



# Electronic Information Environment (EIE)

## Service Specification Document/Interface Control Document

**Navy Maintenance Notification – External External – In the above context is intended to reflect that this content is for Industry partners who have been contracted to participate in an In-Service-Support phase of a Weapon System or Platform that the Department of National Defence has acquired.**

### EIE Project

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## 1 Introduction

In order to fulfill its responsibilities under Performance Based Contracting (PBC), the ISS Contractor requires maintenance history information, including Maintenance Notifications, from Canada DND.

This document defines a web-service interface between Canada DND and ISS Contractor's systems to transfer maintenance notification data from Canada to the ISS Contractor. To support the Notifications message exchange between Canada Electronic Data Exchange (EDE) and the ISS Contractor, both systems need to support specific Web Service operations as well as request and response XML schemas as described in this document.

This document defines the maintenance notification interface as five distinct services. Sections 1 through 5 apply equally to all five services; sections 6 through 10 describe individual services.

### 1.1 Intended Audience

- ISS Contractor System Designers
- Canada EDE Designers
- ISS Contractor Testers
- Canada EDE Testers

### 1.2 References

**[Ref. 1]** Electronic Information Exchange Business Use Case - BUC 4.21 Navy - Exchange Maintenance Notification Data

Electronic Information Exchange Business Use Case - BUC 7.1 Navy - Exchange Engineering Change Notification Data

**[Ref. 2]** Annex L: Navy Maintenance Process Model – In the Context of Performance-Based Contracting (PBC)

Annex O: Navy Configuration Management Process Model – In the Context of Performance-Based Contracting (PBC)

**[Ref. 3]** Electronic Information Exchange Service Interaction Model

**[Ref. 4]** Electronic Information Exchange Maintenance History Service Operational Model – External

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## 2 Business Information

Business Information is based on the EIE Business Use Case for Maintenance Notifications [Ref. 1].

Canada Maintenance Management System (CMMS) is the system of record for maintenance history under PBC. As a result of execution of various business processes, notification records are created and modified, and their status values are updated<sup>1</sup>. In accordance with the PBC contract, all maintenance notifications associated with the Weapon System (WS) shall be transferred to the Industry in order to facilitate contractually agreed obligations.

On a pre-determined, periodic basis, Canada will transfer to the specific ISS Contractor partner, maintenance notification data sets through its entire lifecycle and which are permitted by the business to be shared with the specific industry partner.

Within Canada DND maintenance business processes are supported by two types of information systems, known generically as:

- Canada Maintenance Management System (CMMS)
- Canada Supply System (CSS)

Currently both functions are supported within Canada DND by the Defense Resource Management Information System (DRMIS).

### 2.1 Business Processes

The following business processes result in creation or change in notification data in CMMS. Please refer to appropriate sections in Maintenance Business Process document [Ref. 2] and Maintenance Notification Business Use Case [Ref. 1] for details.

Functional Area: Preventive and Corrective Maintenance

- Preventive Maintenance (PM) Planning
  - PM Initialization
  - Maintenance Planning - Ship Staff
  - Maintenance Planning - Fleet Maintenance Facility (FMF)
  - Maintenance Planning - On-Site Management Team (OSMT)
- Corrective Maintenance Planning
- Execute Corrective or Preventive Maintenance
  - Execute Maintenance - Ship Staff/FMF
  - Execute Maintenance - ISS Contractor
- Cancel
- Deviation and Waiver
  - Deviation and Waiver - Ship Staff/FMF
  - Deviation and Waiver - ISS Contractor

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<sup>1</sup> Please see the document: '*BUC 4.21 Navy Exchange Maintenance Notification Data*' for a functional overview of the maintenance notification information model.

- Conduct Trials
  - Conduct Trials - Ship Staff/FMF
  - Conduct Trials - ISS Contractor
- Backshop Maintenance

Functional Area: Configuration Control

- Engineering Change Options Analysis
- Engineering Change Package Development
- Engineering Change Implementation
- Fleet Maintenance Facility (FMF) Taskings

## 2.2 Business Triggers

The following actions within CMMS, the business triggers, will result in Maintenance Notification data being sent to Industry:

1. Creation of a Maintenance Notification.
2. Update Maintenance Notification User Status.
3. Update Maintenance Notification System Status.
4. Close Maintenance Notification.
5. Creation of an Engineering Change Notification.
6. Update Engineering Change Notification User Status.
7. Update Engineering Change Notification System Status.
8. Close Engineering Change Notification.

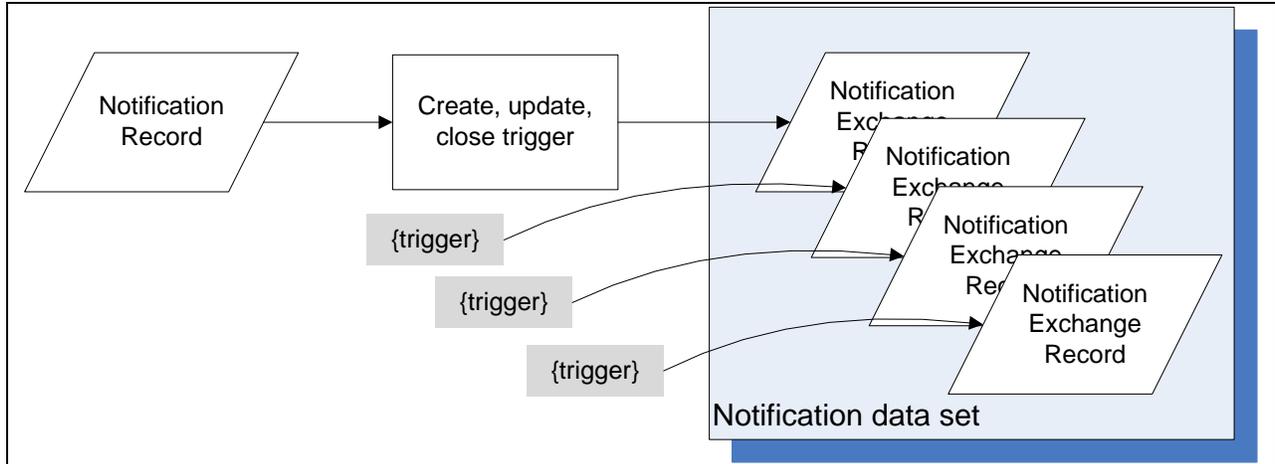
For Further information, including cross-references to business processes, please refer to the Business Use Cases [Ref. 1].

## 2.3 Notification Records and Notification Exchange Records

A business trigger applies to a particular notification in CMMS. For each occurrence of the trigger, CMMS will create a **notification exchange record** containing a copy (complete or partial copy) of the notification record. The content of the notification exchange record will depend on the trigger, in other words, there can be more than one notification exchange record type. A notification exchange record always contains the unique ID of its originating notification record and a timestamp when the data capture occurred. A collection of exchange records of the same type, arising from a notification at different times, or from different notifications, is called a **notification data set** (see Figure 2-1).

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**Figure 2-1 Notification data set made up of Notification Exchange Records**

Depending upon the business trigger fired to create the notification exchange record, the notification record will follow one of three population models:

- A fully populated Notification object with all available data.
- Population of Notification User Status records only with Notification primary key and snapshot timestamp.
- Population of Notification System Status records only with Notification primary key and snapshot timestamp.

Over time, as triggers occur, CMMS accumulates notification data sets. These are periodically transferred to EDE, then from EDE to Industry. See Service Context for a more detailed view.

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### 3 Business Constraints

#### Constraints on *Usage of the Service*

- 1) The ISS Contractor Maintenance Notification service shall only be invoked by the Canada EDE System. Canada EDE system will only invoke this service upon receiving a Maintenance Notification message from CMMS.
- 2) Every invocation of a service operation shall be secured using secure credentials such as: PKI Certificate.

#### Constraints on *Behaviour of the Service*

- 3) The notification data may be aged for a period of time – to be determined between Canada DND and the ISS Contractor based on operational factors - before it will be sent to the ISS Contractor. Please see [Ref. 2] and [Ref. 4] for details.
- 4) The notifications are sent on a periodic basis (for example once every day at 2:00 AM EST) as agreed upon with the ISS Contractor.
- 5) The Notification data sets are sent to the ISS Contractor from the centralized CMMS server. There may be a delay incurred in the ISS Contractor receiving ship data due to the periodic nature of decentralized CMMS server aboard ship synchronizing with the central CMMS server.
- 6) Since notification data sets are accumulated before being sent to The ISS Contractor, a single data set may contain more than one exchange record with the same notification ID. The records can be distinguished by their timestamp.
- 7) Canada DND does not guarantee that notification data sets will arrive at the ISS Contractor in the same order that they were created. It is the responsibility of the recipient ISS Contractor system to collate notification exchange records based on ID, timestamp and/or other fields.
- 8) Canada DND systems shall ensure Maintenance Notification data sets for a WS is sent only to the ISS Contractor system which is properly authenticated and authorized to see maintenance data for that fleet.
- 9) ISS Contractor will authorize invocations of operations of the Maintenance Notification service.
- 10) ISS Contractor will report successful conclusion of business processing of the Maintenance Notification data through the Maintenance Notification Acknowledgement operation exposed by Canada using a distinct and separate invocation. In this context, successful processing constitutes The ISS Contractor successfully persisting Maintenance Notification business objects within The ISS Contractor system(s).
- 11) ISS Contractor will report any business processing errors through the Maintenance Notification Error operation exposed by Canada using a distinct and separate invocation.
- 12) Maintenance Notification messages will be signed using digital certificates between Canada EDE and The ISS Contractor. Please see Service Interaction Operational Model [Ref. 3] for details.
- 13) Canada EDE may attempt to repeat operation invocations in response to technical faults. This behaviour is controlled by parameters for each operation. Please see Service Interaction Operational Model [Ref. 3] for details.

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14) The "Action" field in each record of the Notification object will be defined based upon business events that have impacted the record in CMMS. The "Action" field will have the following meaning:

1 = a new record has been created in CMMS.

2 = the record instance has been edited within CMMS.

3 = the record instance (defined by the record primary key) has been deleted in CMMS.

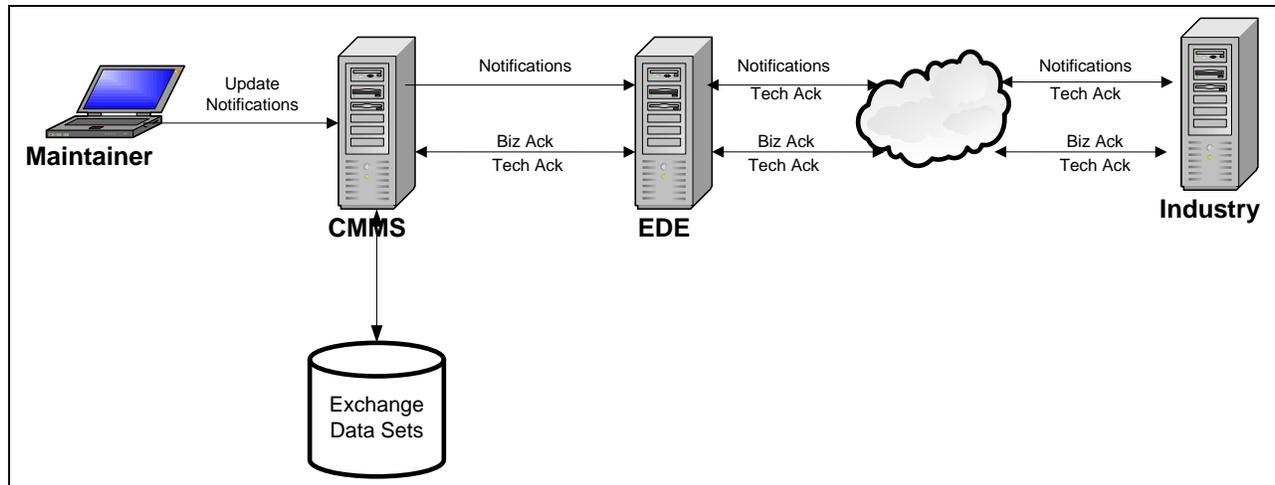
4 = indicates that the record is a point-in-time snapshot. The record may have been added or modified since the last time the record has been sent, but the Action=4 does not imply any change; it is simply a snapshot of the current record state at the timestamp.

## 4 Service Use Case

The requirements for the Maintenance Notification service are defined by one use case with several scenarios.

### 4.1 Service Context

A high level view of the context of the service is shown in Figure 4-1 below. For simplicity this view omits acknowledgement and error scenarios. These are discussed in [Service Use Case Scenarios](#).



**Figure 4-1 Service Context Overview**

The following steps occur:

- 1) Maintainer (or system) actions in CMMS cause create, update, status change, and close notification events in CMMS.
- 2) CMMS determines the relevant Notification exchange triggers and saves the applicable exchange record(s).
- 3) CMMS transfers applicable exchange records from decentralized CMMS server to centralized CMMS server.
- 4) Data sets are transferred from CMMS to EDE – with timing of the transfers based on Industry and Ship Class.
- 5) Data sets are transferred from EDE to Industry – with timing of the transfers based on Industry and Ship Class. Industry accepts the message and returns a ‘technical’ response, labelled as ‘Tech Ack’ above.
- 6) Industry performs their processing, including persisting Notification data, and sends a business response to Canada EDE, labeled as ‘Biz Ack’ above. Canada EDE accepts the message and returns a ‘technical’ response, labelled as ‘Tech Ack’ above.
- 7) Canada EDE forwards business response to Canada CMMS system.

