OIIE Scenario 36 – Push Request for Models Meeting Functional Requirements from MATERIALS/PROCURE to OEM PRODUCT

This scenario details the exchange of an RFI, and its response, requesting possible models that meet a set of functional requirements that typically occurs for Greenfield sites after the completion of material take-off from the P&ID. The request originates from the Procurement Management System and is sent to Manufacturer Product Data Management Systems. Engineering Data Sheets describing the functional requirements are provided in an agreed upon standard form, such as an Industry Standard Datasheet Definition (ISDD). Using standardized property sets for equipment classes based on recognized industry standard data sheets improves the understandability of core requirements properties, potentially allowing automated systems to perform matching of the requirements to product models. EPCs and OEMs must create mappings to the standardized data sheets for the requirements they wish to share.

Actors

Procurement Management System (MATERIALS/PROCURE)	Send requests for models meeting requirements, including requirement data sheets in an agreed standard format, and receive possible models that meet or exceed those requirements.
Manufacturer Product Management System (OEM PRODUCT)	External system of record for engineering product data. Receive requests for models meeting requirements and reply with a list of models that meet or exceed those requirements.

Data Content

The data sent from the Procurement Management System to the OEM PDM System is, at a minimum, composed of:

- The functional location(s) (P&ID Tag)
- Engineering Data sheets containing the functional requirements for each location (or group of locations)

Optional In addition, the following data can be sent for context:

- The agent (person or organization) making the request, for contact purposes
- A timestamp indicating a deadline by which a response should be made
- Additional property sets/data sheets specifying additional information that may be taken into account when finding models that meet the requirements

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In response, data sent from the OEM PDM System to the Procurement Management System is, at a minimum, composed of:

- The functional locations(s) (P&ID Tag)
- The model(s) that meet or exceed the requirements associated with the functional location or group of locations.

Engineering Data Sheet Requirements

To achieve interoperability, the data sheets representing functional requirements will be exchanged in an agreed upon standard format. By using standardized property sets for the functional requirements of key equipment classes, the properties can be understood by both parties and potentially supports automated methods for matching models against requirements. This scenario recommends the use of Industry Standard Datasheet Definitions (ISDDs) as the standardized form for representing Engineering Data Sheets. ISDDs are based on industry accepted reference data sheets such as those published by industry standards bodies and associations, for example ISA, API, PIP, etc.

Where possible, the engineering properties of functional locations describing the requirements of the installed equipment will conform to a standardized ISDD for each equipment/device class. Where no standardized ISDD is available, the engineering properties may conform to an agreed upon enterprise datasheet definition conforming to the ISDD specification.

The specific ISDDs to be utilized are agreed upon a priori according to Use Case 11.

NOTE EPCs and OEMs will need to map their engineering data and product data to the ISDD properties, respectively.

MIMOSA CCOM Reference Types

For the purposes of reference data management, the following MIMOSA CCOM types may be referenced:

- PropertySetType/PropertySetDefinition (for Data Sheets)
    - Data Sheet related attribute sets must be related to the PropertySetType ‘Engineering Data Sheet’ (UUID: `4d568f12-8f82-4203-bb13-48643cecbb82`) either directly, or through the parent hierarchy of an PropertySetType taxonomy.
    - The reference PropertySetTypes and PropertySetDefinitions should come from the catalogue of published ISDDs.
- PropertyType/PropertyDefinition
- RequestType
    - The RFI must be of the type ‘Model Information Request matching Functional Requirements’ (UUID: `c3aaaab7-eda5-487f-a1d2-de4a0a3f2204`)
- SegmentType
- UnitType

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

System Interoperability Events

This scenario the requires the sending/receipt of the following Events:

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- Push RFI for Models Meeting Requirements Data

Data Formats

The data sent/received by the Procurement Management System and sent/received by the OEM PDM System must conform to MIMOSA CCOM BODs.

Infrastructural Components

ISBM

The communication between all systems occurs via the ISBM using request-response services.

Implementation Requirements

The Procurement Management System must implement a client for the ISBM Consumer Request and Channel Management Services (GetChannel operation only).

The OEM PDM System must implement a client for the ISBM Provider Request and Channel Management Services (GetChannel operation only).

All systems may implement the ISBM Notify Listener Service for message notification.

Suggested Channel/Topic Configuration

This is an inter-enterprise Scenario involving an OEM PDM System and a Procurement Management System and so two possible ISBM configurations could be used depending on whether the ISBM is shared infrastructure or each party manages their own instance. In the latter case, each party will have their own channel configurations defined from their perspective that must be mapped between the instances.

Inter-Enterprise Configuration

If each party, i.e., the OEM PDM and Procurement Management System in this case, manage their own ISBM instance then the two ISBMs must be connected and the channels mapped between instances.

The Procurement Management System can create a channel specifically for the model RFI as follows:

```
/Enterprise/Enterprise Subdivision/.../Model/RFI/ISO18435:D0.2/Request
```

For example:

```
/Demo Enterprise/Refinery A/Area A/ISO18435:D0.2/Model/RFI/Request
```

The OEM PDM can create channel specifically for model RFI as follows:

```
/OEM/OEM Subdivision/.../Model/RFI/ISO18435:D0.2/Request
```

For example:

```
/Demo Supplier/Product Management/Model/RFI/ISO18435:D0.2/Request
```

The mapping between these two channels will be recorded as part of the inter-enterprise configuration management of the ISBM.

