



ALert MAnagement Service (ALMAS)

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Table of Contents

Preface.....	vii
1 Scope.....	1
2 Conformance.....	1
3 Normative References.....	2
4 Terms and definitions.....	3
4.1 General Definitions.....	3
4.2 Definitions Specific to this Document.....	4
5 Acronyms and Abbreviations.....	4
6 Platform Independent Model (PIM).....	5
6.1 ALMAS Client Callbacks.....	5
6.1.1ALMASNotificationListener.....	5
6.1.2ALMASReceiver.....	6
6.2 ALMAS Data Model.....	6
6.2.1Alert.....	7
6.2.2AlertData.....	8
6.2.3AlertDataExtraAttributes.....	8
6.2.4AlertReport.....	9
6.2.5AlertTemplate.....	9
6.2.6AvailableAlertReceiver.....	10
6.2.7CallStatus.....	10
6.2.8DynamicMessageData.....	10
6.2.9ReceiverKind.....	11
6.2.10 StaticMessage.....	11
6.2.11 ValidAlertResponse.....	12
6.2.12 Category.....	12
6.2.13 State.....	13
6.2.14 Status.....	13
6.2.15 Scope.....	13
6.2.16 TimeoutAction.....	14
6.2.17 AckModel.....	14
6.3 ALMAS Management.....	14
6.3.1ALMASConfiguration.....	15
6.3.2ALMASLogger.....	16
6.3.3ALMASManager.....	16
6.3.4ALMASManagerExtensions.....	18
6.3.5ALMAS Producer.....	18
6.3.6ALMASResponder.....	21
6.3.7ALMASResponderExtensions.....	22
6.4 Alert Categorisation.....	22
6.4.1AbsoluteEvent.....	23
6.4.2AlertCategorisationRule.....	23
6.4.3CategorisationAction.....	23
6.4.4CategorisationCondition.....	23
6.4.5CategorisationRuleSet.....	23
6.4.6CategorisationTrigger.....	23
6.4.7ChangeEvent.....	24
6.4.8Event.....	24
6.4.9OperatorEvent.....	24
6.4.10 PeriodicEvent.....	24
6.4.11 RaiseAction.....	24
6.4.12 RelativeEvent.....	24
6.4.13 Time Event.....	25
6.5 Dynamic behaviour.....	25
6.5.1Action Situation Alert State Model.....	25
6.5.2Information Warning Alert State Model.....	26
6.5.3Alert Registration and Creation.....	27

7	XML Platform Specific Model.....	29
7.1	The Template Alert Data specification file.....	29
7.2	The ALMAS configuration file.....	33
7.3	The Receiver Hierarchy configuration file.....	34
7.4	The ALMAS categorisation rule file.....	34
8	OMG CORBA/IDL Platform Specific Model.....	37
8.1	Rationale.....	37
8.2	ALMAS Data Model IDL.....	37
8.3	ALMAS Client IDL.....	39
8.4	ALMAS Management IDL.....	40
9	DDS/DCPS Platform Specific Model.....	43
9.1	Rationale.....	43
9.1.1	DCPS level mapping.....	43
9.2	ALMAS Data Model – shared.....	43
9.3	DCPS.....	46
9.3.1	ALMAS Client.....	46
9.3.2	ALMAS Management.....	46
9.3.3	DCPS topics QoS.....	49
9.4	DLRL.....	50
9.4.1	ALMAS Client.....	50
9.4.2	ALMAS Management IDL.....	50
10	COM IDL Platform Specific Model.....	55
10.1	Rationale.....	55
10.2	ALMAS Data Model IDL.....	55
10.3	ALMAS Client IDL.....	57
10.4	ALMAS Management IDL.....	58
11	GraphQL Platform Specific Model.....	63
11.1	Rationale.....	63
11.2	GraphQL Schema.....	63

Preface

About the Object Management Group

Founded in 1989, the Object Management Group, Inc. (OMG) is an open membership, not-for-profit computer industry standards consortium that produces and maintains computer industry specifications for interoperable, portable and reusable enterprise applications in distributed, heterogeneous environments. Membership includes Information Technology vendors, end users, government agencies and academia.

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OMG Headquarters
9C Medway Road, PMB 274
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USA

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1 Scope

The domain of naval Combat Management Systems is characterized by a huge variety of underlying computing platforms, with different and often incompatible means of managing and reporting alerts. Standards-based alert management services are essential for interoperable and open systems. This specification is a standard for ALert Management Service (ALMAS) in CMS systems, consisting of a standard alerts data model and a model for an alert delivery and lifecycle management service.

2 Conformance

This specification provides a level of conformance for a minimalist, basic ALMAS system; a fully functional ALMAS system; plus, additional levels for specialized extensions. In addition, conformant ALMAS implementation must conform to one or more of the middleware platform specific models presented in Chapters 8, 9, 10 and 11 of this document in addition to conforming to the XML Alert template data model and the XML initialization PSMs as presented in sections 7.1 to 7.3 of this document.

There are three distinct roles in the ALMAS abstracted by the interface classes defined in the ALMAS Management package: Producer, Manager and Receiver. Conformance recognises that a conforming application will be performing only one of these roles and therefore only a subset of the interface will be applicable. Accordingly, conformance is defined in terms of the PIM interface methods that are applicable to each of these roles.

Level	Producer	Manager	Receiver
1	Invokes: RaiseAlertFromData CancelAlert	Implements: RaiseAlertFromData CancelAlert Invokes: AlertDataNotification	Implements: AlertDataNotification
2	Implements: ALMASNotificationListener interface Invokes: ALMASConfiguration interface and any of the ALMASProducer and ALMASManager interface methods	Implements: ALMASConfiguration, ALMASManager, ALMASResponder and ALMASProducer interfaces Invokes: ALMASNotificationListener and ALMASReceiver interfaces	Implements: ALMASReceiver interface Invokes: Any of the ALMASResponder and ALMASManager interface methods
3A	N/A	Level 2 plus Implements: ALMASResponderExtensions interface	Level 2 plus Invokes: ALMASResponderExtensions interface
3B	Level 2 plus	Level 2 plus	N/A

	Invokes: RemoveAlertsWithDynamic MessageData	Implements: RemoveAlertsWithDynamic MessageData	
3C	Level 2 plus Invokes: AttachCategorizationRule & DetachCategorizationRule	Level 2 plus Implements: AttachCategorizationRule & DetachCategorizationRule	N/A

Level 3A groups together extensions for mult-language support; 3B is an extension for a more complex alert lifecycle from a producer's perspective; and 3C is an extension for raising alerts indirectly through categorization rules.

Alternatively, configuration may be performed centrally by a system function, in which case applications with the Producer role do not invoke the ALMASConfiguration interface.

3 Normative References

The following normative documents contain provisions, which, through reference in this text, constitute provisions of this specification. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply.

Table 3-1: Normative References

Title (Acronym)	Version / Date	Organization	Reference / URL
Data Distribution Service (DDS)	1.4 / March 2015	OMG	formal/2015-04-10 https://www.omg.org/spec/DDS/1.4/PDF
Interface Definition Language (IDL)	4.2 / January 2018	OMG	formal/2018-01-05 https://www.omg.org/spec/IDL/4.2/PDF
Graph Query Language (GraphQL)	June 2018	Facebook	https://spec.graphql.org/June2018/
OASIS Common Alerting Protocol (OASIS)	1.0 / 2004	OASIS	https://www.oasis-open.org/committees/download.php/6334/oasis-200402-cap-core-1.0.pdf
Microsoft Component Object Model (COM)	2009	Microsoft	https://www.docs.microsoft.com/en-us/windows/win32/com/component-object-model--com--portal
Common Object Request Broker Architecture (CORBA)	3.0.3 / March 2004	OMG	https://www.omg.org/spec/CORBA
Extensible Markup Language (XML)	1.0 / 2008	W3C	https://www.w3.org/TR/xml/

4 Terms and definitions

4.1 General Definitions

Architecture Board (AB) - The OMG plenary that is responsible for ensuring the technical merit and MDA-compliance of RFPs and their submissions.

Board of Directors (BoD) - The OMG body that is responsible for adopting technology.

Component Object Model (COM) - A platform-independent, distributed, object-oriented system for creating binary software components that can interact.

Common Object Request Broker Architecture (CORBA) - An OMG distributed computing platform specification that is independent of implementation languages.

Common Warehouse Metamodel (CWM) - An OMG specification for data repository integration.

CORBA Component Model (CCM) - An OMG specification for an implementation language independent distributed component model.

Data-Centric Publish-Subscribe (DCPS) - The DDS specification describing the application interfaces and communication semantics for distributed application communication and integration.

Data Distribution Service (DDS) - a middleware protocol and API standard for data-centric connectivity.

Data Local Reconstruction Layer (DLRL) - describes a high-level interface to DDS that allows a simple integration of the DDS Service into the application layer.

Graph Query Language (GraphQL) - a query language for Application Programmable Interfaces and a runtime for fulfilling those queries with your existing data.

Interface Definition Language (IDL) - An OMG and ISO standard language for specifying interfaces and associated data structures.

Internet Assigned Numbers Authority (IANA) - a standards organization that oversees global Internet Protocol (IP) address allocation and other internet Protocol-related symbols and numbers.

Letter of Intent (LOI) - A letter submitted to the OMG BoD's Business Committee signed by an officer of an organization signifying its intent to respond to the RFP and confirming the organization's willingness to comply with OMG's terms and conditions, and commercial availability requirements.

Mapping - Specification of a mechanism for transforming the elements of a model conforming to a particular metamodel into elements of another model that conforms to another (possibly the same) metamodel.

Metadata - Data that represents models. For example, a UML model; a CORBA object model expressed in IDL; and a relational database schema expressed using CWM.

Metamodel - A model of models.

Meta Object Facility (MOF) - An OMG standard, closely related to UML, that enables metadata management and language definition.

Model - A formal specification of the function, structure and/or behavior of an application or system.

Model Driven Architecture (MDA) - An approach to IT system specification that separates the specification of functionality from the specification of the implementation of that functionality on a specific technology platform.

Normative - Provisions that one must conform to in order to claim compliance with the standard. (as opposed to non-normative or informative which is explanatory material that is included in order to assist in understanding the standard and does not contain any provisions that must be conformed to in order to claim compliance).

Normative Reference - References that contain provisions that one must conform to in order to claim compliance with the standard that contains said normative reference.

Platform - A set of subsystems/technologies that provide a coherent set of functionality through interfaces and specified usage patterns that any subsystem that depends on the platform can use without concern for the details of how the functionality provided by the platform is implemented.

Platform Independent Model (PIM) - A model of a subsystem that contains no information specific to the platform, or the technology that is used to realize it.

Platform Specific Model (PSM) - A model of a subsystem that includes information about the specific technology that is used in the realization of it on a specific platform, and hence possibly contains elements that are specific to the platform.

Quality of Service (QoS) - in the context of DDS, a rich set of characteristics that define the behavior of the DDS systems (such as reliability, liveness, durability, etc.)

Request for Information (RFI) - A general request to industry, academia, and any other interested parties to submit information about a particular technology area to one of the OMG's Technology Committee subgroups.

Request for Proposal (RFP) - A document requesting OMG members to submit proposals to the OMG's Technology Committee. Such proposals must be received by a certain deadline and are evaluated by the issuing task force.

Task Force (TF) - The OMG Technology Committee subgroup responsible for issuing an RFP and evaluating submission(s).

Technology Committee (TC) - The body responsible for recommending technologies for adoption to the BoD. There are two TCs in OMG – Platform TC (PTC), that focuses on IT and modeling infrastructure related standards; and Domain TC (DTC), that focus on domain specific standards.

Unified Modeling Language (UML) - An OMG standard language for specifying the structure and behavior of systems. The standard defines an abstract syntax and a graphical concrete syntax.

UML Profile - A standardized set of extensions and constraints that tailors UML to particular use.

XML Metadata Interchange (XMI) - An OMG standard that facilitates interchange of models via XML documents.

4.2 Definitions Specific to this Document

The RFP prompting this response defined the following set of standard terminology which will henceforth be used within this document:

- An **event** is an occurrence that has been detected by the system whose happening must be reported to other members of the system, including human operators.
- An **alert** is an entity of observation regarding an event (or sequence of related events) to be reported (directly or indirectly) to an appropriate set of actors.
- **Alert clients** are the entities within the system that raise, modify, receive, process, or handle alerts generated by ALMAS.
- An **alert template** is a generic definition of a type of alert which can be raised, e.g., 'collision warning' – it requires instantiation to create an alert.
- An **instance** of an alert is a specifically raised alert e.g., 'collision warning with track number 111, bearing 020, range 2nm'

In addition to the general terms defined above, the RFP indicates that there is an expectation that the ALMAS standard will include three main alert categories, as follows:

- Alerts which require no actor action or acknowledgement. This collection of alert templates are generally **informative** or routine alerts, they are usually of lower priority / urgency and require some action by ALMAS to be removed.
- Alerts which require acknowledgement by actor(s). This collection of **acknowledgement** alert templates is usually more urgent alerts where at least one actor must indicate acknowledgement to ALMAS that the alert has been received.
- Alerts which require both acknowledgement and action confirmation by actor(s). This collection of **action** alert templates is frequently used for important or critical events where not only is acknowledgement of the receipt required, but also confirmation that the required action has been taken¹.

5 Acronyms and Abbreviations

CMS	(Naval) Combat Management System
CORBA	Common Object Request Broker Architecture
DCOM	Distributed Component Object Model
HTTP	HyperText Transfer Protocol
OMG	Object Management Group
RFP	Request For Proposal
UML	Unified Modelling Language
XML	eXtensible Mark-up Language

¹ Definition of the required action is not within the scope of ALMAS.

6 Platform Independent Model (PIM)

The PIM has been split into three packages as follows:

- ALMAS Client Callbacks: The interface to be implemented by system components that wish to be notified of ALMAS events such as alerts created, deleted, etc.
- ALMAS Data Model: The structures and their relationships used in an ALMAS system.
- ALMAS Management: Components of the ALMAS system responsible for setting up ALMAS and alert lifecycle oversight.

These are described below, note that ALMAS Categorization is an optional PIM [for attaching event-based categorization rules to alerts defined in the core parts of this specification](#).

Section 6.5 describes ALMAS dynamic behavior: alert state transition as well as the interactions between ALMAS Receivers, Producers, and the ALMAS System itself.

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6.1 ALMAS Client Callbacks

ALMAS Client Callbacks are the interfaces to be implemented by system components that wish to be notified of ALMAS events such as alerts created, deleted, etc. There are two classes in this package. In order to be plugged into the ALMAS system, a client must implement one of these interfaces, and register with the Alert Manager.

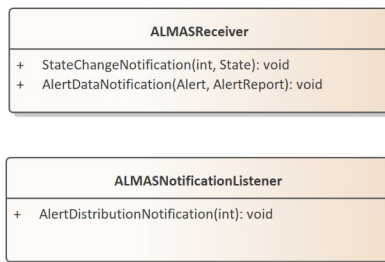


Figure 6-1: PIM class diagram for ALMAS Clients

6.1.1 ALMASNotificationListener

Class provided by registering notification listeners for receipt of alert distribution notifications.

6.1.1.1 Operation

Name	Type	Summary
AlertDistributionNotification(int)	public void[Parameters]AlertID: int	This is called as soon as an alter requiring confirmation has been received by the ALMAS system. This callback is generated when the alert is in the Raised state. (Note: StateChangeNotification callbacks are also generated for this event.) The onward distribution is notified through additional StateChangeNotification callbacks.

6.1.2 ALMASReceiver

Class provided by registering alert receivers for provision of the notification callbacks. Only clients that implement this interface and register as receivers can access active alert data. Clients can only register if they are built against the

ALMAS interface; therefore, no runtime security control is required in this context. Note: The ALMASResponder interface is used to notify ALMAS of “progress” in satisfying the received alert.

6.1.2.1 Operation

Name	Type	Summary
StateChangeNotification(int, Enumeration)	public void[Parameters]AlertID: int,NewState: Enumeration	Indicates a change of state of an alert to a receiver who has registered for this alert's state change notifications. These states are the same states as used in CurrentState for an Alert. This callback is generated for an alert's initial state and all subsequent state transitions. it is not generated when an alert instance is deleted. (Note: instances can only be deleted by the ALMAS system from a non-current state).
AlertDataNotification(Alert, AlertReport)	public void[Parameters]AlertInfo: Alert,Report: AlertReport	Provides notifications of new and modified alert data.

6.2 ALMAS Data Model

The classes described in this section provide the definition of the contents of Alerts, Alert Templates, and Receivers for ALMAS. The two primary concepts in this data model are of an Alert Template and an Alert. The Alert Template describes the static description of a pre-defined class of alerts, while an Alert contains the specific attributes of a “live” Alert within the ALMAS system. Both utilize the AlertData class to describe many of their field attributes and values.

Note that the constraint called ‘alert_data’ in the figure below is defined as follows:

```
"context a: Alert inv: if ((a.alert_data.Category = Information) or (a.alert_data.Category = Warning))) then
(a.CurrentState <> Handled)"
```

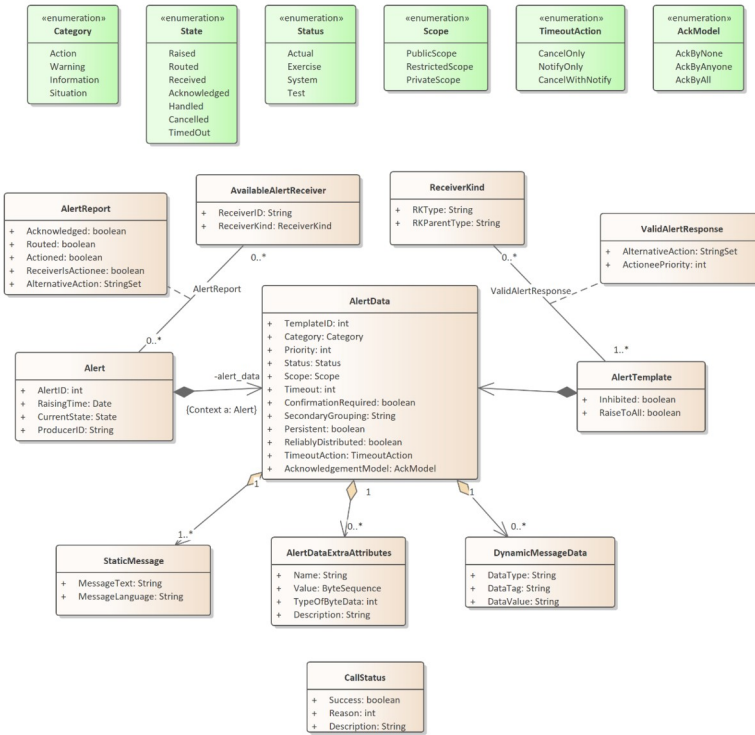


Figure 6-2: PIM class diagram for ALMAS Data Model

6.2.1 Alert

An active alert within ALMAS. The Alert class provides the main entity that ALMAS uses for tracking the state of an alert. The specific data such as message and other attributes for an active alert is provided in the AlertData class which is a member attribute of the Alert.

6.2.1.1 Attribute

Name	Type	Summary
AlertID	public int	The instance id for the specific instance of the alert.
RaisingTime	public Date	The time at which the alert was raised.
CurrentState	public State	Holds the current state of the alert, valid states are determined by the category of the alert, {Raised, Routed, Received, Acknowledged, Handled, Cancelled, Timed_Out}. Note that Handled is not a valid state for Information and Warning Alerts.
ProducerID	public String	The producer freetext ID - corresponds to CAP source

6.2.2 AlertData

This represents the set of data shared between the alert template and alert classes. All fields have default values which can be changed when alerts are raised/updated. This may be set up through the use of templates as specified through the XML PSM, which initialises AlertTemplate and its associated classes.

6.2.2.1 Attribute

Name	Type	Summary
TemplateID	public int	A unique identifier for template which owns this alert data (or that was used to create the alert if this is referenced from Alert). Valid range from 1 upwards.
Category	public Enumeration	This enumeration can take the value Action / Warning / Information / Situation
Priority	public int	Alert priority as an integer value in the range 1-99. The priority is open for client use and not intended for interpretation by ALMAS.
Status	public Status	Corresponds to the OASIS CAP Status field.
Scope	public Scope	Corresponds to CAP scope.
Timeout	public int	Specifies the time, in seconds, required to elapse before the alert will timeout and perform its default timeout action. 0 implies there is no timeout.
ConfirmationRequired	public boolean	This is set if confirmation of receipt is required, that it has been distributed. If this is set to true, the producer has registered for receipt of the distribution notification.
SecondaryGrouping	public String	This is an additional field to support client specific filtering mechanisms.
Persistent	public boolean	Indicates whether the alert data is required to be persistent in the event of a system restart
ReliablyDistributed	public boolean	A flag which, when true, indicates that the alert should have guaranteed delivery.
TimeoutAction	public TimeoutAction	When the alert times-out, ALMAS acts according to this attribute.
AcknowledgementMode	public AckModel	Sets the conditions upon which the alert state can transition to 'acknowledged'. This has the options of {none, anyone, all}

6.2.3 AlertDataExtraAttributes

This is a class representing items of alert data that are specific to particular clients, that require supporting in order to fulfil possible requirements of an alert management system (such as images, screen locations or other binary data), but are not general enough to be defined explicitly as data types in an ALMAS. Effectively ALMAS provides blind delivery of the information provided by this class to the alert receiver without any knowledge as to its intended meaning and behaviour. The extra attributes are configured via the ALMAS Alert definition xml PSM specified in section 7.1. If defined in the Alert definition XML provided to ALMAS, then ALMAS shall support the definition, receipt, storage and passing of this data to receivers as part of a standard implementation.

6.2.3.1 Attribute

Name	Type	Summary
Name	public String	Name of the client specific attribute
Value	public ByteSequence	Contents as a byte sequence. (Note: strings are not null-terminated).
TypeOfByteData	public int	Valid values for this are: 0 = string (UTF-8) 1 = Integer8 2 = Integer16 3 = Integer32 4 = Float32 5 = Float64 6 = bytes (private format) 7 = bytes (defined by media type)
Description	public String	This field is used to provide an indication of the content e.g., 'image (jpg), URL, track object ID, ... When the TypeOfByteData is 7, this is set to the media type / subtype tree as defined by IANA.