The “technical response” referred to above either (i) confirms a party in the exchange has accepted a message for further processing, or (ii) contains a fault message. A technical acceptance does not

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preclude subsequent “business” errors being observed by industry and reported back to Canada as required.

The “business response” referred to above either (i) confirms Industry has successfully persisted Notification records contained within the message, or (ii) contains an error message.

## 4.2 Interaction Model

In a general scenario (as described in Use Case 1 below), Canada DND sends requests containing Notification data sets to Industry. Once Industry validates the message for compliance with agreed upon XML schema (XSD file), Industry will post a technical acknowledgement message through the notification output message definition. If Industry detects an error in validating the message, Industry will post a fault to Canada through the notification fault message definition.

After some time when Industry has processed the content of the Maintenance Notification message in their backend system(s), Industry will send a Business Acknowledgement message to the exposed Canada acknowledgement service. In a similar manner as above, Canada will post a technical acknowledgement message through the Acknowledgement output message definition.

If while processing the message content Industry backend system generates errors on the message payload, Industry will send Error message to the exposed Canada error service. In a similar manner as above, Canada will post a technical acknowledgement message through the Error service output message definition.

Please refer to Maintenance History Operation Model for various scenarios that are applicable for Maintenance History services.

## 4.3 Successful Request and Response

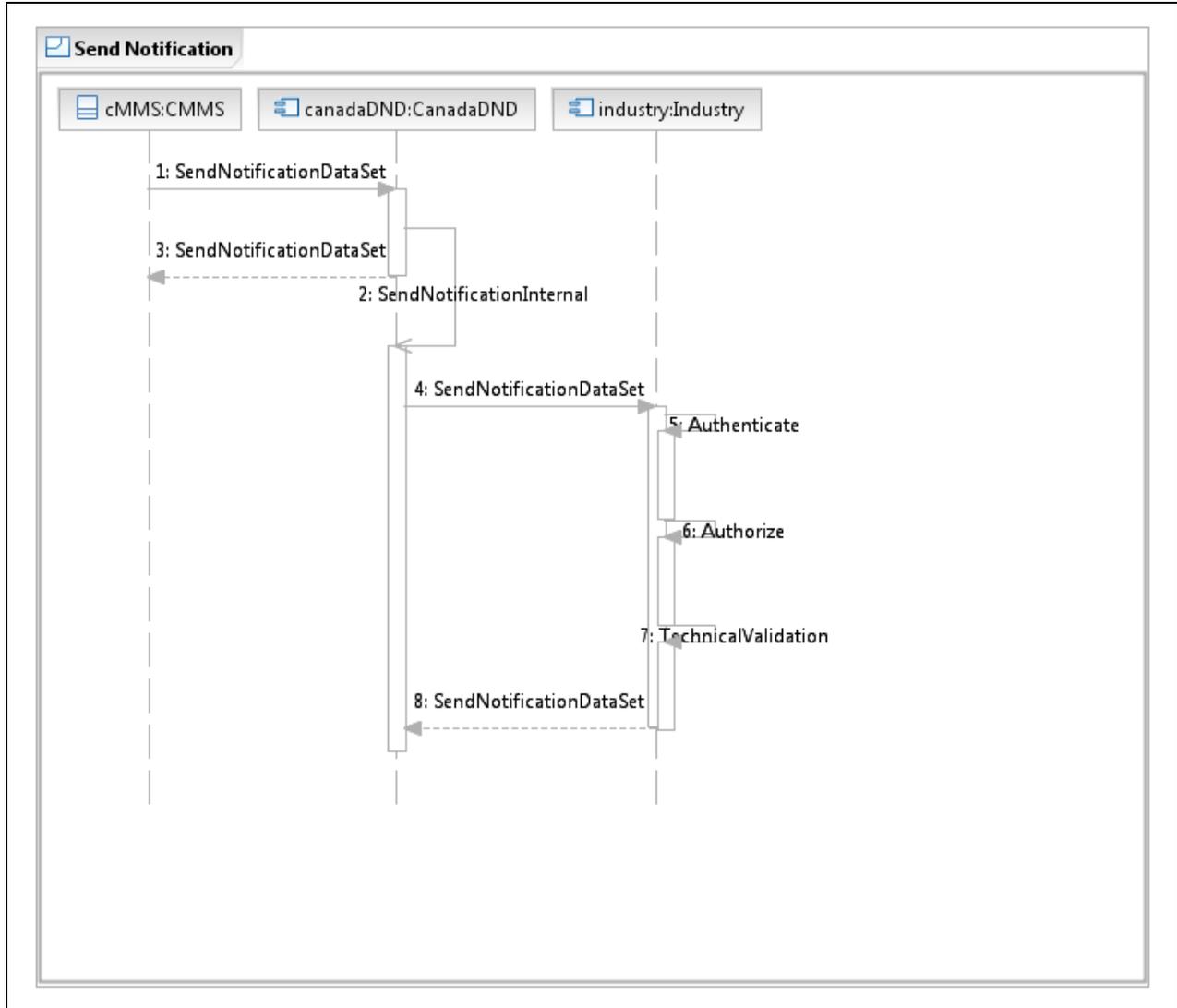
At a high level, Notification messages are handled in the following manner:

1. Canada sends Notification message to Industry.
2. Industry Acknowledges receipt of the Notification message. This is referred to as a Technical Acknowledgement.
3. Industry will process the contents of the Notification message. This may take several days.
4. After processing the contents of the Notification message, Industry will send Canada a Business Acknowledgement message. This confirms with Canada that the accumulated Notification data in the message is acceptable to Industry systems.

The following sequence diagram (Figure 4-2) describes steps in sending the Notification message to Industry.

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**Figure 4-2 Send Notification Sequence**

The following scenarios apply to all Notification exchange record types: Full Notification snapshot, Notification user status, Notification system status, and Notification Header.

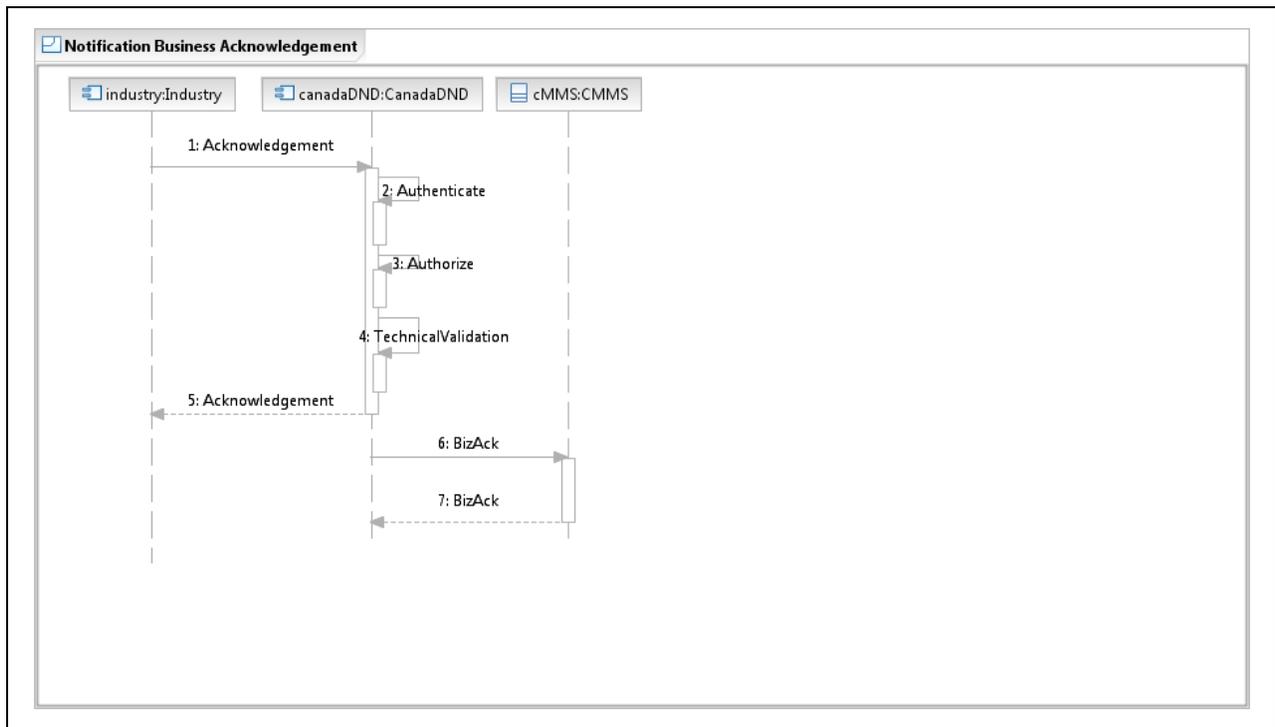
Main Flow	
Scenario	“Happy Day:” Canada EDE successfully sends its Notification data to the industry.
Pre-Condition	Notification data is collected by the Canada CMMS system.
Post-Condition	Notification data is successfully received by the industry.

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Steps	<ol style="list-style-type: none"> <li>1) CMMS sends Notification message to Canada EDE.</li> <li>2) Canada EDE successfully Authenticates, Authorizes and Validates the message; then starts an internal process.</li> <li>3) Canada EDE responds that the message has been accepted.</li> <li>4) The Canada EDE system invokes the Industry hosted and exposed SendNotification<sup>2</sup> operation.</li> <li>5) Industry successfully Authenticates the service consumer.</li> <li>6) Industry successfully Authorizes use of the service/operation.</li> <li>7) Industry conducts the required validations as per Service Interaction Model [Ref. 3] - Section Technical Delivery Phase.</li> <li>8) Industry provides technical response to Canada EDE. The response may indicate a status of Success or contain a fault.</li> </ol>
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Following processing of Notification data by Industry backend systems, Industry will send a Business Acknowledgement message to Canada. This is depicted in the following sequence diagram in Figure 4-3.



**Figure 4-3 Send Notification Business Acknowledgement Sequence**

<sup>2</sup> For this description, SendNotification is a generic term encompassing any of the Notifications services: Notification Snapshot, Notification User Status, Notification System services.

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Main Flow	
Scenario	“Happy Day:” Industry successfully sends its Notification Business Acknowledgement message to Canada.
Pre-Condition	Notification data has been received and processed by Industry.
Post-Condition	Acknowledgement successfully received by Canada EDE.
Steps	<ol style="list-style-type: none"> <li>1) After a delay<sup>3</sup>, Industry sends <i>Business Acknowledgement</i> to Canada EDE, indicating Business Objects within the Notification message payload were successfully processed by invoking the Canada hosted and exposed NotificationAcknowledgement operation.</li> <li>2) Canada EDE successfully Authenticates the service consumer.</li> <li>3) Canada EDE successfully Authorizes use of the service/operation.</li> <li>4) Canada EDE conducts the required validations as per Service Interaction Model [Ref. 3]- Section Technical Delivery Phase</li> <li>5) Canada EDE sends a technical Acknowledgement to Industry, indicating successful receipt of the message.</li> <li>6/7) Canada EDE sends Biz Ack message to CMMS confirming Notification data consumed by Industry.</li> </ol>

The following alternate scenarios are applicable for both the Notification and Business Acknowledgment sequences presented above. Alternate Scenarios are written for the Canada-to-Industry Notification message, but can be interpreted for Business Acknowledgement by reversing use of Canada EDE and Industry throughout.

#### 4.4 Alternate Scenarios

Alternate Flow 1 (Authentication Failure)	
Scenario	Canada EDE does not provide appropriate credentials to Industry.
Pre-Condition	Canada EDE has invoked the Industry MaintenanceNotificationService.
Post-Condition	The Industry System sends an Authentication Failure fault response.
Steps	<ol style="list-style-type: none"> <li>1) The authentication credentials are either not provided or are incorrect.</li> <li>2) The Industry sends an Authentication Failure fault as the technical response.</li> <li>3) Canada EDE processes the fault.</li> </ol>
Alternate Flow 2 (Authorization Failure)	
Scenario	Canada EDE is not authorized to use a service.

<sup>3</sup> Delay may be several days while business processing of Notification data occurs.

