OIIE Publish Engineering Diagram Data

This Event is published to provide the information about the engineering diagrams with the receiving system(s).

Specific Data Content

The data sent from the source system is, at a minimum, composed of:

- The engineering diagram(s), which comprises of

    o   An (optional) document

    o   The segment mesh(es)

NOTE   The segment mesh is a network of segments with directed connections and can be used to represent the logical process flow structure of a plant such as Piping & Instrumentation Diagram (P&ID).

NOTE   A PDF of a P&ID is an example of the document, which can be associated with the machine interpretable P&ID.

Data Processing

This Event is publishing configuration data and does not require any data processing by the receiving systems. The recipient system may either just record the information or further trigger an Event to perform some action.
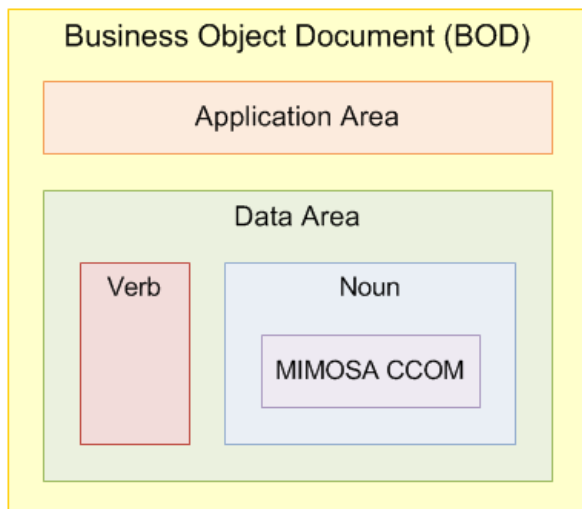
Expected Response

No response is expected.

Reference Implementation

The engineering diagrams' data can be published in many ways. The following is the list of current reference implementation(s) available:

1. Using SyncEngineeringDiagrams CCOM BOD

NOTE   Business Object Document (BOD) message structure is used to provide additional message concepts that encapsulate a MIMOSA CCOM payload. BODs indicate both behavior and structure for messages and the major components of a BOD are depicted below.

Business Object Document (BOD)