6.2.4 AlertReport

This provides the delivery message of an Alert to an ALMASReceiver. It contains the Alert and the current status information. This will contain details of whether the instance has been acknowledged by this receiver etc. and will also be completed with respect to any dynamic message data.

6.2.4.1 Attribute

Name	Type	Summary
Acknowledged	public boolean	Identified whether the alert has been acknowledged by this receiver.
Routed	public boolean	Identified whether the alert can be confirmed to have been routed as per the 'routed' alert substate.
Actioned	public boolean	Identified whether the alert has been actioned by this receiver.
ReceiverIsActioned	public boolean	Indicates that this receiver is the chosen actionee for this alert.
AlternativeAction	public StringSet	Provides means by which an alternative action outside of the scope of ALMAS can be distributed with the alert via ALMAS.

6.2.5 AlertTemplate

An AlertTemplate specifies the generic characteristics of a specific alert type "at rest" (e.g., the general characteristics of a collision warning alert). This includes the category of alert, such as Action etc. An AlertTemplate uses an associated AlertData object to specify the contents of the template. An AlertTemplate can be used to specify the properties of commonly used within a system. At the time of raising an Alert from a template, the user/system provides the relevant instance data of that alert. It is an error to specify RaiseToAll and to define either ReceiverKind instances or a Secondary Grouping in the AlertData instance.

6.2.5.1 Attribute

Name	Type	Summary
Inhibited	public boolean	The inhibition status of that alert type. If this is 'true' then attempts to raise an alert of that type will fail.
RaiseToAll	public boolean	Indicates that the alert should be raised to all available receivers rather than specified ones.

6.2.6 AvailableAlertReceiver

The class used to identify a receiver of alerts. A registered receiver of alerts. The AvailableAlertReceiver is registered with ALMAS through the ALMASResponder API. The AvailableAlertReceiver is directly associated with an ALMASReceiver through the ReceiverID attribute, which is provided at registration time to ALMAS using the RegisterReceiver method.

6.2.6.1 Attribute

Name	Type	Summary
ReceiverID	public String	Unique identifier for the receiver.
ReceiverKind	public ReceiverKind	The kind of the receiver as an explicit attribute link to the Receiver Kind class.

6.2.7 CallStatus

This is the ALMAS a general-purpose success/failure descriptor class used throughout ALMAS. If Success, then the other parameters are not applicable.

6.2.7.1 Attribute

Name	Type	Summary
Success	public boolean	Flag indicating pass/fail status
Reason	public int	Enumerated reason correlating to the "Call Status" 0 = Success 1 = Not Accepted 2 = Malformed Alert 3 = Timeout/delivery 4 = Requested Service Unavailable 5+ = Other
Description	public String	Additional String data further describing status

ALMAS14-8

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6.2.8 DynamicMessageData

Since Alerts often have variable data fields, the DynamicMessageData class provides the means for inserting variable content into the Alert's MessageText during runtime. Replacement values for the DataTag are treated as strict string substitution within the MessageText of the StaticMessage associated with the Alert. This is used to capture the triplet of data tag type, tag position in the alert message and the value that this tag in the template message text should be replaced with. Note: if the text specified in the StaticMessage contains multiple replacement points then an equal number of DynamicMessageData objects are required for full substitution. It is an error to specify StaticMessage and DynamicDataMessage instance collections with different sets of substitution tags for the same alert template. To substitute language locale specific dynamic data, define and supply distinct language locale specific tags when raising alerts. (I.e., for each language and placeholder combination, supply a DynamicMessageData instance with a unique DataTag to match a placeholder in exactly one StaticMessage instance).

6.2.8.1 Attribute

Name	Type	Summary
DataType	public String	The type of related object e.g., freetext, track, vehicle, position, etc.
DataTag	public String	This identifies the insertion point for the related object in the MessageText associated with the Alert. Tags are alphanumeric so to match StaticMessage text "xxxxx %number% yyyyyy zzzz", a DataTag with the value "number" is required. It is a case sensitive, alphanumeric string.
DataValue	public String	The value of the object instantiation. Given a type of string to be general enough to support free text and track/vehicle id's alike.

6.2.9 ReceiverKind

The descriptor of an alert receiver. This could for example be an operator role. ReceiverKind objects are used in many places in ALMAS including the specification of what operators/clients will receive which Alerts.

- These are used to show all possible receivers of an Alert, when used in an AlertTemplate.
- These are used during runtime to identify the actual receivers for an active alert.

6.2.9.1 Attribute

Name	Type	Summary
RKType	public String	String identifier of the kind of receiver, for example the role of a receiving operator.
RKParentType	public String	The hierarchical parent receiver kind name that this one "belongs to". This is used by ALMAS to resolve cases where a specific RK is not available, but handing is required by an appropriate receiver. Note that a lack of a Parent is indicated by an empty string.

6.2.10 StaticMessage

Provides the default message text for an alert as a tuple of the actual static text and the language in which the text is provided. An AlertData object has a StaticMessage instance for each language supported by a particular ALMAS. If the StaticMessage requires runtime updating, then use data tags as specified in DynamicMessageData. To support the runtime substitution of different text for different languages, data tags must have different values in each of the languages to define the substitution uniquely.

6.2.10.1 Attribute

Name	Type	Summary
MessageText	Public String	This is a text string, which in an Alert or AlertTemplate is only partially completed. With the MessageText being "xxxxx %number% yyyyyy zzzz" in an Alert or AlertTemplate, and with a DynamicMessageData with DataTag having the value "number" and DataValue having the value "123" then the resulting MessageText in response to GetFilledMessageText will be "xxxxx 123 yyyyyy zzzz". All substitution points are of the form "(start non-alphanumeric%(tag)%(end non-alphanumeric)", where start and end denote the start and end of the MessageText string respectively and tags are case sensitive, alphanumeric strings ("number" in the above) which should correspond to a DataTag in an associated DynamicMessageData.
MessageLanguage	public String	The message 'Locale'

6.2.11 ValidAlertResponse

The ValidAlertResponse is the association class that specifies the list of actions that a particular ReceiverKind (e.g., "role") can take in response to an Alert of an AlertTemplate type. It also specifies the priority for being chosen as the actionee of that ReceiverKind among all ReceiverKinds associated with that AlertTemplate.

The set of alternative action strings can be used by the system to provide a constrained set of "command-response" options to the client. For example, ValidAlertResponses for an "Engagement Request Alert" might include "WILCO", "CANTCO", etc.

6.2.11.1 Attribute

Name	Type	Summary
AlternativeAction	public StringSet	The 'names' of alternative actions available to the relevant actor.
ActioneePriority	public int	The priority of the ReceiverKind as actionee for a specific alert as described by its template. The highest priority actionee for an action alert should be chosen as the current actionee for the alert. This will then flow into the ReceiverIsActionee field of the AlertReport.

6.2.12 Category

The categories of alerts in terms of the expectation placed on the operator receiving the alert; i.e., generically, why has the alert been received and what type of implicit or explicit response is expected.

6.2.12.1 Attribute

Name	Summary
Action	An explicit input to the system is expected as a result of receiving the alert. The alert persists until it is

	cancelled due to the condition to which it relates no longer being present (due either to explicit operator action relating to the alert or action external to the ALMAS system).
Warning	The receiver may decide to take an explicit action in mitigation to the condition to which the warning relates. The alert does not persist according to the underlying condition that the alert warns about.
Information	The receiver is expected to take account of this information in subsequent decisions. The alert does not persist according to the underlying condition that the alert informs about.
Situation	The receiver is expected to take account of the new state of the situation in subsequent decisions. The alert persists until it is cancelled due to the condition to which it relates no longer being present (due either to explicit operator action relating to the alert or action external to the ALMAS system).

6.2.13 State

The states between which an alert transitions in its lifetime.

6.2.13.1 Attribute

Name	Summary
Raised	The alert has been created by the alert producer.
Routed	The alert has been routed to the receivers, but reception has not been confirmed by sufficient receivers to enter the received state.
Received	The alert has been received by sufficient receivers.
Acknowledged	All necessary acknowledgements have been made.
Handled	The alert ends its lifetime through being handled.
Cancelled	The alert ends its lifetime through being cancelled by the producer.
TimedOut	The alert ends its lifetime through being timed-out.

6.2.14 Status

The status of the entities with regards to the mode of use of ALMAS in comparison to the mode of use of receivers and producers.

6.2.14.1 Attribute

Name	Summary
Actual	Actionable by all targeted recipients.
Exercise	Actionable only by designated exercise participants.
System	For entities that support alert network internal functions.
Test	Technical testing only, all recipients disregard

6.2.15 Scope

This class models the scope of the alert's dissemination.

6.2.15.1 Attribute

Name	Summary
PublicScope	unrestricted dissemination
RestrictedScope	dissemination restricted to known functions
PrivateScope	dissemination restricted to specified addresses

6.2.16 TimeoutAction

This class models the possible behaviors when an alert is timed-out.

6.2.16.1 Attribute

Name	Summary
CancelOnly	The alert is just cancelled (the alert instance's lifetime ends).
NotifyOnly	The alert manager is notified.
CancelWithNotify	The alert is cancelled (the alert instance's lifetime ends) and the alert manager is notified.

6.2.17 AckModel

This class models the conditions upon which an alert state can transition to 'acknowledged'.

6.2.17.1 Attribute

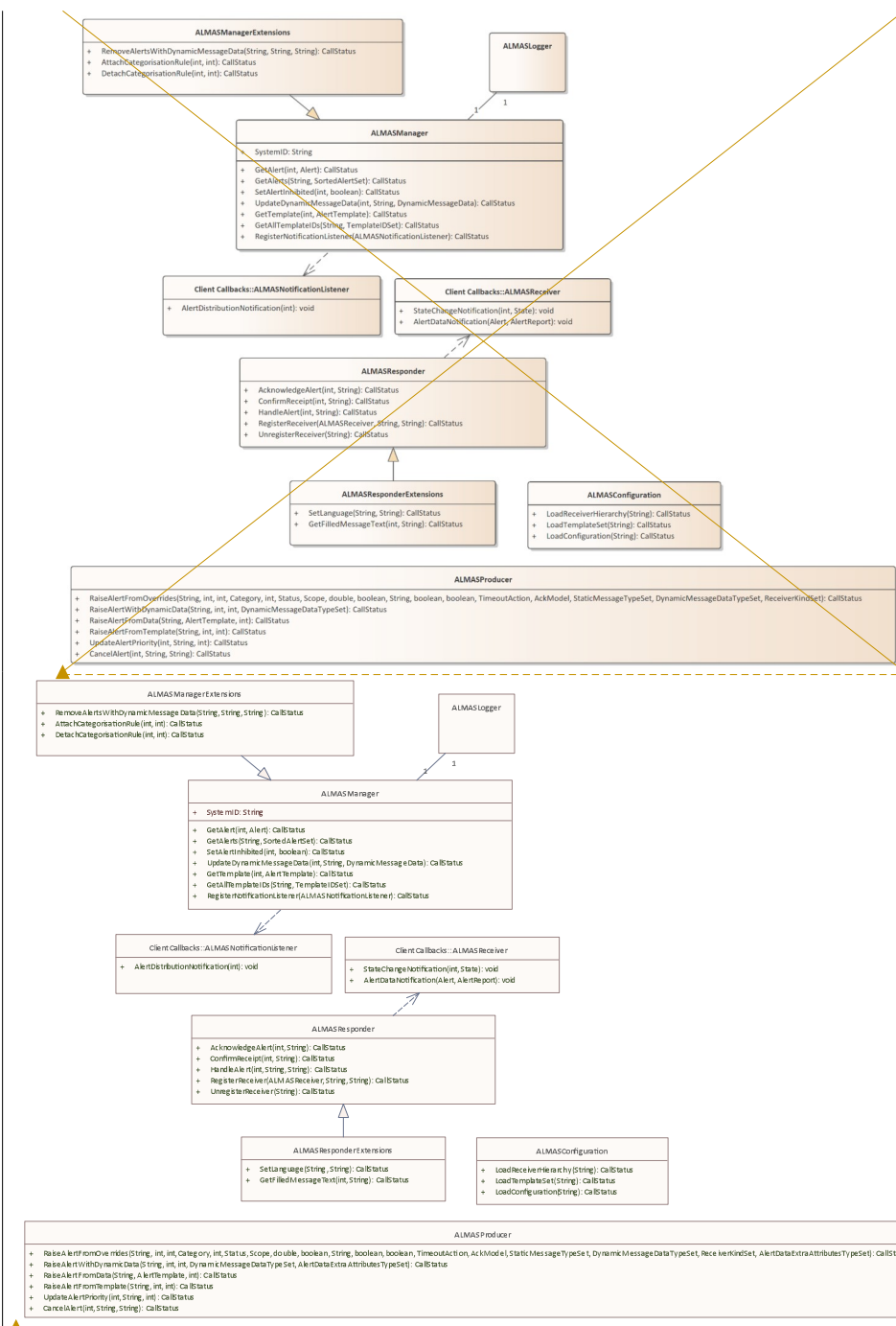
Name	Summary
AckByNone	No acknowledgement is required.
AckByAnyone	Any single acknowledgement is sufficient.
AckByAll	The alert must be acknowledged by all recipients.

6.3 ALMAS Management

This section describes the classes responsible for raising, routing, maintaining the state of, and destroying alerts through their lifecycle. ALMAS uses a collection of specialized component interfaces for maintaining state, data, and lifecycle of Alerts. In general, systems that utilize ALMAS will interact during runtime primarily through the ALMAS Producer, Responder, and Notification Listener classes. The ALMAS Manager interface is utilized more at system startup.

Deleting alert instances is under the control of ALMAS itself as part of its lifecycle management, and not at the request of its users. In more detail:

- Any alert is removed when cancelled. Note that Situation alerts are only removed when cancelled.
- Information and Warning alerts are removed when the required number of acknowledgements (as identified in the AlertData AcknowledgementModel attribute) are given or (if a timeout is defined) when the timeout is expired.
- Action alerts are removed when HandleAlert is called by the Receiver identified as the Actionee in its AlertReport.



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Figure 6-3: PIM class diagram for ALMAS Management

This package provides the main API to the ALMAS service.

6.3.1 ALMASConfiguration

Provides an API by which systems can configure ALMAS to behave in a more tailored manner in order to satisfy very specific requirements. There are three categories of configuration file that can be used by ALMAS: the receiver hierarchy, templates, and configuration information. The string filename is expected to resolve to either a local file accessible to ALMAS, or a URL accessible to ALMAS. The returned CallStatus object from each of the methods provides an indication of success/failure and any additional relevant rationale describing that status. The effect of invoking the ALMASConfiguration interface does not persist beyond the lifetime of the application. Clients must invoke the operations on the interface for each execution lifetime of the Manage application.

6.3.1.1 Operation

Name	Type	Summary
LoadReceiverHierarchy(String)	public CallStatus[Parameters]Filename: String	Loads the receiver hierarchy as provided by the client via xml conforming to the relevant xml schema document. The specification of the ReceiverHierarchy file format can be found in section 7.3. If invoked multiple times for an application lifetime, the semantics are additive but disjoint; it is an error to define a receiver in a hierarchy file that has already been defined.
LoadTemplateSet(String)	public CallStatus[Parameters]Filename: String	Loads a template set into the ALMAS database. Multiple calls to this method result in the union of the new templates with the existing templates in ALMAS. It is an error to refer to ReceiverKind instances in the template file that have not been previously defined in a loaded hierarchy file. It is also an error to duplicate an existing template id or to mismatch tags between static messages and dynamic data. These are permitted implementation-specific error conditions: to use an unsupported data type for dynamic message data, to use an out of range value for type of byte data, to omit a static message for a particular language or to exceed capacity limits. The specification of the template file format can be found in section 7.1.
LoadConfiguration(String)	public CallStatus[Parameters]Filename: String	Loads the ALMAS configuration file as provided by the client. The specification of the configuration file format can be found in section 7.2.

6.3.2 ALMASLogger

The ALMASLogger interface provides a logging mechanism to record historical Alert information created by the system. This version of the ALMAS Standard does not specify a specific interface to/from the ALMAS logger, however conformant ALMAS implementations must include logging of alerts raised, delivered, received, handled, and cleared. All API methods are logged by conformant implementations; the mechanism to do so is defined by each of the PSM sections later in this document.

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6.3.3 ALMASManager

The ALMASManager interface provides the minimal set of APIs necessary to track ALMAS activity. Additionally, the ALMASManager provides the interface in ALMAS for retrieving Alerts and AlertTemplates and registering for the notification of delivery of Alerts. Note that the registration of receivers is done via the ALMAS Responder class.

Note: The methods found in the ALMASProducer interface allow the system to update the status or attributes of an alert during runtime. The ALMAS Manager resolves dynamic message data and each recipient's language selection that each Alert instance contains exactly one static message and no dynamic message data. [A component implementing the ALMASManager, ALMASProducer and ALMASResponder interfaces is able to flexibly coordinate the distribution of alerts and responses between producers and responders.](#)

ALMAS14-5

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6.3.3.1 Attribute

Name	Type	Summary
SystemID	private String	Provides a field for specifying the current instance of ALMAS. Corresponds to CAP sender

6.3.3.2 Operation

Name	Type	Summary
GetAlert(int, Alert)	public CallStatus[Parameters]AlertID: int,out Alert: Alert	Retrieves data for a specific raised alert from ALMAS given the passed AlertID. Assumes the requestor knows the AlertID to retrieve. This operation retrieves the current data for an alert that is already known to the client.
GetAlerts(String, SortedAlertSet)	public CallStatus[Parameters]Filter: String,out AlertSet: SortedAlertSet	Retrieves a set of all alert instances within ALMAS that satisfy the filter. The filter string provided will be compared with the value in the AlertData SecondaryGrouping field. All matches will be returned in the Set.
SetAlertInhibited(int, boolean)	public CallStatus[Parameters]TemplateID: int,Inhibition: boolean	Sets the inhibition status of a specific alert template to suppress or allow the raising of all

		alerts of that template. Whilst set to inhibited, the ALMAS Manager fails attempts to raise an alert using that template.
UpdateDynamicMessageData(int, String, DynamicMessageData)	public CallStatus[Parameters]AlertID: int,ObjectValue: String,OldData: DynamicMessageData	Indicates a change to the value of a related object for the provided alert ID. OldData is necessary in order to clearly indicate which dynamic message data should be changed.
GetTemplate(int, AlertTemplate)	public CallStatus[Parameters]TemplateID: int,out Template: AlertTemplate	Retrieves an existing alert template from ALMAS by providing the template ID.
GetAllTemplateIDs(String, TemplateIDSet)	public CallStatus[Parameters]Filter: String,out TemplateIDs: TemplateIDSet	Retrieves all Alert Template IDs, or if the Filter string is non-null, it returns those which satisfy the Filter. The filter string provided will be compared with the value in the AlertData SecondaryGrouping field. All matches will be returned in the Set.
RegisterNotificationListener(ALMASNotificationListener)	public CallStatus[Parameters]Handle: ALMASNotificationListener	Registers a new Notification Listener for receipt of the alert distribution notifications.

6.3.4 ALMASManagerExtensions

This class contains optional extensions to the alert manager functionality. These extensions may or may not be implemented in simple ALMAS implementations.

6.3.4.1 Operation

Name	Type	Summary
RemoveAlertsWithDynamicMessageData(String,	public CallStatus[Parameters]CancellerID:	Indicates to ALMAS that a specific object has been

String)	String,DataType: String,DataValue: String	removed from the system, and therefore all associated alerts are no longer valid. These will then be deleted from ALMAS.
AttachCategorisationRule(int, int)	public CallStatus[Parameters]TemplateID: int,RuleID: int	Associates an event categorisation rule with an AlertTemplate
DetachCategorisationRule(int, int)	public CallStatus[Parameters]TemplateID: int,RuleID: int	Disassociates an event categorisation rule from an AlertTemplate

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6.3.5 ALMAS Producer

Provides the API by which system components producing alerts can create and update alerts that are generated. A CallStatus object will be returned to indicate whether the request has been accepted by ALMAS. If a system wished to track the lifecycle of the alert, they must implement the NotificationListener functionality to receive updates.

Four mechanisms by which alerts can be raised are provided by the ALMASProducer interface class. Three variants RaiseAlertFromTemplate, RaiseAlertWithDynamicData and RaiseAlertFromOverrides allow the system to raise an alert by simply specifying the alert ID, template ID and their own ProducerID; with dynamic data allows the specification of the intentionally variable data to supplement the template alert definition; from overrides also allows the over-ride of any placeholders that may be present in the 'Message' attribute of the alert data class associated with that template.

The raiser may also optionally override any of the following parameters: Message, MessageLanguage, Category, Status, Scope, Timeout, ConfirmationRequired, AlertReceiverSet, Priority, TimeoutAction and AcknowledgementModel.

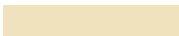
The RaiseAlertFromData method allows the raiser to specify a completely new alert with no basis on any existing templates. Systems using ALMAS may not wish to support alert templates depending on their size, complexity, and level of alert usage, in which case that system can always use RaiseAlertFromData without need to instantiate any templates at any point during operation.

The status or attributes of an alert can be updated during runtime by calling the UpdateAlert method found in the ALMASProducer interface. The ALMASProducer then works with the ALMAS system to ensure state and data is properly maintained in the system.