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Pre-Condition	Canada EDE has invoked the Industry MaintenanceNotificationService. Industry has completed Authentication successfully.
Post-Condition	The Industry System sends an Unauthorized Request fault as the technical response.
Steps	<ol style="list-style-type: none"> <li>1) The request message does not pass Industry authorization.</li> <li>2) The Industry sends an Unauthorized Request fault as the technical response.</li> <li>3) Canada EDE processes the authorization failure.</li> </ol>
<b>Alternate Flow 3 (Technical Validation Failure)</b>	
Scenario	Canada EDE sends a malformed message to Industry.
Pre-Condition	Canada EDE has invoked the Industry MaintenanceNotificationService. Industry has completed Authentication and Authorization successfully.
Post-Condition	The Industry sends a Malformed Message fault response.
Steps	<ol style="list-style-type: none"> <li>1) The message does not pass validation as per agreed schema. (Regardless of the number and types of errors).</li> <li>2) Industry sends schema validation error information as the technical response as the fault message as defined within the exposed interface.</li> <li>3) Canada EDE processes the schema validation error.</li> </ol>
<b>Alternate Flow 4 (Business Validation Failure)</b>	
Scenario	Business validations fail on one or more Notification data records.
Pre-Condition	Main Flow (as above) has been completed. Notification data records failed the Industry system’s business validation process.
Post-Condition	The Industry System invokes Canada’s Business Error Service.
Steps	<ol style="list-style-type: none"> <li>1) Industry sends Business Error information by invoking the corresponding Canada Notification Error service.</li> </ol>
<b>Alternate Flow 5 (Industry Service unresponsive)</b>	
Scenario	Canada EDE does not receive technical response within ACK_TIME_INTERVAL
Pre-Condition	Canada EDE has invoked the Industry MaintenanceNotificationService.
Post-Condition	Canada EDE marks the request as Dead Message.
Steps	<ol style="list-style-type: none"> <li>1) Canada EDE does not receive any technical response from Industry within the allowed ACK_TIME_INTERVAL.</li> <li>2) Canada EDE will retry sending the message up to the defined maximum retry count, or Time to Live interval, whichever comes first.</li> <li>3) If there is no response, then Canada EDE marks the request message as Dead and handles it via the DeadMessageHandlerService.</li> </ol>

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## 5 Information Model (General)

These services are responsible for exchange of Notification records from Canada DND to Industry. A functional view<sup>4</sup> of the information model is provided in the Business Use Case BUC 4.1 Exchange Maintenance Notification Data [Ref. 1].

The purpose of this section is to provide a bridge between the functional view of the information model as presented in the business use case and the specifics of the design as expressed in an XML Schema.

In general, a Notification contains a unique Notification ID and instances of the following sub-record types. In these services, each of the sub-record types is *always* exchanged in the context of a parent Notification record.

- NotificationHeader;
- UserStatus;
- SystemStatus;
- FMEACodes.
- EC Change;
- Tasks;
- Activities;
- Attachments

A Notification Request message adds four fields which are used by Industry to correctly process the incoming request:

- action – indicates if the exchange record is new, an edit to an existing record, or a deletion of a prior exchange record;
- RecordTimestamp – the time the exchange record was captured in CMMS.
- Business Correlation ID – measurement extract identifier
- Business Sequence Number – further refinement of measurement extract identifier required to ensure uniqueness

Within every Notification request, the combination of [Notification ID, RecordTimestamp, BusinessCorrelationID and BusinessSequenceNumber] must be unique.

Details are added in the following Service Description sections.

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<sup>4</sup> The Business Use Case defines the collection of fields which make up a notification and its sub-records.

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## 6 Service Inventory

<b>Service: NotificationUserStatusService</b>		
Provider	Consumer	Operation
Industry	Canada EDE	SendNotificationUserStatus
Canada EDE	Industry	SendNotificationUserStatusAck
Canada EDE	Industry	SendNotificationUserStatusError
<b>Service: NotificationSystemStatusService</b>		
Provider	Consumer	Operation
Industry	Canada EDE	SendNotificationSystemStatus
Canada EDE	Industry	SendNotificationSystemStatusAck
Canada EDE	Industry	SendNotificationSystemStatusError
<b>Service: NotificationSnapshotService</b>		
Provider	Consumer	Operation
Industry	Canada EDE	SendNotificationSnapshot
Canada EDE	Industry	SendNotificationSnapshotAck
Canada EDE	Industry	SendNotificationSnapshotError

Table 6-1 Notification Services

The Table 6-1 above provides the information exchange that is supported by the Notification Business Service. Each of these services is described in the following sections.

*The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.*



## 7 Service Description- Maintenance Notification User Status

A UserStatus consists of a Code value and a Description. A UserStatus is set by an explicit user action in CMMS. When the user first sets a user status for a notification the StartTimestamp field is set. When the user clears the user status the StopTimestamp field is set. As these are distinct user actions, in any notification exchange only one or the other will be set (i.e. the latest to have changed). If the StartTimestamp is set and the StopTimestamp is not set, then the UserStatus is considered **active**.

Note that the User Status as described in this section is a business object relevant to maintenance and is distinct from a status record used in EIE Acknowledgement operations.

### 7.1 Service Overview

#### 7.1.1 Notification User Status (Canada to Industry)

This operation is used by Canada EDE to send a Notification User Status message to Industry. Industry's implementation of this operation will perform authentication, authorization and schema validation on the Notification User Status message. Industry will return a status or fault information to the consumer.

If Industry accepts the message for further processing an output message is returned. The content of the output indicates SUCCESS, Industry accepts custody of the message for further processing. If Industry does NOT accept the message, Industry will return one or more fault blocks.

For the User Status service Canada will send user status (one or more) as sub-record(s) of a parent Notification, the parent record will also include the following:

- Notification ID
- Record timestamp - identifying time at which the business event triggered creation of the Notification exchange record.
- Business Correlation ID/Business Sequence Number – used to uniquely identify an Notification business object

Each User Status sub-record within a Notification parent will include:

- action - indicating whether this is a new record instance, an edit, a delete, or a snapshot action.

#### 7.1.2 Acknowledgement (Industry to Canada)

This operation is used by Industry to send a Notification User Status Acknowledgement message to Canada EDE. Canada's implementation of this operation will perform authentication, authorization and schema validation on the Notification Header Acknowledgement message. Canada will return a status or fault information to the consumer.

If Canada accepts the message for further processing an output message is returned. The content of the output indicates SUCCESS, Canada accepts custody of the message for further processing. If Canada does NOT accept the message, Canada will return one or more fault blocks.

The Notification User Status acknowledgement allows Industry to report back a positive acknowledgment upon consuming the incoming Notification User Status message.

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- For a positive (successful) acknowledgement, Industry returns the following:
  1. Message Header
  2. Notification Identifier (including Record timestamp, Business Correlation ID, Business Sequence Number)

### 7.1.3 Error (Industry to Canada)

This operation is used by Industry to send a Notification User Status Error message to Canada EDE. Canada’s implementation of this operation will perform authentication, authorization and schema validation on the Notification User Status Error message. Canada will return a status or fault information to the consumer.

If Canada accepts the message for further processing an output message is returned. The content of the output indicates SUCCESS, Canada accepts custody of the message for further processing. If Canada does NOT accept the message, Canada will return one or more fault blocks.

The Notification User Status error allows Industry to report back business errors encountered while processing the business objects contained within the Notification User Status payload. Industry returns the following:

- Message Header
- Notification Identifier (including Record timestamp, Business Correlation ID, Business Sequence Number)
- Errors encountered in processing.

### 7.1.4 Service Properties

Service Property	Description
Enterprise Service Name (Business)	Maintenance Notification User Status Service
Enterprise Service Name (Technical)	MaintenanceNotificationUserStatusService
Purpose	This service supports the Canada DND Maintenance process. This service sends notification data to Industry on a pre-negotiated schedule.
Service Domain	Maintain Platform
Business Owner	ADM (IM)
Service Grouping	Maintain Platform – Corrective and Preventive maintenance
Source Provider	NotificationUserStatus – Industry NotificationUserStatus Acknowledgement - Canada DND NotificationUserStatus Error - Canada DND

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Service Property	Description
Target Service Consumers	NotificationUserStatus – Canada DND NotificationUserStatus Acknowledgement - Industry NotificationUserStatus Error - Industry
Business Process Supported (now)	Functional Area: Preventive and Corrective Maintenance <ul style="list-style-type: none"> <li>• Preventive Maintenance (PM) Planning               <ul style="list-style-type: none"> <li>– Maintenance Planning - Fleet Maintenance Facility (FMF)</li> <li>Maintenance Planning - On-Site Management Team (OSMT)</li> </ul> </li> <li>• Cancel</li> </ul> Functional Area: Configuration Control <ul style="list-style-type: none"> <li>• Engineering Change Options Analysis</li> <li>• Engineering Change Package Development</li> <li>• Engineering Change Implementation</li> <li>• Fleet Maintenance Facility (FMF) Taskings</li> </ul>
Business Process Supported (future)	None currently identified.
Business Objective Supported	In order for Industry to perform under the constraints of the PBC contract, notification history on maintenance of the supplied inventory is sent to the industry. Industry uses this information to analyze performance of the maintenance tasks.
Expected life time	Full life-time of weapon systems using PBC.

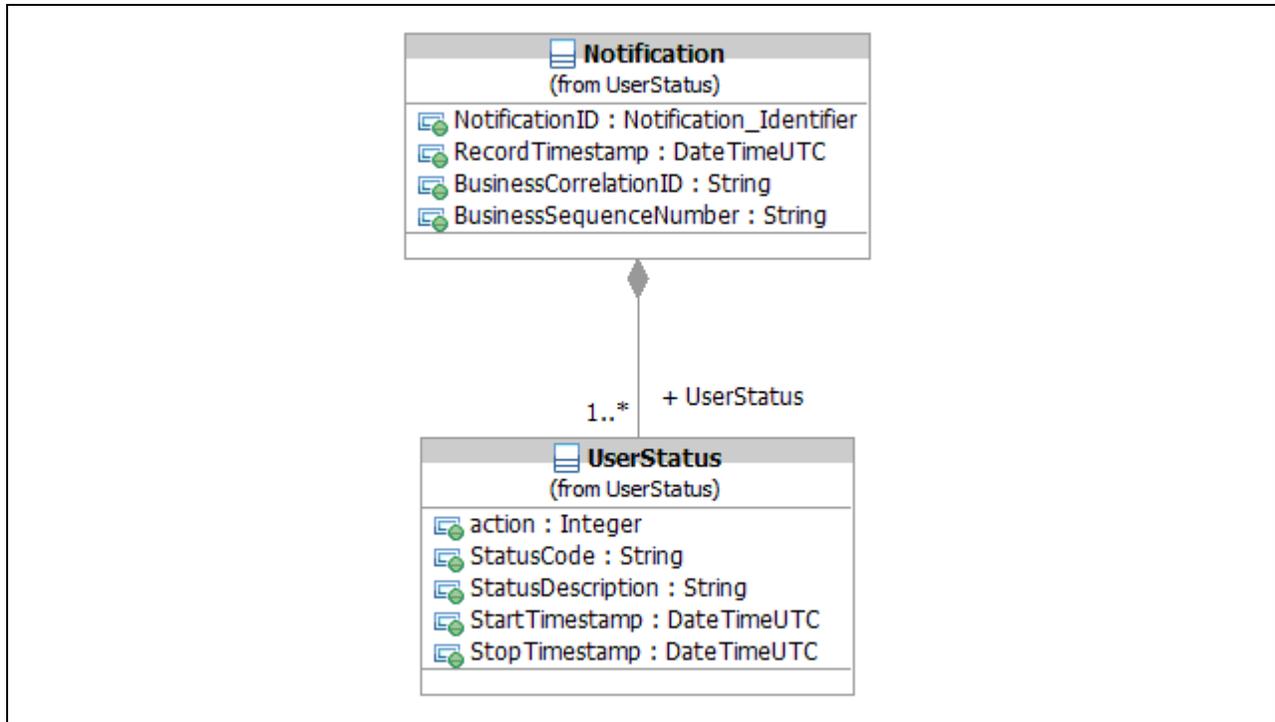
## 7.2 Information Model

Within the scope of this service a notification exchange record contains all instances of UserStatus records changed since the last user status capture.

### 7.2.1 Notification User Status

The Notification User Status record information model is shown in Figure 7-1 below.

*The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.*



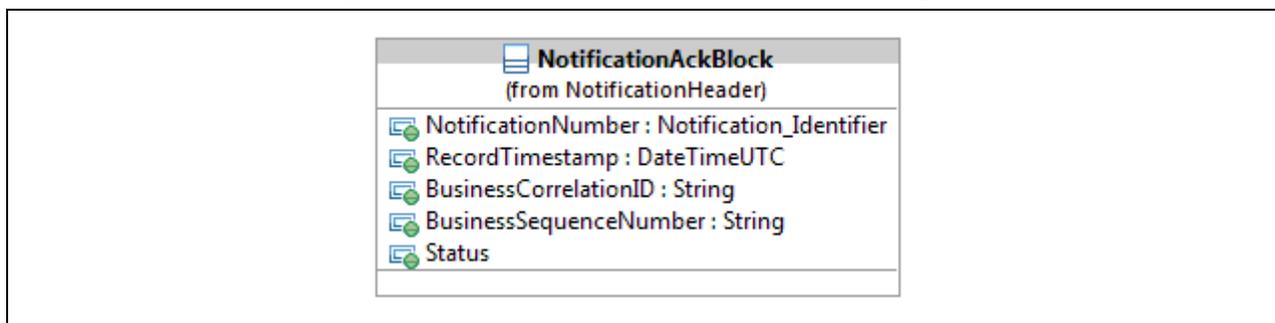
**Figure 7-1 Information Model – Notification User Status**

### 7.2.2 Notification User Status Acknowledgement

A Notification User Status acknowledgement may be comprised of the following:

- Notification identifier (Notification ID and record timestamp, Business Correlation ID, Business Sequence Number)
- Status (Success)

The Notification acknowledgement record information model is shown in Figure 7-2 below.



**Figure 7-2 Information Model – Notification Acknowledgement**

Note that this Acknowledgement information model is common for all Notification services.

