



Electronic Information Environment (EIE)

Service Specification Document/Interface Control Document Master Data Navy Industry EMR Change Service– 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

This document establishes an interface between Canada Electronic Data Exchange (EDE) system and the ISS Contractor responsible for maintenance of a ship class subject to Performance Based Contracting (PBC). This interface will be used by Canada to send Equipment Master Record (EMR) messages to the ISS Contractor when Canada corrects key identifiers for an EMR. To support the EMR transfer between Canada EDE and the ISS Contractor, both systems need to support specific Web Service operations as well as request and response Extensible Markup Language (XML) schemas as described in this document. The Equipment Master Record service includes an operation for Industry¹ to report acknowledgement messages back to Canada EDE.

1.1 Intended Audience

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

1.2 References

All references are to the baseline version of the reference at the time of publication of this document.

- [Ref. 1] Business Process Catalogue Annex P: Navy Canada Maintenance Management System Data Initialization In Support of Performance Based Contracting (PBC);
- [Ref. 2] Electronic Information Exchange Service Interaction Model;
- [Ref. 3] EIE Business Use Case BUC 2.3 EMR ID Change.

¹ Within this document, Industry and ISS Contractor are synonymous and are used interchangeably

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2 Business Information

Business Information is based on the EIE Business Process model for Data Initialization [Ref. 1] and the Business Use Case [Ref. 3].

While conducting maintenance Canada may determine that the physical part does not match the electronic EMR record in CMMS (e.g. Serial number incorrect, incorrect MPN or Cage). Canada will correct the electronic EMR record, and send the corrected EMR to the ISS Contractor.

The goal of the EMR service is to provide to a means for Canada to send to ISS Contractor the corrected EMR and for Industry to acknowledge receipt of the EMR data or report errors in the data or transmission.

Within Canada, 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 by the Defense Resource Management Information System (DRMIS).

2.1 Business Processes

While conducting maintenance Canada may determine that the physical part does not match the electronic EMR record in CMMS (e.g. Serial number incorrect, incorrect MPN or Cage). Canada will correct the electronic EMR record, and send the corrected EMR to the ISS Contractor.

See [Ref. 1] for further details.

2.2 Business Triggers

As per the EIE Business Process model for Data Initialization [Ref. 1], the following business events may result in corrected EMR data being sent to ISS Contractor.

- Canada user corrects the EMR record identifier

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3 Business Constraints

Terminology

The input to the service is an **EMR Change message** which consists of one or more **EMR business objects** and metadata (e.g., message header) required for correct message processing between Industry and Canada EDE.²

Constraints on Usage of the Service

- 1) The Industry EMR Change service shall only be invoked by the Canada EDE System.
- 2) Canada DND systems shall ensure the EMR Change data for a WS is sent only to the Industry system which is properly authenticated and authorized to see maintenance and materiel data for that ship class.
- 3) EMR Change messages will be signed using digital certificates between Canada EDE and Industry. Please see Service Interaction Model [Ref. 2] for details.

Constraints on Behaviour of the Service

- 4) Canada EDE **does** expect that within a single message there can be more than one EMR Change business object - all business objects must be of the same exchange type as defined by the interface and declared in the message header.
- 5) Industry will authorize invocations of operations of the EMR Change service.
- 6) Canada EDE may attempt to re-send EMR Change messages (i.e., repeat operation invocations) in response to technical errors. This behaviour is controlled by parameters for each operation. Please see Service Interaction Model [Ref. 2] for details.

² EMR messages are defined in section 7. EMR business objects are defined in section 6. The message / business subject distinction is used throughout the document.



4 Service Use Case

The requirements for the EMR Change service are defined by one use case with several scenarios.

4.1 Successful Request and Technical Response

This is the main or “Happy Day” scenario. This scenario describes the interaction between Canada EDE and Industry for the EMR Change Service. Some validation steps and technical responses are not shown in the following sequence diagram (Figure 4-1) – full details are in the Service Interaction Model [Ref. 2].

The “technical response” 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 preclude subsequent “business” errors. Error scenarios are described below.