6.3.5.1 Operation

Name	Type	Summary
RaiseAlertFromOverrides(String, int, int, Category, int, Status, Scope, double, boolean, String, boolean, boolean, TimeoutAction, AckModel, StaticMessageTypeSet, DynamicMessageDataTypeSet, ReceiverKindTypeSet, AlertDataExtraAttributesTypeSet)	public CallStatus[Parameters]ProducerID: String,TemplateID: int,out AlertID: int,Category: Category,Priority: int,Status: Status,Scope: Scope,Timeout: double,ConfirmationRequired: boolean,SecondaryGrouping: String, Persistent: boolean, ReliablyDistributed: boolean, TimeoutAction: TimeoutAction,AcknowledgementModel: AckModel, StaticMessages: StaticMessageTypeSet, DynamicMessages: DynamicMessageDataTypeSet,AlertReceivers: ReceiverKindTypeSet, ExtraAttributes:	This will cause an alert based on a known alert template to be created and raised. ProducerID, TemplateID and the out parameter AlertID are mandatory, all other parameters are optional. Return parameter indicates success or

ALMAS14-9
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10/24/2024 16:40



	AlertDataExtraAttributesTypeSet	<p>failure reason.</p> <p>The operation fails if the template is inhibited, or the hierarchy does not define the receiver kinds or static and dynamic tags are mismatched. The following are permitted implementation-specific failure cases: unsupported data type for dynamic message data, omitted language in static messages, capacity exceeded.</p>
RaiseAlertWithDynamicData(String, int, int, DynamicMessageDataTypeSet, AlertDataExtraAttributesTypeSet)	<p>public CallStatus[Parameters]ProducerID: String, TemplateID: int, out AlertID: int, DynamicMessages: DynamicMessageDataTypeSet, ExtraAttributes: AlertDataExtraAttributesTypeSet</p>	<p>This will cause an alert based on a known alert template to be created and raised, whilst only specifying the dynamic data content that differs from the template definition.</p> <p>All parameters are mandatory. Return parameter indicates success or failure reason. The operation fails if the template is inhibited.</p>
RaiseAlertFromData(String, AlertTemplate, int)	<p>public CallStatus[Parameters]ProducerID: String, AlertInfo: AlertTemplate, out AlertID: int</p>	<p>Raise an alert not present in the ALMAS template database. A temporary AlertTemplate is created (whose TemplateID is ignored), to facilitate the creation. Return parameter indicates success or failure reason. The operation fails if the hierarchy does not define the receiver kinds or static and dynamic tags are mismatched. The following are permitted implementation-specific failure cases: unsupported data type</p>

ALMAS14-23
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ALMAS14-9
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ALMAS14-9
Unknown Author
10/24/2024 16:23

		for dynamic message data, value for type of byte data out of range, omitted language in static messages, capacity exceeded.
RaiseAlertFromTemplate(String, int, int)	public CallStatus[Parameters]ProducerID: String,TemplateID: int,out AlertID: int	Raise an alert without any of the optional parameters for optimal use in the normal case. The operation fails if the template is inhibited.
UpdateAlertPriority(int, String, int)	public CallStatus[Parameters]AlertID: int,ProducerID: String,Priority: int	Updated the priority of existing alert instances that have previously been raised.
CancelAlert(int, String, String)	public CallStatus[Parameters]AlertID: int,CancellerID: String,CancellationReason: String	Cancel a specific alert within ALMAS Return parameter indicates success or failure reason.

6.3.6 ALMASResponder

Provides the API for systems to respond to and provide feedback to ALMAS about alerts received. Embedded in this class are the methods to register and un-register your system-specific receiver.

The system notifies ALMAS through this interface of significant events that have occurred to change the state of an alert.

6.3.6.1 Operation

Name	Type	Summary
AcknowledgeAlert(int, String)	public CallStatus[Parameters]AlertID: int,ReceiverID: String	Indication from an alert receiver that they have acknowledged receipt of the alert and no longer require distribution of its information.
ConfirmReceipt(int, String)	public CallStatus[Parameters]AlertID: int,ReceiverID: String	Confirmation by an alert receiver that they have successfully received the alert to ensure reliable distribution. The ReceiverID field enables action & situation alerts to transition when sufficient confirmations have been received. 'Sufficient' is the 'actionee' for action alerts, and anyone for situation alerts. It can also be used for logging purposes.
HandleAlert(int, String, String)	public CallStatus[Parameters]AlertID: int,ReceiverID: String, AlternativeAction:	Indication from an Alert Receiver that they have performed the

ALMAS14-3



	<u>String</u>	appropriate action required by an Action alert and that the alert can therefore be removed from ALMAS as no longer applicable. <u>An Alternative Action has been performed if that parameter is non-null</u>
RegisterReceiver(ALMASReceiver, String, String)	public CallStatus[Parameters]ReceiverHandler: ALMASReceiver,ReceiverID: String,RKType: String	This registers a receiver with ALMAS, the parameters are ReceiverHandle (for callback); ReceiverID (for use in all other methods, including UnregisterReceiver) and RKType to provide link to RK hierarchy. It is an error to refer to an RKType that has not been previously defined in a loaded hierarchy file.
UnregisterReceiver(String)	public CallStatus[Parameters]ReceiverID: String	Removes a registered receiver from ALMAS, indicating that they are no longer available for receipt of alert data.

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6.3.7 ALMASResponderExtensions

Optional extensions to the alert responder functionality.

6.3.7.1 Operation

Name	Type	Summary
SetLanguage(String, String)	public CallStatus[Parameters]ReceiverID: String,Language: String	Sets the language that this specific receiver should see their message text displayed in where appropriate. This method fails (Requested Service Unavailable) if there is no support for the language.
GetFilledMessageText(int, String)	public CallStatus[Parameters]AlertID: int,out MessageText: String	Returns the message text post related info substitutions. This is an optional helper function as the client could derive this itself.

6.4 Alert Categorisation

The Alert Categorisation PIM allows the expression of Event-Condition-Action rules which can guide automatic triggering of alerts. This represents an optional part of the specification, as it is also possible to trigger alerts through the ALMAS API. The Categorisation PIM allows for the implementation of monitoring components (agents) which can trigger alerts based on different events taking place in the system, such as time events or changes in the internal state of the system.

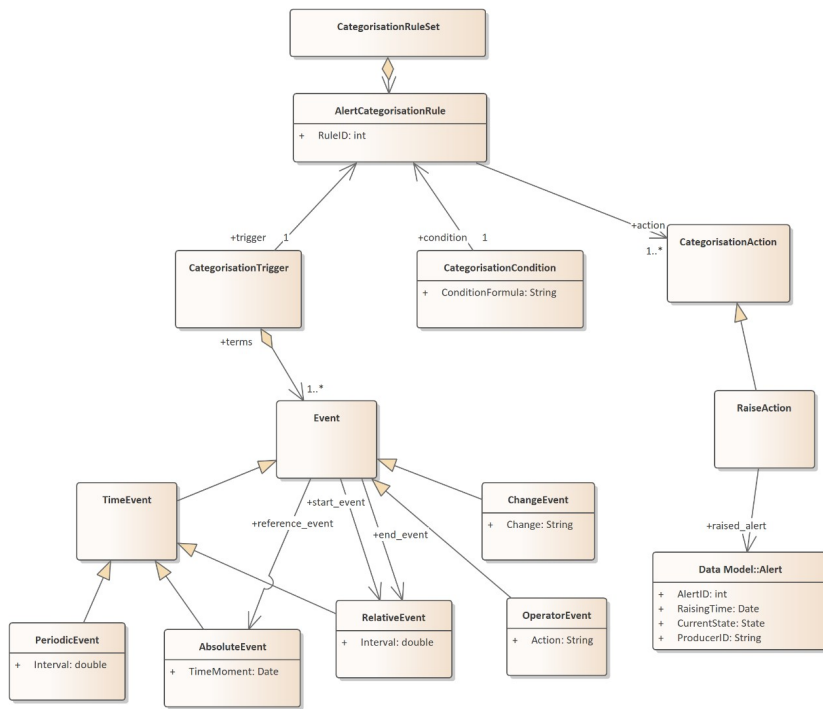


Figure 6-4: Alert Categorisation Platform Independent Model

6.4.1 AbsoluteEvent

Represents an event taking place once at a specific time moment.

6.4.1.1 Attribute

Name	Type	Summary
TimeMoment	public Date	The time of the trigger event

6.4.2 AlertCategorisationRule

Alert Categorisation Rule represents an Event-Condition-Action rule guiding the categorisation. On Event being triggered, a Condition is evaluated. If it evaluates to true, the corresponding Categorisation Action is executed.

6.4.2.1 Attribute

Name	Type	Summary
RuleID	public int	The rule identifier

6.4.3 CategorisationAction

Categorisation Action represents the action to be executed when an event has occurred, and the conditions required have been fulfilled.

6.4.4 CategorisationCondition

The Categorisation Condition represents the condition part of the Event, Condition Action rule.

6.4.4.1 Attribute

Name	Type	Summary
ConditionFormula	public String	The condition formula

6.4.5 CategorisationRuleSet

This is the set of Event, Condition Action rules which apply to this ALMAS system.

6.4.6 CategorisationTrigger

The Categorisation Trigger represents the Event which is able to be observed by ALMAS that can trigger categorisation.

6.4.7 ChangeEvent

One type of event such as enter/leave area, change of generic data value, etc.

6.4.7.1 Attribute

Name	Type	Summary
Change	public String	The change which is required

6.4.8 Event

General class of Event, used within the Categorisation Trigger.

6.4.9 OperatorEvent

Operator initiated events, for example operator changing a role.

6.4.9.1 Attribute

Name	Type	Summary
Action	public String	The operator action required

6.4.10 PeriodicEvent

Represents a relative event, i.e., an event taking place at a specific (time) interval after another event.

6.4.10.1 Attribute

Name	Type	Summary
Interval	public double	The condition formula

6.4.11 RaiseAction

A kind of Categorisation Action which raises an alert. Other categorisation actions could be added.

6.4.12 RelativeEvent

Represents a periodic event taking place between start_event and end_event at a specific periodicity (interval).

6.4.12.1 Attribute

Name	Type	Summary
Interval	public double	Time interval after the reference_interval event at which the RelativeEvent is to take place.

6.4.13 Time Event

A timeout event, which can be absolute, relative, or periodic.

6.5 Dynamic behaviour

6.5.1 Action Situation Alert State Model

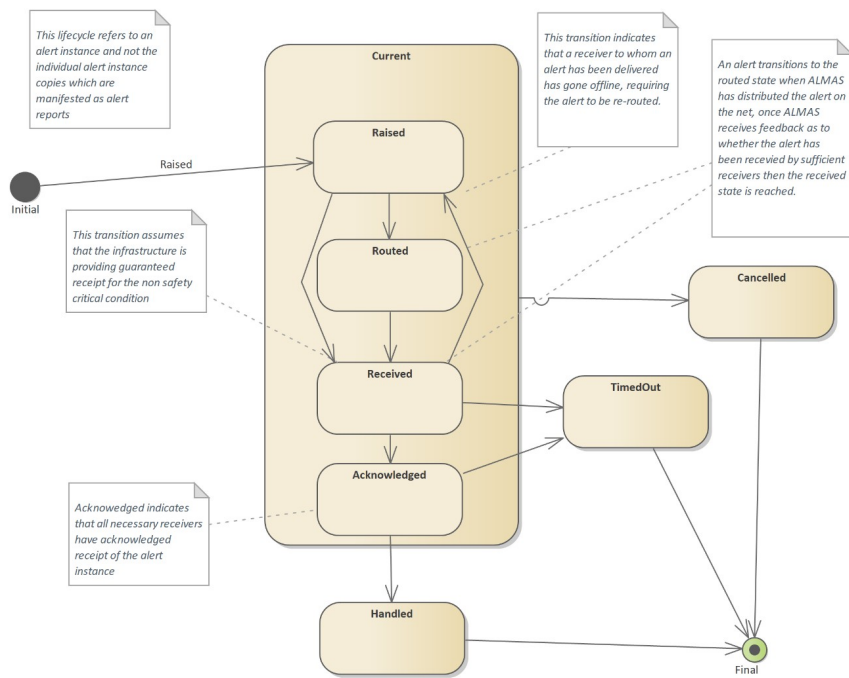


Figure 6-5: Action/Situation Alert Lifecycle

6.5.2 Information Warning Alert State Model

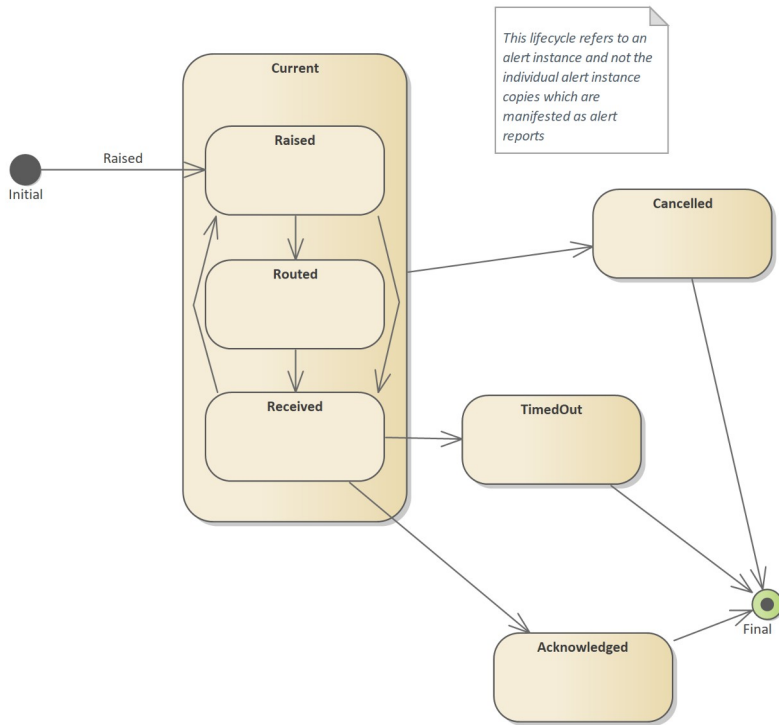


Figure 6-6: Information/Warning Alert Instance Lifecycle

6.5.3 Alert Registration and Creation

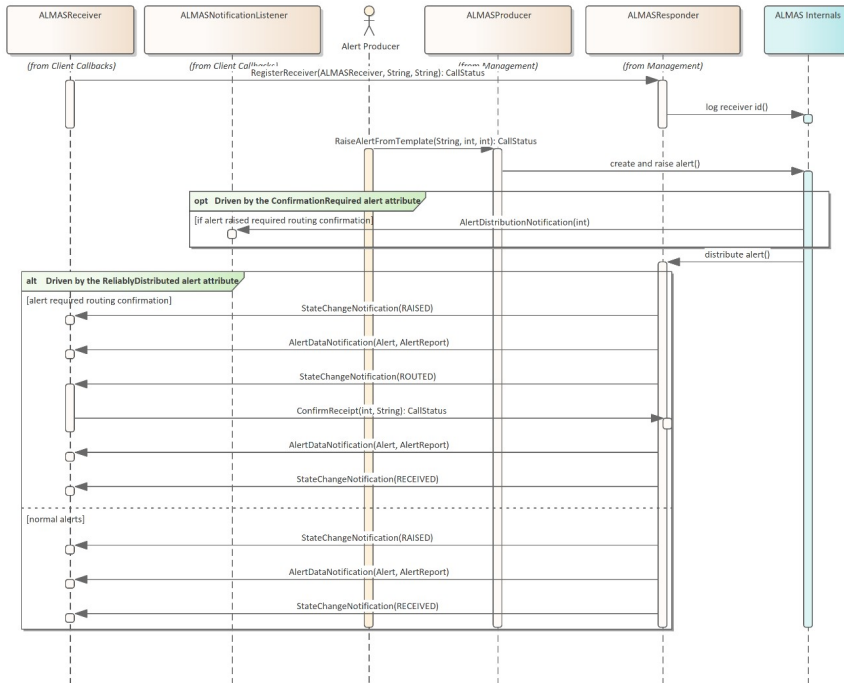


Figure 6-7: Alert Registration and Creation Sequence Diagram

The above sequence diagram shows the interaction with the ALMAS service from several user perspectives.

First it indicates the receiver registration interactions (shown as threads 1 and 2 in the figure).

Second it shows the alert raising interactions from an alert producer, with an illustration of the additional callback made if the alert requires routing confirmation (thread 3 up to 3.1.1).

Interactions 3.1.2 through 3.1.6 are indications of the internal activities but are not requirements upon the internals (hence shown under the fictional class ALMAS System Internals).

Finally, interactions 3.1.6.1-4 and 3.1.6.5-7 are two possible interaction from ALMAS back to the alert receiver, depending upon the ReliablyDistributed attribute of the alert. In the case of this attribute being TRUE then 3.1.6.1-4 are executed, otherwise 3.1.6.5-7 are executed.

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7 XML Platform Specific Model

7.1 The Template Alert Data specification file

The Template Alert Data specification file is an xml schema document which specifies the ontology of the alert template data to be loaded into an ALMAS by the LoadTemplateSet method. Use of this is therefore effectively optional but any

client that wishes to make use of templates may do so by supplying corresponding valid xml for loading into the system.

There are no API methods in this PSM and therefore there is no logging mechanism associated with this PSM.

ALMAS14-6

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10/25/2024 15:44

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- Alert Data Template schema -->
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified"
attributeFormDefault="unqualified" version="1.0a" id="Alert_Template_Data">
  <xs:element name="Alert_Template_Root" type="Alerts_Templates_T">
    <xs:annotation>
      <xs:documentation>Root element containing Alert Template Data.</xs:documentation>
    </xs:annotation>
    <xs:unique name="Template_Id">
      <xs:selector xpath="/Alert_Template"/>
      <xs:field xpath="Template_Id"/>
    </xs:unique>
  </xs:element>
  <xs:complexType name="Alerts_Templates_T">
    <xs:sequence>
      <xs:element name="Alert_Template" type="Alert_Template_T" minOccurs="0"
maxOccurs="unbounded">
        <xs:annotation>
          <xs:documentation>The template of an alert.</xs:documentation>
        </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
    <xs:complexType name="Alert_Template_T">
      <xs:sequence>
        <xs:element name="Template_Id">
          <xs:simpleType>
            <xs:annotation>
              <xs:documentation>The unique template identifier.</xs:documentation>
            </xs:annotation>
            <xs:restriction base="xs:integer">
              <xs:minInclusive value="1"/>
            </xs:restriction>
          </xs:simpleType>
        </xs:element>
        <xs:element name="Alert_Category">
          <xs:simpleType>
            <xs:annotation>
              <xs:documentation>Enumeration of Alert Category.</xs:documentation>
            </xs:annotation>
            <xs:restriction base="xs:string">
              <xs:enumeration value="Action"/>
              <xs:enumeration value="Situation"/>
              <xs:enumeration value="Information"/>
              <xs:enumeration value="Warning"/>
            </xs:restriction>
          </xs:simpleType>
        </xs:element>
        <xs:element name="Alert_Default_Priority">
          <xs:simpleType>
            <xs:restriction base="xs:integer">
              <xs:minInclusive value="1"/>
              <xs:maxInclusive value="99"/>
            </xs:restriction>
          </xs:simpleType>
        </xs:element>
        <xs:element name="Status">
          <xs:simpleType>
            <xs:annotation>
              <xs:documentation>OASIS CAP Derived Status</xs:documentation>
            </xs:annotation>
          </xs:simpleType>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:sequence>
</xs:schema>
```

```

</xs:annotation>
<xs:restriction base="xs:string">
  <xs:enumeration value="Actual"/>
  <xs:enumeration value="Exercise"/>
  <xs:enumeration value="System"/>
  <xs:enumeration value="Test"/>
</xs:restriction>
</xs:simpleType>
</xs:element>
<xs:element name="Scope">
  <xs:simpleType>
    <xs:annotation>
      <xs:documentation>OASIS-CAP Derived Scope</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string">
      <xs:enumeration value="PublicScope"/>
      <xs:enumeration value="RestrictedScope"/>
      <xs:enumeration value="PrivateScope"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
<xs:element name="Timeout">
  <xs:simpleType>
    <xs:annotation>
      <xs:documentation>Time-until-alert timeout in seconds, where 0 indicates no timeout-
required</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
      <xs:minInclusive value="0"/>
      <xs:maxInclusive value="3600"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
<xs:element name="ConfirmationRequired" type="xs:boolean"/>
<xs:element name="Secondary_Grouping" minOccurs="0">
  <xs:simpleType>
    <xs:annotation>
      <xs:documentation>Secondary grouping for filtering aid</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string"/>
  </xs:simpleType>
</xs:element>
<xs:element name="Persistent" type="xs:boolean"/>
<xs:element name="ReliablyDistributed" type="xs:boolean"/>
<xs:element name="TimeoutAction">
  <xs:simpleType>
    <xs:annotation>
      <xs:documentation>The action to be performed upon alert timeout</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string">
      <xs:enumeration value="CancelOnly"/>
      <xs:enumeration value="NotifyOnly"/>
      <xs:enumeration value="CancelWithNotify"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
<xs:element name="AcknowledgementModel">
  <xs:simpleType>
    <xs:annotation>
      <xs:documentation>Required acknowledgement profile before progressing the alert to-
'Acknowledged'</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string">

```

```

</xs:restriction>
</xs:enumeration value="AckByNone"/>
</xs:enumeration value="AckByAnyone"/>
</xs:enumeration value="AckByAll"/>
</xs:restriction>
</xs:simpleType>
</xs:element>
<xs:element name="Inhibited" type="xs:boolean" minOccurs="0"/>
<xs:element name="Raise_To_All" type="xs:boolean"/>
<xs:element name="Static_Message" type="Static_Message_T" maxOccurs="unbounded"/>
<xs:element name="Alert_Data_Extra_Attributes" type="Alert_Data_Extra_Attributes_T"
minOccurs="0"
maxOccurs="unbounded"/>
<xs:element name="Dynamic_Message_Data" type="Dynamic_Message_Data_T"
minOccurs="0" maxOccurs="unbounded"/>
<xs:element name="Alert_Routing" type="Alert_Routing_T" minOccurs="0"
maxOccurs="unbounded"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="Static_Message_T">
<xs:sequence>
<xs:element name="MessageText">
<xs:simpleType>
<xs:annotation>
<xs:documentation>The Alert Template Text</xs:documentation>
</xs:annotation>
<xs:restriction base="xs:string">
<xs:minLength value="1"/>
</xs:restriction>
</xs:simpleType>
</xs:element>
<xs:element name="MessageLanguage">
<xs:simpleType>
<xs:annotation>
<xs:documentation>The alert locale</xs:documentation>
</xs:annotation>
<xs:restriction base="xs:string">
<xs:minLength value="1"/>
</xs:restriction>
</xs:simpleType>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="Alert_Data_Extra_Attributes_T">
<xs:sequence>
<xs:element name="Name">
<xs:simpleType>
<xs:annotation>
<xs:documentation>The Attribute Name</xs:documentation>
</xs:annotation>
<xs:restriction base="xs:string">
<xs:minLength value="1"/>
</xs:restriction>
</xs:simpleType>
</xs:element>
<xs:element name="TypeOfByteData">
<xs:simpleType>
<xs:annotation>
<xs:documentation>Flag to indicate the type of data</xs:documentation>
</xs:annotation>
<xs:restriction base="xs:integer">
<xs:minInclusive value="0"/>
</xs:restriction>
</xs:simpleType>

```



```

</xs:element>
<xs:element name="Description">
  <xs:simpleType>
    <xs:annotation>
      <xs:documentation>Description of contents e.g. image(jpg), URL, Track report
etc</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string">
      <xs:minLength value="1"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="Dynamic_Message_Data_T">
  <xs:sequence>
    <xs:element name="Variable_Type">
      <xs:simpleType>
        <xs:annotation>
          <xs:documentation>Type of variable data</xs:documentation>
        </xs:annotation>
        <xs:restriction base="xs:string">
          <xs:minLength value="1"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:element>
    <xs:element name="Tag">
      <xs:annotation>
        <xs:documentation>The position of the data item within message</xs:documentation>
      </xs:annotation>
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:minLength value="1"/>
          <xs:maxLength value="20"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="Alert_Routing_T">
  <xs:sequence>
    <xs:element name="Receiver_Kind">
      <xs:annotation>
        <xs:documentation>A receiver kind</xs:documentation>
      </xs:annotation>
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:minLength value="1"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:element>
    <xs:element name="AlternativeAction" minOccurs="0" maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>A non-standard alert response</xs:documentation>
      </xs:annotation>
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:minLength value="1"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:element>
    <xs:element name="Actionee_Priority">
      <xs:annotation>
        <xs:documentation>The priority of the actionee to deal with this alert</xs:documentation>
      </xs:annotation>

```

```

<xs:simpleType>
  <xs:restriction base="xs:integer">
    <xs:minInclusive value="1"/>
    <xs:maxInclusive value="10"/>
  </xs:restriction>
</xs:simpleType>
</xs:element>
</xs:sequence>
</xs:complexType>
</xs:schema>

```

ALMAS14-20

Unknown Author
10/26/2024 12:00

7.2 The ALMAS configuration file

The ALMAS configuration file is an xml schema document specifying some client specific attributes to allow an ALMAS to be more flexible to a client's specific needs from their ALMAS implementation. This should allow for greater interoperability and usability. It is loaded by use of the LoadConfiguration method.