### 7.2.3 Notification User Status Error

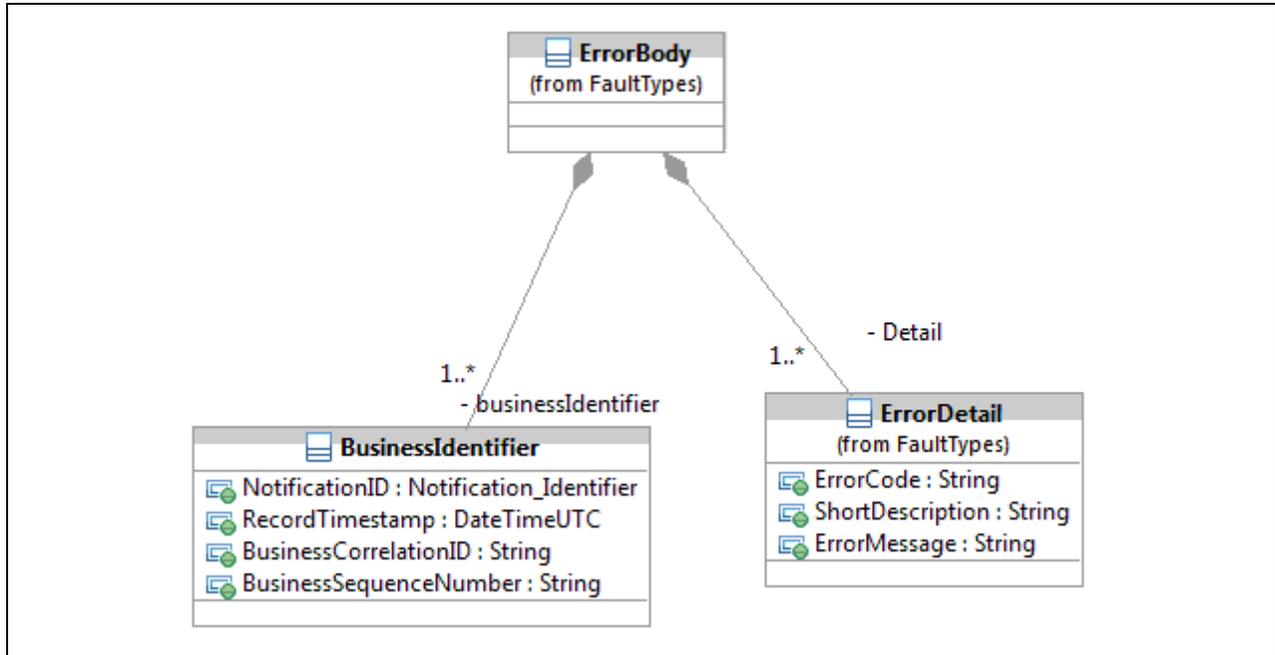
A Notification User Status error may be comprised of the following:

*The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.*



- Business Identifier in this case Notification ID and record timestamp, Business Correlation ID, Business Sequence Number
- Errors

The Notification User Status error record information model is shown in Figure 7-3 below.



**Figure 7-3 Information Model – Notification Error**

Note that this Error information model is common for all Notification services.

## 7.3 Operation Message Model

Since EDE Supply services are request/response, each operation requires input, output and fault message definitions. Message definitions use a common message header definition, as well as a common security block definition. Please refer to Electronic Information Exchange Service Interaction Model [Ref. 3] for details on message header and security block definition.

### 7.3.1 Notification User Status Request

#### 7.3.1.1 Notification User Status Input Body

Within the scope of this service there is an input request named 'NotificationInput' (see Figure 7-4), consisting of:

- Message Header
- Security Block
- A list of Notifications – each notification constrained to contain one or more UserStatus records.

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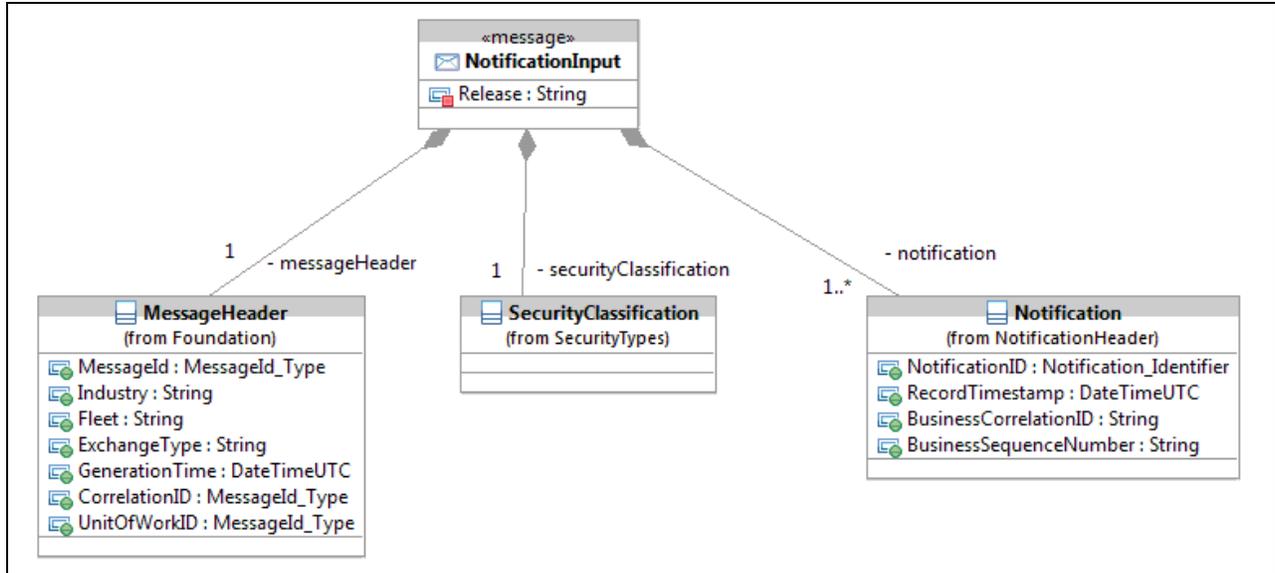


Figure 7-4 Exchange Messages - Notification User Status Request

### 7.3.1.2 Notification User Status Output Body

A Notification User Status Output Body uses a common Notification Output Body definition (see Figure 7-5), which is comprised of the following:

- A Message Header;
- A NotificationOutput indicating acceptance; the Notification message is accepted in its entirety only.

The output message has no security block. The output message type does not contain any sensitive or protected information.

This output body definition is used across all Notification services.

*The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.*

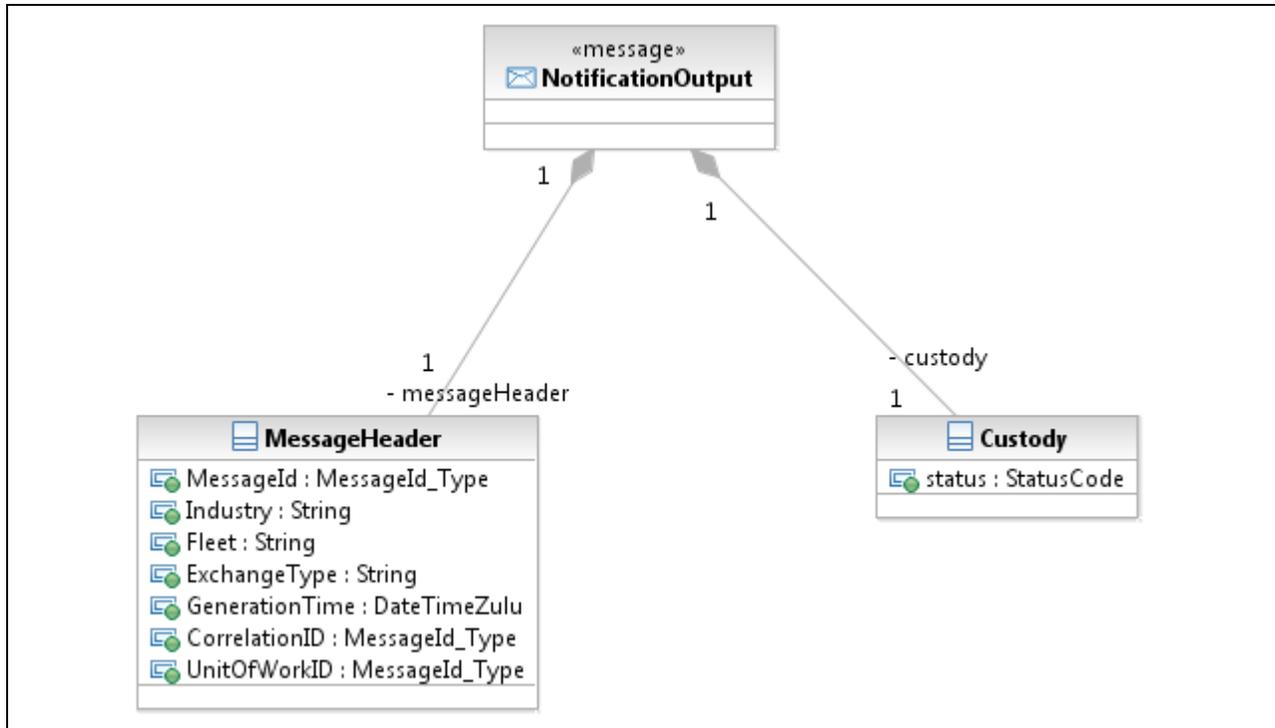


Figure 7-5 Exchange Messages - Notification Output Body

For a Notification OutputBody:

- The MessageHeader Correlation ID will reflect the Message ID of the originating input message.
- The MessageID is a newly generated UUID
- UnitofWorkID is not used or applicable for this type of message;
- The MessageHeader Exchange Type must be set to the Exchange Type of the Input message;
- The value of the NotificationOutput 'Custody' evaluates to "success".

Please note that this is a common Output Body definition used through all Notification output messages.

### 7.3.1.3 Notification User Status Fault Body

A Notification User Status Fault Body uses a common Notification Fault Body definition (see Figure 7-6), which is comprised of the following:

- A Message Header;
- A Security Block;
- One or more FaultBlocks.

Each fault block pertains to zero to many business objects, to the level of granularity which the Service Provider can provide. If the system cannot determine a Business Identifier then this is omitted. To report differing faults on more than one business object extra fault blocks can be included in the fault message.

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Note: Follow implementation direction as per the Service Interaction Model [Ref. 3] for the Fault Message in addition to what has been specified above.

This fault body definition is used across all Notification services.

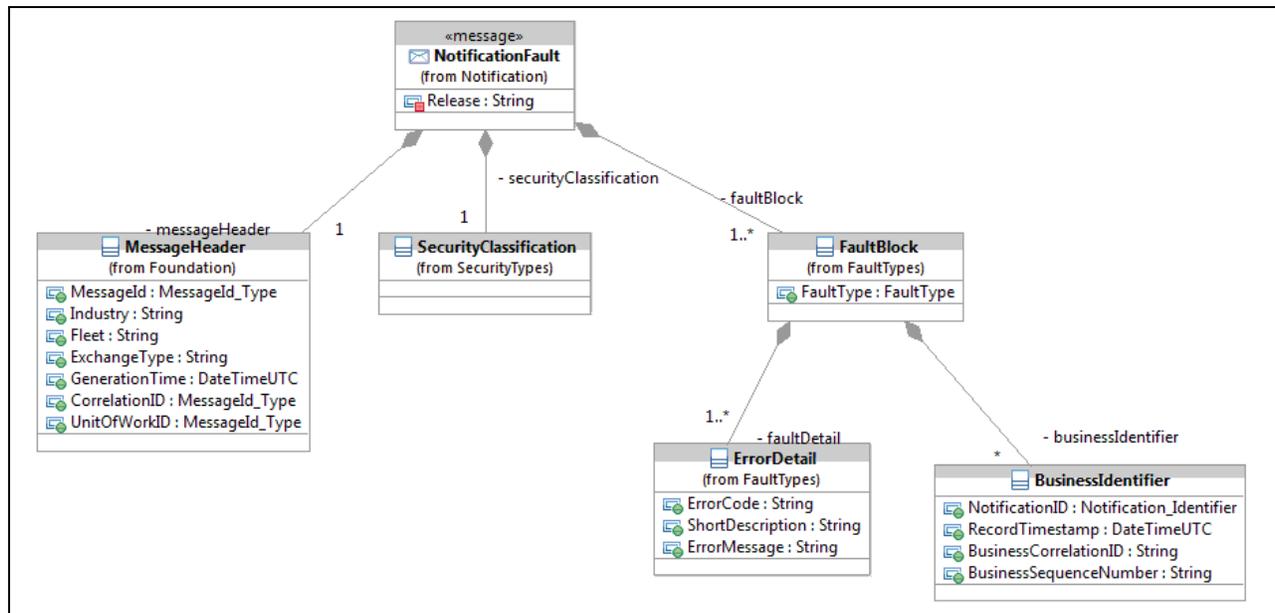


Figure 7-6 Exchange Messages - Notification Fault Body

For a NotificationFaultBody:

- The MessageHeader Correlation ID will reflect the Message ID of the originating Notification input message.
- The MessageID is a newly generated UUID
- UnitOfWorkID is not used;
- The MessageHeader Exchange Type must be set to the Exchange Type of the Notification InputBody.

Please note that this is a common Fault Body definition used through all Notification fault messages.