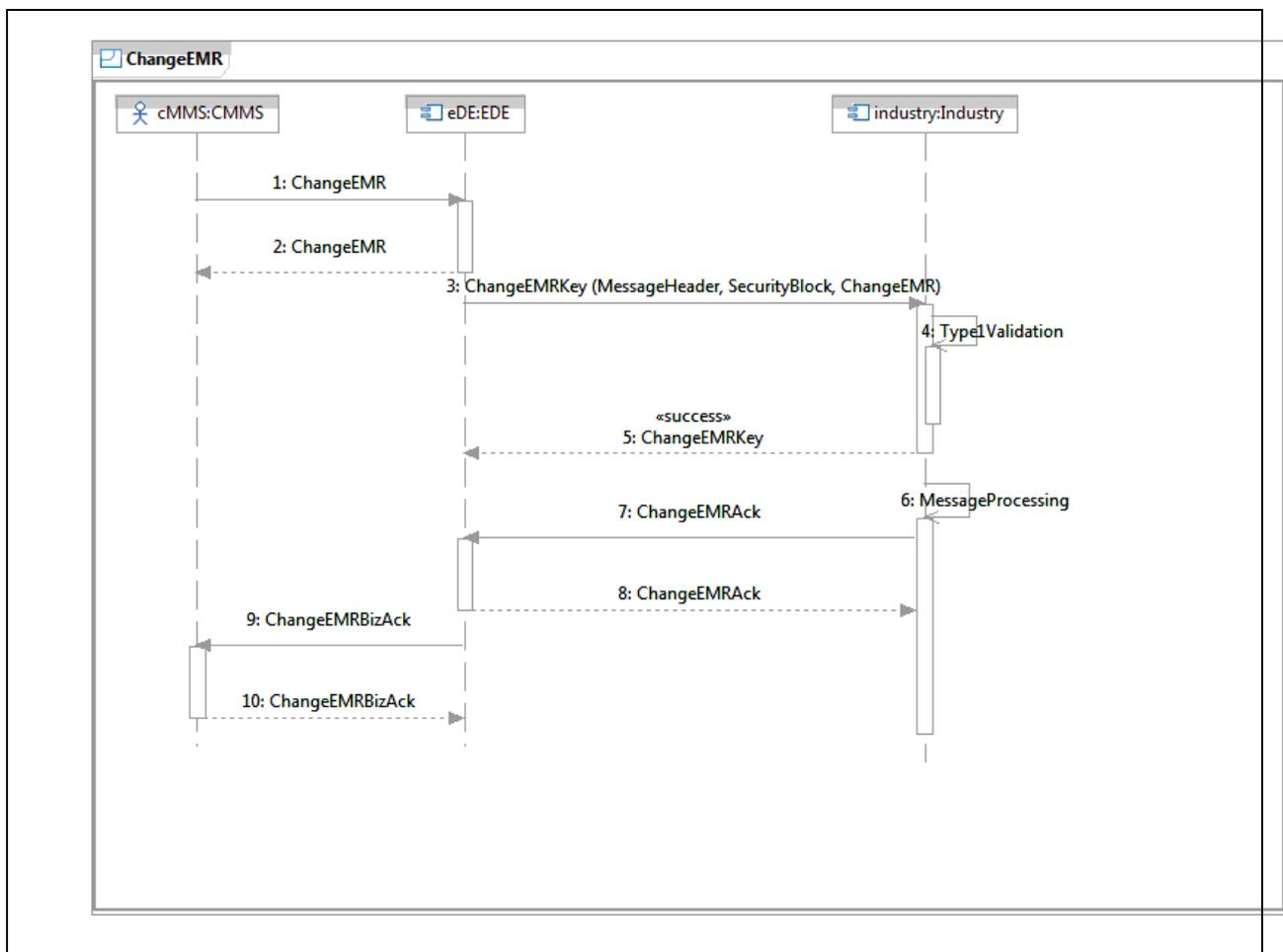


Figure 4-1 EMR Change Message Flow

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Main Flow	
Scenario	“Happy Day:” Canada EDE successfully sends EMR Change business objects to Industry.
Pre-Condition	Canada has prepared message containing one or more EMR Change business objects.
Post-Condition	EMR Change business objects successfully received by Industry.
Steps	<ol style="list-style-type: none"> 1) CMMS sends EMR Change message to Canada EDE. 2) Canada EDE returns a “success” response to Canada CMMS. 3) Canada EDE invokes ‘SendEMRChange()’ operation passing one or more EMR Change business objects. (See Input Body definition.) Canada EDE waits for technical response. 4) Industry initiates “Type 1” validation. In this scenario there is no error. Industry accepts “custody” of the EMR Change business objects in the message. 5) Industry returns to Canada EDE a “success” technical response for the SendEMRChange() operation. (See Output Body definition.) 6) Industry begins internal processing of the message. In this scenario there is no error. 7) Industry invokes ‘SendEMRAck()’ operation indicating Industry has accepted and processed the EMR change message for the given EMR keys. 8) Canada EDE initiates ‘Type 1’ validation (not shown). In this scenario there is no error. Canada EDE accepts “custody” of the EMR Ack business objects in the message. 9) Canada EDE forwards EMRAck to CMMS through ChangeEMRBizAck() operation. 10) CMMS accepts ChangeEMRBizAck message.

4.2 Alternate Scenarios

The EMR Message Flow with Type 1 Error sequence diagram is shown in Figure 4-2. The following scenarios apply to all uses of the EMR service.

Alternate Scenarios distinguish between “**Type 1**” and “**Type 2**” errors. Type 1 errors are those errors detected prior to the service provider accepting custody of a message. Type 2 errors are those errors detected during internal processing prior to business validation by the target “back-end” business system. Please see the Service Interaction Model [Ref. 2] for details.

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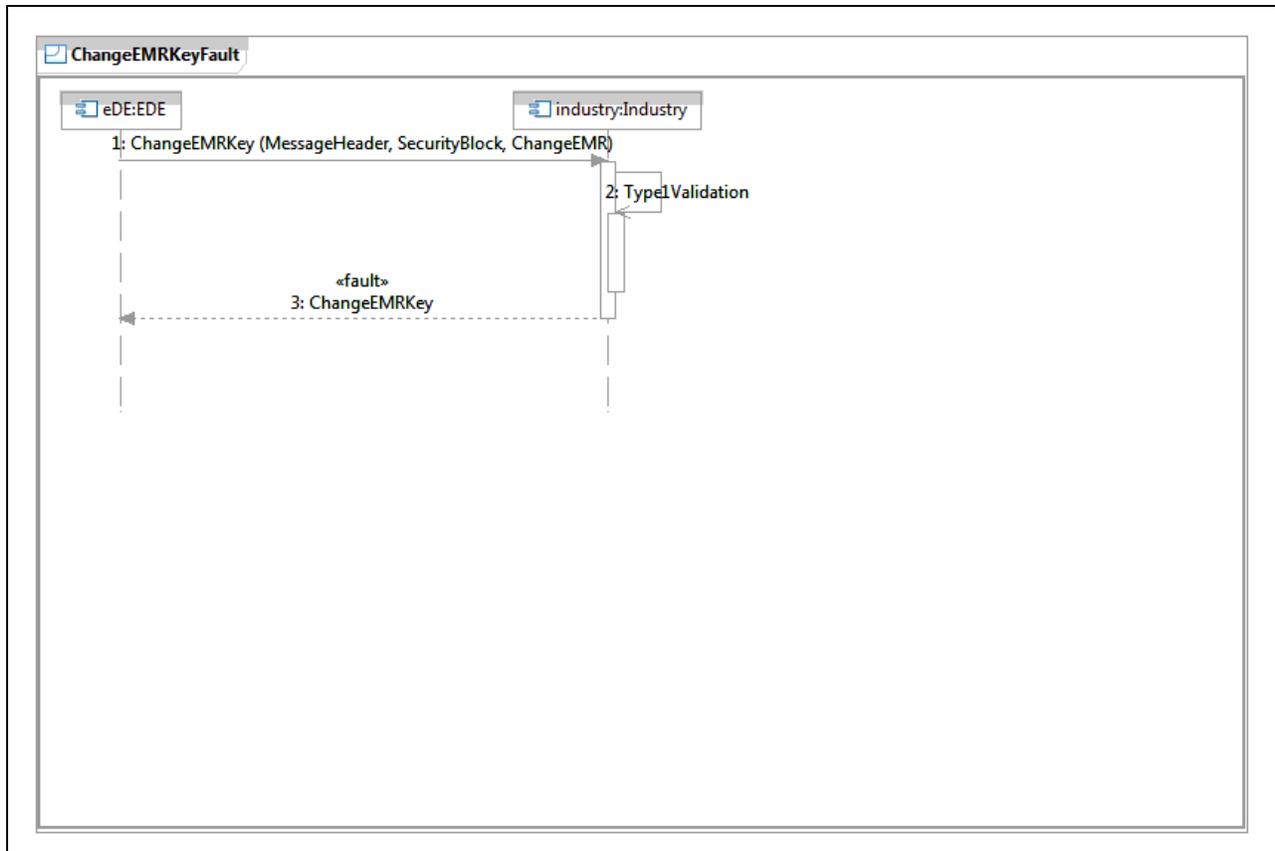


Figure 4-2 EMR Message Flow with Type 1 Error

Alternate Flow 1	
Scenario	Type 1 Errors detected by Industry prior to accepting custody of the message. Detailed specification of Type 1 errors are in Service Interaction Model [Ref. 2].
Pre-Condition	Same as main Flow.
Post-Condition	Industry sends technical response containing a fault message to Canada EDE.
Steps	<ol style="list-style-type: none"> 1) Canada EDE invokes 'SendEMRChange()' operation containing one or more Change EMR business objects. 2) Industry checks for Type 1 errors – an error is found; 3) Industry constructs the fault message and sends the fault message to Canada EDE in the technical response to the original SendEMRChange() operation invocation. (See Fault Body definition.)