```

<?xml version="1.0" encoding="UTF-8" ?>
<!-- ALMAS Configuration -->
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified"
attributeFormDefault="unqualified" version="1.0a" id="ALMAS_Configuration_Data">
  <xs:element name="ALMAS_Config_Root" type="Alerts_Config_T">
    <xs:annotation>
      <xs:documentation>Root element containing ALMAS Configuration Data.</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:complexType name="Alerts_Config_T">
    <xs:sequence>
      <xs:element name="Max_No_Alerts">
        <xs:annotation>
          <xs:documentation>Maximum number of alerts in the system</xs:documentation>
        </xs:annotation>
        <xs:simpleType>
          <xs:restriction base="xs:integer">
            <xs:minInclusive value="0"/>
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
      <xs:element name="Max_No_Alerts_For_Receiver">
        <xs:annotation>
          <xs:documentation>Maximum number of alerts for each receiver</xs:documentation>
        </xs:annotation>
        <xs:simpleType>
          <xs:restriction base="xs:integer">
            <xs:minInclusive value="0"/>
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
    </xs:sequence>
  </xs:complexType>
</xs:schema>

```

ALMAS14-20

Unknown Author
10/26/2024 12:00

7.3 The Receiver Hierarchy configuration file

The receiver hierarchy configuration file specifies the structure of the relationships between alert receivers to allow for resilience processing in the event of receiver non-availability. If an alert requires routing to a specific receiver who is not available, then the receiver Hierarchy file specifies a parent receiver in place of the higher-priority receiver originally specified.

Search progresses iteratively up the hierarchy until an available receiver is found in place of the original one.

The receiver hierarchy is loaded via the LoadReceiverHierarchy method.

```

<?xml version="1.0" encoding="UTF-8" ?>
<!-- Receiver Hierarchy schema -->
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified"
attributeFormDefault="unqualified" version="1.3" id="Receiver_Hierarchy_Data">
  <xs:element name="Receiver_Hierarchy_Root" type="Receiver_Hierarchy_T">
    <xs:annotation>
      <xs:documentation>Root element containing Hierarchy Data.</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:complexType name="Receiver_Hierarchy_T">
    <xs:sequence>
      <xs:element name="Base_Receiver_Kind" type="Receiver_Kind_T" maxOccurs="unbounded">
        <xs:annotation>
          <xs:documentation>A base-alert receiver for which no alternative kinds of receiver-
exist</xs:documentation>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
    <xs:unique name="ReceiversToBeUniqueInTheHierarchy">
      <xs:selector xpath="//Type"/>
      <xs:field xpath="."/>
    </xs:unique>
  </xs:complexType>
  <xs:complexType name="Receiver_Kind_T">
    <xs:sequence>
      <xs:element name="Type">
        <xs:annotation>
          <xs:documentation>The receiver kind e.g. SPS</xs:documentation>
        </xs:annotation>
        <xs:simpleType>
          <xs:restriction base="xs:string">
            <xs:minLength value="1" />
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
      <xs:element name="Priority_Receiver_Kind" type="Receiver_Kind_T"
maxOccurs="unbounded">
        <xs:annotation>
          <xs:documentation>A more specialised, higher-priority receiver. Alerts are routed to the-
enclosing parent receiver if no receiver of this type is available.</xs:documentation>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:complexType>
</xs:schema>

```

ALMAS14-20

Unknown Author
10/26/2024 12:01

7.4 The ALMAS categorisation rule file

The categorization rule file is an xml schema document which specifies the categorization rules which can be attached to (or detached from) alerts by means of AttachCategorisationRule method in ALMAS Manager. The configuration file is read by an ALMAS implementation at startup but attaching/detaching of rules to alerts can be done dynamically at runtime using those methods.

```

<?xml version="1.0" encoding="ISO-8859-1" ?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="Categorisation_Rule_Set" type="Categorisation_Rule_Set"/>
  <xs:complexType name="Categorisation_Rule_Set">
    <xs:sequence>
      <xs:element name="Alert_Categorisation_Rule" type="Alert_Categorisation_Rule"/>
    </xs:sequence>
  </xs:complexType>

```

```

</xs:element name="Alert_Categorisation_Rule" type="Alert_Categorisation_Rule"/>
<xs:complexType name="Alert_Categorisation_Rule">
  <xs:sequence>
    <xs:element name="ruleID" type="xs:int"/>
    <xs:element name="action" type="Categorisation_Action" maxOccurs="unbounded"/>
    <xs:element name="condition" type="Categorisation_Condition"/>
    <xs:element name="trigger" type="Categorisation_Trigger"/>
  </xs:sequence>
</xs:complexType>
<xs:element name="Categorisation_Trigger" type="Categorisation_Trigger"/>
<xs:complexType name="Categorisation_Trigger">
  <xs:sequence>
    <xs:element name="terms" type="Event" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:element name="RelativeEvent" type="RelativeEvent"/>
<xs:complexType name="RelativeEvent">
  <xs:complexContent>
    <xs:extension base="TimeEvent">
      <xs:sequence>
        <xs:element name="interval" type="xs:double"/>
        <xs:element name="reference_event" type="Event"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:element name="PeriodicEvent" type="PeriodicEvent"/>
<xs:complexType name="PeriodicEvent">
  <xs:complexContent>
    <xs:extension base="TimeEvent">
      <xs:sequence>
        <xs:element name="interval" type="xs:double"/>
        <xs:element name="start_event" type="Event"/>
        <xs:element name="end_event" type="Event"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:element name="AbsoluteEvent" type="AbsoluteEvent"/>
<xs:complexType name="AbsoluteEvent">
  <xs:complexContent>
    <xs:extension base="TimeEvent">
      <xs:sequence>
        <xs:element name="time_moment" type="xs:date"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:element name="Categorisation_Action" type="Categorisation_Action"/>
<xs:complexType name="Categorisation_Action">
  <xs:sequence/>
</xs:complexType>
<xs:element name="Categorisation_Condition" type="Categorisation_Condition"/>
<xs:complexType name="Categorisation_Condition">
  <xs:sequence>
    <xs:element name="condition_formula" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
<xs:element name="Raise_Action" type="Raise_Action"/>
<xs:complexType name="Raise_Action">
  <xs:complexContent>
    <xs:extension base="Categorisation_Action">
      <xs:sequence>

```

```

<xs:element name="raised_alert" type="Alert"/>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:element name="Alert" type="Alert"/>
<xs:complexType name="Alert">
<xs:sequence/>
</xs:complexType>
<xs:element name="Event" type="Event"/>
<xs:complexType name="Event">
<xs:sequence/>
</xs:complexType>
<xs:element name="TimeEvent" type="TimeEvent"/>
<xs:complexType name="TimeEvent">
<xs:complexContent>
<xs:extension base="Event">
<xs:sequence/>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:element name="Operator_Event" type="Operator_Event"/>
<xs:complexType name="Operator_Event">
<xs:complexContent>
<xs:extension base="Event">
<xs:sequence>
<xs:element name="action" type="xs:string"/>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:element name="Change_Event" type="Change_Event"/>
<xs:complexType name="Change_Event">
<xs:complexContent>
<xs:extension base="Event">
<xs:sequence>
<xs:element name="change" type="xs:string"/>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
</xs:schema>

```

ALMAS14-20

Unknown Author
10/26/2024 12:01

8 OMG CORBA/IDL Platform Specific Model

8.1 Rationale

The objective of this PSM is to normalize the CORBA/IDL structures and interfaces. This PSM aims to support the entire PIM interface.

In order for this interface to be reasonably compatible with the DDS PSM, also provided, the data model part is separated from the functional interface model.

All attributes, methods and associations are mapped to IDL elements. As a general rule, therefore, classes with methods are mapped to CORBA/IDL interfaces, classes without methods are mapped to structs, attributes are mapped to CORBA/IDL attributes, associations, and compositions to read only attributes and methods to methods which deal with errors through CORBA exceptions. Typedef declarations are introduced for UML int attributes mapped to an IDL long, sequences for UML zero-to-many attributes or compositions and to map a PIM date to a CORBA TimeT.

Subscribe methods and indication classes are also mapped within a client IDL file which has to be implemented by clients in order to receive indications (i.e., callbacks) from ALMAS.

The invocation of API methods is logged using the Open Telemetry (OTEL) standard by the implementation of the API method.

ALMAS14-6

Unknown Author
10/25/2024 16:00

ALMAS Data Model IDL

// Copyright 2005-2008 THALES, BAE Systems, Raytheon

```
#include "timebase.idl"
#ifndef __ALMAS_DataModel_DEF
#define __ALMAS_DataModel_DEF
#pragma prefix "omg.org"

module ALMAS_DataModel {

  typedef long ALMAS_AlertIDType;

  typedef long ALMAS_TemplateIDType;

  typedef long ALMAS_TimeoutType;

  typedef TimeBase::TimeT ALMAS_DateTimeType; // EVoT compatible long long

  typedef sequence<octet> ALMAS_ByteSequence;

  typedef sequence<string> ALMAS_StringSet;

  enum ALMAS_CategoryType {
    Action,
    Warning,
    Information,
    Situation};

  enum ALMAS_StateType {
    Raised,
    Routed,
    Received,
    Acknowledged,
    Handled,
    Cancelled,
    TimedOut};

  enum ALMAS_StatusType {
    Actual,
    Exercise,
    System,
    Test};

  enum ALMAS_ScopeType {
    PublicScope,
    RestrictedScope,
```

```

--PrivateScope};

-enum ALMAS_TimeoutActionType {
--CancelOnly,
--NotifyOnly,
--CancelWithNotify};

-enum ALMAS_AckModelType {
--AckByNone,
--AckByAnyone,
--AckByAll};

-struct ALMAS_CallStatus {
--boolean Success;
--short Reason;
--string Description; };

-struct ALMAS_ValidAlertResponseType {
--ALMAS_StringSet AlternativeAction;
--short ActioneePriority; };

-struct ALMAS_ReceiverKindType {
--string RKType;
--string RKParentType;
--ALMAS_ValidAlertResponseType ValidResponse; };
typedef sequence<ALMAS_ReceiverKindType> ALMAS_ReceiverKindTypeSet;

-struct ALMAS_DynamicMessageDataType {
--string DataType;
--string DataTag;
--string DataValue; };
typedef sequence<ALMAS_DynamicMessageDataType> ALMAS_DynamicMessageDataTypeSet;

-struct ALMAS_StaticMessageType {
--string MessageText;
--string MessageLanguage; };
typedef sequence<ALMAS_StaticMessageType> ALMAS_StaticMessageTypeSet;

-struct ALMAS_AlertDataExtraAttributesType {
--string Name;
--short TypeOfByteData;
--string Description;
--ALMAS_ByteSequence Value; };
typedef sequence<ALMAS_AlertDataExtraAttributesType> ALMAS_AlertDataExtraAttributesTypeSet;

-struct ALMAS_AlertDataType {
--ALMAS_TemplateIDType TemplateID;
--ALMAS_CategoryType Category;
--short Priority;
--ALMAS_StatusType Status;
--ALMAS_ScopeType Scope;
--ALMAS_TimeoutType Timeout;
--boolean ConfirmationRequired;
--string SecondaryGrouping;
--boolean Persistent;
--boolean ReliablyDistributed;
--ALMAS_TimeoutActionType TimeoutAction;
--ALMAS_AckModelType AcknowledgementModel;
--ALMAS_StaticMessageTypeSet StaticMessages;
--ALMAS_DynamicMessageDataTypeSet DynamicMessages;
--ALMAS_AlertDataExtraAttributesTypeSet ExtraAttributes; };

-struct ALMAS_AlertTemplateType {

```

```

--boolean Inhibited;
--boolean RaiseToAll;
--ALMAS_AlertDataType AlertData;
--ALMAS_ReceiverKindTypeSet ReceiverKinds; };

struct ALMAS_AlertReportType {
--boolean Acknowledged;
--boolean Routed;
--boolean Actioned;
--boolean ReceiverIsActionee;
--ALMAS_StringSet AlternativeAction;
--string ReceiverID;
--ALMAS_AlertIDType AlertID; };

struct ALMAS_AvailableAlertReceiverType {
--string ReceiverID;
--ALMAS_ReceiverKindType ReceiverKind; };
typedef sequence<ALMAS_AvailableAlertReceiverType> ALMAS_AvailableAlertReceiverTypeSet;

struct ALMAS_Alert {
--ALMAS_AlertIDType AlertID;
--ALMAS_DateTimeType RaisingTime;
--ALMAS_StateType CurrentState;
--string ProducerID;
--ALMAS_AlertDataType AlertData;
--ALMAS_AvailableAlertReceiverTypeSet Receivers; };
};

#endif

```

ALMAS Client IDL

```

// Copyright 2005-2008 THALES, BAE Systems, Raytheon

#include "ALMAS_DataModel.idl"
#ifndef __ALMAS_Client_DEF
#define __ALMAS_Client_DEF
#pragma prefix "omg.org"

module ALMAS_Client {

interface ALMAS_Receiver {

--oneway void StateChangeNotification (
--in ALMAS_DataModel::ALMAS_AlertIDType AlertID,
--in ALMAS_DataModel::ALMAS_StateType NewState);

--oneway void AlertDataNotification ( // alert ID is embedded within info
--in ALMAS_DataModel::ALMAS_Alert AlertInfo,
--in ALMAS_DataModel::ALMAS_AlertReportType Report);
};

interface ALMAS_NotificationListener {

--oneway void AlertDistributionNotification (
--in ALMAS_DataModel::ALMAS_AlertIDType AlertID);
};
};

#endif

```


ALMAS Management IDL

// Copyright 2005-2008 THALES, BAE Systems, Raytheon

```
#include "ALMAS_Client.idl"
#include "ALMAS_DataModel.idl"
#ifdef __ALMAS_Management_DEF
#define __ALMAS_Management_DEF
#pragma prefix "omg.org"

module ALMAS_Management {

  typedef sequence<ALMAS_DataModel::ALMAS_Alert> ALMAS_AlertSet;

  typedef sequence<ALMAS_DataModel::ALMAS_TemplateIDType> ALMAS_TemplateIDTypeSet;

  interface ALMAS_Manager {

    attribute string ALMAS_SystemID;

    // alert retrieval methods

    ALMAS_DataModel::ALMAS_CallStatus GetAlert (
      in ALMAS_DataModel::ALMAS_AlertIDType AlertID,
      out ALMAS_DataModel::ALMAS_Alert Alert);

    ALMAS_DataModel::ALMAS_CallStatus GetAlerts (
      in string Filter,
      out ALMAS_AlertSet AlertSet);

    // ALMAS-wide control methods

    ALMAS_DataModel::ALMAS_CallStatus SetAlertInhibited (
      in ALMAS_DataModel::ALMAS_TemplateIDType TemplateID,
      in boolean Inhibition);

    ALMAS_DataModel::ALMAS_CallStatus UpdateDynamicMessageData (
      in ALMAS_DataModel::ALMAS_AlertIDType AlertID,
      in string ObjectValue,
      in ALMAS_DataModel::ALMAS_DynamicMessageDataType OldValue);

    ALMAS_DataModel::ALMAS_CallStatus RegisterNotificationListener (
      in ALMAS_Client::ALMAS_NotificationListener Handle);

    // Template management methods

    ALMAS_DataModel::ALMAS_CallStatus GetTemplate (
      in ALMAS_DataModel::ALMAS_TemplateIDType TemplateID,
      out ALMAS_DataModel::ALMAS_AlertTemplateType Template);

    ALMAS_DataModel::ALMAS_CallStatus GetAllTemplateIDs (
      in string Filter,
      out ALMAS_TemplateIDTypeSet TemplateIDSet);
  };

  interface ALMAS_ManagerExtensions : ALMAS_Manager {

    ALMAS_DataModel::ALMAS_CallStatus RemoveAlertsWithDynamicData (
      in string CancellorID,
      in string DataType,
      in string DataValue);

    -
    ALMAS_DataModel::ALMAS_CallStatus AttachCategorisationRule (
```

```

--in ALMAS_DataModel::ALMAS_TemplateIDType TemplateID,
--in long RuleID);

--ALMAS_DataModel::ALMAS_CallStatus-DetachCategorisationRule-(
--in ALMAS_DataModel::ALMAS_TemplateIDType TemplateID,
--in long RuleID);
-};
interface ALMAS_Producer {

--ALMAS_DataModel::ALMAS_CallStatus-RaiseAlertFromOverrides-(
--in string ProducerID,
--in ALMAS_DataModel::ALMAS_TemplateIDType TemplateID,
--in ALMAS_DataModel::ALMAS_CategoryType Category,
--in boolean ValidCategory,
--in short Priority,
--in boolean ValidPriority,
--in ALMAS_DataModel::ALMAS_StatusType Status,
--in boolean ValidStatus,
--in ALMAS_DataModel::ALMAS_ScopeType Scope,
--in boolean ValidScope,
--in ALMAS_DataModel::ALMAS_TimeoutType Timeout,
--in boolean ValidTimeout,
--in boolean ConfirmationRequired,
--in boolean ValidConfirmationRequired,
--in string SecondaryGrouping,
--in boolean ValidSecondaryGrouping,
--in boolean Persistent,
--in boolean ValidPersistent,
--in boolean ReliablyDistributed,
--in boolean ValidReliablyDistributed,
--in ALMAS_DataModel::ALMAS_TimeoutActionType TimeoutAction,
--in boolean ValidTimeoutAction,
--in ALMAS_DataModel::ALMAS_AckModelType AcknowledgementModel,
--in boolean ValidAcknowledgementModel,
--in ALMAS_DataModel::ALMAS_StaticMessageSet StaticMessages,
--in boolean ValidStaticMessages,
--in ALMAS_DataModel::ALMAS_DynamicMessageDataTypeSet DynamicMessageData,
--in boolean ValidDynamicMessageData,
--in ALMAS_DataModel::ALMAS_ReceiverKindTypeSet AlertReceivers,
--in boolean ValidAlertReceiverSet,
--out ALMAS_DataModel::ALMAS_AlertIDType AlertID);
-
--ALMAS_DataModel::ALMAS_CallStatus-RaiseAlertWithDynamicData-(
--in string ProducerID,
--in ALMAS_DataModel::ALMAS_TemplateIDType TemplateID,
--in ALMAS_DataModel::ALMAS_DynamicMessageDataTypeSet DynamicMessageData,
--out ALMAS_DataModel::ALMAS_AlertIDType AlertID);
-
--ALAS_DataModel::ALMAS_CallStatus-RaiseAlertFromData-(
--in string ProducerID,
--in ALMAS_DataModel::ALMAS_AlertTemplateType AlertInfo,
--out ALMAS_DataModel::ALMAS_AlertIDType AlertID);
-
--AMAS_DataModel::ALMAS_CallStatus-RaiseAlertFromTemplate-(
--in string ProducerID,
--in ALMAS_DataModel::ALMAS_TemplateIDType TemplateID,
--out ALMAS_DataModel::ALMAS_AlertIDType AlertID);

--ALMAS_DataModel::ALMAS_CallStatus-UpdateAlertPriority-(
--in ALMAS_DataModel::ALMAS_AlertIDType AlertID,
--in string ProducerID,
--in short Priority);
-
-

```

```

-AMAS_DataModel::ALMAS_CallStatus_CancelAlert (
- in ALMAS_DataModel::ALMAS_AlertIDType AlertID,
- in string CancellorID,
- in string CancellationReason);
};

interface ALMAS_Responder {
-ALMAS_DataModel::ALMAS_CallStatus_RegisterReceiver (
- in ALMAS_Client::ALMAS_Receiver ReceiverHandle,
- in string ReceiverID,
- in string RKType);

-ALMAS_DataModel::ALMAS_CallStatus_UnregisterReceiver (
- in string ReceiverID);
-
-AMAS_DataModel::ALMAS_CallStatus_AcknowledgeAlert (
- in ALMAS_DataModel::ALMAS_AlertIDType AlertID,
- in string ReceiverID);

-ALMAS_DataModel::ALMAS_CallStatus_HandleAlert (
- in ALMAS_DataModel::ALMAS_AlertIDType AlertID,
- in string ReceiverID);

-ALMAS_DataModel::ALMAS_CallStatus_ConfirmReceipt (
- in ALMAS_DataModel::ALMAS_AlertIDType AlertID,
- in string ReceiverID);
};

interface ALMAS_ResponderExtensions : ALMAS_Responder {
-ALMAS_DataModel::ALMAS_CallStatus_SetLanguage (
- in string ReceiverID,
- in string Language);
-
-ALMAS_DataModel::ALMAS_CallStatus_GetFilledMessageText (
- in ALMAS_DataModel::ALMAS_AlertIDType AlertID,
- out string MessageText);
};

interface ALMAS_Configuration {
-ALMAS_DataModel::ALMAS_CallStatus_LoadReceiverHierarchy (
- in string Filename);
-
-ALMAS_DataModel::ALMAS_CallStatus_LoadTemplateSet (
- in string Filename);
-
-ALMAS_DataModel::ALMAS_CallStatus_LoadConfiguration (
- in string Filename);
};
};