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Shared Configuration

When both parties (OEM PDM and Procurement Management System) communicate via a single ISBM instance, for example, the O/O has invited the OEM to directly connect to their OIIE instance as part of contracting arrangements, a channel can be created specifically for model RFIs as follows:

```
/Enterprise/Suppliers/OEM/Model/RFI/ISO18435:D0.2/Request
```

For example:

```
/Demo Enterprise/Suppliers/Demo Supplier/Model/RFI/IS18435:D0.2/Request
```

Topic Configuration

As outlined in the document ISBM Guidelines, topics should match the message content. Correspondingly, the following topic format should be used:

```
OIIE:S36:V1.1/StandardSchemaName{:Version}
```

For example:

```
OIIE:S36:V1.1/CCOM-XML:ProcessSegmentModelRequest:V1.0
```

SDAIR

The scenario may require the use of an SDAIR in the following capacities:

- Registry of agreed upon ISDDs and/or Enterprise Data Sheet Definitions (conforming to ISDD specification)
- Registry of mappings between ISDD properties and enterprise (i.e., EPC and OEM) defined properties

Event Sequence

The following diagram represents a simplified set of exemplar interactions between the systems required to achieve this Scenario. The system actors are assumed to have OIIE/ISBM adaptors implemented as required, with services according to the ISBM Implementation Requirements described above. For simplicity, it is assumed that each system/adaptor implements the optional Notify Listener service.

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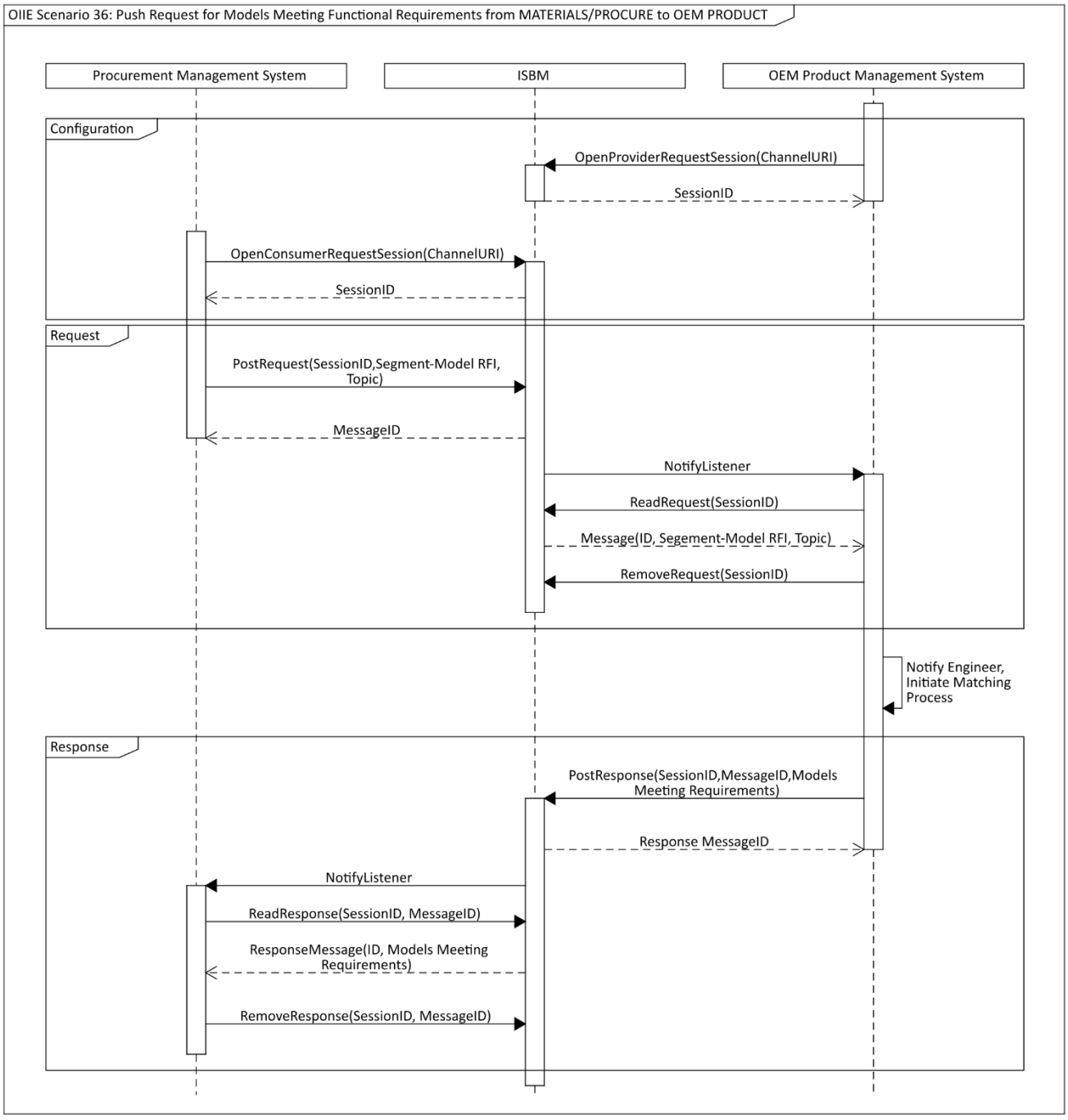

Version Applicability/Alignment

Scenarios describe general data 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 data elements required by newer Scenarios, while older Scenarios may become obsolete or have their data requirements change over time.

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This Scenario is applicable to the following versions of CCOM:

- CCOM 4.1 and above

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
1.1	2020-11-10	Updated to use OpenO&M template. Updated suggested channel configuration.
1.0-DRAFT	2019-01-31	Initial write-up.

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