": "Avenal: Animal Shelter" } ,  "lat": { "type": "literal" , "datatype": "http://www.w3.org/2001/XMLSchema#float" , "value": "36.0019922" } ,  "lon": { "type": "literal" , "datatype": "http://www.w3.org/2001/XMLSchema#float" , "value": "-120.11105550000002" } ,  "elev": { "type": "literal" , "datatype": "http://www.w3.org/2001/XMLSchema#float" , "value": "682" } ,  "resourceID": { "type": "literal" , "value": "AAS" } ,  "groupID": { "type": "literal" , "value": "PGEA01" }  } ,  {  "plab": { "type": "literal" , "value": "Avenal: Movie Theatre" } ,  "lat": { "type": "literal" , "datatype": "http://www.w3.org/2001/XMLSchema#float" , "value": "36.0026293" } ,  "lon": { "type": "literal" , "datatype": "http://www.w3.org/2001/XMLSchema#float" , "value": "-120.13523029999999" } ,  "elev": { "type": "literal" , "datatype": "http://www.w3.org/2001/XMLSchema#float" , "value": "682" } ,  "resourceID": { "type": "literal" , "value": "AMT" }  } , *…. other Pilot Buildings Info*  ]  }  } |

* + 1. sdd:selectDailyData, sadd:selectAllDailyData

(Note: selectAllDailyData is identical to selectDailyData except that it returns ALL price signals and ALL forecast demand signals for events enclosing the requested dateTime, not just the ones with the highest modificationNumber)

|  |  |
| --- | --- |
| Description | Purpose: To provide data that could be displayed on a chart showing prices and demand.  Returns the latest information about all events for a specific building (resourceID) at a specific dateTime. Specifically, it will return energy prices for all intervals in an ENERGY\_PRICE Event (with the highest modificationNumber, for selectDailyData) enclosing the requested dateTime. Also it will return all forecast demand values in a BID\_LOAD Event (with the highest modificationNumber, for selectDailyData) enclosing the requested dateTime. Note that if there is a tariff-based Event and a PDP event, it will return both.  It takes two string arguments:  resourceID: The string name of the resource  date: Zulu date-time string, such as 2019-01-25T11:00:00Z  It finds out what groupIDs the resource is a member of, and filters all events that apply to those groups.  The service returns a JSON serialization of the following triples:  ?event <http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/eiclasses---energy\_interoperation\_wd36\_pr03#hasSignalName> ?signalName .  ?event <http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/eiclasses---energy\_interoperation\_wd36\_pr03#hasEventID> ?eventID .  ?event <http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/eiclasses---energy\_interoperation\_wd36\_pr03#hasGroupID> ?groupID .  ?event <http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/sequences\_and\_intervals---energy\_manager\_component#hasIntervalsRef> ?interval .  ?interval <http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/time---common\_primitive\_types\_classes\_and\_enumerations#hasStart> ?start .  ?interval <http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/time---common\_primitive\_types\_classes\_and\_enumerations#hasDuration> ?duration .  ?interval <http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/other\_common\_classes---common\_primitive\_types\_classes\_and\_enumerations#hasQuantity> ?quantity .  The value of ?quantity is either a price or a demand value, depending on the type of signal (i.e. the value of ?signalName) |
| URL | <http://epicdr.org:8080/tbl/tbl/sparqlmotion?id=sdd:selectDailyData>  or  <http://epicdr.org:8080/tbl/tbl/sparqlmotion?id=sadd:selectAllDailyData> |
| Method | POST |
| Request Body Parameters | resourceID: required argument date: required argument - format : YYYY-MM-DDTHH:mm:SSZ |
| Sample Call  Body Parameters | resourceID: CIEE date:required argument - format : 2018-07-24T09:00:00Z |
| Sample Response | {  "head": {  "vars": [ "s" , "p" , "o" ]  } ,  "results": {  "bindings": [  {  "s": { "type": "uri" , "value": "http://siemens.com/test/2018-07-23T00:09:44.797+00:00\_EPIC#Event-IntervalDataContainer-05" } ,  "p": { "type": "uri" , "value": "http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/other\_common\_classes---common\_primitive\_types\_classes\_and\_enumerations#hasQuantity" } ,  "o": { "type": "literal" , "datatype": "http://www.w3.org/2001/XMLSchema#float" , "value": "0.21280" }  } ,  {  "s": { "type": "uri" , "value": "http://siemens.com/test/2018-07-23T00:09:44.797+00:00\_EPIC#Event-IntervalDataContainer-05" } ,  "p": { "type": "uri" , "value": "http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/time---common\_primitive\_types\_classes\_and\_enumerations#hasDuration" } ,  "o": { "type": "literal" , "value": "PT60M" }  } ,  {  "s": { "type": "uri" , "value": "http://siemens.com/test/2018-07-23T00:09:44.797+00:00\_EPIC#Event-IntervalDataContainer-05" } ,  "p": { "type": "uri" , "value": "http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/time---common\_primitive\_types\_classes\_and\_enumerations#hasStart" } ,  "o": { "type": "literal" , "datatype": "http://www.w3.org/2001/XMLSchema#dateTime" , "value": "2018-07-24T12:00:00Z" }  } ,  {  "s": { "type": "uri" , "value": "http://siemens.com/test/2018-07-23T00:10:40.531+00:00\_EPIC#r-0-0-2-0-2-0-1-21" } ,  "p": { "type": "uri" , "value": "http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/other\_common\_classes---common\_primitive\_types\_classes\_and\_enumerations#hasQuantity" } ,  "o": { "type": "literal" , "datatype": "http://www.w3.org/2001/XMLSchema#float" , "value": "15.2" }  } ,  ...many more triples…  {  "s": { "type": "uri" , "value": "http://siemens.com/test/2018-07-23T00:09:44.797+00:00\_EPIC#Event-IntervalDataContainer-11" } ,  "p": { "type": "uri" , "value": "http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/time---common\_primitive\_types\_classes\_and\_enumerations#hasStart" } ,  "o": { "type": "literal" , "datatype": "http://www.w3.org/2001/XMLSchema#dateTime" , "value": "2018-07-24T18:00:00Z" }  }  ]  }  } |