#endif

```

ALMAS14-20

Unknown Author
10/26/2024 12:02

9 DDS/DCPS Platform Specific Model

9.1 Rationale

The approach in this PSM is to compare it to the CORBA PSM and highlight differences as necessary. In the DDS PSM two (not exclusive) ways are provided for modeling the management module:

- DCPS-only mapping, in which interfaces are modeled as topics (singletons) and methods as pairs of (request- and reply) topics.
- DLRL mapping, which models classes and methods more directly. The mapping is based on information provided by PrismTech on DLRL data modeling. This entails following when compared to the CORBA PSM:
 - use of valuetypes instead of interfaces – note that a valuetype which is to be distributed by DLRL must inherit from DDS::ObjectRoot
 - there must be an XML-based mapping from DLRL to DCPS. This mapping is not provided in the submission as it is expected that the default DLRL-DCPS mapping is used.

A DCPS-only implementation will use only DCPS-only mapping, while a DLRL implementation will use a combination of DCPS and DLRL mappings.

If DDS_XTYPES is defined topic keys are defined using the @key annotation defined by the DDS_XTYPES specification. Otherwise an alternate #pragma keylist mechanism is used for compatibility with earlier versions of this specification. All topics are identified by the #pragma keylist immediately after them. Submitters are aware that this is not a DDS standard construct (this is a product-specific OpenSplice facility) and will revise the submission when there is a standardised way of declaring keys.

ALMAS14-2

Unknown Author
10/24/2024 16:25

The invocation of API methods is logged using the Open Telemetry (OTEL) standard by the implementation of the API method or by a DDS Logging tool using the DDS RTPS protocol.

ALMAS14-6

Unknown Author
10/25/2024 16:05

9.1.1 DCPS level mapping

A generic response topic is used for responses to all method calls; note that this does not provide return values, but just the error code.

Return values are implemented in DCPS by publication of an appropriate topic.

In terms of mapping the PIM-level methods on DCPS, following rules are applied:

- Wherever possible, PIM-level methods are mapped to subscriptions or publications of respective DDS topics. This means that even though these methods cannot be found in the DDS PSM IDL, they can be executed on the PSM level by simply calling the required function from the DDS API. For example, the method GetAlert in ALMAS Manager can therefore be implemented by a DDS read of the Alert topic, with attached condition to receive only the Alert with the ID we are interested in.
- In all other cases, so-called “control topics” are used (such as also applied in the AMSM specification). The names of the topics identify the method which they realize. The control topics also include an identifier of the request (assumed to be uniquely generated by the calling application). The responses to methods are modelled as instances of topic ALMAS_Response, which includes the error code (return_type on the PIM level) and the request identifier (which then can be used to relate the response to the request). In case a method has output parameters other than return_type, these are obtained by reading the relevant topic.

Also, ALMAS_RegisterReceiver and ALMAS_UnregisterReceiver are mapped to DCPS built-in API methods and so are omitted from the IDL for this PSM. It is assumed that request IDs are generated by the producer and that they are unique to an individual ALMAS producer. Topic instances are post-fixed with the Producer ID so that they are unique to a producer. The caller is responsible for finding the instance of topic ALMAS_Response that corresponds to their request. This is in alignment with the approach taken in AMSM.

ALMAS14-1

Unknown Author
10/24/2024 16:27

ALMAS Data Model – shared
// copyright 2005-8 THALES, BAE Systems, Raytheon

```
// #include "timebase.idl"  
#include "dds_dcps.idl" // use for DDS standard compatible time types
```

```

#ifndef __ALMAS_DataModel_DEF
#define __ALMAS_DataModel_DEF

module ALMAS_DataModel {

typedef long ALMAS_AlertIDType;

typedef long ALMAS_TemplateIDType;

typedef long ALMAS_TimeoutType;

// typedef TimeBase::TimeT ALMAS_DateTimeType; // EVoT compatible — long long
typedef DDS::Time_t ALMAS_DateTimeType; // DDS-compatible

typedef sequence<octet> ALMAS_ByteSequence;

typedef sequence<string> ALMAS_StringSet;

enum ALMAS_CategoryType {
    _Action,
    _Warning,
    _Information,
    _Situation};

enum ALMAS_StateType {
    _Raised,
    _Routed,
    _Received,
    _Acknowledged,
    _Handled,
    _Cancelled
    _Timed_Out};

enum ALMAS_StatusType {
    _Actual,
    _Exercise,
    _System,
    _Test};

enum ALMAS_ScopeType {
    _PublicScope,
    _RestrictedScope,
    _PrivateScope};

enum ALMAS_TimeoutActionType {
    _CancelOnly,
    _NotifyOnly,
    _CancelWithNotify};

enum ALMAS_AckModelType {
    _AckByNone,
    _AckByAnyone,
    _AckByAll};

struct ALMAS_CallStatus {
    _boolean Success;
    _short Reason;
    _string Description; };

struct ALMAS_ValidAlertResponseType {
    _ALMAS_StringSet AlternativeAction;
    _short ActioneePriority; };

```

```

-struct ALMAS_ReceiverKindType {
-    string RKType;
-    string RKParentType;
-    ALMAS_ValidAlertResponseType ValidResponse; };
typedef sequence<ALMAS_ReceiverKindType> ALMAS_ReceiverKindTypeSet;

-struct ALMAS_DynamicMessageDataType {
-    string DataType;
-    string DataTag;
-    string DataValue; };
typedef sequence<ALMAS_DynamicMessageDataType> ALMAS_DynamicMessageDataTypeSet;

-struct ALMAS_StaticMessageType {
-    string MessageText;
-    string MessageLanguage; };
typedef sequence<ALMAS_StaticMessageType> ALMAS_StaticMessageTypeSet;

struct ALMAS_AlertDataExtraAttributesType {
-    string Name;
-    short TypeOfByteData;
-    string Description;
-    ALMAS_ByteSequence Value; };
typedef sequence<ALMAS_AlertDataExtraAttributesType> ALMAS_AlertDataExtraAttributesTypeSet;

struct ALMAS_AlertDataType {
-    ALMAS_TemplateIDType TemplateID;
-    ALMAS_CategoryType Category;
-    short Priority;
-    ALMAS_StatusType Status;
-    ALMAS_ScopeType Scope;
-    ALMAS_TimeoutType Timeout;
-    boolean ConfirmationRequired;
-    string SecondaryGrouping;
-    boolean Persistent;
-    boolean ReliablyDistributed;
-    ALMAS_TimeoutActionType TimeoutAction;
-    ALMAS_AckModelType AcknowledgementModel;
-    ALMAS_StaticMessageTypeSet StaticMessages;
-    ALMAS_DynamicMessageDataTypeSet DynamicMessages;
-    ALMAS_AlertDataExtraAttributesTypeSet ExtraAttributes; };

-struct ALMAS_AlertTemplateType {
-    boolean Inhibited;
-    boolean RaiseToAll;
-    ALMAS_AlertDataType AlertData;
-    ALMAS_ReceiverKindTypeSet ReceiverKinds; };
#pragma keylist ALMAS_AlertTemplateType AlertData.TemplateID

-struct ALMAS_AlertReportType {
-    boolean Acknowledged;
-    boolean Routed;
-    boolean Actioned;
-    boolean ReceiverIsActionee;
-    ALMAS_StringSet AlternativeAction;
-    string ReceiverID;
-    ALMAS_AlertIDType AlertID; };
#pragma keylist ALMAS_AlertReportType ReceiverID, AlertID

-struct ALMAS_AvailableAlertReceiverType {
-    string ReceiverID;
-    ALMAS_ReceiverKindType ReceiverKind; };
typedef sequence<ALMAS_AvailableAlertReceiverType> ALMAS_AvailableAlertReceiverTypeSet;

```

```

-struct ALMAS_Alert {
-  ALMAS_AlertIDType AlertID;
-  ALMAS_DateTimeType RaisingTime;
-  ALMAS_StateType CurrentState;
-  string ProducerID;
-  ALMAS_AlertDataType AlertData;
-  ALMAS_AvailableAlertReceiverTypeSet Receivers; };
-#pragma keylist ALMAS_Alert AlertID
};
#endif

```

ALMAS14-20

Unknown Author
10/26/2024 12:11

9.2 DCPS

9.2.1 ALMAS Client

The ALMAS client module is not required in the DDS PSM since this is all available through the use of the standard DDS mechanisms and the topics already defined for ALMAS_StateType and ALMAS_Alert.

9.2.2 ALMAS Management

Parameters of the operation RaiseAlertFromOverrides are implicitly defined as being optional in the PIM; in this PSM they are explicitly marked as optional using an IDL annotation.

The AlertID out parameter in PIM methods RaiseAlertFromOverrides, RaiseAlertWithDynamicData, RaiseAlertFromData and RaiseAlertFromTemplate is mapped to the ALMAS_CreatedAlert topic type so that producers are aware of the alert id for alerts they have raised in order to cancel them as appropriate.

The following table provides explanation of the mapping of methods in the ALMAS Management module. Only those methods which are mapped directly to DDS level constructs are listed in the table, all methods which are mapped on “control topics” are listed in the subsequent IDL file.

Class (PIM level)	Method	DDS mapping
ALMAS Manager	GetAlert(int, Alert)	DDS read with query condition
ALMAS Manager	GetAlerts(String, SortedAlertSet)	DDS read with query condition
ALMAS Manager	GetTemplate(int)	DDS read with query condition.
ALMAS Manager	GetAllTemplateIDs(String, TempalteIDSet)	DDS read with query condition.
ALMAS Manager	RegisterNotificationListener(ALMAS Notification Listener)	Creation of a new DDS Listener.

```
// copyright 2005-8 THALES, BAE Systems, Raytheon
```

```
#include "ALMAS_DataModel.idl"
```

```
#ifndef __ALMAS_Management_DEF
#define __ALMAS_Management_DEF
```

```

module ALMAS_Management {
-typedef long long ALMAS_RequestIdType;

-typedef sequence<ALMAS_DataModel::ALMAS_Alert> ALMAS_AlertSet;

-struct ALMAS_Response {
-ALMAS_RequestIdType request_id;
-ALMAS_DataModel::ALMAS_CallStatus_error_code; };
-#pragma keylist ALMAS_Response request_id

// Need a singleton topic for ALMAS_Manager since it has attributes

-struct ALMAS_Manager {
-string SystemID;
-#pragma keylist ALMAS_Manager

-struct ALMAS_RaiseAlertFromTemplate {
-ALMAS_RequestIdType request_id;
-string ProducerID;
-ALMAS_DataModel::ALMAS_TemplateIDType TemplateID; };
-#pragma keylist ALMAS_RaiseAlertFromTemplate request_id
-
struct ALMAS_RegisterReceiver {
-ALMAS_RequestIdType request_id;
-string ReceiverID;
-string RKType; };
-#pragma keylist ALMAS_RegisterReceiver request_id
-
-struct ALMAS_UnregisterReceiver {
-ALMAS_RequestIdType request_id;
-string ReceiverID; };
-#pragma keylist ALMAS_UnregisterReceiver request_id
-
-struct ALMAS_RaiseAlertFromOverrides {
-ALMAS_RequestIdType request_id;
-string ProducerID;
-ALMAS_DataModel::ALMAS_TemplateIDType TemplateID;
-@optional ALMAS_CategoryType Category;
-@optional short Priority;
-@optional ALMAS_StatusType Status;
-@optional ALMAS_ScopeType Scope;
-@optional ALMAS_TimeoutType Timeout;
-@optional boolean ConfirmationRequired;
-@optional string SecondaryGrouping;
-@optional boolean Persistent;
-@optional boolean ReliablyDistributed;
-@optional ALMAS_TimeoutActionType TimeoutAction;
-@optional ALMAS_AckModelType AcknowledgementModel;
-@optional ALMAS_StaticMessageTypeSet StaticMessages;
-@optional ALMAS_DynamicMessageDataTypeSet DynamicMessages; };
-#pragma keylist ALMAS_RaiseAlertFromOverrides request_id

struct ALMAS_RaiseAlertWithDynamicData {
-ALMAS_RequestIdType request_id;
-string ProducerID;
-ALMAS_DataModel::ALMAS_TemplateIDType TemplateID;
-ALMAS_DataModel::ALMAS_DynamicMessageDataTypeSet DynamicMessages };
-#pragma keylist ALMAS_RaiseAlertWithDynamicData request_id

-struct ALMAS_RaiseAlertFromData {

```



```

--ALMAS_RequestIdType request_id;
--string ProducerID;
--ALMAS_DataModel::ALMAS_AlertTemplateType AlertInfo;};
#pragma keylist ALMAS_RaiseAlertFromData request_id

-struct ALMAS_CreatedAlert {
--ALMAS_RequestIdType request_id;
--ALMAS_DataModel::ALMAS_AlertIDType AlertID; };
#pragma keylist ALMAS_CreatedAlert request_id
-
-struct ALMAS_UpdateAlertPriority {
--ALMAS_RequestIdType request_id;
--string ProducerID;
--ALMAS_DataModel::ALMAS_AlertIDType AlertID;
--short Priority;};
#pragma keylist ALMAS_UpdateAlertPriority request_id
-
-struct ALMAS_CancelAlert {
--ALMAS_RequestIdType request_id;
--string CanceledID;
--ALMAS_DataModel::ALMAS_AlertIDType AlertID;
--string CancellationReason;};
#pragma keylist ALMAS_CancelAlert request_id
-
-struct ALMAS_AcknowledgeAlert {
--ALMAS_RequestIdType request_id;
--ALMAS_DataModel::ALMAS_AlertIDType AlertID;
--string ReceiverID;};
#pragma keylist ALMAS_AcknowledgeAlert request_id

-struct ALMAS_HandleAlert {
--ALMAS_RequestIdType request_id;
--ALMAS_DataModel::ALMAS_AlertIDType AlertID;
--string ReceiverID;};
#pragma keylist ALMAS_HandleAlert request_id

-struct ALMAS_ConfirmReceipt {
--ALMAS_RequestIdType request_id;
--ALMAS_DataModel::ALMAS_AlertIDType AlertID;
--string ReceiverID;};
#pragma keylist ALMAS_ConfirmReceipt request_id

-struct ALMAS_SetLanguage {
--ALMAS_RequestIdType request_id;
--string ReceiverID;
--string Language;};
#pragma keylist ALMAS_SetLanguage request_id

-struct ALMAS_GetFilledMessageText {
--ALMAS_RequestIdType request_id;
--ALMAS_DataModel::ALMAS_AlertIDType AlertID;
--string ReceiverID;};
#prgma keylist ALMAS_GetFilledMessageText request_id

-struct ALMAS_FilledMessageText {
--ALMAS_RequestIdType request_id;
--ALMAS_DataModel::ALMAS_StringSet Messages;};
#pragma keylist ALMAS_FilledMessageText request_id
-
-struct ALMAS_LoadReceiverHierarchy {
--ALMAS_RequestIdType request_id;
--string Filename ;};
#pragma keylist ALMAS_LoadReceiverHierarchy request_id

```

```

-struct ALMAS_LoadTemplateSet {
-  ALMAS_RequestIdType request_id;
-  string Filename; };
#pragma keylist ALMAS_LoadTemplateSet request_id

-struct ALMAS_LoadConfiguration {
-  ALMAS_RequestIdType request_id;
-  string Filename; };
#pragma keylist ALMAS_LoadConfiguration request_id

-struct ALMAS_UpdateDynamicMessageData {
-  ALMAS_RequestIdType request_id;
-  string ProducerID;
-  ALMAS_DataModel::ALMAS_AlertIDType AlertID;
-  string DataValue;
-  ALMAS_DataModel::ALMAS_DynamicMessageDataType OldData; };
#pragma keylist ALMAS_UpdateDynamicMessageData request_id

-struct ALMAS_SetAlertInhibited {
-  ALMAS_RequestIdType request_id;
-  string ProducerID;
-  ALMAS_DataModel::ALMAS_TemplateIDType TemplateID;
-  boolean Inhibition; };
#pragma keylist ALMAS_SetAlertInhibited request_id

-struct ALMAS_AttachCategorisationRule {
-  ALMAS_RequestIdType request_id;
-  long RuleID;
-  ALMAS_DataModel::ALMAS_TemplateIDType TemplateID; };
#pragma keylist ALMAS_AttachCategorisationRule request_id

-struct ALMAS_DetachCategorisationRule {
-  ALMAS_RequestIdType request_id;
-  long RuleID;
-  ALMAS_DataModel::ALMAS_TemplateIDType TemplateID; };
#pragma keylist ALMAS_DetachCategorisationRule request_id

-struct ALMAS_RemoveAlertsWithDynamicMessageData {
-  ALMAS_RequestIdType request_id;
-  string CancellorID;
-  string DataType;
-  string DataValue; };
-#prgma keylist ALMAS_RemoveAlertsWithDynamicMessageData request_id
-
-};
endif

```

9.2.3 DCPS topics QoS

ALMAS topics share the same values for most of the DDS QoS (cf. [DDS]):

QoS	Value
USER_DATA	<unspecified>
TOPIC_DATA	<unspecified>
GROUP_DATA	<unspecified>
PRESENTATION	<unspecified>

ALMAS14-20

Unknown Author
10/26/2024 12:14

DEADLINE	Period = infinite
LATENCY_BUDGET	duration = <unspecified>
OWNERSHIP	EXCLUSIVE
OWNERSHIP_STRENGTH	<unspecified>
LIVELINESS	kind = AUTOMATIC / lease_duration = <unspecified>
TIME_BASED_FILTER	<unspecified>
PARTITION	<unspecified>
TRANSPORT_PRIORITY	value=0
DESTINATION_ORDER	BY_SOURCE_TIMESTAMP
HISTORY	kind = KEEP_LAST / depth = 1
RESOURCE_LIMITS	All unlimited.
ENTITY_FACTORY	<unspecified>
WRITER_DATA_LIFECYCLE	<unspecified>
READER_DATA_LIFECYCLE	<unspecified>

The other QoS (DURABILITY, RELIABILITY and LIFESPAN) will be allocated with the following principle:

- As for the "Control topics" (both requests and responses), they have DURABILITY equals to VOLATILE, RELIABILITY set to RELIABLE and LIFESPAN.duration defined by the implementation:
 - DURABILITY VOLATILE
 - RELIABILITY kind = RELIABLE
 - LIFESPAN Implementation dependant
- Others topics have DURABILITY to TRANSIENT, RELIABILITY set to RELIABLE and LIFESPAN.duration to infinite:
 - DURABILITY TRANSIENT
 - RELIABILITY kind = RELIABLE
 - LIFESPAN duration = infinite

9.3 DLRL

9.3.1 ALMAS Client

The ALMAS client module is not required in the DDS PSM since this is all available through the use of the standard DDS mechanisms and the topics already defined for ALMAS_StateType and ALMAS_Alert (i.e., through the DCPS mapping).

