OIIE Pull Historical Alarm and State Event Data

This Event is sending a query requesting historical alarm and state event data and expects a reply having the historical measurement, alarm, or state event data.

Specific Data Content

The following data can be used for filtering the request:

- The measurement location at which measurements were taken

- The serialized asset or functional location of interest

- Device/Transducer that took the measurement

- Measurement source from which the measurement was published

Data Processing

This Event is querying historical alarm and state event data and require that the recipient system processes the data received. The receiving system is expected to respond to the query by sending the historical measurement, alarm, or state event data including any contextual data.

Expected Response

The receiving system is expected to send the reply consisting of:

- The measurement/data value

- The timestamp at which the measurement value was acquired

- The data quality

- Any associated events or alarms

Additionally, the following contextual data may be provided in the response:
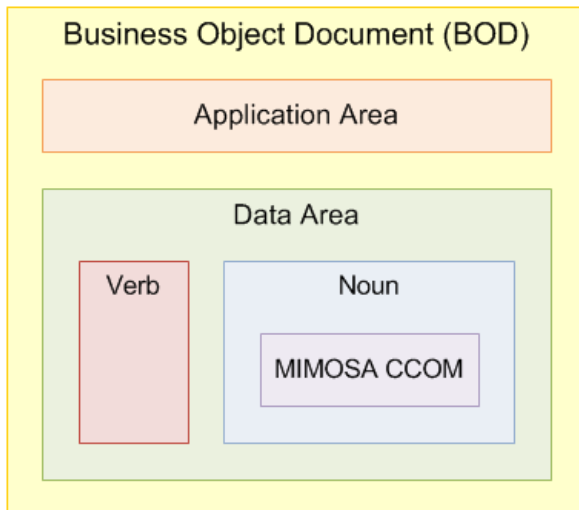
- The measurement location at which measurement were taken

- The serialized asset or functional location of interest

- Device/Transducer that took the measurement

- Measurement source from which the measurement was published

- Any agent associated with the alarm or event

Reference Implementation

The query to request historical alarm and state event data can be sent to the target system in many ways. Similarly, the response from the recipient system can be sent back to the source system in many ways. The following is the list of current reference implementation(s) available:

- Using MIMOSA CCOM BODs

    1. GetActualEvents and ShowActualEvents

    2. GetMeasurementLocationTriggeredRegions and ShowMeasurementLocationTriggeredRegions

- Using OIIE BOD for OPC UA content

    1. GetHistoricalAlarmsAndConditions

    2. ShowHistoricalAlarmsAndConditions

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.

Example

An example of reference implementation of the pull state event data Event using GetActualEvents CCOM BOD is provided below.

```xml
<?xml  version="1.0"?>
<GetActualEvents  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>fc3899f0-9703-0137-e25d-22000a6f90e2</oa:LogicalID>
    </oa:Sender>
    <oa:CreationDateTime>2020-11-15T13:21:00Z</oa:CreationDateTime>
    <oa:BODID>caa56013-6afb-4a56-aead-8d0d2541ad01</oa:BODID>
  </oa:ApplicationArea>
  <DataArea>
```

```
    <oa:Get>
      <oa:Expression>/*</oa:Expression>
    </oa:Get>
    <ActualEventsCriteria>
        <TypeUUID>b8dde830-f0dd-4584-a7b3-b064f9638dc4</TypeUUID>
    </ActualEventsCriteria>
  </DataArea>
</GetActualEvents>
```