* + 1. smd:selectMaxDemand

|  |  |
| --- | --- |
| Description | This service returns the maximum total demand of all buildings associated with an Event (identified by eventID) during any of the intervals, according to the latest (maximum modificationNumber) demand forecasts from the associated buildings.  If no forecast data is found, an empty string is returned.  If only some of the buildings return a forecast, only those values are summed.  Input argument: eventID (string)  Return value: maximum total demand value (real number expressed as a string). |
| URL | http://epicdr.org:8080/tbl/tbl/sparqlmotion?id=smd:selectMaxDemand |
| Method | POST |
| Request Body Parameters | eventID - (string) |
| Sample Call  Body Parameters | eventID: 179260 |
| Sample Response | 89.82 |

Diagnostic Queries for the Triple Store

* 1. At times, it can be helpful to directly examine the contents of the triple store while debugging, “cleaning house” and other non-operational activities. The following five queries have been helpful for these purposes. They can be entered (simply copy and paste) at the SPARQL endpoint at <http://epicdr.org:8080/tbl/tbl/swp?_viewClass=endpoint:HomePage> for viewing and management of the triple-store data contents, and of course can be edited to suit any additional needs.

#### 

* 1. **1. List all stored messages with requestID, modificationNumber, eventID, resourceID, groupID, eventStatus, activePeriodStart, venName**
  2. PREFIX oadr\_helper: <[http://siemens.com/schemas/kps/oadr\_helper#](http://siemens.com/schemas/kps/oadr_helper)>
  3. PREFIX fsgim-einterop: <[http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/eiclasses---energy\_interoperation\_wd36\_pr03#](http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/eiclasses---energy_interoperation_wd36_pr03)>
  4. PREFIX fsgim-time: <[http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/time---common\_primitive\_types\_classes\_and\_enumerations#](http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/time---common_primitive_types_classes_and_enumerations)>
  5. PREFIX fsgim-calendar: <[http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/wscalendarpim---oasis#](http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/wscalendarpim---oasis)>
  6. PREFIX afn: <[http://jena.hpl.hp.com/ARQ/function#](http://jena.hpl.hp.com/ARQ/function)>
  7. PREFIX rdf: <[http://www.w3.org/1999/02/22-rdf-syntax-ns#](http://www.w3.org/1999/02/22-rdf-syntax-ns)>
  8. SELECT DISTINCT ?messageType ?signalName ?namespace ?requestID ?eventID ?modificationNumber ?resourceID ?groupID ?eventStatus ?activePeriodStart ?venName
  9. WHERE {
  10. GRAPH <<http://siemens.com/vocab/kps/epic_instances>> {
  11. ?de oadr\_helper:hasRequestID ?requestID .
  12. BIND (afn:namespace(?de) AS ?namespace) .
  13. ?de a ?type .
  14. BIND (afn:localname (?type) AS ?messageType ) .
  15. ?de oadr\_helper:hasEiEventsRef ?event .
  16. ?event fsgim-einterop:hasEiActivePeriodRef/fsgim-calendar:hasTimeReferenceRef/fsgim-time:hasStart ?activePeriodStart .
  17. OPTIONAL {
  18. ?event fsgim-einterop:hasEventDescriptorRef ?desc .
  19. ?desc fsgim-einterop:hasEventID ?eventID .
  20. ?desc fsgim-einterop:hasModificationNumber ?modificationNumber .
  21. ?desc fsgim-einterop:hasEventStatusRef ?eventStatus . }
  22. OPTIONAL {
  23. ?event fsgim-einterop:hasEiEventSignalRef/fsgim-einterop:hasSignalName ?signalName .
  24. }
  25. OPTIONAL {
  26. ?event fsgim-einterop:hasEiTargetRef/fsgim-einterop:hasResourceID ?resourceID .
  27. }
  28. OPTIONAL {
  29. ?event fsgim-einterop:hasEiTargetRef/fsgim-einterop:hasGroupID ?groupID .
  30. }
  31. OPTIONAL {
  32. ?de oadr\_helper:hasOadrVenName ?venName .
  33. }
  34. }}
  35. ORDER BY DESC(?namespace)