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Alternate Flow 2 (Industry Service unresponsive)	
Scenario	Canada EDE does not receive technical response within ACK_TIME_INTERVAL.
Pre-Condition	Canada EDE has invoked the operation but does not receive the technical response within the time specified for the EMR service.
Post-Condition	Canada EDE marks the message as Dead Message.
Steps	<ol style="list-style-type: none">1) Canada EDE does not receive any response from Industry within the allowed ACK_TIME_INTERVAL.2) Canada EDE will retry sending the message up to the defined maximum retry count and/or Time to Live interval.3) If there is no response, then Canada EDE marks the request message as Dead and handles it via the Dead Message protocol (See Service Interaction Model [Ref. 2]).

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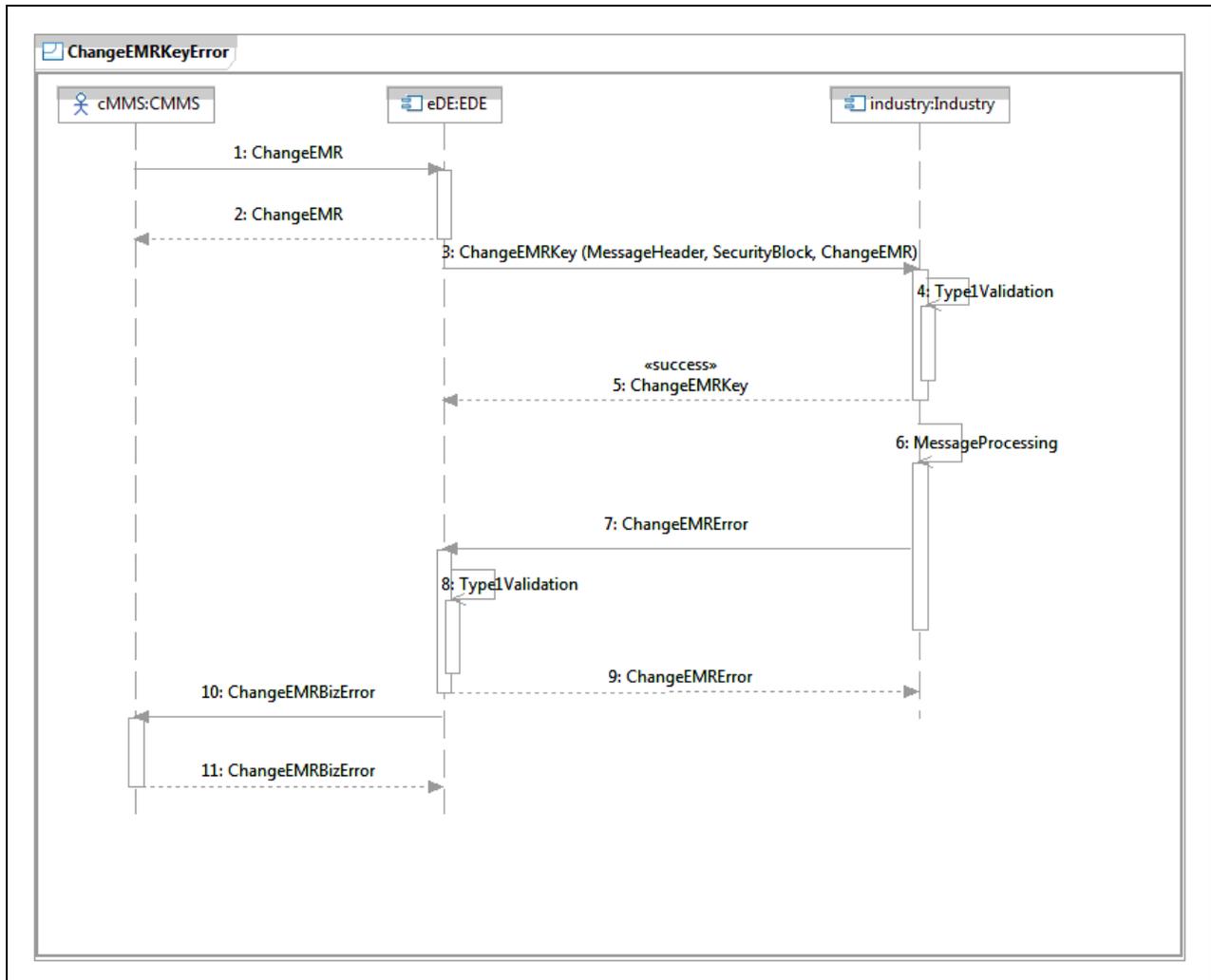


Figure 4-3 EMR Message Flow with Type 2 Business Error

Alternate Flow 3 (Industry Business Error)	
Scenario	Industry accepts EMR Change message, but records an error when trying to post EMR change transactions to their backend systems.
Pre-Condition	Canada EDE has successfully delivered EMR Change message to Industry.
Post-Condition	Industry sends EMR Change Error message to Canada EDE. Industry does not accept EMR Change transaction.

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Steps	<ol style="list-style-type: none">1) CMMS sends EMR Change message to Canada EDE.2) Canada EDE returns a “success” response to Canada CMMS.3) Canada EDE invokes ‘SendEMRChange()’ operation passing one or more EMR Change business objects. (See Input Body definition.) Canada EDE waits for technical response.4) Industry initiates “Type 1” validation. In this scenario there is no error. Industry accepts “custody” of the EMR Change business objects in the message.5) Industry returns to Canada EDE a “success” technical response for the SendEMRChange() operation. (See Output Body definition.)6) Industry begins internal processing of the message. In this scenario there <i>is</i> an error.7) Industry invokes ‘SendEMRError()’ operation indicating Industry has encountered a business error during processing for the given EMR keys.8) Canada EDE initiates ‘Type 1’ validation (not shown). In this scenario there is no fault. Canada EDE accepts “custody” of the EMR Error business objects in the message.9) Canada EDE forwards EMRError to CMMS through ChangeEMRBizError() operation.10) CMMS accepts ChangeEMRBizError message.
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5 Service Description – EMR Change Service

5.1 Service Overview

EMR Change service requires interacting web services exposed by Canada EDE System and Industry. Industry will implement and expose a service and operation which Canada EDE will use to send the EMR Change input message (see Section 7 for message definition). After receipt of the input message, Industry will return a technical response back to Canada EDE.