An example of reference implementation of the response message using ShowActualEvents CCOM BOD is provided below.

```
<?xml  version="1.0"?>
<ShowActualEvents  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"
xsi:schemaLocation="http://www.mimosa.org/ccom4 ../../schemas/CCOM-4.1.0-
draft/BOD/Messages/Operation%20and%20Condition/ShowActualEvents.xsd">
  <oa:ApplicationArea>
    <oa:Sender>
      <oa:LogicalID>fc3899f0-9703-0137-e25d-22000a6f90e2</oa:LogicalID>
    </oa:Sender>
    <oa:CreationDateTime>2020-11-15T13:21:00Z</oa:CreationDateTime>
    <oa:BODID>caa56013-6afb-4a56-aead-8d0d2541ad01</oa:BODID>
  </oa:ApplicationArea>
  <DataArea>
    <oa:Show/>
    <ActualEvents>
        <ActualEvent>
            <UUID>d13aa825-8b5a-4f60-963a-d38ae1106d45</UUID>
            <Type>
               <UUID>b8dde830-f0dd-4584-a7b3-b064f9638dc4</UUID>
               <ShortName>Abnormal Condition</ShortName>
            </Type>
            <Start>2020-10-17T23:47:38Z</Start>
            <SubstantiatedByMeasurement>
                <UUID>d8620c23-f074-461c-9372-36aa9dec850b</UUID>
                <Measurement xsi:type="SingleDataMeasurement">
                    <UUID>611ee2af-12d5-5cec-578c-160c9aeb5118</UUID>
                    <InfoSource>
                        <UUID>19a137cf-a70d-2888-343a-bc1158bf7f9f</UUID>
                    </InfoSource>
                    <Recorded>2020-10-17T23:47:38Z</Recorded>
                    <MeasurementLocation>
                        <UUID>e015177c-8281-576b-56a9-87c16c3d91cc</UUID>
                        <InfoSource>
                            <UUID>19a137cf-a70d-2888-343a-bc1158bf7f9f</UUID>
                        </InfoSource>
                        <ShortName>Temp. Loc. 1</ShortName>
                    </MeasurementLocation>
                    <Data>
                        <Measure>
                            <Value>105.36</Value>
                            <UnitOfMeasure>
                                <UUID>3912c639-8c27-4b29-868b-a0f01790770f</UUID>
```

```xml
                        <InfoSource>
                            <UUID>cf3f3a8a-1e42-4f15-9288-9cf2241e163d</UUID>
                        </InfoSource>
                        <ShortName>Degrees Celsius</ShortName>
                    </UnitOfMeasure>
                </Measure>
            </Data>
        </Measurement>
    </SubstantiatedByMeasurement>
  </ActualEvent>
 </ActualEvents>
 </DataArea>
</ShowActualEvents>
```

An example of reference implementation of the pull alarm data Event using GetMeasurementLocationTriggeredRegions CCOM BOD is provided below.

```xml
<?xml  version="1.0"?>
<GetMeasurementLocationTriggeredRegions 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>fc3899f0-9703-0137-e25d-22000a6f90e2</oa:LogicalID>
    </oa:Sender>
    <oa:CreationDateTime>2020-11-15T13:21:00Z</oa:CreationDateTime>
    <oa:BODID>caa56013-6afb-4a56-aead-8d0d2541ad01</oa:BODID>
  </oa:ApplicationArea>
  <DataArea>
    <oa:Get>
      <oa:Expression>/*</oa:Expression>
    </oa:Get>
    <MeasurementLocationTriggeredRegionsCriteria>
        <MeasurementLocationUUID>e015177c-8281-576b-56a9-
87c16c3d91cc</MeasurementLocationUUID>
    </MeasurementLocationTriggeredRegionsCriteria>
  </DataArea>
</GetMeasurementLocationTriggeredRegions>
```

An example of reference implementation of the response message using ShowMeasurementLocationTriggeredRegions CCOM BOD is provided below.

```xml
<?xml  version="1.0"?>
<ShowMeasurementLocationTriggeredRegions 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>9aa79d1c-8750-4fb8-af05-f16c53f77a6f</oa:LogicalID>
    </oa:Sender>
    <oa:CreationDateTime>2020-11-15T13:21:00Z</oa:CreationDateTime>
    <oa:BODID>caa56013-6afb-4a56-aead-8d0d2541ad01</oa:BODID>
  </oa:ApplicationArea>
  <DataArea>
    <oa:Show/>
```

```xml
<MeasurementLocationTriggeredRegions>
        <MeasurementLocationTriggeredRegion>
            <UUID>4956009f-c39a-4883-8382-fed7ae90b3af</UUID>
            <Type>
                <UUID>8055e0d5-0ff6-41aa-85f6-03f800d9106d</UUID>
                <ShortName>External Thermal Condition, Abnormal, Above Norm</ShortName>
            </Type>
            <Start>2020-10-17T23:47:38Z</Start>
            <MeasurementLocation>
                <UUID>e015177c-8281-576b-56a9-87c16c3d91cc</UUID>
                <InfoSource>
                    <UUID>19a137cf-a70d-2888-343a-bc1158bf7f9f</UUID>
                </InfoSource>
                <ShortName>Temp. Loc. 1</ShortName>
            </MeasurementLocation>
            <RegionType>
                <UUID>c5fdcdbb-a924-4ac1-9352-c9d791d623ab</UUID>
                <ShortName>Warning</ShortName>
            </RegionType>
        </MeasurementLocationTriggeredRegion>
    </MeasurementLocationTriggeredRegions>
  </DataArea>
</ShowMeasurementLocationTriggeredRegions>
```

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	2021-01-20	Created as per OIIE use case architecture and updated OpenO&M template