**2. Find all duplicate DistributeEvents that have the same 3 identifiers**

PREFIX oadr\_helper: <http://siemens.com/schemas/kps/oadr\_helper#>

PREFIX fsgim-einterop: <http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/eiclasses---energy\_interoperation\_wd36\_pr03#>

PREFIX afn: <http://jena.hpl.hp.com/ARQ/function#>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT DISTINCT ?namespace1 ?namespace2 ?eventID1 ?req1 ?modificationNumber1

WHERE {

GRAPH <[http://siemens.com/vocab/kps/epic\_instances>](http://siemens.com/vocab/kps/epic_instances%3E) {

?de1 a oadr\_helper:OadrDistributeEvent .

?de1 oadr\_helper:hasRequestID ?req1 .

?de1 oadr\_helper:hasEiEventsRef/fsgim-einterop:hasEventDescriptorRef ?desc1 .

?desc1 fsgim-einterop:hasEventID ?eventID1 .

?desc1 fsgim-einterop:hasModificationNumber ?modificationNumber1 .

BIND (afn:namespace(?de1) AS ?namespace1) .

?de2 a oadr\_helper:OadrDistributeEvent .

?de2 oadr\_helper:hasRequestID ?req1 .

?de2 oadr\_helper:hasEiEventsRef/fsgim-einterop:hasEventDescriptorRef ?desc2 .

?desc2 fsgim-einterop:hasEventID ?eventID1 .

?desc2 fsgim-einterop:hasModificationNumber ?modificationNumber1 .

BIND (afn:namespace(?de2) AS ?namespace2) .

FILTER (?namespace1 != ?namespace2) .

}}

ORDER BY ?eventID

**3. List all triples associated with eventID, modificationNumber, requestID (copy, paste, and edit BIND statements with desired values)**

PREFIX afn: <[http://jena.hpl.hp.com/ARQ/function#](http://jena.hpl.hp.com/ARQ/function)>

PREFIX efunc: <[http://siemens.com/functions/epic-functions.ttl#](http://siemens.com/functions/epic-functions.ttl)>

SELECT DISTINCT ?s ?p ?o

WHERE {

GRAPH <<http://siemens.com/vocab/kps/epic_instances>> {

BIND ("EVENT\_ID-250" AS ?eventID) .

BIND (251 AS ?modificationNumber) .

BIND ("VEN\_REQUEST-250" as ?requestID) .

BIND (efunc:getDeNamespace(?eventID, ?modificationNumber, ?requestID) AS ?namespace) .

?s ?p ?o .

FILTER (afn:namespace(?s) = ?namespace) .

}}

CAUTION: The following two queries should be used with caution, as they cause irreversible deletions of data from the triple store

**4. Delete all the triples associated with a specific namespace**

**Note: The namespace should be pasted in place of the sample namespace shown in the query. The easiest way to find candidate namespaces is using Query #1 above. Also, when pasting, sometimes a space character appears at the end of the namespace string, which should be removed for the query to work properly.**

PREFIX afn: <http://jena.hpl.hp.com/ARQ/function#>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX owl: <http://www.w3.org/2002/07/owl#>

WITH <http://siemens.com/vocab/kps/epic\_instances>

DELETE {?s ?p ?o}

WHERE {

?s ?p ?o .

FILTER (afn:namespace(?s) = "http://siemens.com/test/2017-07-31T22:35:04.230+00:00\_EPIC#") .

}

#### 

**5. Delete all triples associated with a given requestID, eventID, modificationNumber**

**Note: Values for the three parameters listed above should be pasted into the three BIND statements in the query. Note that the modificationNumber is an integer, not a string.**

PREFIX oadr\_helper: <http://siemens.com/schemas/kps/oadr\_helper#>

PREFIX fsgim-einterop: <http://uml.linkedmodels.org/sg/schema/fsgim.rofficial/submodels/eiclasses---energy\_interoperation\_wd36\_pr03#>

PREFIX afn: <http://jena.hpl.hp.com/ARQ/function#>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

WITH <[http://siemens.com/vocab/kps/epic\_instances>](http://siemens.com/vocab/kps/epic_instances%3E)

DELETE {?s ?p ?o}

WHERE {

BIND ("REQ-1003" AS ?req) .

BIND ("EVENT-1003" AS ?eventID) .

BIND (0 AS ?modificationNumber ) .

?de a oadr\_helper:OadrDistributeEvent .

?de oadr\_helper:hasRequestID ?req .

?de oadr\_helper:hasEiEventsRef/fsgim-einterop:hasEventDescriptorRef ?desc .

?desc fsgim-einterop:hasEventID ?eventID .

?desc fsgim-einterop:hasModificationNumber ?modificationNumber .

BIND (afn:namespace(?de) AS ?namespace) .

?s ?p ?o .

FILTER (afn:namespace(?s) = ?namespace) .

}