## 7.3.2 Notification User Status Acknowledgement Request

### 7.3.2.1 Notification User Status Acknowledgement Input Body

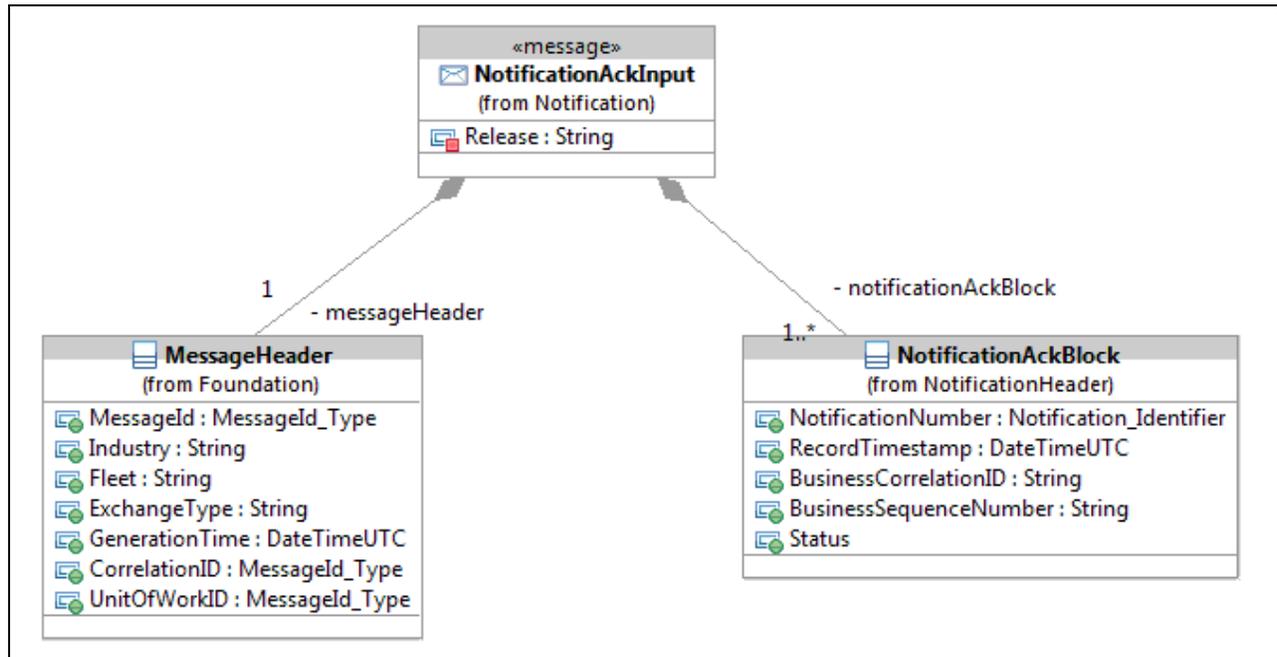
A Notification Header Acknowledgement Input Body uses a common Notification Acknowledgement Input Body definition (see Figure 7-7), which is comprised of the following:

- A Message header;
- A set of Notification Acknowledgement blocks which will be comprised of the following:
  - Notification identifier (Notification number and record timestamp, Business Correlation ID, Business Sequence Number)

*The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.*



- Status (Success)



**Figure 7-7 Exchange Messages - Notification Acknowledgement Request**

Please note that this is a common Acknowledgement Input Body definition used through all Notification Acknowledgment Input messages.

### 7.3.2.2 Notification User Status Acknowledgement Output Body

Please refer to [7.3.1.2 Notification User Status Output Body](#) for this definition.

### 7.3.2.3 Notification User Status Acknowledgement Fault Body

Please refer to [7.3.1.3 Notification User Status Fault Body](#) for this definition.

## 7.3.3 Notification User Status Error Request

### 7.3.3.1 Notification User Status Error Input Body

A Notification User Status Error Input Body uses a common Notification Error Input Body definition (see Figure 7-8), which is comprised of the following:

- A Message header;
- A Security Block;
- A set of errors identified by Business ID.

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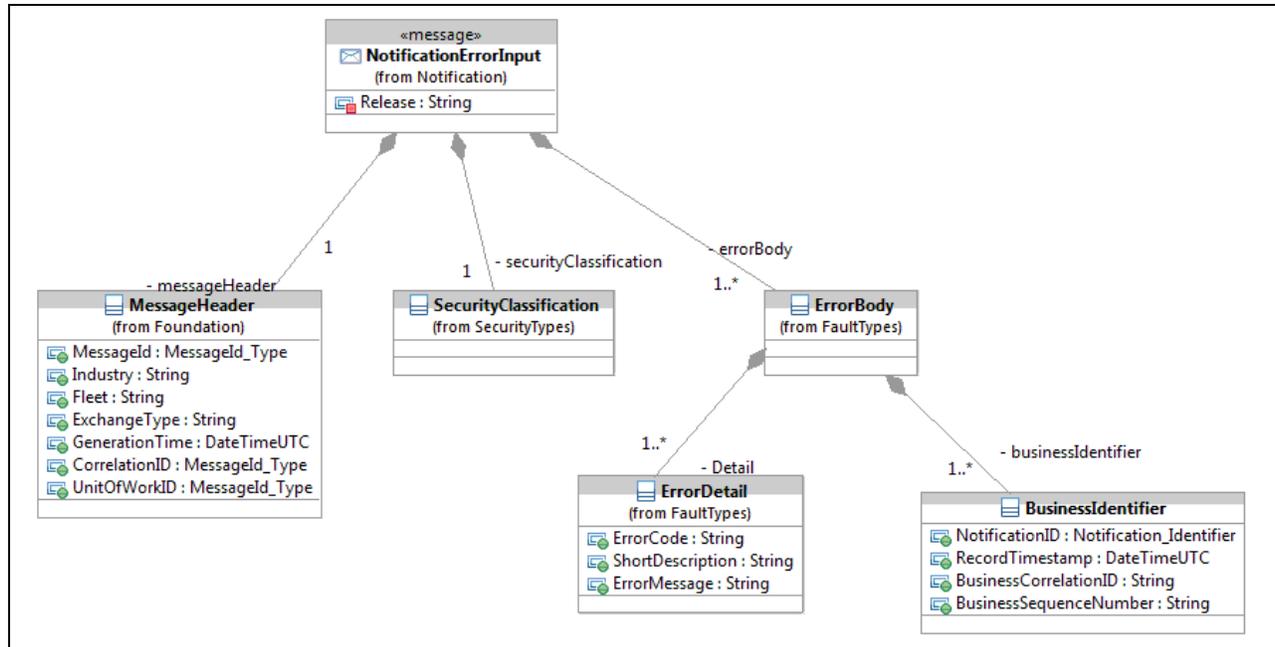


Figure 7-8 Exchange Messages - Notification Error Request

The error input body consists of:

- A Message Header;
- A Security Block;
- One or more Error body.
- Within the Error Body, at least one BizID must be provided, along with at least one ErrorDetail block.
- If appropriate, multiple BizIDs may be provided referencing a common error(s).

If appropriate, multiple errors can be defined within the error body. These errors would apply to all BizIDs defined within the ErrorBody construct.

Each error pertains to one or more business objects, to the level of granularity which the Service consumer can provide. To report differing errors on more than one business object extra error blocks can be included in the error input message.

Please note that this is a common Error Input Body definition used through all Notification Error Input messages.

### 7.3.3.2 Notification User Status Error Output Body

Please refer to [7.3.1.2 Notification User Status Output Body](#) for this common definition.

### 7.3.3.3 Notification User Status Error Fault Body

Please refer to [7.3.1.3 Notification User Status Fault Body](#) for this common definition.

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## 7.4 Service Operations

### 7.4.1 Detailed Operation Characteristics – SendNotificationUserStatus

Each operation will have the detailed characteristics described in the following tables.

Details of non- functional requirements may vary depending on Industry and fleet.

Interface Definition	Description
Operation Name	Send Notification User Status
Operation Technical Name	SendNotificationUserStatus
Operation Description	This operation is invoked to send one or more Notification User Status records to Industry by DND Canada, subject to size and delay constraints for the Fleet and Industry.
Target Operation Provider	Industry
Target Operation Consumer	EDE
Properties	<i>Request/Response</i> message exchange pattern.
Input Message Definition	Please refer to operation message model section <a href="#">7.3.1.1 Notification User Status Input Body</a> for details. Refer to Notif_UserStatus_Industry.wsdl for implementation details
Output Message Definition	Please refer to operation message model section <a href="#">7.3.1.2 Notification User Status Output Body</a> for details. Refer to Notif_UserStatus_Industry.wsdl for implementation details
Fault Definition	Please refer to operation message model section <a href="#">7.3.1.3 Notification User Status Fault Body</a> for details. Refer to Notif_UserStatus_Industry.wsdl for implementation details

Non-Functional Requirements/Technical Details	
Frequency	Initially once per day.
Peak Throughput Time	Expected to be off-peak, e.g. after ZULU 01:00 and before ZULU 11:00 ZULU
Peak Throughput Volume	Based on Service Level Agreements (SLA) to be determined between Canada and Industry on a per ship class basis.
Payload Size	A request may contain many Notification parent records, each of which may contain many User Status records. A Notification User Status record is <1KB.
Attachments	None
Attachment Size	N/A

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ACK Time Interval	5 minutes
Retry Time Interval	15 minutes
Biz. Response Time Interval	N/A
Time to Live Span	24 hours
Service Op Availability	During core processing hours. The specific period will be defined during later phases of service realization 95% available uptime is the goal of the service
Downtime Requirements	The service cannot be used during established maintenance windows, which is currently expected to be for about 2 hours per week. The unavailability window may be accumulated and invoked during major maintenance periods, but ensuring that the overall availability of the service is still maintained.

#### 7.4.2 Detailed Operation Characteristics - NotificationUserStatusAcknowledgement

Interface Definition	Description
Operation Name	Notification User Status Acknowledgement
Operation Technical Name	NotificationUserStatusAcknowledgement
Operation Description	This operation is invoked to send one or more Notification User Status acknowledgement records to Canada by Industry. One input message may contain acknowledgements for many Notification User Status records.
Target Operation Provider	Canada EDE
Target Operation Consumer	Industry
Properties	<i>Request/Response</i> message exchange pattern.
Input Message Definition	Please refer to operation message model section <a href="#">7.3.2.1 Notification User Status Acknowledgement Input Body</a> for details. Refer to Notif_UserStatus_Canada.wsdl for implementation details
Output Message Definition	Please refer to operation message model section <a href="#">7.3.2.2 Notification User Status Acknowledgement Output Body</a> for details. Refer to Notif_UserStatus_Canada.wsdl for implementation details
Fault Definition	Please refer to operation message model section <a href="#">7.3.2.3 Notification User Status Acknowledgement Fault Body</a> for details.

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Interface Definition	Description
	Refer to Notif_UserStatus_Canada.wsdl for implementation details

For Non-Functional Requirements see Section 7.4.1.

### 7.4.3 Detailed Operation Characteristics –NotificationUser StatusError

Interface Definition	Description
Operation Name	NotificationUserStatusError
Operation Technical Name	NotificationUserStatusError
Operation Description	This operation is invoked to send one or more NotificationUserStatus error records to Canada by Industry.
Target Operation Provider	Canada EDE
Target Operation Consumer	Industry
Properties	<i>Request/Response</i> message exchange pattern.
Input Message Definition	Please refer to operation message model section <a href="#">7.3.3.1 Notification User Status Error Input Body</a> for details. Refer to Notif_UserStatus_Canada.wsdl for implementation details
Output Message Definition	Please refer to operation message model section <a href="#">7.3.3.2 Notification User Status Error Output Body</a> for details. Refer to Notif_UserStatus_Canada.wsdl for implementation details
Fault Definition	Please refer to operation message model section <a href="#">7.3.3.3 Notification User Status Error Fault Body</a> for details. Refer to Notif_UserStatus_Canada.wsdl for implementation details

For Non-Functional Requirements see Section 7.4.1.

*The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.*



## 8 Service Description- Maintenance Notification System Status

For the purpose of maintenance exchange, SystemStatus records are defined and handled similarly to UserStatus. The distinction between UserStatus and SystemStatus has significance to the business systems on either end of the exchange. If the StartTimestamp is set and the StopTimestamp is not set, then the SystemStatus is considered **active**.

For some fleets, the SystemStatus records sent to Industry represent distinct consecutive life-cycle states of a Notification. In this case a SystemStatus is active when it is received and remains active until it is replaced by a later SystemStatus record. There shall be only one active SystemStatus at a time and the StopTimestamp of a SystemStatus is implicitly the StartTimestamp of its successor.

### 8.1 Service Overview

#### 8.1.1 Notification System Status (Canada to Industry)

This operation is used by Canada EDE to send a Notification System Status message to Industry. Industry's implementation of this operation will perform authentication, authorization and schema validation on the Notification System Status message. Industry will return a status or fault information to the consumer.

If Industry accepts the message for further processing an output message is returned. The content of the output indicates SUCCESS, Industry accepts custody of the message for further processing. If Industry does NOT accept the message, Industry will return one or more fault blocks.

For the System Status service Canada will send System status (one or more) as sub-record(s) of a parent Notification, the parent record will also include the following:

- Notification ID
- Record timestamp - identifying time at which the business event triggered creation of the Notification exchange record.
- Business Correlation ID/Business Sequence Number – used to uniquely identify an Notification business object

Each System Status sub-record within a Notification parent will include:

- Action - indicating whether this is a new record instance, an edit, a delete, or a snapshot action.

#### 8.1.2 Acknowledgement (Industry to Canada)

This operation is used by Industry to send a Notification System Status Acknowledgement message to Canada EDE. Canada's implementation of this operation will perform authentication, authorization and schema validation on the Notification System Status Acknowledgement message. Canada will return a status or fault information to the consumer.