Application Area

Data Area

Verb

Noun

MIMOSA CCOM

Example

An example of reference implementation of the publish engineering diagrams data Event using SyncEngineeringDiagrams CCOM BOD is provided below.

```xml
<?xml version="1.0" encoding="utf-8"?>
<SyncEngineeringDiagrams languageCode="EN" releaseID="4.1.0"
  xmlns="http://www.mimosa.org/ccom4"
  xmlns:oa="http://www.openapplications.org/oagis/9"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <oa:ApplicationArea>
    <oa:Sender>
      <oa:LogicalID>66ea3c4e-9435-4c86-8f7b-f863ff3723c5</oa:LogicalID>
    </oa:Sender>
    <oa:CreationDateTime>2019-09-13T01:13:15Z</oa:CreationDateTime>
    <oa:BODID>147e77b3-0380-4372-824c-342bf9735d43</oa:BODID>
  </oa:ApplicationArea>
  <DataArea>
    <oa:Sync/>
    <EngineeringDiagrams>
      <EngineeringDiagram>
        <SegmentMesh>
          <UUID>05c6d889-6deb-4d1a-84a4-a5ccfd5bbd9c</UUID>
          <InfoSource>
            <UUID>793f6bbb-f299-471b-80fe-7ffcafda307d</UUID>
            <ShortName>SmartPlant P&amp;ID</ShortName>
          </InfoSource>
          <ShortName>Process Network</ShortName>
          <NetworkForSegment>
            <UUID>7b818800-0d94-0133-48ca-06d4bf49815f</UUID>
            <Segment xsi:type="Site">
              <UUID>3ebf2098-961e-45d2-b03b-4f5fbb8fa072</UUID>
              <ShortName>Refinery A</ShortName>
            </Segment>
          </NetworkForSegment>
          <Connection>
```

```xml
      <UUID>e0f7280d-5283-48da-af29-c3428f404f30</UUID>
      <From>
        <UUID>6aa0d755-04c6-4ed8-9b7c-5c229bea141a</UUID>
        <ShortName>P3</ShortName>
      </From>
      <To>
        <UUID>b1952ec5-bb9d-4f7a-a5e2-e8b1f407f2e1</UUID>
        <ShortName>P?</ShortName>
      </To>
    </Connection>
    <Connection>
      <UUID>a2f576e1-346a-48d5-963d-90b2303cc805</UUID>
      <From>
        <UUID>e742df2c-f39e-4be9-b77f-5b59a046bb33</UUID>
        <ShortName>P3</ShortName>
      </From>
      <To>
        <UUID>920a71ec-e3a4-40a8-bc75-8d0c48708d31</UUID>
        <ShortName>P2</ShortName>
      </To>
    </Connection>
    <Type>
      <UUID>fcc6f958-8e12-4e1a-bfae-acd9a5e2d2c6</UUID>
      <ShortName>Process Network</ShortName>
    </Type>
  </SegmentMesh>
  <SegmentMesh>
    <UUID>419bd224-cc91-4bda-b842-66ac69efdb5f</UUID>
    <InfoSource>
      <UUID>793f6bbb-f299-471b-80fe-7ffcafda307d</UUID>
      <ShortName>SmartPlant P&amp;ID</ShortName>
    </InfoSource>
    <ShortName>Signal Network</ShortName>
    <NetworkForSegment>
      <UUID>7b81af10-0d94-0133-48ca-06d4bf49815f</UUID>
      <Segment xsi:type="Site">
        <UUID>3ebf2098-961e-45d2-b03b-4f5fbb8fa072</UUID>
        <ShortName>Refinery A</ShortName>
      </Segment>
    </NetworkForSegment>
    <Connection>
      <UUID>b0dc3bdd-2c4a-4ad4-b37e-a7fa1a1d32f0</UUID>
      <From>
        <UUID>bbbf5785-a335-4bb9-8154-5d61578843b3</UUID>
        <ShortName>P1</ShortName>
      </From>
      <To>
        <UUID>c8d29e4b-b7a4-4117-9f53-6196d7fd0496</UUID>
        <ShortName>P?</ShortName>
      </To>
    </Connection>
    <Connection>
      <UUID>fe4e4ab6-facb-41fc-bac1-eafba19f5d55</UUID>
      <From>
        <UUID>d7b2444c-5a65-49e8-87d1-4cbf1fb6274f</UUID>
```

```xml
        <ShortName>P3</ShortName>
      </From>
      <To>
        <UUID>92ecd7a6-99c0-4a1c-8217-7a0096082823</UUID>
        <ShortName>P2</ShortName>
      </To>
    </Connection>
    <Type>
      <UUID>9bba6105-bda6-459c-8809-cf52bc77e965</UUID>
      <ShortName>Signal Network</ShortName>
    </Type>
  </SegmentMesh>
  <Document>
    <UUID>bac0af78-7c19-410b-a652-8da5f0b6f7ce</UUID>
    <IDInInfoSource>11-003</IDInInfoSource>
    <InfoSource>
      <UUID>793f6bbb-f299-471b-80fe-7ffcafda307d</UUID>
      <ShortName>SmartPlant P&amp;ID</ShortName>
    </InfoSource>
    <Created>2013-06-20T06:16:02Z</Created>
    <LastEdited>2013-06-20T06:16:02Z</LastEdited>
    <PropertySetForEntity>
      <UUID>28c445cb-bfb8-49e8-ab59-50effe15c3bf</UUID>
      <PropertySet>
        <UUID>bd928e02-6499-4563-9df1-c8743896ddad</UUID>
        <ShortName>P&amp;ID Data Sheet</ShortName>
        <FullName>P&amp;ID Data Sheet</FullName>
        <Type>
          <UUID>1d1d153d-2388-4062-9357-9d011ba34e47</UUID>
          <ShortName>P&amp;ID Data Sheet</ShortName>
        </Type>
        <Group>
          <UUID>3e573627-e4fa-44b2-a48f-0c8ca65c0b36</UUID>
          <ShortName>Parameters</ShortName>
          <FullName>Parameters</FullName>
          <SetAttribute>
            <UUID>3c8ad31b-195e-4dbd-b605-dc34ba575b7e</UUID>
            <Type>
              <UUID>4e773ea3-5864-45b5-b40c-249e1f52e3ca</UUID>
              <ShortName>HEIGHT</ShortName>
            </Type>
            <ValueContent>
              <Measure>
                <Value>0.594</Value>
                <UnitOfMeasure>
                  <UUID>7adfc360-3729-4d1a-8726-4e6e43d915c2</UUID>
                  <ShortName>METRE</ShortName>
                </UnitOfMeasure>
              </Measure>
            </ValueContent>
          </SetAttribute>
          <SetAttribute>
            <UUID>12bb8bc5-395c-4507-8192-4e7ca7b8a338</UUID>
            <Type>
              <UUID>f1663c11-51ca-4734-9014-d2cb8fb4dd89</UUID>
```

```
                    <ShortName>WIDTH</ShortName>
                  </Type>
                  <ValueContent>
                    <Measure>
                      <Value>0.841</Value>
                      <UnitOfMeasure>
                        <UUID>7adfc360-3729-4d1a-8726-4e6e43d915c2</UUID>
                        <ShortName>METRE</ShortName>
                      </UnitOfMeasure>
                    </Measure>
                  </ValueContent>
                </SetAttribute>
              </Group>
            </PropertySet>
          </PropertySetForEntity>
          <ShortName>DEBUTANIZER CONDENSER</ShortName>
          <FullName>DEBUTANIZER CONDENSER</FullName>
          <Type>
            <UUID>cac52492-2f05-405a-82e3-4604b69446a9</UUID>
            <ShortName>P AND I DIAGRAM</ShortName>
          </Type>
        </Document>
      </EngineeringDiagram>
    </EngineeringDiagrams>
  </DataArea>
</SyncEngineeringDiagrams>
```

NOTE   For brevity, the CCOM BOD example above does not show all the connections of the process network and signal network segment meshes.

NOTE   For versions of MIMOSA CCOM prior to 4.1, the types referring to 'Property' use the term 'Attribute' instead.

Version Applicability/Alignment

Events describe individual message exchanges between systems detailing data and processing requirements and, hence, they are aligned to specific versions of CCOM and/or other MIMOSA standards. For example, older versions of CCOM may not include the specific data elements required by newer Events, while older Events may become obsolete or have their data requirements change over time.

This Event is applicable to the following versions of CCOM:

- CCOM 3.x (part of OSA-EAI 3.x)

- CCOM 4.x

NOTE   Use of 'x' in the version number indicates a variable version. For example, "4.x" indicates applicability to all versions of CCOM with the MAJOR version '4', regardless of MINOR and PATCH versions.

Document Versioning

Version	Date	Major Changes
1.0	2020-06-02	Created as per OIIE use case architecture and updated OpenO&M template