```
ALMAS Management IDL
```

```
// Copyright 2005-2007 THALES, BAE Systems, Raytheon
```

```
#include "dds_dlr.idl"
```

```

#include "ALMAS_DataModel.idl"
#ifndef __ALMAS_Management_DEF
#define __ALMAS_Management_DEF
#pragma prefix "omg.org"

module ALMAS_Management {

typedef sequence<ALMAS_DataModel::ALMAS_Alert> ALMAS_AlertSet;

typedef sequence<ALMAS_DataModel::ALMAS_TemplateIDType> ALMAS_TemplateIDTypeSet;

valuetype ALMAS_Manager : DDS::ObjectRoot {

attribute string ALMAS_SystemID;

// alert retrieval methods

ALMAS_DataModel::ALMAS_CallStatus GetAlert (
in ALMAS_DataModel::ALMAS_AlertIDType AlertID,
out ALMAS_DataModel::ALMAS_Alert Alert);

ALMAS_DataModel::ALMAS_CallStatus GetAlerts (
in string Filter,
out ALMAS_AlertSet AlertSet);

// ALMAS-wide control methods

ALMAS_DataModel::ALMAS_CallStatus SetAlertInhibited (
in ALMAS_DataModel::ALMAS_TemplateIDType TemplateID,
in boolean Inhibition);

ALMAS_DataModel::ALMAS_CallStatus UpdateDynamicMessageData (
in ALMAS_DataModel::ALMAS_AlertIDType AlertID,
in string DataValue,
in ALMAS_DataModel::ALMAS_DynamicMessageDataType OldData);

ALMAS_DataModel::ALMAS_CallStatus RegisterNotificationListener (
in ALMAS_Client::ALMAS_NotificationListener Handle);

// Template management methods

ALMAS_DataModel::ALMAS_CallStatus GetTemplate (
in ALMAS_DataModel::ALMAS_TemplateIDType TemplateID,
out ALMAS_DataModel::ALMAS_AlertTemplateType Template);

ALMAS_DataModel::ALMAS_CallStatus GetAllTemplateIDs (
in string Filter,
out ALMAS_TemplateIDTypeSet TemplateIDSet);
};

valuetype ALMAS_ManagerExtensions : ALMAS_Manager {

ALMAS_DataModel::ALMAS_CallStatus RemoveAlertsWithDynamicData (
in string CancellorID,
in string DataType,
in string DataValue);

ALMAS_DataModel::ALMAS_CallStatus AttachCategorisationRule (
in ALMAS_DataModel::ALMAS_TemplateIDType TemplateID,
in long RuleID);

ALMAS_DataModel::ALMAS_CallStatus DetachCategorisationRule (
in ALMAS_DataModel::ALMAS_TemplateIDType TemplateID,

```

```

—in long RuleID);
};

valuetype ALMAS_Producer : DDS::ObjectRoot {

—ALMAS_DataModel::ALMAS_CallStatus RaiseAlertFromOverrides (
—in string ProducerID,
—in ALMAS_DataModel::ALMAS_TemplateIDType TemplateID,
—in ALMAS_DataModel::ALMAS_AlertDataType Attributes,
—in boolean CategoryValid,
—in boolean PriorityValid,
—in boolean StatusValid,
—in boolean ScopeValid,
—in boolean TimeoutValid,
—in boolean ConfirmationRequiredValid,
—in boolean SecondaryGroupingValid,
—in boolean PersistentValid,
—in boolean ReliablyDistributedValid,
—in boolean TimeoutActionValid,
—in boolean AcknowledgementModelValid,
—in boolean StaticMessagesValid,
—in boolean DynamicMessagesValid,
—out ALMAS_DataModel::ALMAS_AlertIDType AlertID);
—
—ALMAS_DataModel::ALMAS_CallStatus RaiseAlertWithDynamicData (
—in string ProducerID,
—in ALMAS_DataModel::ALMAS_TemplateIDType TemplateID,
—in ALMAS_DataModel::ALMAS_DynamicMessageDataType DynamicMessageData,
—out ALMAS_DataModel::ALMAS_AlertIDType AlertID);
—
—ALMAS_DataModel::ALMAS_CallStatus RaiseAlertFromData (
—in string ProducerID,
—in ALMAS_DataModel::ALMAS_AlertTemplateType AlertInfo,
—out ALMAS_DataModel::ALMAS_AlertIDType AlertID);
—
—ALMAS_DataModel::ALMAS_CallStatus RaiseAlertFromTemplate (
—in string ProducerID,
—in ALMAS_DataModel::ALMAS_TemplateIDType TemplateID,
—out ALMAS_DataModel::ALMAS_AlertIDType AlertID);
—
—ALMAS_DataModel::ALMAS_CallStatus UpdateAlertPriority (
—in ALMAS_DataModel::ALMAS_AlertIDType AlertID,
—in string ProducerID,
—in short Priority);
—
—ALMAS_DataModel::ALMAS_CallStatus CancelAlert (
—in ALMAS_DataModel::ALMAS_AlertIDType AlertID,
—in string CancellorID,
—in string CancellationReason);
};

valuetype ALMAS_Responder : DDS::ObjectRoot {

—ALMAS_DataModel::ALMAS_CallStatus RegisterReceiver (
—in ALMAS_Client::ALMAS_Receiver Handle,
—in string ReceiverID,
—in string RKType);
—
—ALMAS_DataModel::ALMAS_CallStatus UnregisterReceiver (
—in string ReceiverID);
—
—ALMAS_DataModel::ALMAS_CallStatus AcknowledgeAlert (
—in ALMAS_DataModel::ALMAS_AlertIDType AlertID,

```

```
in string ReceiverID);
-
ALMAS_DataModel::ALMAS_CallStatus_HandleAlert (
in ALMAS_DataModel::ALMAS_AlertIDType AlertID,
in string ReceiverID);

ALMAS_DataModel::ALMAS_CallStatus_ConfirmReceipt (
in ALMAS_DataModel::ALMAS_AlertIDType AlertID,
in string ReceiverID);
};

valuetype ALMAS_ResponderExtensions : ALMAS_Responder {

ALMAS_DataModel::ALMAS_CallStatus_SetLanguage (
in string ReceiverID,
in string Language);
-
ALMAS_DataModel::ALMAS_CallStatus_GetFilledMessageText (
in ALMAS_DataModel::ALMAS_AlertIDType AlertID,
out ALMAS_DataModel::ALMAS_StringSet Messages);
};

valuetype ALMAS_Configuration : DDS::ObjectRoot {

ALMAS_DataModel::ALMAS_CallStatus_LoadReceiverHierarchy (
in string Filename);
-
ALMAS_DataModel::ALMAS_CallStatus_LoadTemplateSet (
in string Filename);
-
ALMAS_DataModel::ALMAS_CallStatus_LoadConfiguration (
in string Filename);
};
};

#endif
```

ALMAS14-20

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10 COM IDL Platform Specific Model

10.1 Rationale

The objective of this PSM is to normalize the structures and interfaces required for a COM implementation of the standard. This PSM aims to support the entire PIM interface.

In order for this interface to be reasonably compatible with the other PSMs provided in this document, the data model part is separated from the functional interface part.

All attributes, methods and associations are mapped to COM IDL elements. As a general rule, therefore, classes with methods are mapped to COM interfaces, classes without methods are mapped to structs, attributes are mapped to interface read/write methods. All return parameters and exceptions are mapped to method out parameters with the COM HRESULT returned from all interface methods.

Subscribe methods and indication classes are also mapped within a client IDL file which has to be implemented by clients in order to receive indications (i.e., callbacks) from ALMAS.

The invocation of API methods is logged using the Open Telemetry (OTEL) standard by the implementation of the API method.

ALMAS14-6

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ALMAS Data Model IDL

```
// Copyright 2005-2007 THALES, BAE Systems, Raytheon
import "oaidl.idl";
import "ocidl.idl";

#ifdef __ALMAS_DataModel_DEF
#define __ALMAS_DataModel_DEF

typedef long ALMAS_AlertIDType;

typedef long ALMAS_TemplateIDType;

typedef long ALMAS_TimeoutType;

#ifdef NOLONGLONG
typedef struct {
    unsigned long low;
    unsigned long high;
} ALMAS_DateTimeType;
#else
typedef unsigned long long ALMAS_DateTimeType; // long long to be EVoT compatible
#endif

-
typedef enum {
    ALMAS_Action = 1,
    ALMAS_Warning,
    ALMAS_Information,
    ALMAS_Situation} ALMAS_CategoryType;
```



```

typedef enum {
-ALMAS_Raised = 1,
-ALMAS_Routed,
-ALMAS_Received,
-ALMAS_Acknowledged,
-ALMAS_Handled,
-ALMAS_Canceled,
-ALMAS_TimedOut} ALMAS_StateType;

typedef enum {
-ALMAS_Actual = 1,
-ALMAS_Exercise,
-ALMAS_System,
-ALMAS_Test} ALMAS_StatusType;

typedef enum {
-ALMAS_PublicScope = 1,
-ALMAS_RestrictedScope,
-ALMAS_PrivateScope} ALMAS_ScopeType;
-
typedef enum {
-ALMAS_CancelOnly = 1,
-ALMAS_NotifyOnly,
-ALMAS_CancelWithNotify} ALMAS_TimeoutActionType;

typedef enum {
-ALMAS_AckByNone = 1,
-ALMAS_AckByAnyone,
-ALMAS_AckByAll} ALMAS_AckModelType;

typedef struct {
-boolean Success;
-short Reason;
-BSTR Description;} ALMAS_CallStatus;

typedef struct {
-SAFEARRAY(BSTR) AlternativeAction;
-short ActioneePriority; } ALMAS_ValidAlertResponseType;
-
typedef [uuid(0B7DF643-8DFF-4cfe-BC48-3C2E07BD6A79)]struct ALMAS_ReceiverKindType {
-BSTR RKType;-
-BSTR RKParentType;-
-ALMAS_ValidAlertResponseType ValidResponse; } ALMAS_ReceiverKindType;
-
-
typedef [uuid(62FD9C37-ED08-46b2-8122-8B783D83DC5E)] struct
ALMAS_DynamicMessageDataType{
-BSTR DataType;-
-BSTR DataTag;
-BSTR DataValue; } ALMAS_DynamicMessageDataType;
-
-
typedef [uuid(06A4B73D-52AD-4009-BC0A-4FC940D3A799)]struct ALMAS_StaticMessageType{
-BSTR MessageText;-
-BSTR MessageLanguage; } ALMAS_StaticMessageType;
-
-
typedef [uuid(F42A96DE-F513-4880-8E5A-5C2B308A2898)]struct
ALMAS_AlertDataExtraAttributesType{
-BSTR Name;-
-short TypeOfByteData;-
-BSTR Description;

```

```

--SAFEARRAY(byte) Value; } ALMAS_AlertDataExtraAttributesType;

-
typedef struct {
--ALMAS_TemplateIDType TemplateID;
--ALMAS_CategoryType Category;
--short Priority;
--ALMAS_StatusType Status;
--ALMAS_ScopeType Scope;
--ALMAS_TimeoutType Timeout;
--boolean ConfirmationRequired;
--BSTR SecondaryGrouping;
--boolean Persistent;
--boolean ReliablyDistributed;
--ALMAS_TimeoutActionType TimeoutAction;
--ALMAS_AckModelType AcknowledgementModel;
--SAFEARRAY(ALMAS_StaticMessageType) StaticMessages;
--SAFEARRAY(ALMAS_DynamicMessageDataType) DynamicMessages;
--SAFEARRAY(ALMAS_AlertDataExtraAttributesType) ExtraAttributes; } ALMAS_AlertDataType;

-
typedef struct {
--boolean Inhibited;
--boolean RaiseToAll;
--ALMAS_AlertDataType AlertData;
--SAFEARRAY(ALMAS_ReceiverKindType) ReceiverKinds; } ALMAS_AlertTemplateType;

-
typedef struct {
--boolean Acknowledged;
--boolean Routed;
--boolean Actioned;
--boolean ReceiverIsActionee;
--SAFEARRAY(BSTR) AlternativeAction;
--BSTR ReceiverID;
--ALMAS_AlertIDType AlertID; } ALMAS_AlertReportType;

-
typedef struct {
--BSTR ReceiverID;
--ALMAS_ReceiverKindType ReceiverKind; } ALMAS_AvailableAlertReceiverType;

-
typedef struct {
--ALMAS_AlertIDType AlertID;
--ALMAS_DateTimeType RaisingTime;
--ALMAS_StateType CurrentState;
--BSTR ProducerID;
--ALMAS_AlertDataType AlertData;
--SAFEARRAY(ALMAS_AvailableAlertReceiverType) Receivers; } ALMAS_Alert;
#endif

```

ALMAS Client IDL

```

// Copyright 2005-2008 THALES, BAE Systems, Raytheon

import "../Alert_Data_Router/ALMAS_DataModel.idl";
#ifdef __ALMAS_Client_DEF
#define __ALMAS_Client_DEF

[object,uuid(13D0EBD4-47C0-4661-BFF6-B8220219BD66),pointer_default(unique)]
interface IALMAS_Receiver: IUnknown {

--HRESULT StateChangeNotification (
--[n] ALMAS_AlertIDType AlertID,
--[in] ALMAS_StateType NewState);

```

```

-HRESULT AlertDataNotification (// alert D is embedded within info
-[in] ALMAS_Alert AlertInfo,
-[in] ALMAS_AlertReportType *Report); // changed to in in.
};

[object,uuid(2BA3B7FA-40EB-4021-8828-36243C457379),pointer_default(unique)]
interface IALMAS_NotificationListener: IUnknown {

-HRESULT AlertDistributionNotification(
-[in] ALMAS_AlertIDType AlertID);

-HRESULT Get_ALMAS_SystemIDNotification(
-[in] BSTR * ALMAS_SystemID);

-HRESULT GetAlertNotification(
-[in] ALMAS_Alert Alert);

-HRESULT GetAlertsNotification(
-[in] SAFEARRAY(ALMAS_Alert)AlertSet);

-HRESULT GetTemplateNotification(
-[in] ALMAS_AlertTemplateType AlertTemplate); // Corrected to return the template, not the
Template ID.

-HRESULT GetTemplatesNotification(
-[in] SAFEARRAY(ALMAS_TemplateIDType)TemplateIDSet);
-
};
#endi

```

ALMAS Management IDL

// Copyright 2005-2008 THALES, BAE Systems, Raytheon

```

import "../Alert_Data_Router/ALMAS_Client.idl";
import "../Alert_Data_Router/ALMAS_DataModel.idl";
#ifdef __ALMAS_Management_DEF
#define __ALMAS_Management_DEF
-
// typedef struct {
// unsigned long MaxSize;
// unsigned long LengthUsed;
// [size_is(MaxSize), length_is(LengthUsed), unique] ALMAS_TemplateIDType *pValue;}
ALMAS_TemplateIDTypeSet;

[object,uuid(3BC17616-F798-421A-8FB9-DDC0A8259CE3),pointer_default(unique)]
interface IALMAS_Manager : IUnknown {
-
-HRESULT Get_ALMAS_SystemID(IALMAS_NotificationListener *Handle);
-
// alert retrieval methods
-
-HRESULT GetAlert(
-[in] ALMAS_AlertIDType AlertID,
-[in] IALMAS_NotificationListener *Handle,
-[out] ALMAS_CallStatus *CallStatus);
-
-HRESULT GetAlerts(
-[in] BSTR Filter,
-[in] IALMAS_NotificationListener *Handle,

```

```

--[out] ALMAS_CallStatus *CallStatus);
-
// ALMAS-wide control methods
-
-HRESULT SetAlertInhibited(
--[out] ALMAS_CallStatus *CallStatus,
--[in] ALMAS_TemplateIDType TemplateID,
--[in] boolean Inhibition);
-
-HRESULT UpdateDynamicMessageData(
--[out] ALMAS_CallStatus *CallStatus,
--[in] ALMAS_AlertIDType AlertID,
--[in] BSTR ObjectValue,
--[in] ALMAS_DynamicMessageDataType OldValue);-
-
-HRESULT RegisterNotificationListener(
--[out] ALMAS_CallStatus *CallStatus,
--[in] IALMAS_NotificationListener *Handle);

// Template management methods
-
-HRESULT GetTemplate(
--[in] IALMAS_NotificationListener *Handle,
--[in] ALMAS_TemplateIDType TemplateID,
--[out] ALMAS_CallStatus *CallStatus);

-HRESULT GetAllTemplateIDs(
--[out] ALMAS_CallStatus *CallStatus,
--[in] BSTR Filter,
--[in] IALMAS_NotificationListener *Handle);
};
-
[object,uuid(6AE3866D-3EF5-4BBD-B2ED-261DBCFF2307),pointer_default(unique)]
interface IALMAS_ManagerExtensions : IALMAS_Manager {
-
-HRESULT RemoveAlertsWithDynamicData(
--[out] ALMAS_CallStatus *CallStatus,
--[in] BSTR CancellorID,
--[in] BSTR DataType,
--[in] BSTR DataValue);-

-HRESULT AttachCategorisationRule(
--[out] ALMAS_CallStatus *CallStatus,
--[in] ALMAS_TemplateIDType TemplateID,
--[in] long RuleID);

-HRESULT DetachCategorisationRule(
--[out] ALMAS_CallStatus *CallStatus,
--[in] ALMAS_TemplateIDType TemplateID,
--[in] long RuleID);
};
-
[object,uuid(32033A16-EC76-4AC5-A457-D607B5CFD0CF),pointer_default(unique)]
interface IALMAS_Producer : IUnknown {
// SDG Changed optional parameters to pointers
-HRESULT RaiseAlertFromOverrides(
--[out] ALMAS_AlertIDType *AlertID,
--[in] BSTR ProducerID,
--[in] ALMAS_TemplateIDType TemplateID,
--[in] ALMAS_CategoryType Category,
--[in] boolean ValidCategory
--[in] short Priority,
--[in] boolean ValidPriority,

```

```

--[in] ALMAS_StatusType AlertStatus,
--[in] boolean ValidStatus,
--[in] ALMAS_ScopeType Scope,
--[in] boolean ValidScope,
--[in] ALMAS_TimeoutType Timeout,
--[in] boolean ValidTimeout,
--[in] boolean ConfirmationRequired,
--[in] boolean ValidConfirmationRequired,
--[in] BSTR SecondaryGrouping,
--[in] boolean ValidSecondaryGrouping,
--[in] boolean Persistent,
--[in] boolean ValidPersistent,
--[in] boolean ReliablyDistributed,
--[in] boolean ValidReliablyDistributed,
--[in] ALMAS_TimeoutActionType TimeoutAction,
--[in] boolean ValidTimeoutAction,
--[in] ALMAS_AckModelType AcknowledgementModel,
--[in] boolean ValidAcknowledgementModel,
--[in] SAFEARRAY(ALMAS_StaticMessageType) StaticMessages,
--[in] boolean ValidStaticMessages,
--[in] SAFEARRAY(ALMAS_DynamicMessageDataType) DynamicMessageData,
--[in] boolean ValidDynamicMessageData,
--[in] SAFEARRAY(ALMAS_ReceiverKindType) AlertReceivers,
--[in] boolean ValidAlertReceiverSet,
--[out] ALMAS_CallStatus *CallStatus);
-
-HRESULT RaiseAlertWithDynamicData (
--[out] ALMAS_AlertIDType *AlertID,
--[in] BSTR ProducerID,
--[in] ALMAS_TemplateIDType TemplateID,
--[in] SAFEARRAY(ALMAS_DynamicMessageDataType) DynamicMessageData,
--[out] ALMAS_CallStatus *CallStatus);
-
-HRESULT RaiseAlertFromData (
--[out] ALMAS_AlertIDType *AlertID,
--[in] BSTR ProducerID,
--[in] ALMAS_AlertTemplateType AlertInfo,
--[out] ALMAS_CallStatus *CallStatus);
-
-HRESULT RaiseAlertFromTemplate (
--[out] ALMAS_AlertIDType *AlertID,
--[in] BSTR ProducerID,
--[in] ALMAS_TemplateIDType TemplateID,
--[out] ALMAS_CallStatus *CallStatus);
-
-HRESULT UpdateAlertPriority (
--[out] ALMAS_CallStatus *CallStatus,
--[in] ALMAS_AlertIDType AlertID,
--[in] BSTR ProducerID,
--[in] short Priority);
-
-HRESULT CancelAlert (
--[out] ALMAS_CallStatus *CallStatus,
--[in] ALMAS_AlertIDType AlertID,
--[in] BSTR CancellorID,
--[in] BSTR CancellationReason);
};
-
[object,uuid(BA617DFD-6DBD-4F08-ACD5-E7F489A113E5),pointer_default(unique)]
interface IALMAS_Responder : IUnknown {
-
-HRESULT RegisterReceiver (
--[out] ALMAS_CallStatus *CallStatus,

```

```

- [in] IALMAS_Receiver *ReceiverHandle,
- [in] BSTR ReceiverID,
- [in] BSTR RkType);

- HRESULT UnregisterReceiver(-
- [out] ALMAS_CallStatus *CallStatus,
- [in] BSTR ReceiverID);

- HRESULT AcknowledgeAlert(-
- [out] ALMAS_CallStatus *CallStatus,
- [in] ALMAS_AlertIDType AlertID,
- [in] BSTR ReceiverID);
-
- HRESULT HandleAlert(-
- [out] ALMAS_CallStatus *CallStatus,
- [in] ALMAS_AlertIDType AlertID,
- [in] BSTR ReceiverID);

- HRESULT ConfirmReceipt(-
- [out] ALMAS_CallStatus *CallStatus,
- [in] ALMAS_AlertIDType AlertID,
- [in] BSTR ReceiverID);
-};

[object,uuid(CC748587-4926-45D7-B52E-4A88000A3426),pointer_default(unique)]
interface IALMAS_ResponderExtensions : IALMAS_Responder{
-
- HRESULT SetLanguage(-
- [out] ALMAS_CallStatus *CallStatus,
- [in] BSTR ReceiverID,
- [in] BSTR Language);
-
- HRESULT GetFilledMessageText(-
- [out] ALMAS_CallStatus *CallStatus,
- [in] ALMAS_AlertIDType AlertID,
- [in] [out] BSTR MessageText);
-};