If Canada accepts the message for further processing an output message is returned. The content of the output indicates SUCCESS, Canada accepts custody of the message for further processing. If Canada does NOT accept the message, Canada will return one or more fault blocks.

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*The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.*



The Notification System Status acknowledgement allows Industry to report back a positive acknowledgment upon consuming the incoming Notification System Status message.

For a positive (successful) acknowledgement, Industry returns the following:

- Message Header
- Notification Identifier (including Record timestamp, Business Correlation ID, Business Sequence Number)

### 8.1.3 Error (Industry to Canada)

This operation is used by Industry to send a Notification System Status Error message to Canada EDE. Canada’s implementation of this operation will perform authentication, authorization and schema validation on the Notification System Status Error message. Canada will return a status or fault information to the consumer.

If Canada accepts the message for further processing an output message is returned. The content of the output indicates SUCCESS, Canada accepts custody of the message for further processing. If Canada does NOT accept the message, Canada will return one or more fault blocks.

The Notification System Status error allows Industry to report back business errors encountered while processing the business objects contained within the Notification System Status payload. Industry returns the following:

- Message Header
- Notification Identifier (including Record timestamp, Business Correlation ID, Business Sequence Number)
- Errors encountered in processing.

### 8.1.4 Service Properties

Service Property	Description
Enterprise Service Name (Business)	Maintenance Notification SystemStatus Service
Enterprise Service Name (Technical)	MaintenanceNotificationSystemStatusService
Purpose	This service supports the Canada DND Maintenance process. This service sends notification data to Industry on a pre-negotiated schedule.
Service Domain	Maintain Platform
Business Owner	ADM (IM)
Service Grouping	Maintain Platform – Corrective and Preventive maintenance
Source Provider	NotificationSystemStatus – Industry NotificationSystemStatus Acknowledgement – Canada DND NotificationSystemStatus Error – Canada DND

*The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.*



Service Property	Description
Target Service Consumers	NotificationSystemStatus – Canada DND NotificationSystemStatus Acknowledgement – Industry NotificationSystemStatus Error – Industry
Business Process Supported (now)	Functional Area: Preventive and Corrective Maintenance <ul style="list-style-type: none"> <li>• Preventive Maintenance (PM) Planning               <ul style="list-style-type: none"> <li>– PM Initialization</li> <li>– Maintenance Planning - Ship Staff</li> <li>– Maintenance Planning - Fleet Maintenance Facility (FMF)</li> <li>– Maintenance Planning - On-Site Management Team (OSMT)</li> </ul> </li> <li>• Corrective Maintenance Planning</li> <li>• Execute Corrective or Preventive Maintenance               <ul style="list-style-type: none"> <li>○ Execute Maintenance - Ship Staff/FMF</li> <li>○ Execute Maintenance - ISS Contractor</li> </ul> </li> <li>• Cancel</li> <li>• Deviation and Waiver               <ul style="list-style-type: none"> <li>○ Deviation and Waiver - Ship Staff/FMF</li> <li>○ Deviation and Waiver - ISS Contractor</li> </ul> </li> <li>• Conduct Trials               <ul style="list-style-type: none"> <li>○ Conduct Trials - Ship Staff/FMF</li> <li>○ Conduct Trials - ISS Contractor</li> </ul> </li> <li>• Backshop Maintenance</li> </ul> Functional Area: Configuration Control <ul style="list-style-type: none"> <li>• Engineering Change Options Analysis</li> <li>• Engineering Change Package Development</li> <li>• Engineering Change Implementation</li> <li>• Fleet Maintenance Facility (FMF) Taskings</li> </ul>
Business Process Supported (future)	None currently identified.
Business Objective Supported	In order for Industry to perform under the constraints of the PBC contract, notification history on maintenance of the supplied inventory is sent to the industry. Industry uses this information to analyze performance of the maintenance tasks.
Expected life time	Full life-time of weapon systems using PBC.

*The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.*

## 8.2 Information Model

Within the scope of this service a notification exchange record contains all instances of SystemStatus records changed since the last System status capture, whether by this service or the Notification Snapshot service.

### 8.2.1 Notification System Status

The Notification System Status record information model is shown Figure 8-1 below.

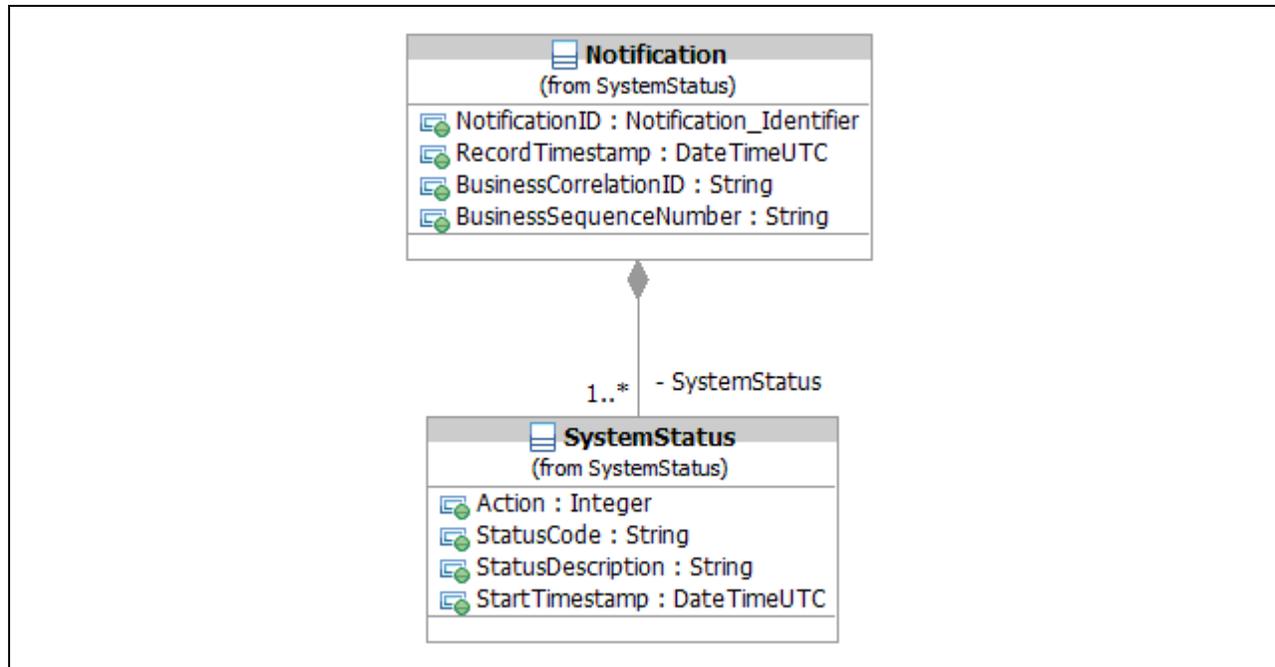


Figure 8-1 Information Model – Notification System Status

### 8.2.2 Notification System Status Acknowledgement

A Notification System Status acknowledgement may be comprised of the following:

- Notification identifier ( Notification ID and record timestamp, Business Correlation ID, Business Sequence Number)
- Originating Message ID (for each notification identifier)
- Status (Success)

The Notification System Status acknowledgement record information model is the same as presented in [7.2.2 Notification User Status Acknowledgement](#).

### 8.2.3 Notification System Status Error

A Notification System Status error may be comprised of the following:

*The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.*

- Business Identifier in this case Notification ID and record timestamp, Business Correlation ID, Business Sequence Number
- Errors

The Notification System Status acknowledgement record information model is the same as presented in [7.2.3 Notification User Status Error](#).

### 8.3 Operation Message Model

Since EDE Supply services are request/response, each operation requires input, output and fault message definitions. Message definitions use a common message header definition, as well as a common security block definition. Please refer to Electronic Information Exchange Service Interaction Model [Ref. 3] for details on message header and security block definition.

#### 8.3.1 Notification System Status Request

##### 8.3.1.1 Notification System Status Input Body

Within the scope of this service there is an input request named 'NotificationInput' (see Figure 8-2), consisting of:

- Message Header
- Security Block
- A list of Notifications – each notification constrained to contain one or more SystemStatus records.

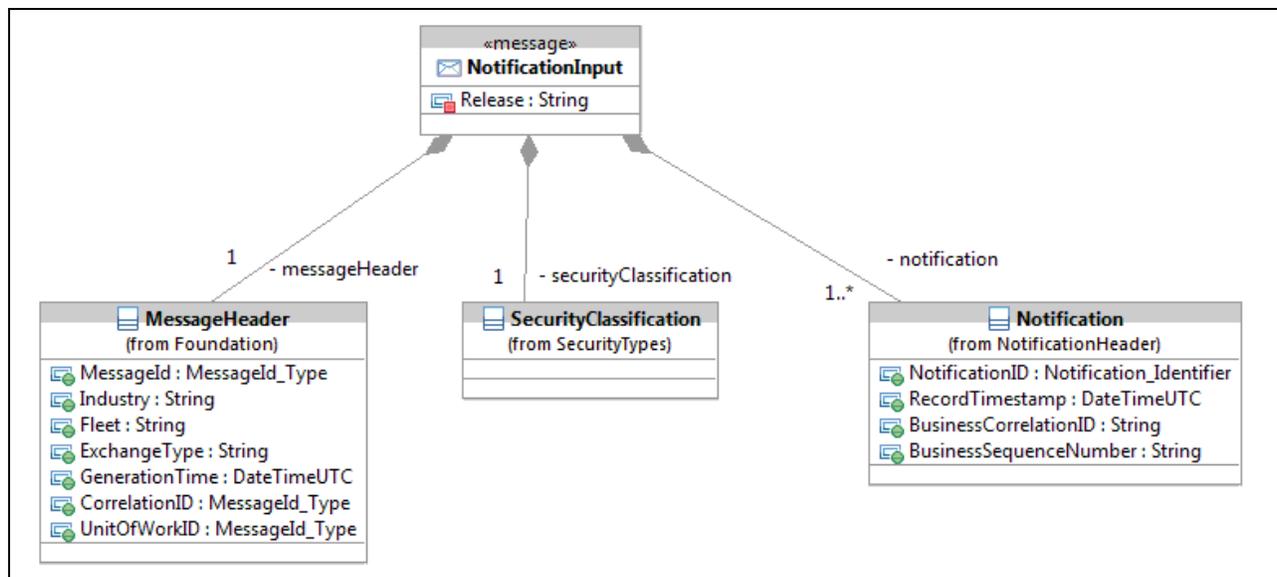


Figure 8-2 Exchange Messages - Notification System Status Request

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### 8.3.1.2 Notification System Status Output Body

Please refer to [7.3.1.2 Notification Output Body](#) for the common definition of Output Body.

### 8.3.1.3 Notification System Status Fault Body

Please refer to [7.3.1.3 Notification Fault Body](#) for the common definition of Fault Body.

## 8.3.2 Notification System Status Acknowledgement Request

### 8.3.2.1 Notification System Status Acknowledgement Input Body

Please refer to [7.3.2.1 Notification Acknowledgement Input Body](#) for the common definition of Acknowledgement Body.

### 8.3.2.2 Notification System Status Acknowledgement Output Body

Please refer to [7.3.1.2 Notification Output Body](#) for this definition.

### 8.3.2.3 Notification System Status Acknowledgement Fault Body

Please refer to [7.3.1.3 Notification Fault Body](#) for this definition.

## 8.3.3 Notification System Status Error Request

### 8.3.3.1 Notification System Status Error Input Body

Please refer to [7.3.3.1 Notification Error Input Body](#) for the common definition of Error Input Body.

### 8.3.3.2 Notification System Status Error Output Body

Please refer to [7.3.1.2 Notification Output Body](#) for this common definition.

### 8.3.3.3 Notification System Status Error Fault Body

Please refer to [7.3.1.3 Notification Fault Body](#) for this common definition.

## 8.4 Service Operations

### 8.4.1 Detailed Operation Characteristics – SendNotificationSystemStatus

Each operation will have the detailed characteristics described in the following tables.

Details of non- functional requirements may vary depending on Industry and fleet.