As part of the EMR Change service Canada EDE will implement and expose two operations:

- An error reporting operation used by Industry to report business errors (Section 4, Alternate Flow 3);
- An acknowledgement service used by Industry to report successful processing of EMR business objects.

Message interaction is further described in Service Interaction Model [Ref. 2].

5.2 Service Properties

Service Property	Description
Enterprise Service Name (Business)	Equipment Master Record Change Key Service
Enterprise Service Name (Technical)	EMRChangeKey_Industry (Abbreviated in this document to EMRChange service.)
Purpose	This service supports the Canada EDE Master Data business process. On the occurrence of business triggers, Canada EDE uses this service to send EMR Change messages to Industry.
Business Response Time Interval	Will be determined between Canada and Industry on a per-ship class basis.
Service Domains	Master Data, Maintenance History
Business Owner	ADM (IM)
Service Grouping	Master Data
Source Provider	SendEMRChange() - Industry SendEMRChangeAck() – Canada EDE SendEMRChangeError() - Canada EDE
Target Service Consumers	SendEMRChange() - Canada EDE SendEMRChangeAck() – Industry SendEMRChangeError() – Industry

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Service Property	Description
Business Process Supported (now)	Master Data processes: <ul style="list-style-type: none"> • Maintain EMR;
Business Process Supported (future)	None currently identified.
Business Objective Supported	See Section 2: Business Information .
Expected life time	The full lifecycle of the subject weapons system.

5.3 'SendEMRChange()' Operation

This operation is used by Canada EDE to send an EMR Change input message to Industry. Industry's implementation of this operation will perform Type 1 validation on the EMR Change message. Industry will return a status or fault information to Canada EDE in a technical response. If the status is SUCCESS, Industry accepts custody of the message for further processing. Any returned fault implies Industry does NOT accept the message and error processing (as per Section 4.3 Alternate Flow 2) is performed.

5.4 'SendEMRChangeAck()' Operation

This operation is used by Industry to report back to Canada EDE that a set of EMR Change business objects have been accepted into Industry systems. The specific EMR Change business objects which were accepted are identified by a list of business identifiers (see Section 7). Canada EDE's implementation of this operation will perform Type 1 validation on the acknowledgement message. Canada EDE will return a technical response to Industry.

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5.5 'SendEMRChangeError()' Operation

This operation is used by Industry to send an error message to Canada EDE after internal message processing detects a Type 2 error condition (see Service Interaction Model [Ref. 2]). The specific EMR Change business objects which are in error are identified by a list of business identifiers (see Section [7](#)). Canada EDE's implementation of this operation will perform Type 1 validation on the error message. Canada EDE will return a technical response to Industry.

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6 Information Model

This section describes the **business objects** which are used in the EMR Change service. The Unified Modeling Language (UML) notation is used. A functional view³ of the information model is provided in the Business Use Case [Ref. 3].

The purpose of this section is to provide a bridge between the functional view of the information model and the concrete details of the design as ultimately expressed in an XML Schema.

Note that all date or time values must be in **Coordinated Universal Time (UTC)**. If an explicit time zone offset is not provided it is assumed to be zero.

The XML Schema is the authoritative source for purpose of the information exchange.

6.1 ChangeEMRKey

A ChangeEMRKey business object is used to represent:

- i. the previous identity of the serialized parts which is being changed;
- ii. the revised identity of the serialized part in question.

Figure 6-1 shows the Information Model used in the Equipment Master Record Change Key service.

The class EMR_FLOC_REF encapsulates **either** a CAGE/MPN/Serial Number combination to uniquely identify an EMR **or** a Function Location Identifier (FLOC ID) to uniquely identify a FLOC. The “As-Built” physical structure is represented through the ‘Parent’ link, which may be to a parent FLOC or a parent EMR. The ‘Parent’ link is also relevant for Maintenance History Install/Uninstall events, indicating the relevant object the EMR was installed into, or removed from.

If the EMR represents the top-level WS itself then it is also described as a Master Equipment Record (MER). The class MER_ID represents a unique name for the MER/WS and is only populated for the top level EMR (i.e., the MER).

The class Installation is only applicable in a Maintenance History context, and contains information relevant to the EMR Install or Uninstall activity.

The class EquipmentMasterRecord also has references to three code tables:

- Location –represents a high-level view of major subsystems of the WS;
- CatalogProfile –a classification used in reporting;
- EquipmentObjectType –represents equipment’s functional type.

³ The Functional View details the collection of fields which make up EMR business objects.

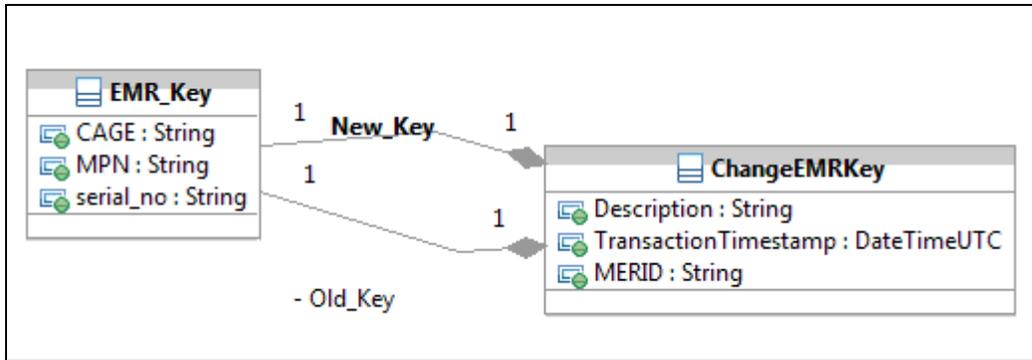


Figure 6-1 Information Model – EMR Change Key Record

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7 Operation Message Model

This section describes how the business objects described above (Section 6 Information Model) are aggregated for the purpose of PBC information exchange.

This service follows the request/response model and each operation definition includes a distinct input, output and fault message. See Service Interaction Model [Ref. 2] for definition of the common MessageHeader and SecurityClassification elements.

Several message constructs (i.e., Fault Body, Acknowledgement Input Body and Error Input Body) include one or more **Business Identifiers** (BizIDs). The BizID consists of a set of key fields in the EMR Change Input Body sufficient to uniquely identify a business object. The fields which make up the BizID are explicitly identified in the XML Schema.

Note that all date or time values must be in **Coordinated Universal Time (UTC)**. If an explicit time zone offset is not provided it is assumed to be zero.

7.1 EMR Change Input Body

As shown in Figure 7-1, an EMR input body consists of:

- A Message Header;
- A Security Block;
- A Business Context;
- One or more EMR Change business objects.