[object,uuid(C3B50C13-8124-4A5F-98B8-9C68D9D1BDE9),pointer_default(unique)]
interface IALMAS_Configuration : IUnknown{
-
- HRESULT LoadReceiverHierarchy(-
- [out] ALMAS_CallStatus *CallStatus,
- [in] BSTR Filename);
-
- HRESULT LoadTemplateSet(-
- [out] ALMAS_CallStatus *CallStatus,
- [in] BSTR Filename);
-
- HRESULT LoadConfiguration(-
- [out] ALMAS_CallStatus *CallStatus,
- [in] BSTR Filename);
-};
#endif

```

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11 GraphQL Platform Specific Model

11.1 Rationale

The GraphQL PSM defines a single schema definition file for the ALMAS Data Model, ALMAS Management and ALMAS Client Callbacks packages defined by the PIM. Classes from the ALMAS Data Model of the PIM are mapped to GraphQL types within the schema.

The detailed rules for the MDA code generation from the ALMAS Data Model PIM to the GraphQL PSM schema are as follows:

- The PIM attributes are mapped to GraphQL attributes;
- PIM attributes with multiplicity 1 are mapped to non-nullable GraphQL attributes
- Collections in the PIM are mapped to GraphQL arrays;
- Aggregation and compositions are mapped to GraphQL attributes;
- Association classes follow the equivalent mapping as the CORBA and DDS PSMs

The schema supports GraphQL clients for interfaces defined in the ALMAS Management and ALMAS Client Callbacks PIM packages. Mutations are used to invoke PIM interface methods; queries and subscriptions are used to process those invocations.

The PSM method for connecting to other components is through the underlying HTTPS web service connection. Web-sockets are used for subscription callbacks.

Specific rules for the MDA code generation from the Service Model PIM to the GraphQL PSM IDL are as follows:

- Interface method (in) parameters and return values (including out parameters) in the Service Model are each mapped to a (query) type, an input type and update type; these are for queries, mutations, and subscriptions respectively.
- To invoke a method an ALMAS client makes a mutation (with method parameter type) and subscribes or queries for the response (with the return value type).
- To process a method an ALMAS client queries or subscribes for the method parameter type and makes a mutation with the response (with the return value type).
- As per the DDS PSM, each of the parameter and return value types contain a request id; the instigator is responsible for allocating unique request ids in the scope of the ALMAS system; the processing component is responsible for labelling responses with the received request id so that the instigator can locate the corresponding response.
- The GraphQL schema Query type supports queries for any combination of interface methods in the Service Model.
- The GraphQL schema Mutation type supports invocation of single or multiple instances of any combination of interface methods in the Service Model.
- The GraphQL schema Subscription type supports subscription for any combination of interface methods in the Service Model.
- The following methods are mapped to the return (out parameter) type with a GraphQL filter condition in the query: GetAlert, GetAlerts, GetTemplate and GetAllTemplateIDs
- RegisterNotificationListener is mapped to a GraphQL subscription.

- Parameters of the operation RaiseAlertFromOverrides are implicitly defined as being optional in the PIM; in this PSM they are explicitly marked as optional using an IDL annotation.

The invocation of API methods is logged using the Open Telemetry (OTEL) standard by the implementation of the API method.

ALMAS14-6

GraphQL Schema

~~12 # Copyright 2019-2022 BAE Systems~~

~~13~~

~~14 scalar Long~~

~~15 scalar Short~~

~~16 scalar Char~~

~~17~~

~~18 schema {~~

~~19 query: Query~~

~~20 subscription: Subscription~~

~~21 mutation: Mutation~~

~~22 }~~

~~23~~

~~24 type Query {~~

~~25 almasFilledMessageTexts: [AlmasFilledMessageText!]!~~

~~26 almasFilledMessageTextForKey(requestId: Long) : [AlmasFilledMessageText!]!~~

~~27 almasRemoveAlertsWithDynamicMessageData:--
 {AlmasRemoveAlertsWithDynamicMessageData!}!~~

~~28 almasRemoveAlertsWithDynamicMessageDataForKey(requestId: Long) :--
 {AlmasRemoveAlertsWithDynamicMessageData!}!~~

~~29 almasAttachCategorisationRules: [AlmasAttachCategorisationRule!]!~~

~~30 almasAttachCategorisationRuleForKey(requestId: Long) :--
 {AlmasAttachCategorisationRule!}!~~

~~31 almasDetachCategorisationRules: [AlmasDetachCategorisationRule!]!~~

~~32 almasDetachCategorisationRuleForKey(requestId: Long) :--
 {AlmasDetachCategorisationRule!}!~~

~~33~~

~~34 almasAlerts: [AlmasAlert!]!~~

~~35 almasAlertForKey(alertId: Int) : [AlmasAlert!]!~~

~~36 almasAlertTemplateTypes: [AlmasAlertTemplateType!]!~~

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```

37 — almasManagers: [AlmasManager!]+
38 — almasSetAlertInhibited: [AlmasSetAlertInhibited!]+
39 — almasSetAlertInhibitedForKey(requestId: Long) : [AlmasSetAlertInhibited!]+
40 — almasUpdateDynamicMessageDatas: [AlmasUpdateDynamicMessageData!]+
41 — almasUpdateDynamicMessageDataForKey(requestId: Long) :-
    {AlmasUpdateDynamicMessageData!}+
42 —
43 — almasAlertReportTypes: [AlmasAlertReportType!]+
44 — almasAlertReportTypeForKey(receiverId: String, alertId: Int) :-
    {AlmasAlertReportType!}+
45 —
46 — almasLoadReceiverHierarchys: [AlmasLoadReceiverHierarchy!]+
47 — almasLoadReceiverHierarchyForKey(requestId: Long) :-
    {AlmasLoadReceiverHierarchy!}+
48 — almasLoadTemplateSets: [AlmasLoadTemplateSet!]+
49 — almasLoadTemplateSetForKey(requestId: Long) : [AlmasLoadTemplateSet!]+
50 — almasLoadConfigurations: [AlmasLoadConfiguration!]+
51 — almasLoadConfigurationForKey(requestId: Long) : [AlmasLoadConfiguration!]+
52 —
53 — almasRaiseAlertFromOverridess: [AlmasRaiseAlertFromOverrides!]+
54 — almasRaiseAlertFromOverridesForKey(requestId: Long) :-
    {AlmasRaiseAlertFromOverrides!}+
55 — almasRaiseAlertWithDynamicDatas: [AlmasRaiseAlertWithDynamicData!]+
56 — almasRaiseAlertWithDynamicDataForKey(requestId: Long) :-
    {AlmasRaiseAlertWithDynamicData!}+
57 — almasRaiseAlertFromDatas: [AlmasRaiseAlertFromData!]+
58 — almasRaiseAlertFromDataForKey(requestId: Long) : [AlmasRaiseAlertFromData!]+
59 — almasRaiseAlertFromTemplates: [AlmasRaiseAlertFromTemplate!]+
60 — almasRaiseAlertFromTemplateForKey(requestId: Long) :-
    {AlmasRaiseAlertFromTemplate!}+
61 — almasUpdateAlertPriority: [AlmasUpdateAlertPriority!]+
62 — almasUpdateAlertPriorityForKey(requestId: Long) :-
    {AlmasUpdateAlertPriority!}+
63 — almasCancelAlerts: [AlmasCancelAlert!]+

```

~~64 — almasCancelAlertForKey(requestId: Long) : [AlmasCancelAlert!!!]~~
~~65~~
~~66 — almasSetLanguages: [AlmasSetLanguage!!!]~~
~~67 — almasSetLanguageForKey(requestId: Long) : [AlmasSetLanguage!!!]~~
~~68 — almasGetFilledMessageTexts: [AlmasGetFilledMessageText!!!]~~
~~69 — almasGetFilledMessageTextForKey(requestId: Long) :-~~
~~[AlmasGetFilledMessageText!!!]~~
~~70~~
~~71 — almasAcknowledgeAlerts: [AlmasAcknowledgeAlert!!!]~~
~~72 — almasAcknowledgeAlertForKey(requestId: Long) :- [AlmasAcknowledgeAlert!!!]~~
~~73 — almasConfirmReceipts: [AlmasConfirmReceipt!!!]~~
~~74 — almasConfirmReceiptForKey(requestId: Long) :- [AlmasConfirmReceipt!!!]~~
~~75 — almasHandleAlerts: [AlmasHandleAlert!!!]~~
~~76 — almasHandleAlertForKey(requestId: Long) :- [AlmasHandleAlert!!!]~~
~~77 — almasRegisterReceivers: [AlmasRegisterReceiver!!!]~~
~~78 — almasRegisterReceiverForKey(requestId: Long) :- [AlmasRegisterReceiver!!!]~~
~~79 — almasUnregisterReceivers: [AlmasUnregisterReceiver!!!]~~
~~80 — almasUnregisterReceiverForKey(requestId: Long) :- [AlmasUnregisterReceiver!!!]~~
~~81~~
~~82 }~~
~~83~~
~~84 type Subscription {~~
~~85 — onAlmasFilledMessageText: AlmasFilledMessageTextUpdate!~~
~~86~~
~~87 — onAlmasRemoveAlertsWithDynamicMessageData:-~~
~~AlmasRemoveAlertsWithDynamicMessageDataUpdate!~~
~~88~~
~~89 — onAlmasAttachCategorisationRule: AlmasAttachCategorisationRuleUpdate!~~
~~90~~
~~91 — onAlmasDetachCategorisationRule: AlmasDetachCategorisationRuleUpdate!~~
~~92~~
~~93~~

| 94 — ~~onAlmasAlert: AlmasAlertUpdate!~~

| 95—

| 96 — ~~onAlmasAlertTemplateType: AlmasAlertTemplateTypeUpdate!~~

| 97—

| 98 — ~~onAlmasManager: AlmasManagerUpdate!~~

| 99—

| 100 — ~~onAlmasSetAlertInhibited: AlmasSetAlertInhibitedUpdate!~~

| 101

| 102 — ~~onAlmasUpdateDynamicMessageData: AlmasUpdateDynamicMessageDataUpdate!~~

| 103

| 104

| 105 — ~~onAlmasAlertReportType: AlmasAlertReportTypeUpdate!~~

| 106

| 107

| 108 — ~~onAlmasLoadReceiverHierarchy: AlmasLoadReceiverHierarchyUpdate!~~

| 109

| 110 — ~~onAlmasLoadTemplateSet: AlmasLoadTemplateSetUpdate!~~

| 111

| 112 — ~~onAlmasLoadConfiguration: AlmasLoadConfigurationUpdate!~~

| 113

| 114

| 115 — ~~onAlmasRaiseAlertFromOverrides: AlmasRaiseAlertFromOverridesUpdate!~~

| 116

| 117 — ~~onAlmasRaiseAlertWithDynamicData: AlmasRaiseAlertWithDynamicDataUpdate!~~

| 118

| 119 — ~~onAlmasRaiseAlertFromData: AlmasRaiseAlertFromDataUpdate!~~

| 120

| 121 — ~~onAlmasRaiseAlertFromTemplate: AlmasRaiseAlertFromTemplateUpdate!~~

| 122

| 123 — ~~onAlmasUpdateAlertPriority: AlmasUpdateAlertPriorityUpdate!~~

| 124
| ~~125 —onAlmasCancelAlert: AlmasCancelAlertUpdate!~~
| 126
| 127
| ~~128 —onAlmasSetLanguage: AlmasSetLanguageUpdate!~~
| 129
| ~~130 —onAlmasGetFilledMessageText: AlmasGetFilledMessageTextUpdate!~~
| 131
| 132
| ~~133 —onAlmasAcknowledgeAlert: AlmasAcknowledgeAlertUpdate!~~
| 134
| ~~135 —onAlmasConfirmReceipt: AlmasConfirmReceiptUpdate!~~
| 136
| ~~137 —onAlmasHandleAlert: AlmasHandleAlertUpdate!~~
| 138
| ~~139 —onAlmasRegisterReceiver: AlmasRegisterReceiverUpdate!~~
| 140
| ~~141 —onAlmasUnregisterReceiver: AlmasUnregisterReceiverUpdate!~~
| 142
| 143
| 144 }
| 145
| ~~146 type Mutation {~~
| ~~147 —updateAlmasFilledMessageText(instance: AlmasFilledMessageTextInput!):-~~
| ~~AlmasFilledMessageText!~~
| 148
| ~~149 —updateAlmasRemoveAlertsWithDynamicMessageData(instance:-~~
| ~~AlmasRemoveAlertsWithDynamicMessageDataInput!):-~~
| ~~AlmasRemoveAlertsWithDynamicMessageData!~~
| 150
| ~~151 —updateAlmasAttachCategorisationRule(instance:-~~
| ~~AlmasAttachCategorisationRuleInput!): AlmasAttachCategorisationRule!~~
| 152

153 —updateAlmasDetachCategorisationRule(instance:—
AlmasDetachCategorisationRuleInput!): AlmasDetachCategorisationRule!
154
155
156 —updateAlmasAlert(instance: AlmasAlertInput!): AlmasAlert!
157
158 —updateAlmasAlertTemplateType(instance: AlmasAlertTemplateTypeInput!):—
AlmasAlertTemplateType!
159
160 —updateAlmasManager(instance: AlmasManagerInput!): AlmasManager!
161
162 —updateAlmasSetAlertInhibited(instance: AlmasSetAlertInhibitedInput!):—
AlmasSetAlertInhibited!
163
164 —updateAlmasUpdateDynamicMessageData(instance:—
AlmasUpdateDynamicMessageDataInput!): AlmasUpdateDynamicMessageData!
165
166
167 —updateAlmasAlertReportType(instance: AlmasAlertReportTypeInput!):—
AlmasAlertReportType!
168
169
170 —updateAlmasLoadReceiverHierarchy(instance:—
AlmasLoadReceiverHierarchyInput!): AlmasLoadReceiverHierarchy!
171
172 —updateAlmasLoadTemplateSet(instance: AlmasLoadTemplateSetInput!):—
AlmasLoadTemplateSet!
173
174 —updateAlmasLoadConfiguration(instance: AlmasLoadConfigurationInput!):—
AlmasLoadConfiguration!
175
176
177 —updateAlmasRaiseAlertFromOverrides(instance:—
AlmasRaiseAlertFromOverridesInput!): AlmasRaiseAlertFromOverrides!
178

179 —updateAlmasRaiseAlertWithDynamicData(instance:—
AlmasRaiseAlertWithDynamicDataInput!): AlmasRaiseAlertWithDynamicData!
180
181 —updateAlmasRaiseAlertFromData(instance: AlmasRaiseAlertFromDataInput!):—
AlmasRaiseAlertFromData!
182
183 —updateAlmasRaiseAlertFromTemplate(instance:—
AlmasRaiseAlertFromTemplateInput!): AlmasRaiseAlertFromTemplate!
184
185 —updateAlmasUpdateAlertPriority(instance: AlmasUpdateAlertPriorityInput!):—
AlmasUpdateAlertPriority!
186
187 —updateAlmasCancelAlert(instance: AlmasCancelAlertInput!): AlmasCancelAlert!
188
189
190 —updateAlmasSetLanguage(instance: AlmasSetLanguageInput!): AlmasSetLanguage!
191
192 —updateAlmasGetFilledMessageText(instance: AlmasGetFilledMessageTextInput!):—
AlmasGetFilledMessageText!
193
194
195 —updateAlmasAcknowledgeAlert(instance: AlmasAcknowledgeAlertInput!):—
AlmasAcknowledgeAlert!
196
197 —updateAlmasConfirmReceipt(instance: AlmasConfirmReceiptInput!):—
AlmasConfirmReceipt!
198
199 —updateAlmasHandleAlert(instance: AlmasHandleAlertInput!): AlmasHandleAlert!
200
201 —updateAlmasRegisterReceiver(instance: AlmasRegisterReceiverInput!):—
AlmasRegisterReceiver!
202
203 —updateAlmasUnregisterReceiver(instance: AlmasUnregisterReceiverInput!):—
AlmasUnregisterReceiver!
204

205

```
206 dummyMutation (enumAlmasAckModelType: AlmasAckModelType,
inputAlmasAlertReportType: AlmasAlertReportTypeInput, enumAlmasCategoryType:
AlmasCategoryType, inputAlmasDynamicMessageDataType:
AlmasDynamicMessageDataTypeInput, enumAlmasScopeType: AlmasScopeType,
enumAlmasStateType: AlmasStateType, inputAlmasStaticMessageType:
AlmasStaticMessageTypeInput, enumAlmasStatusType: AlmasStatusType,
enumAlmasTimeoutActionType: AlmasTimeoutActionType,
inputAlmasValidAlertResponseType: AlmasValidAlertResponseTypeInput,
inputAlmasAlertDataExtraAttributesType:
AlmasAlertDataExtraAttributesTypeInput, inputAlmasReceiverKindType:
AlmasReceiverKindTypeInput, inputAlmasAvailableAlertReceiverType:
AlmasAvailableAlertReceiverTypeInput, inputAlmasAlertDataType:
AlmasAlertDataTypeInput, inputAlmasAlertTemplateType:
AlmasAlertTemplateTypeInput, inputAlmasAlert: AlmasAlertInput,
inputAlmasManager: AlmasManagerInput, inputAlmasRaiseAlertFromTemplate:
AlmasRaiseAlertFromTemplateInput, inputAlmasRegisterReceiver:
AlmasRegisterReceiverInput, inputAlmasUnregisterReceiver:
AlmasUnregisterReceiverInput, inputAlmasRaiseAlertWithDynamicData:
AlmasRaiseAlertWithDynamicDataInput, inputAlmasRaiseAlertFromData:
AlmasRaiseAlertFromDataInput, inputAlmasUpdateAlertPriority:
AlmasUpdateAlertPriorityInput, inputAlmasCancelAlert: AlmasCancelAlertInput,
inputAlmasAcknowledgeAlert: AlmasAcknowledgeAlertInput, inputAlmasHandleAlert:
AlmasHandleAlertInput, inputAlmasConfirmReceipt: AlmasConfirmReceiptInput,
inputAlmasSetLanguage: AlmasSetLanguageInput, inputAlmasGetFilledMessageText:
AlmasGetFilledMessageTextInput, inputAlmasFilledMessageText:
AlmasFilledMessageTextInput, inputAlmasLoadReceiverHierarchy:
AlmasLoadReceiverHierarchyInput, inputAlmasLoadTemplateSet:
AlmasLoadTemplateSetInput, inputAlmasLoadConfiguration:
AlmasLoadConfigurationInput, inputAlmasUpdateDynamicMessageData:
AlmasUpdateDynamicMessageDataInput, inputAlmasSetAlertInhibited:
AlmasSetAlertInhibitedInput, inputAlmasAttachCategorisationRule:
AlmasAttachCategorisationRuleInput, inputAlmasDetachCategorisationRule:
AlmasDetachCategorisationRuleInput,
inputAlmasRemoveAlertsWithDynamicMessageData:
AlmasRemoveAlertsWithDynamicMessageDataInput,
inputAlmasRaiseAlertFromOverrides: AlmasRaiseAlertFromOverridesInput,
ignored: Boolean)!: Boolean
```

207 }

208

209 # Class:

210 # This class models the conditions upon which an alert state can transition to

211 # 'acknowledged'.

212 #

213 enum AlmasAckModelType {

214 # Attribute:

215 # No acknowledgement required

216 # ACK_BY_NONE


```

217 — # Attribute:
218 — # Any single acknowledgement is sufficient.
219 — ACK_BY_ANYONE
220 — # Attribute:
221 — # The alert must be acknowledged by all recipients.
222 — ACK_BY_ALL
223 }
224 type AlmasAlertReportTypeUpdate {
225 — # The instance that has been updated (or deleted if Deleted flag is true).
226 — instance: AlmasAlertReportType!
227 — # True if the instance has been deleted, false otherwise (i.e. on creation
— or update).
228 — deleted: Boolean!
229 }
230
231 # Class:
232 # This provides the status information for specifically delivered alert item
— to a
233 # receiver. This will contain details of whether the instance has been
— acknowledged
234 # by this receiver etc. and will also be completed with respect to any
— dynamic
235 # message data.
236 type AlmasAlertReportType {
237 — # Attribute:
238 — # Identified whether the alert has been acknowledged by this receiver
239 — acknowledged: Boolean!
240 — # Attribute:
241 — # Identified whether the alert can be confirmed to have been routed as per
— the
242 — # 'routed' alert substate
243 — routed: Boolean!
244 — # Attribute:

```

```

| 245 — # Identified whether the alert has been actioned by this receiver
| 246 — actioned: Boolean!
| 247 — # Attribute:
| 248 — # Indicates that this receiver is the chosen actionee for this alert.
| 249 — receiverIsActionee: Boolean!
| 250 — # Attribute:
| 251 — # Provides means by which an alternative action outside of the scope of
| 252 — ALMAS can
| 253 — be distributed with the alert via ALMAS.
| 254 — alternativeAction: [String!]!
| 255 — receiverId: String!
| 256
| 257 — alertId: Int!
| 258 }
| 259
| 260 # Class:
| 261 # This provides the status information for specifically delivered alert item
| 262 # to a
| 263 # receiver. This will contain details of whether the instance has been
| 264 # acknowledged
| 265 # by this receiver etc. and will also be completed with respect to any
| 266 # dynamic
| 267 # message data.
| 268 input AlmasAlertReportTypeInput {
| 269 # Attribute:
| 270 # Identified whether the alert has been acknowledged by this receiver
| 271 # acknowledged: Boolean!
| 272 # Attribute:
| 273 # Identified whether the alert can be confirmed to have been routed as per
| 274 # the
| 275 # 'routed' alert substate
| 276 # routed: Boolean!

```

```

| 273 — # Attribute:
| 274 — # Identified whether the alert has been actioned by this receiver
| 275 —actioned: Boolean!
| 276 — # Attribute:
| 277 — # Indicates that this receiver is the chosen actionee for this alert.
| 278 —receiverIsActionee: Boolean!
| 279 — # Attribute:
| 280 — # Provides means by which an alternative action outside of the scope of-
|   ALMAS can
| 281 — # be distributed with the alert via ALMAS.
| 282 —alternativeAction: [String!]!
| 283
| 284 —receiverId: String!
| 285
| 286 —alertId: Int!
| 287 }
| 288 # Class:
| 289 # The categories of alerts in terms of the expectation placed on the operator
| 290 # receiving the alert; i.e. generically, why has the alert been received and
|   what
| 291 # type of implicit or explicit response is expected.
| 292 #-
| 293 enum AlmasCategoryType {
| 294 — # Attribute:
| 295 — # An explicit input to the system is expected as a result of receiving the-
|   alert.
| 296 — # The alert persists until its is cancelled due to the condition to which-
|   it
| 297 — # relates no longer being present (due either to explicit operator action-
|   relating
| 298 — # to the alert or action external to the ALMAS system).
| 299 — ACTION
| 300 — # Attribute:

```

```

301 # The receiver may decide to take an explicit action in mitigation to the
    condition
302 # to which the warning relates. The alert does not persist according to the
303 # underlying condition that the alert warns about.
304 WARNING
305 # Attribute:
306 # The receiver is expected to take account of this information in
    subsequent
307 # decisions. The alert does not persist according to the underlying
    condition that
308 # the alert informs about.
309 INFORMATION
310 # Attribute:
311 # The receiver is expected to take account of the new state of the
    situation in
312 # subsequent decisions. The alert persists until its is cancelled due to
    the
313 # condition to which it relates no longer being present (due either to
    explicit
314 # operator action relating to the alert or action external to the ALMAS
    system).
315 SITUATION
316 }
317 # Class:
318 # Since Alerts often have variable data fields, the DynamicMessageData class
319 # provides the means for inserting variable content into the Alert's
    MessageText
320 # during runtime. Replacement values for the DataTag are treated as strict
    string
321 # substitution within the MessageText of the StaticMessage associated with
    the
322 # Alert. This is used to capture the triplet of data tag type, tag position
    in the
323 # alert message and the value that this tag in the template message text
    should be
324 # replaced with. Note: if the text specified in the StaticMessage contains

```

```

325 # multiple replacement points (specified by %%t1 through %%tn) then an equal
    number
326 # of DynamicMessageData objects are required for full substitution.
327 type AlmasDynamicMessageDataType {
328   # Attribute:
329   # The type of related object e.g. freetext, track, vehicle, position, etc.
330   dataType: String!
331   # Attribute:
332   # This identifies the insertion point for the related object in the
    MessageText
333   # associated with the Alert. I.e. where the MessageText is "xxxxx %t1-
    yyyyyyy
334   # zzzz", then DataTag has the value 't1'. It is a case sensitive,
    alphanumeric
335   # string
336   dataTag: String!
337   # Attribute:
338   # The value of the object instantiation. Given a type
339   # of string to be general enough to support free text
340   # and track/vehicle id's alike
341   dataValue: String!
342 }
343
344 # Class:
345 # Since Alerts often have variable data fields, the DynamicMessageData class
346 # provides the means for inserting variable content into the Alert's
    MessageText
347 # during runtime. Replacement values for the DataTag are treated as strict
    string
348 # substitution within the MessageText of the StaticMessage associated with
    the
349 # Alert. This is used to capture the triplet of data tag type, tag position
    in the
350 # alert message and the value that this tag in the template message text
    should be

```

```

351 # replaced with. Note: if the text specified in the StaticMessage contains
352 # multiple replacement points (specified by %%t1 through %%tn) then an equal
    number
353 # of DynamicMessageData objects are required for full substitution.
354 input AlmasDynamicMessageDataTypeInput {
355 # Attribute:
356 # The type of related object e.g. freetext, track, vehicle, position, etc.
357 dataType: String!
358 # Attribute:
359 # This identifies the insertion point for the related object in the
    MessageText
360 # associated with the Alert. I.e. where the MessageText is "xxxxx %t1-
    yyyyyyy
361 # zzzz", then DataTag has the value 't1'. It is a case sensitive,
    alphanumeric
362 # string
363 dataTag: String!
364 # Attribute:
365 # The value of the object instantiation. Given a type
366 # of string to be general enough to support free text
367 # and track/vehicle id's alike
368 dataValue: String!
369 }
370 # Class:
371 # This class models the scope of the alert's dissemination.
372 #
373 enum AlmasScopeType {
374 # Attribute:
375 # unrestricted dissemination
376 PUBLIC_SCOPE
377 # Attribute:
378 # dissemination restricted to known functions

```

```

| 379 —RESTRICTED_SCOPE
| 380 —# Attribute:
| 381 —# dissemination restricted to specified addresses
| 382 —PRIVATE_SCOPE
| 383 }
| 384 # Class:
| 385 # The states between which an alert transitions in its lifetime.
| 386 #
| 387 enum AlmasStateType {
| 388 —# Attribute:
| 389 —# The alert has been created by the alert producer.
| 390 —RAISED
| 391 —# Attribute:
| 392 —# The alert has been routed to the receivers, but reception has not been
|   confirmed
| 393 —# by sufficient receivers to enter the received state.
| 394 —ROUTED
| 395 —# Attribute:
| 396 —# The alert has been received by sufficient receivers.
| 397 —RECEIVED
| 398 —# Attribute:
| 399 —# All necessary acknowledgements have been made.
| 400 —ACKNOWLEDGED
| 401 —# Attribute:
| 402 —# The alert ends its lifetime through being handled by the receiver.
| 403 —HANDLED
| 404 —# Attribute:
| 405 —# The alert ends its lifetime through being cancelled by the producer.
| 406 —CANCELLED
| 407 —# Attribute:
| 408 —# The alert ends its lifetime through being timed out.