Interface Definition	Description
Operation Name	Send Notification System Status
Operation Technical Name	SendNotificationSystemStatus
Operation Description	This operation is invoked to send one or more Notification System Status records to Industry by DND Canada, subject to size and delay constraints for the Fleet and Industry.
Target Operation Provider	Industry
Target Operation Consumer	EDE

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Properties	<i>Request/Response</i> message exchange pattern.
Input Message Definition	Please refer to operation message model section <a href="#">8.3.1.1 Notification System Status Input Body</a> for details. Refer to Notif_SystemStatus_Industry.wsdl for implementation details
Output Message Definition	Please refer to operation message model section <a href="#">8.3.1.2 Notification System Status Output Body</a> for details. Refer to Notif_SystemStatus_Industry.wsdl for implementation details
Fault Definition	Please refer to operation message model section <a href="#">8.3.1.3 Notification System Status Fault Body</a> for details. Refer to Notif_SystemStatus_Industry.wsdl for implementation details

Non-Functional Requirements/Technical Details	
Frequency	Initially once per day.
Peak Throughput Time	Expected to be off-peak, e.g. after ZULU 01:00 and before ZULU 11:00 ZULU
Peak Throughput Volume	Based on Service Level Agreements (SLA) to be determined between Canada and Industry on a per ship class basis.
Payload Size	A request may contain many Notification parent records, each of which may contain many System Status records. A Notification System Status record is <1KB.
Attachments	None
Attachment Size	N/A
ACK Time Interval	5 minutes
Retry Time Interval	15 minutes
Biz. Response Time Interval	N/A
Time to Live Span	24 hours
Service Op Availability	During core processing hours. The specific period will be defined during later phases of service realization 95% available uptime is the goal of the service
Downtime Requirements	The service cannot be used during established maintenance windows, which is currently expected to be for about 2 hours per week. The

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	unavailability window may be accumulated and invoked during major maintenance periods, but ensuring that the overall availability of the service is still maintained.
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### 8.4.2 Detailed Operation Characteristics - NotificationSystemStatusAcknowledgement

Interface Definition	Description
Operation Name	Notification System Status Acknowledgement
Operation Technical Name	NotificationSystemStatusAcknowledgement
Operation Description	This operation is invoked to send one or more Notification System Status acknowledgement records to Canada by Industry. One input message may contain acknowledgements for many Notification System Status records.
Target Operation Provider	Canada EDE
Target Operation Consumer	Industry
Properties	<i>Request/Response</i> message exchange pattern.
Input Message Definition	Please refer to operation message model section <a href="#">8.3.2.1 Notification System Status Acknowledgement Input Body</a> for details. Refer to Notif_SystemStatus_Canada.wsdl for implementation details
Output Message Definition	Please refer to operation message model section <a href="#">8.3.2.2 Notification System Status Acknowledgement Output Body</a> for details. Refer to Notif_SystemStatus_Canada.wsdl for implementation details
Fault Definition	Please refer to operation message model section <a href="#">8.3.2.3 Notification System Status Acknowledgement Fault Body</a> for details. Refer to Notif_SystemStatus_Canada.wsdl for implementation details

For Non-Functional Requirements see Section 8.4.1.

### 8.4.3 Detailed Operation Characteristics –NotificationSystem StatusError

Interface Definition	Description
Operation Name	NotificationSystemStatusError
Operation Technical Name	NotificationSystemStatusError
Operation Description	This operation is invoked to send one or more NotificationSystemStatus error records to Canada by Industry.
Target Operation Provider	Canada EDE
Target Operation Consumer	Industry

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Interface Definition	Description
Properties	<i>Request/Response</i> message exchange pattern.
Input Message Definition	Please refer to operation message model section <a href="#">8.3.3.1 Notification System Status Error Input Body</a> for details. Refer to Notif_SystemStatus_Canada.wsdl for implementation details
Output Message Definition	Please refer to operation message model section <a href="#">8.3.3.2 Notification System Status Error Output Body</a> for details. Refer to Notif_SystemStatus_Canada.wsdl for implementation details
Fault Definition	Please refer to operation message model section <a href="#">8.3.3.3 Notification System Status Error Fault Body</a> for details. Refer to Notif_SystemStatus_Canada.wsdl for implementation details

For Non-Functional Requirements see Section 8.4.1.

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## 9 Service Description- Maintenance Notification Snapshot

A Notification Snapshot includes all the above elements captured at a single point in time:

- A Notification Header;
- All active User Status records
- All active System Status records;
- All FMEA Codes.
- Attachments

### 9.1 Service Overview

#### 9.1.1 Notification Snapshot (Canada to Industry)

This operation is used by Canada EDE to send a Notification Snapshot message to Industry. Industry's implementation of this operation will perform authentication, authorization and schema validation on the Notification Snapshot message. Industry will return a status or fault information to the consumer.

If Industry accepts the message for further processing an output message is returned. The content of the output indicates SUCCESS, Industry accepts custody of the message for further processing. If Industry does NOT accept the message, Industry will return one or more fault blocks.

For the Snapshot service Canada will send a Notification with all sub-records. The parent record will also include the following:

- Notification ID
- Record timestamp - identifying time at which the business event triggered creation of the Notification exchange record.
- Business Correlation ID/Business Sequence Number – used to uniquely identify an Notification business object
- Business Context – identifying the business reason for creation of the snapshot record. Business Context is an enumerated list of the following 2 values:

1 => Notification Status has changed;

2 => Catalogue Entry Changed;

Each sub-record within a Notification parent will include:

- Action - indicating whether this is a new record instance, an edit, a delete, or a snapshot action.

#### 9.1.2 Acknowledgement (Industry to Canada)

This operation is used by Industry to send a Notification Snapshot Acknowledgement message to Canada EDE. Canada's implementation of this operation will perform authentication, authorization and schema validation on the Notification Snapshot Acknowledgement message. Canada will return a status or fault information to the consumer.

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If Canada accepts the message for further processing an output message is returned. The content of the output indicates SUCCESS, Canada accepts custody of the message for further processing. If Canada does NOT accept the message, Canada will return one or more fault blocks.

The Notification Snapshot acknowledgement allows Industry to report back a positive acknowledgment upon consuming the incoming Notification Header message.

For a positive (successful) acknowledgement, Industry returns the following:

- Message Header
- Notification Identifier (including Record timestamp, Business Correlation ID, Business Sequence Number).

### 9.1.3 Error (Industry to Canada)

This operation is used by Industry to send a Notification Snapshot Error message to Canada EDE. Canada’s implementation of this operation will perform authentication, authorization and schema validation on the Notification Snapshot Error message. Canada will return a status or fault information to the consumer.

If Canada accepts the message for further processing an output message is returned. The content of the output indicates SUCCESS, Canada accepts custody of the message for further processing. If Canada does NOT accept the message, Canada will return one or more fault blocks.

The Notification Snapshot error allows Industry to report back business errors encountered while processing the business objects contained within the Notification Header payload. Industry returns the following:

- Message Header
- Notification Identifier (including Record timestamp, Business Correlation ID, Business Sequence Number)
- Errors encountered in processing.

### 9.1.4 Service Properties

Service Property	Description
Enterprise Service Name (Business)	Maintenance Notification Snapshot Service
Enterprise Service Name (Technical)	MaintenanceNotificationSnapshotService
Purpose	This service supports the Canada DND Maintenance process. This service sends notification data to Industry on a pre-negotiated schedule.
Service Domain	Maintain Platform
Business Owner	ADM (IM)
Service Grouping	Maintain Platform – Corrective and Preventive maintenance

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Service Property	Description
Source Provider	NotificationSnapshot – Industry NotificationSnapshot Acknowledgement - Canada DND NotificationSnapshot Error - Canada DND
Target Service Consumers	NotificationSnapshot – Canada DND NotificationSnapshot Acknowledgement – Industry NotificationSnapshot Error – Industry
Business Process Supported (now)	<p>Functional Area: Preventive and Corrective Maintenance</p> <ul style="list-style-type: none"> <li>• Preventive Maintenance (PM) Planning <ul style="list-style-type: none"> <li>– PM Initialization</li> <li>– Maintenance Planning - Ship Staff</li> <li>– Maintenance Planning - Fleet Maintenance Facility (FMF)</li> <li>– Maintenance Planning - On-Site Management Team (OSMT)</li> </ul> </li> <li>• Corrective Maintenance Planning</li> <li>• Execute Corrective or Preventive Maintenance <ul style="list-style-type: none"> <li>○ Execute Maintenance - Ship Staff/FMF</li> <li>○ Execute Maintenance - ISS Contractor</li> </ul> </li> <li>• Cancel</li> <li>• Deviation and Waiver <ul style="list-style-type: none"> <li>○ Deviation and Waiver - Ship Staff/FMF</li> <li>○ Deviation and Waiver - ISS Contractor</li> </ul> </li> <li>• Conduct Trials <ul style="list-style-type: none"> <li>○ Conduct Trials - Ship Staff/FMF</li> <li>○ Conduct Trials - ISS Contractor</li> </ul> </li> <li>• Backshop Maintenance</li> </ul> <p>Functional Area: Configuration Control</p> <ul style="list-style-type: none"> <li>• Engineering Change Options Analysis</li> <li>• Engineering Change Package Development</li> <li>• Engineering Change Implementation</li> <li>• Fleet Maintenance Facility (FMF) Taskings</li> </ul>
Business Process Supported (future)	None currently identified.
Business Objective Supported	In order for Industry to perform under the constraints of the PBC contract, notification history on maintenance of the supplied inventory is sent to the industry. Industry uses this information to analyze performance of the maintenance tasks.
Expected life time	Full life-time of weapon systems using PBC.

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## 9.2 Information Model

Within the scope of this service a notification exchange record contains a Notification records and all its sub-records at the time of capture. For User and System Status, only ‘active’ records are captured in the snapshot, and do not include a start or stop timestamp. Start and Stop timestamps for user and system status are provided through the individual status services.

### 9.2.1 Notification Snapshot

The Notification Snapshot record information model is shown in Figure 9-1 below.

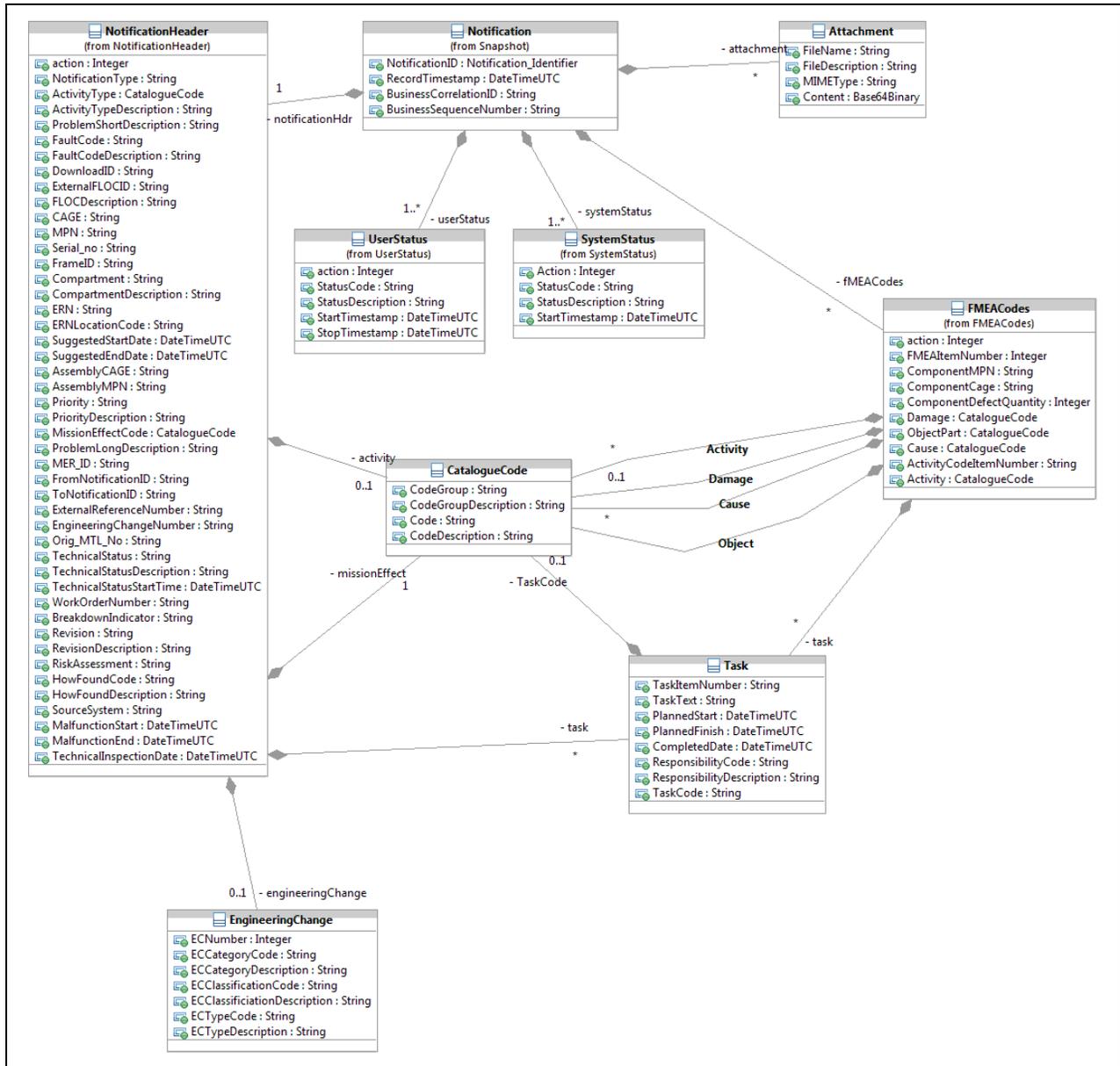


Figure 9-1 Information Model – Notification Snapshot

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### 9.2.2 Notification Snapshot Acknowledgement

A Notification Snapshot acknowledgement may be comprised of the following:

- Notification identifier ( Notification ID and record timestamp, Business Correlation ID, Business Sequence Number with business context)
- Status (Success)

The Notification Snapshot acknowledgement record information model is the same as presented in [7.2.2 Notification Acknowledgement](#).

### 9.2.3 Notification Snapshot Error

A Notification Snapshot error may be comprised of the following:

- Business Identifier in this case Notification ID and record timestamp, Business Correlation ID, Business Sequence Number
- Errors

The Notification Snapshot error record information model is the same as presented in [7.2.3 Notification Error](#).