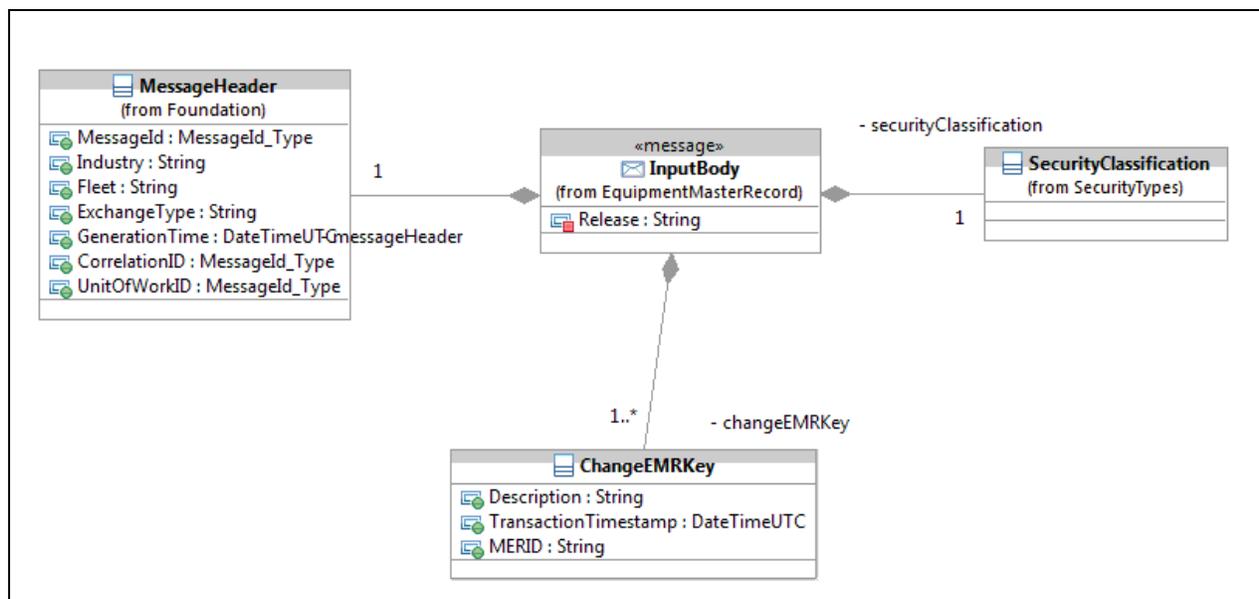


Figure 7-1 EMR Change Input Body

The MessageHeader UnitOfWorkID and CorrelationID are not used for this message.

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The EMRChange InputBody also contains an attribute 'Release' which designates the release of the EMR service. The 'Release' attribute uses an "X.Y" numbering convention and the value is hard-coded in the XML schema for every service. The value will be incremented when a new version of the service is released⁴.

The 'Release' attribute is mandatory in every instance of the InputBody to allow any input body instance to be traced back to the appropriate release. A 'Release' attribute appears in all message bodies.

Within each EMR business objects there is an attribute named 'Action' which is set by the service consumer as a directive to CMMS on handling the business object. See Service Interaction Model [Ref. 2] for definition of valid values of 'Action'.

7.2 EMRChange Output Body

The output of the SendEMRChange() operation is the EMRChange OutputBody. As shown in Figure 7-2, the output body consists of:

- A Message Header;
- A Custody object.

The EMRChange OutputBody has no security block. The EMRChange OutputBody must not contain any sensitive or protected information.

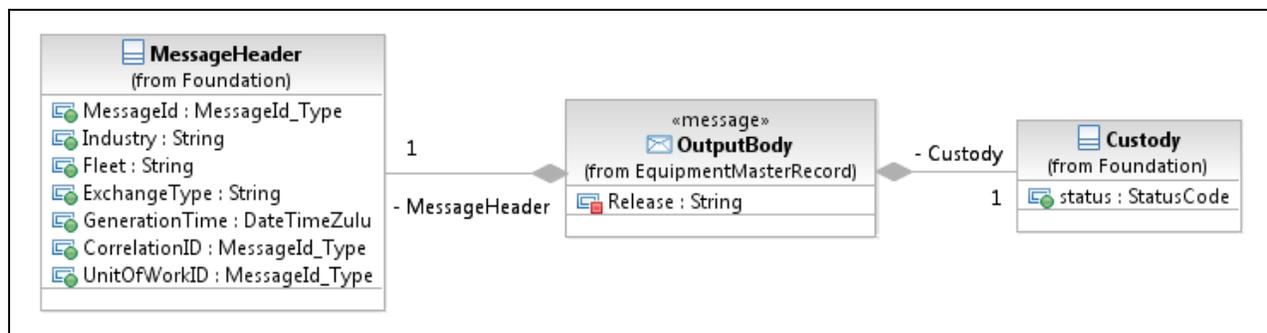


Figure 7-2 EMRChange Output Body

For an EMR OutputBody:

- The MessageHeader Message Id is a **new** unique value;
- The MessageHeader GenerationTime is the time the **output** message is generated;
- The MessageHeader CorrelationID is set to the MessageId of the EMRChange Input Body;
- The MessageHeader ExchangeType must be set to the ExchangeType of the EMRChange InputBody;
- The value of the Custody status field is "success"⁵.

⁴ The rules for incrementing the 'Release' attribute for a service will be in a separate document.

⁵ As stated in Section 5.3, the main significance of the output is that, by its presence, there is no fault.

7.3 EMRChange Fault Body

A fault returned by the SendEMRChange() operation uses the EMRChange FaultBody element. As shown in Figure 7-3, the EMRChange FaultBody consists of:

- 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.

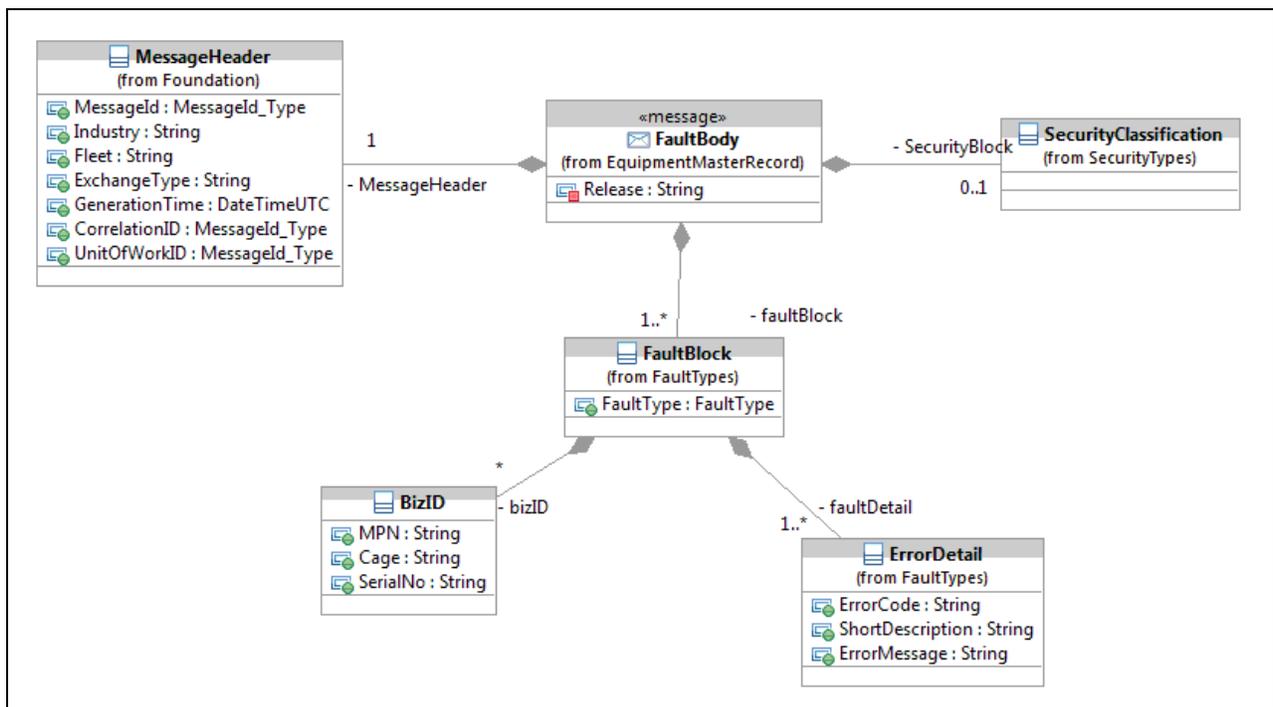


Figure 7-3 EMRChange Fault Body

MessageHeader is mandatory, but only MessageId and GenerationTime are mandatory within the header (both are new values, as for the Output Body). This is for the scenario where the input message is so damaged that the necessary attributes cannot be found.

CorrelationID is set to the MessageId of the input message – whenever it is available.

SecurityClassification is optional for the scenario where the input message is so damaged that the necessary attributes cannot be determined.

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7.4 EMRChange Acknowledgement Input Body

The input to the SendEMRChangeAck() operation consists of a Message Header, a list of business identifiers, and a “success” status indicating the business objects were accepted in Industry (see Figure 7-4).

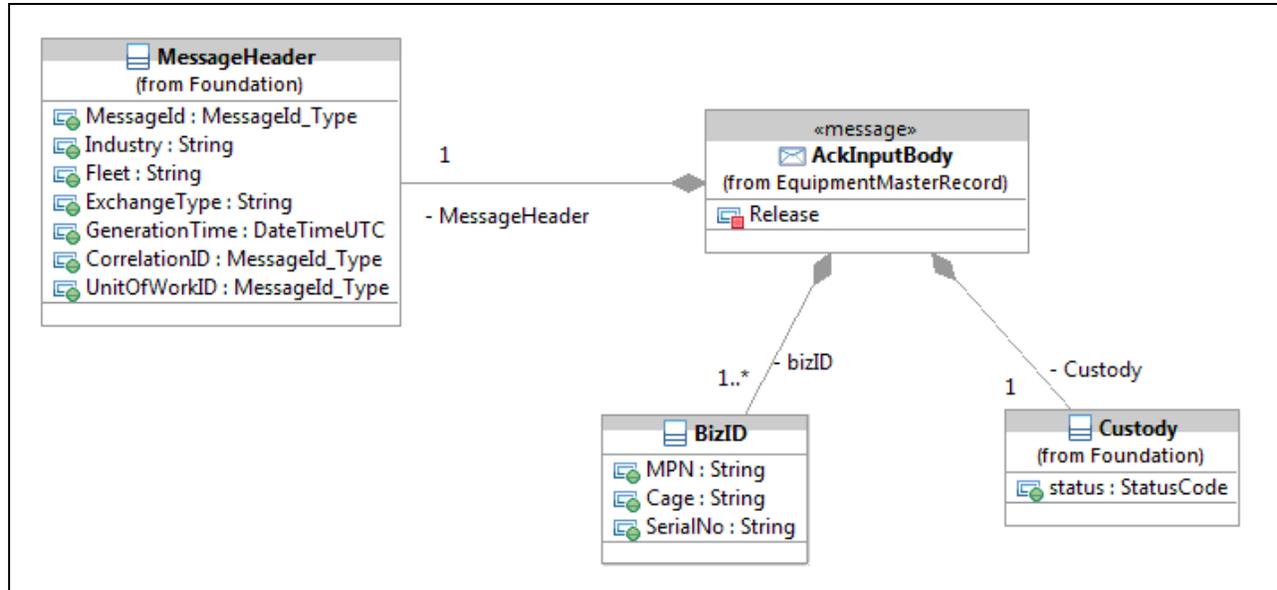


Figure 7-4 EMRChange Acknowledgement Input Body

The Message Header has a new unique MessageId and the CorrelationID is set to the MessageId of the EMRChange InputBody which is being acknowledged.

7.5 EMRChange Error Input Body

The input to the SendEMRChangeError() operation consists of a Message Header, a Security Block and a list of Error Blocks, as shown in Figure 7-5. Each Error Block references business object(s) (by business identifier) and a list of list of one or more errors pertaining to the business object.