## 9.3 Operation Message Model

Since EDE Supply services are request/response, each operation requires input, output and fault message definitions. Message definitions use a common message header definition, as well as a common security block definition. Please refer to Electronic Information Exchange Service Interaction Model [Ref. 3] for details on message header and security block definition.

### 9.3.1 Notification Snapshot Request

#### 9.3.1.1 Notification Snapshot Input Body

Within the scope of this service there is an input request named 'NotificationRequest' (see Figure 9-2), consisting of:

- Message Header
- Security Block
- A list of Notifications – each notification constrained to contain one or more Snapshot records.

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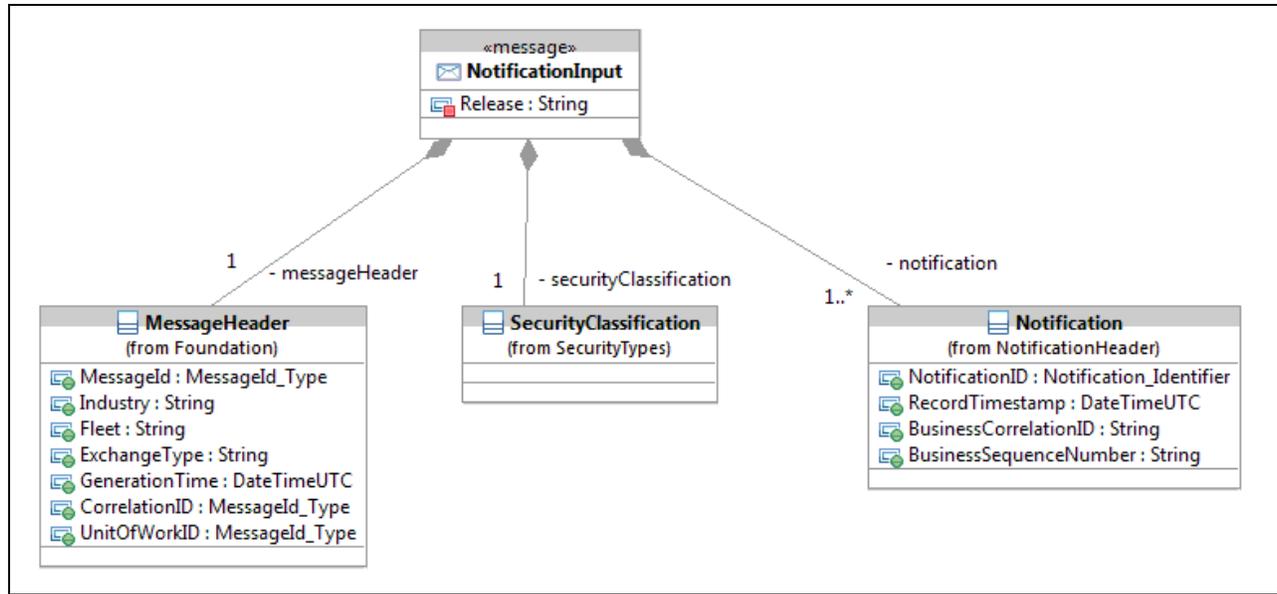


Figure 9-2 Exchange Messages - Notification Snapshot Request

### 9.3.1.2 Notification Snapshot Output Body

Please refer to [7.3.1.2 Notification Output Body](#) for the common definition of Output Body.

### 9.3.1.3 Notification Snapshot Fault Body

Please refer to [7.3.1.3 Notification Fault Body](#) for the common definition of Fault Body.

## 9.3.2 Notification Snapshot Acknowledgement Request

### 9.3.2.1 Notification Snapshot Acknowledgement Input Body

Please refer to [7.3.2.1 Notification Acknowledgement Input Body](#) for the common definition of Acknowledgement Body.

### 9.3.2.2 Notification Snapshot Acknowledgement Output Body

Please refer to [7.3.1.2 Notification Output Body](#) for this definition.

### 9.3.2.3 Notification Snapshot Acknowledgement Fault Body

Please refer to [7.3.1.3 Notification Fault Body](#) for this definition.

## 9.3.3 Notification Snapshot Error Request

### 9.3.3.1 Notification Snapshot Error Input Body

Please refer to [7.3.3.1 Notification Error Input Body](#) for the common definition of Error Input Body.

### 9.3.3.2 Notification Snapshot Error Output Body

Please refer to [7.3.1.2 Notification Output Body](#) for this common definition.

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### 9.3.3.3 Notification Snapshot Error Fault Body

Please refer to [7.3.1.3 Notification Fault Body](#) for this common definition.

## 9.4 Service Operations

### 9.4.1 Detailed Operation Characteristics – SendNotificationSnapshot

Each operation will have the detailed characteristics described in the following tables.

Details of non- functional requirements may vary depending on Industry and fleet.

Interface Definition	Description
Operation Name	Send Notification Snapshot
Operation Technical Name	SendNotificationSnapshot
Operation Description	This operation is invoked to send one or more Notification Snapshot records to Industry by DND Canada, subject to size and delay constraints for the Fleet and Industry.
Target Operation Provider	Industry
Target Operation Consumer	EDE
Properties	<i>Request/Response</i> message exchange pattern.
Input Message Definition	Please refer to operation message model section <a href="#">9.3.1.1 Notification Snapshot Input Body</a> for details. Refer to Notif_Snapshot_Industry.wsdl for implementation details
Output Message Definition	Please refer to operation message model section <a href="#">9.3.1.2 Notification Snapshot Output Body</a> for details. Refer to Notif_Snapshot_Industry.wsdl for implementation details
Fault Definition	Please refer to operation message model section <a href="#">9.3.1.3 Notification Snapshot Fault Body</a> for details. Refer to Notif_Snapshot_Industry.wsdl for implementation details

Non-Functional Requirements/Technical Details	
Frequency	Initially once per day.
Peak Throughput Time	Expected to be off-peak, e.g. after ZULU 01:00 and before ZULU 11:00 ZULU
Peak Throughput Volume	Based on Service Level Agreements (SLA) to be determined between Canada and Industry on a per ship class basis.
Payload Size	A request may contain many Notification records. Size depends of the content of the snapshot.
Attachments	Service will support MTOM attachments.

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Attachment Size	Maximum 100 MB can be supported for total size. Reduction in total size of attachment accepted per industry/fleet can be tailored as required within Canada EDE.
ACK Time Interval	5 minutes
Retry Time Interval	15 minutes
Number of Retries	5
Biz. Response Time Interval	1 – 7 days from receipt of the message from Canada
Time to Live Span	Not Applicable
Service Op Availability	During core processing hours. The specific period will be defined during later phases of service realization 95% available uptime is the goal of the service
Downtime Requirements	The service cannot be used during established maintenance windows, which is currently expected to be for about 2 hours per week. The unavailability window may be accumulated and invoked during major maintenance periods, but ensuring that the overall availability of the service is still maintained.

#### 9.4.2 Detailed Operation Characteristics - NotificationSnapshotAcknowledgement

Interface Definition	Description
Operation Name	Notification Snapshot Acknowledgement
Operation Technical Name	NotificationSnapshotAcknowledgement
Operation Description	This operation is invoked to send one or more Notification Snapshot acknowledgement records to Canada by Industry. One input message may contain acknowledgements for many Notification Snapshot records.
Target Operation Provider	Canada EDE
Target Operation Consumer	Industry
Properties	<i>Request/Response</i> message exchange pattern.
Input Message Definition	Please refer to operation message model section <a href="#">9.3.2.1 Notification Snapshot Acknowledgement Input Body</a> for details. Refer to Notif_Snapshot_Canada.wsdl for implementation details
Output Message Definition	Please refer to operation message model section <a href="#">9.3.2.2 Notification Snapshot Acknowledgement Output Body</a> for details. Refer to Notif_Snapshot_Canada.wsdl for implementation details
Fault Definition	Please refer to operation message model section <a href="#">9.3.2.3 Notification</a>

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Interface Definition	Description
	<a href="#">Snapshot Acknowledgement Fault Body</a> for details. Refer to Notif_Snapshot_Canada.wsdl for implementation details

For Non-Functional Requirements see Section 9.4.1.

### 9.4.3 Detailed Operation Characteristics - NotificationSnapshotError

Interface Definition	Description
Operation Name	Notification Snapshot Error
Operation Technical Name	NotificationSnapshotError
Operation Description	This operation is invoked to send one or more Notification Snapshot error records to Canada by Industry. One input message may contain errors for many Notification Snapshot records.
Target Operation Provider	Canada EDE
Target Operation Consumer	Industry
Properties	<i>Request/Response</i> message exchange pattern.
Input Message Definition	Please refer to operation message model section <a href="#">9.3.3.1 Notification Snapshot Error Input Body</a> for details. Refer to Notif_Snapshot_Canada.wsdl for implementation details
Output Message Definition	Please refer to operation message model section <a href="#">9.3.3.2 Notification Snapshot Error Output Body</a> for details. Refer to Notif_Snapshot_Canada.wsdl for implementation details
Fault Definition	Please refer to operation message model section <a href="#">9.3.3.3 Notification Snapshot Error Fault Body</a> for details. Refer to Notif_Snapshot_Canada.wsdl for implementation details

For Non-Functional Requirements see Section 9.4.1.

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## 10 Definitions, Acronyms, Abbreviations

Term	Description
CAGE	Commercial And Government Entity
CMMS	Canada Maintenance Management System
CSS	Canada Supply System
EIE	Electronic Information Environment
EMR	Equipment Master Record
DRMIS	Defense Resource Management Information System
FLOC	Functional Location
FMEA	Failure Mode and Effects Analysis
Industry	The industry contracted to provide support to Canada DND according to ISSCF
ISSCF	In Service Support Contracting Framework
MER	Master Equipment Record
MPN	Manufacturer Part Number
WS	Weapon System

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# 11 Appendix A - Entity Relationship Model

## Information Model – Entity-Relationship View

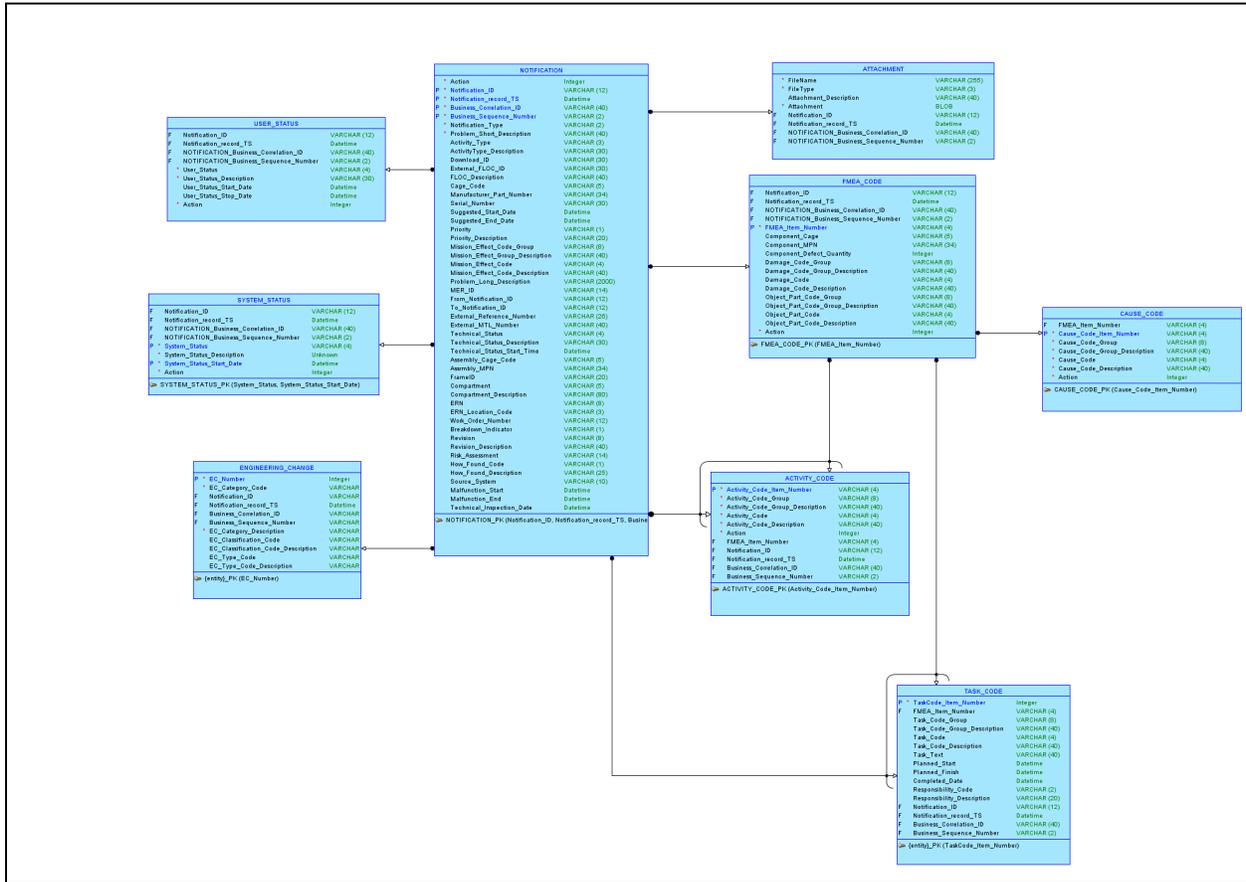


Figure 11-1 Notification ERD

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## 12 Document History

Revision Number	Description	Date
1.0	Ready for Navy RFP	13 October 2015

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