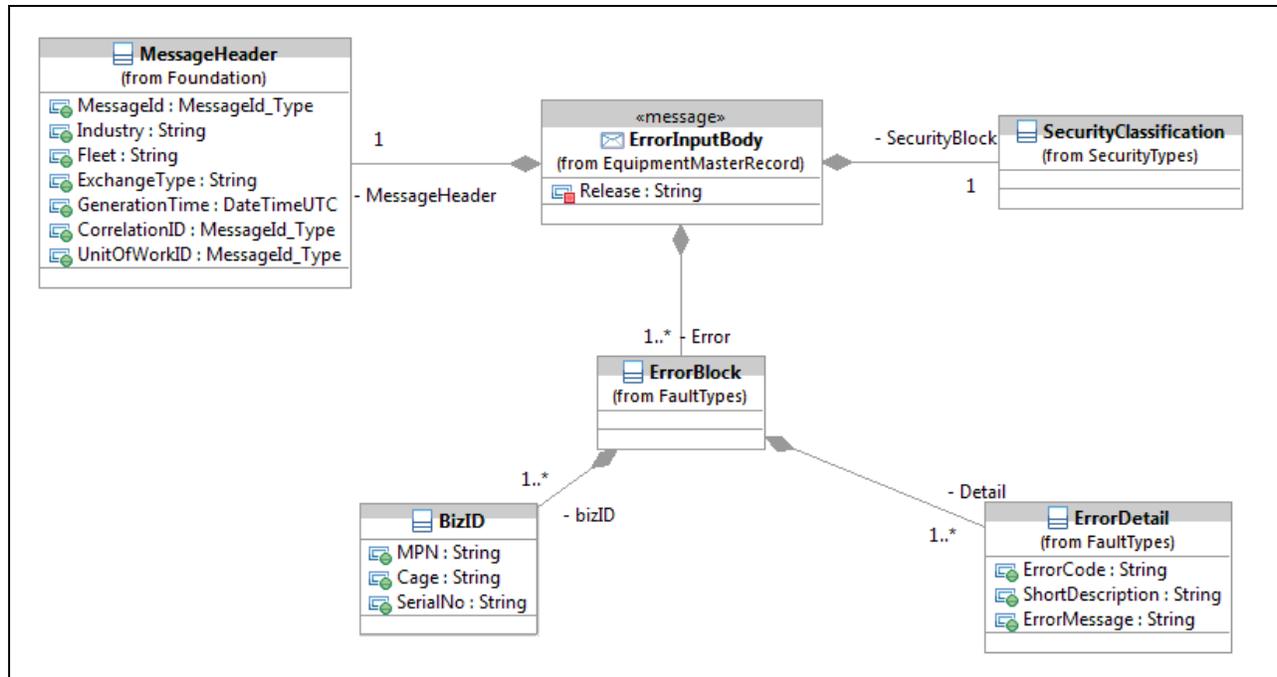


Figure 7-5 EMRChange Error Input Body

MessageHeader and SecurityClassification are mandatory as in this scenario (after Type 1 validation has passed) the input message is well-formed.

The MessageHeader has a new unique MessageId.

7.6 Summary of Operation to input/output/fault body Mapping

The following diagram in Figure 7-6 shows the mapping for each of the three operations in the EMR service - SendEMR(), SendEMRAck() and SendEMRError() - to their respective input, output and fault bodies as further defined in the EMR Web Service Definition Language (WSDL) file.

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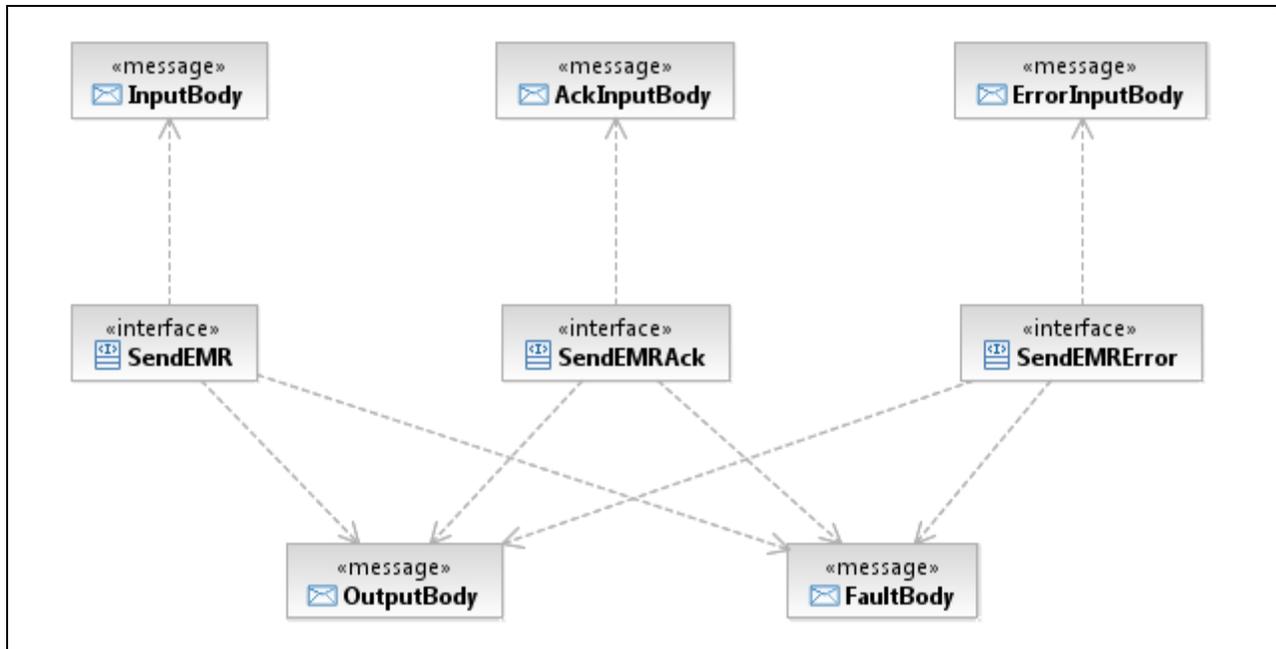


Figure 7-6 EMRChange Operations to Input/Output/Fault Mapping

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8 Service Operation Details

8.1 Detailed Operation Characteristics – SendEMRChange()

Canada EDE will invoke the exposed Industry EMR service through this operation. The input will consist of an EMR InputBody (as above).

Please refer to Service Interaction Model [Ref. 2] for definitions of the terminology used in the non-functional requirements section.

Please refer to EMRChange WSDL files for implementation details.

Detailed Operation Characteristics

Interface Definition	Description
Operation Name	Send EMR Chnage
Operation Technical Name	SendEMRChange()
Operation Description	This operation is invoked by Canada EDE to send one or more EMRChange business objects to Industry.
Target Operation Provider	Industry
Target Operation Consumer	Canada EDE
Properties	<i>Request/Response</i> message exchange pattern.
Input Message Definition	Please refer to Operation Message Model Section 7.1 EMRChange Input Body for details.
Output Message Definition	Please refer to Operation Message Model Section 7.2 EMRChange Output Body for details.
Fault Definition	Please refer to Section 7.3 EMRChange Fault Body for details. Please see Service Interaction Model [Ref. 2] for Type 1 faults.

Non-Functional Requirements

Non-Functional Requirements/Technical Details	
Frequency	A-periodic according to business triggers (Section 2.2). Will be determined between Canada and Industry on a per-ship class basis.
Peak Throughput Time	Based on Service Level Agreements (SLA) to be determined between Canada and Industry on a per-ship class basis.
Peak Throughput Volume	Based on Service Level Agreements (SLA) to be determined between Canada and Industry on a per-ship class basis.
Payload Size	<1Kb per business object.

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Non-Functional Requirements/Technical Details	
Attachments	None
Attachment Size	N/A
ACK Time Interval	Nominal value is 2 minutes – to be confirmed between Canada and Industry on a per-ship class basis.
Retry Time Interval	Nominal value is 10 minutes – to be confirmed between Canada and Industry on a per-ship class basis.
Number of Retries	Nominal value is 3 retries – to be confirmed between Canada and Industry on a per-ship class basis.
Biz. Response Time Interval	N/A
Time to Live Span	- 2 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.
Dead Message Handling	Alternative communication channel applies to report that this operation is not available when Canada EDE cannot successfully send EMR business objects to Industry. See Service Interaction Model [Ref. 2].

8.2 Detailed Operation Characteristics – SendEMRChangeError()

Industry will use this operation to inform Canada EDE of errors detected in internal processing and faults returned from delivery to Industry systems.

Industry must return either an error or acknowledgement for every EMRChange business object processed in Industry’s backend systems.

Refer to EMRChange WSDL files for implementation details.

Detailed Operation Characteristics

Interface Definition	Description
Operation Name	Send EMRChange Error

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Interface Definition	Description
Operation Technical Name	SendEMRChangeError()
Operation Description	This operation is invoked by Industry to send one or more EMRChange errors to Canada EDE.
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 7.5 EMRChnage Error Input Body for details. Please refer to Service Interaction Model [Ref. 2] for Type 2 faults for the error inputs which may be sent in this operation.
Output Message Definition	Please refer to Operation Message Model Section 7.2 EMRChange Output Body for details.
Fault Definition	Please refer to Section 7.3 EMRChange Fault Body for details. Please see Service Interaction Model [Ref. 2] for faults which may be returned by this operation.

Non-Functional Requirements

Non-Functional Requirements/Technical Details	
Frequency	Same as SendEMRChnage() operation. Worst case is one error per EMR business object.
Peak Throughput Time	Same as SendEMRChange() operation.
Peak Throughput Volume	Same as SendEMRChange() operation.
Payload Size	5KB – estimated for one ErrorBlock with one BizID and two ErrorMessage's
Attachments	None
Attachment Size	N/A
ACK Time Interval	Nominal value is 2 minutes – to be confirmed between Canada and Industry on a per-ship class basis.
Retry Time Interval	Nominal value is 10 minutes – to be confirmed between Canada and Industry on a per-ship class basis.
Number of Retries	Nominal value is 3 retries – to be confirmed between Canada and Industry on a per-ship class basis.
Biz. Response Time Interval	N/A

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Non-Functional Requirements/Technical Details	
Time to Live Span	60 minutes.
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.
Dead Message Handling	Alternative communication channel applies to report that this operation is not available when Canada EDE cannot successfully send EMR business objects to Industry. See Service Interaction Model [Ref. 2].

8.3 Detailed Operation Characteristics – SendEMRChangeAck()

Industry will use this operation to inform Canada EDE of successful processing of business objects. Industry must return either an error or acknowledgement for every EMRChange business object processed in Industry’s backend systems.

Refer to EMRChange WSDL files for implementation details.

Detailed Operation Characteristics

Interface Definition	Description
Operation Name	Send EMRChange Acknowledgement
Operation Technical Name	SendEMRChangeAck()
Operation Description	This operation is invoked by Industry to send one or more EMRChange acknowledgement objects to Canada EDE.
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 7.4 EMRChange Ack Input Body for details.
Output Message Definition	Please refer to Operation Message Model Section 7.2 EMRChange Output Body for details.
Fault Definition	Please refer to Section 7.3 EMRChange Fault Body for details. Please see Service Interaction Model [Ref. 2] for faults which may be returned by this operation.

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Non-Functional Requirements

Non-Functional Requirements/Technical Details	
Frequency	Same as SendEMRChange() operation. Worst case is one error per EMR business object.
Peak Throughput Time	Same as SendEMRChange() operation.
Peak Throughput Volume	Same as SendEMRChange() operation.
Payload Size	~ 2KB per acknowledgement
Attachments	None
Attachment Size	N / A
ACK Time Interval	Nominal value is 2 minutes – to be confirmed between Canada and Industry on a per-ship class basis.
Retry Time Interval	Nominal value is 10 minutes – to be confirmed between Canada and Industry on a per-ship class basis.
Number of Retries	Nominal value is 3 retries – to be confirmed between Canada and Industry on a per-ship class basis.
Biz. Response Time Interval	N/A
Time to Live Span	60 minutes.
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.
Dead Message Handling	Alternative communication channel applies to report that this operation is not available when Canada EDE cannot successfully send EMR business objects to Industry. See Service Interaction Model [Ref. 2].

8.4 Service Bindings

8.4.1 SOAP Over http

The implementation of this service will use a Simple Object Access Protocol (SOAP) binding with document style messages and http transport.

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The business objects (Section 6) are bound to the SOAP Body element. The SOAP Header is used for EIE adopted WS-* standards-based elements (e.g., WS_Security assertions) and, typically, MessageHeader and SecurityMarkings elements.

In this binding the http response is used for each operation's technical response (i.e., output or fault messages).

See the Equipment Master Record Service WSDL file for the precise binding.

8.4.2 SOAP Over JMS

Not currently supported.

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9 Definitions, Acronyms, Abbreviations

Term	Description
CM	Configuration Management
CMMS	Canada Maintenance Management System
CSS	Canada Supply System
DND	Department of National Defence
DRMIS	Defense Resource Management Information System
EDE	Electronic Data Exchange
EIE	Electronic Information Environment
EMR	Equipment Master Record
FLOC	Functional Location
ISS	In Service Support
ISSCF	In Service Support Contracting Framework
MER	Master Equipment Record
MPN	Manufacturer Part Number
MMR	Materiel Master Record
PBC	Performance Based Contracting
SFTP	Secure File Transfer Protocol
SOAP	Simple Object Access Protocol
UTC	Coordinated Universal Time
WS	Weapon System
WSDL	Web Service Definition Language
XML	Extensible Markup Language

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10 Appendix A - Entity Relationship Model

Information Model – Entity-Relationship View

EMR_CHANGE_KEY		
P *	Cage	VARCHAR (5)
P *	MPN	VARCHAR (34)
P *	Serial_No	VARCHAR (30)
*	Transaction_Timestamp	Datetime
	MER_ID	VARCHAR (14)
*	Previous_Cage	VARCHAR (5)
*	Previous_MPN	VARCHAR (34)
*	Previous_Serial_No	VARCHAR (30)
*	Description	VARCHAR (40)
*	Action	Integer
EMR_KEY_CHANGE_PK (Cage, MPN, Serial_No)		

Figure 10-1 EMR Change ERD

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11 Document History

Revision Number	Description	Date
1.0	Ready for Navy RFP	9 November 2015
1.1	Removed reference to SFTP, as not applicable to this service	16 November 2015

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.