```

```

409 —TIMED_OUT
410 }
411 # Class:
412 # Provides the default message text for an alert as a tuple of the actual
static
413 # text and the language in which the text is provided. If the StaticMessage
414 # requires runtime updating, then use data tags as specified in
DynamicMessageData.
415 type AlmasStaticMessageType {
416 —# Attribute:
417 —# This is a text string, which in an Alert or AlertTemplate is only
partially
418 —# completed. With the MessageText being "xxxxx %t1 yyyyyyy zzzz" in an
Alert or
419 —# AlertTemplate, and with a DynamicMessageData with DataTag having the
value 't1'
420 —# and DataValue having the value '123' then the resulting MessageText in
response
421 —# to GetFilledMessageText will be 'xxxxx 123 yyyyyyy zzzz'. All
substitution
422 —# points are bracketed by use of "<space>%" and <space>, and are case
sensitive,
423 —# alphanumeric strings ("t1" in the above) which should correspond to a
DataTag in
424 —# an associated DynamicMessageData.
425 messageText: String!
426 —# Attribute:
427 —# The message 'Locale'
428 messageLanguage: String!
429 }
430
431 # Class:
432 # Provides the default message text for an alert as a tuple of the actual
static
433 # text and the language in which the text is provided. If the StaticMessage

```



```

434 # requires runtime updating, then use data tags as specified in
    DynamicMessageData.
435 input AlmasStaticMessageTypeInput {
436   # Attribute:
437   # This is a text string, which in an Alert or AlertTemplate is only
    partially
438   # completed. With the MessageText being "xxxxx %t1 yyyyyyy zzzz" in an
    Alert or
439   # AlertTemplate, and with a DynamicMessageData with DataTag having the
    value 't1'
440   # and DataValue having the value '123' then the resulting MessageText in
    response
441   # to GetFilledMessageText will be 'xxxxx 123 yyyyyyy zzzz'. All
    substitution
442   # points are bracketed by use of "<space>%" and <space>, and are case-
    sensitive,
443   # alphanumeric strings ("t1" in the above) which should correspond to a
    DataTag in
444   # an associated DynamicMessageData.
445   messageText: String!
446   # Attribute:
447   # The message \Locale'
448   messageLanguage: String!
449 }
450 # Class:
451 # The status of the entities with regards to the mode of use of ALMAS in
    comparison
452 # to the mode of use of receivers and producers.
453 #
454 enum AlmasStatusType {
455   # Attribute:
456   # Actionable by all targeted recipients
457   ACTUAL
458   # Attribute:
459   # Actionable only by designated exercise participants

```

```

460 —EXERCISE
461 —# Attribute:
462 —# For entities that support alert network internal functions.
463 —SYSTEM
464 —# Attribute:
465 —# Technical testing only, all recipients disregard.
466 —TEST
467 }
468 # Class:
469 # This class models the possible behaviors when an alert is timed-out.
470 #
471 enum AlmasTimeoutActionType {
472 —# Attribute:
473 —# The alert is just cancelled (the alert instance's lifetime ends).
474 —CANCEL_ONLY
475 —# Attribute:
476 —# The alert manager is notified.
477 —NOTIFY_ONLY
478 —# Attribute:
479 —# The alert is cancelled (the alert instance's lifetime ends) and the alert
  manager
480 —# is notified.
481 —CANCEL_WITH_NOTIFY
482 }
483 # Class:
484 # The ValidAlertResponse is the association class that specifies the list of
485 # actions that a particular ReceiverKind (e.g. "role") can take in response
  to an
486 # Alert of an AlertTemplate type. It also specifies the "pecking order" of
  that
487 # ReceiverKind among all ReceiverKinds associated with that AlertTemplate.

```

```

488 # The set of alternative action strings can be used by the system to provide
489 # a
490 # constrained set of "command-response" options to the client. For example,
491 # ValidAlertResponses for an "Engagement Request Alert" might include
492 # "WILCO",
493 # "CANTCO", etc.
494 type AlmasValidAlertResponseType {
495 # Attribute:
496 # The 'names' of alternative actions available to the relevant actor.
497 # alternativeAction: [String!]!
498 # Attribute:
499 # The priority of the ReceiverKind as actionee for a specific alert kind as
500 # described by its template. The highest priority actionee for an action-
501 # alert
502 # should be chosen as the current actionee for the alert. This will then
503 # flow into
504 # the ReceiverIsActionee field of the AlertReport.
505 # actioneePriority: Short!
506 }
507 # Class:
508 # The ValidAlertResponse is the association class that specifies the list of
509 # actions that a particular ReceiverKind (e.g. "role") can take in response
510 # to an
511 # Alert of an AlertTemplate type. It also specifies the "pecking order" of
512 # that
513 # ReceiverKind among all ReceiverKinds associated with that AlertTemplate.
514 # The set of alternative action strings can be used by the system to provide
515 # a
516 # constrained set of "command-response" options to the client. For example,
517 # ValidAlertResponses for an "Engagement Request Alert" might include
518 # "WILCO",
519 # "CANTCO", etc.
520 input AlmasValidAlertResponseTypeInput {
521 # Attribute:

```

```

515 # The 'names' of alternative actions available to the relevant actor.
516 alternativeAction: [String!]+
517 # Attribute:
518 # The priority of the ReceiveKkind as actionee for a specific alert kind as
519 # described by its template. The highest priority actionee for an action-
  alert
520 # should be chosen as the current actionee for the alert. This will then-
  flow into
521 # the ReceiverIsActionee field of the AlertReport.
522 actioneePriority: Short!
523 }
524 # Class:
525 # This is a class representing items of alert data that are specific to-
  particular
526 # clients, that require supporting in order to fulfil possible requirements-
  of an
527 # alert management system (such as images or other binary data), but are not
528 # general enough to be defined explicitly as data types in an ALMAS.-
  Effectively
529 # ALMAS provides blind delivery of the information provided by this class to-
  the
530 # alert receiver without any knowledge as to its intended meaning and-
  behaviour.-
531 # The extra attributes are configured via the ALMAS Alert definition xml PSM
532 # specified in section 7.1. If defined in the Alert definition XML provided-
  to
533 # ALMAS, then ALMAS shall support the definition, receipt, storage and-
  passing of
534 # this data to receivers as part of a standard implementation.
535 type AlmasAlertDataExtraAttributesType {
536 # Attribute:
537 # Name of the client specific attribute
538 name: String!
539 # Attribute:
540 # Valid Values for this are:

```

```

541 # 0 = string
542 # 1 = Integer8
543 # 2 = Integer16
544 # 3 = Integer32
545 # 4 = Float32
546 # 5 = Float64
547 # 6 = bytes
548 # typeOfByteData: Short!
549 # Attribute:
550 # Used to provide indicator of the content e.g. "image (jpg)", "URL",
    "track
551 # object", ...
552 # description: String!
553 # Attribute:
554 # Contents as a byte sequence
555 # value: [Short!]!
556 }
557
558 # Class:
559 # This is a class representing items of alert data that are specific to
    particular
560 # clients, that require supporting in order to fulfil possible requirements
    of an
561 # alert management system (such as images or other binary data), but are not
562 # general enough to be defined explicitly as data types in an ALMAS.
    Effectively
563 # ALMAS provides blind delivery of the information provided by this class to
    the
564 # alert receiver without any knowledge as to its intended meaning and
    behaviour.
565 # The extra attributes are configured via the ALMAS Alert definition xml PSM
566 # specified in section 7.1. If defined in the Alert definition XML provided
    to
567 # ALMAS, then ALMAS shall support the definition, receipt, storage and
    passing of

```

```

568 # this data to receivers as part of a standard implementation.
569 input AlmasAlertDataExtraAttributesTypeInput {
570   # Attribute:
571   # Name of the client specific attribute
572   name: String!
573   # Attribute:
574   # Valid Values for this are:
575   # 0 = string
576   # 1 = Integer8
577   # 2 = Integer16
578   # 3 = Integer32
579   # 4 = Float32
580   # 5 = Float64
581   # 6 = bytes
582   typeOfByteData: Short!
583   # Attribute:
584   # Used to provide indicaton of the content e.g. "image (jpg)", "URL",
585   # "track", "...
586   description: String!
587   # Attribute:
588   # Contents as a byte sequence
589   value: [Short!]!
590 }
591 # Class:
592 # The descriptor of an alert receiver. This could for example be an operator
593 # role.
594 # ReceiverKind objects are used in many places in ALMAS including the
595 # specification of what operators/clients will receive which Alerts.
596 # o These are used to show all possible receivers of an Alert, when used in
597 # an
598 # AlertTemplate.

```

```

597 # o These are used during runtime to identify the actual receivers for an
    active
598 # alert.
599 type AlmasReceiverKindType {
600 # Attribute:
601 # String identifier of the kind of receiver, for example the role of a
    receiving
602 # operator.
603 rkType: String!
604 # Attribute:
605 # The hierarchical parent receiver kind name that this one "belongs to".
    This is
606 # used by ALMAS to resolve cases where a specific RK is not available but
    handing
607 # is required by an appropriate receiver. Note that a lack of a Parent is
608 # indicated by an empty string.
609 rkParentType: String!
610
611 validResponse: AlmasValidAlertResponseType
612 }
613
614 # Class:
615 # The descriptor of an alert receiver. This could for example be an operator
    role.
616 # ReceiverKind objects are used in many places in ALMAS including the
617 # specification of what operators/clients will receive which Alerts.
618 # o These are used to show all possible receivers of an Alert, when used in
    an
619 # AlertTemplate.
620 # o These are used during runtime to identify the actual receivers for an
    active
621 # alert.
622 input AlmasReceiverKindTypeInput {
623 # Attribute:

```

```

624 # String identifier of the kind of receiver, for example the role of a
      receiving
625 # operator.
626 rkType: String!
627 # Attribute:
628 # The hierarchical parent receiver kind name that this one "belongs to".
      This is
629 # used by ALMAS to resolve cases where a specific RK is not available but
      handing
630 # is required by an appropriate receiver. Note that a lack of a Parent is
631 # indicated by an empty string.
632 rkParentType: String!
633
634 validResponse: AlmasValidAlertResponseTypeInput
635 }
636 # Class:
637 # The class used to identify a receiver of alerts. A registered receiver of
638 # alerts. The AvailableAlertReceiver is registered with ALMAS through the
639 # ALMASResponder API. The AvailableAlertReceiver is directly associated with
      an
640 # ALMASReceiver through the ReceiverID attribute, which is provided at
      registration
641 # time to ALMAS using the RegisterReceiver method.
642 type AlmasAvailableAlertReceiverType {
643 # Attribute:
644 # Unique identifier for the receiver.
645 receiverId: String!
646 # Attribute:
647 # The kind of the receiver as an explicit attribute link to the Receiver
      Kind
648 # class.
649 receiverKind: AlmasReceiverKindType
650 }

```



```

651
652 # Class:
653 # The class used to identify a receiver of alerts. A registered receiver of
654 # alerts. The AvailableAlertReceiver is registered with ALMAS through the
655 # ALMASResponder API. The AvailableAlertReceiver is directly associated with
  an
656 # ALMASReceiver through the ReceiverID attribute, which is provided at
  registration
657 # time to ALMAS using the RegisterReceiver method.
658 input AlmasAvailableAlertReceiverTypeInput {
659 # Attribute:
660 # Unique identifier for the receiver.
661 receiverId: String!
662 # Attribute:
663 # The kind of the receiver as an explicit attribute link to the Receiver-
  Kind
664 # class.
665 receiverKind: AlmasReceiverKindTypeInput
666 }
667 # Class:
668 # This represents the set of data shared between the alert template and alert
669 # classes. All fields have default values which can be changed when alerts
  are
670 # raised/updated. This may be set up through the use of templates as
  specified
671 # through the XML PSM, which initialises AlertTemplate and its associated
  classes.
672 type AlmasAlertDataType {
673 # Attribute:
674 # A unique identifier for template which owns this alert data (or that was
  used to
675 # create the alert if this is referenced from Alert). Valid range from 1
  upwards.
676 templateId: Int!
677 # Attribute:

```

678 ~~# This enumeration can take the value Action / Warning / Information / Situation~~

679 ~~category: AlmasCategoryType~~

680 ~~# Attribute:~~

681 ~~# Alert priority as an integer value in the range 1-99. The priority is open for~~

682 ~~# client use and not intended for interpretation by ALMAS.~~

683 ~~priority: Short!~~

684 ~~# Attribute:~~

685 ~~# Corresponds to the OASIS CAP Status field.~~

686 ~~# "Actual" - Actionable by all targeted recipients~~

687 ~~# "Exercise" - Actionable only by designated exercise participants; exercise~~

688 ~~# identifier should appear in an Alert Data Extra Attributes element~~

689 ~~# "System" - For messages that support alert network internal functions~~

690 ~~# "Test" - Technical testing only, all recipients disregard~~

691 ~~status: AlmasStatusType~~

692 ~~# Attribute:~~

693 ~~# Corresponds to CAP scope.~~

694 ~~scope: AlmasScopeType~~

695 ~~# Attribute:~~

696 ~~# Specifies the time, in seconds, required to elapse before the alert will timeout~~

697 ~~# and perform its default timeout action. 0 implies there is no timeout.~~

698 ~~timeout: Int!~~

699 ~~# Attribute:~~

700 ~~# This is set if confirmation of receipt is required~~

701 ~~# i.e. that it has been distributed. If this is set to true the~~

702 ~~# producer has registered for receipt of the distribution notification.~~

703 ~~confirmationRequired: Boolean!~~

704 ~~# Attribute:~~

705 ~~# This is an additional field to support client specific filtering mechanisms.~~

```

| 706 secondaryGrouping: String!
| 707 # Attribute:
| 708 # Indicates whether the alert data is required to be persistent in the
| event of a
| 709 # system restart
| 710 persistent: Boolean!
| 711 # Attribute:
| 712 # A flag which, when true, indicates that the alert should have guaranteed
| 713 # delivery.
| 714 reliablyDistributed: Boolean!
| 715 # Attribute:
| 716 # When the alert times out, ALMAS acts according to this attribute.
| 717 timeoutAction: AlmasTimeoutActionType
| 718 # Attribute:
| 719 # Sets the conditions upon which the alert state can
| 720 # transition to 'acknowledged'.
| 721 # This has the options of {none, anyone, all}
| 722 acknowledgementModel: AlmasAckModelType
| 723
| 724 staticMessages: [AlmasStaticMessageType!]!
| 725
| 726 dynamicMessages: [AlmasDynamicMessageDataType!]!
| 727
| 728 extraAttributes: [AlmasAlertDataExtraAttributesType!]!
| 729 }
| 730
| 731 # Class:
| 732 # This represents the set of data shared between the alert template and alert
| 733 # classes. All fields have default values which can be changed when alerts
| are
| 734 # raised/updated. This may be set up through the use of templates as
| specified

```

```

735 # through the XML PSM, which initialises AlertTemplate and its associated
      classes.
736 input AlmasAlertDataTypeInput {
737   # Attribute:
738   # A unique identifier for template which owns this alert data (or that was
      used to
739   # create the alert if this is referenced from Alert). Valid range from 1
      upwards.
740   templateId: Int!
741   # Attribute:
742   # This enumeration can take the value Action / Warning / Information /
      Situation
743   category: AlmasCategoryType
744   # Attribute:
745   # Alert priority as an integer value in the range 1-99. The priority is
      open for
746   # client use and not intended for interpretation by ALMAS.
747   priority: Short!
748   # Attribute:
749   # Corresponds to the OASIS CAP Status field.
750   # "Actual" - Actionable by all targeted recipients
751   # "Exercise" - Actionable only by designated exercise participants;
      exercise
752   # identifier should appear in an Alert Data Extra Attributes element
753   # "System" - For messages that support alert network internal functions
754   # "Test" - Technical testing only, all recipients disregard
755   status: AlmasStatusType
756   # Attribute:
757   # Corresponds to CAP scope.
758   scope: AlmasScopeType
759   # Attribute:
760   # Specifies the time, in seconds, required to elapse before the alert will
      timeout
761   # and perform its default timeout action. 0 implies there is no timeout.

```

```

762 timeout: Int!
763 # Attribute:
764 # This is set if confirmation of receipt is required
765 # i.e. that it has been distributed. If this is set to true the
766 # producer has registered for receipt of the distribution notification.
767 confirmationRequired: Boolean!
768 # Attribute:
769 # This is an additional field to support client specific filtering
mechanisms.
770 secondaryGrouping: String!
771 # Attribute:
772 # Indicates whether the alert data is required to be persistent in the
event of a
773 # system restart
774 persistent: Boolean!
775 # Attribute:
776 # A flag which, when true, indicates that the alert should have guaranteed
delivery.
777 reliablyDistributed: Boolean!
778 # Attribute:
779 # When the alert times-out, ALMAS acts according to this attribute.
780 timeoutAction: AlmasTimeoutActionType
781 # Attribute:
782 # Sets the conditions upon which the alert state can
transition to 'acknowledged'.
783 # This has the options of {none, anyone, all}
784 acknowledgementModel: AlmasAckModelType
785 # Attribute:
786 staticMessages: [AlmasStaticMessageTypeInput!]+
787 # Attribute:
788 dynamicMessages: [AlmasDynamicMessageDataTypeInput!]+
789 # Attribute:
790 dynamicMessages: [AlmasDynamicMessageDataTypeInput!]+
791 # Attribute:

```

```

792 extraAttributes: [AlmasAlertDataExtraAttributesTypeInput!]+
793 }
794 type AlmasAlertTemplateTypeUpdate {
795 # The instance that has been updated (or deleted if Deleted flag is true).
796 instance: AlmasAlertTemplateType!
797 # True if the instance has been deleted, false otherwise (i.e. on creation
or update).
798 deleted: Boolean!
799 }
800
801 # Operation:
802 # Retrieves an existing alert template from ALMAS by providing the template
ID.
803 # Interface:
804 # The ALMASManager interface provides the minimal set of APIs necessary to
track
805 # ALMAS activity. Additionally, the ALMASManager provides the interface in
ALMAS
806 # for retrieving Alerts and AlertTemplates, and registering for the
notification of
807 # delivery of Alerts. Note that the registration of receivers is done via
the
808 # ALMAS Responder class.
809 # Note: The methods found in the ALMASProducer interface allow the system to
update
810 # the status or attributes of an alert during runtime.
811 # Class:
812 # An AlertTemplate specifies the generic characteristics of a specific alert
type
813 # "at rest" (e.g. the general characteristics of a collision warning alert).
This
814 # includes the category of alert, such as Action etc. An AlertTemplate uses
an
815 # associated AlertData object to specify the contents of the template. An
816 # AlertTemplate can be used to specify the properties of commonly used within
a

```

```

817 # system. At the time of raising an Alert from a template, the user/system
818 # provides the relevant instance data of that alert
819 type AlmasAlertTemplateType {
820   # Attribute:
821   # The inhibition status of that alert type. If this is 'true' then attempts
   to
822   # raise an alert of that type will fail.
823   inhibited: Boolean!
824   # Attribute:
825   # Indicates that the alert should be
826   # raised to all available receivers rather
827   # than specified ones.
828   raiseToAll: Boolean!
829
830   alertData: AlmasAlertDataType
831
832   receiverKinds: [AlmasReceiverKindType!]!
833 }
834
835 # Operation:
836 # Retrieves an existing alert template from ALMAS by providing the template
   ID.
837 # Interface:
838 # The ALMASManager interface provides the minimal set of APIs necessary to
   track
839 # ALMAS activity. Additionally, the ALMASManager provides the interface in
   ALMAS
840 # for retrieving Alerts and AlertTemplates, and registering for the
   notification of
841 # delivery of Alerts. Note that the registration of receivers is done via
   the
842 # ALMAS Responder class.
843 # Note: The methods found in the ALMASProducer interface allow the system to
   update

```

```

844 # the status or attributes of an alert during runtime.
845 # Class:
846 # An AlertTemplate specifies the generic characteristics of a specific alert
  type
847 # "at rest" (e.g. the general characteristics of a collision warning alert).
  This
848 # includes the category of alert, such as Action etc. An AlertTemplate uses
  an
849 # associated AlertData object to specify the contents of the template. An
850 # AlertTemplate can be used to specify the properties of commonly used within
  a
851 # system. At the time of raising an Alert from a template, the user/system
852 # provides the relevant instance data of that alert
853 input AlmasAlertTemplateTypeInput {
854 # Attribute:
855 # The inhibition status of that alert type. If this is 'true' then attempts
  to
856 # raise an alert of that type will fail.
857 inhibited: Boolean!
858 # Attribute:
859 # Indicates that the alert should be
860 # raised to all available receivers rather
861 # than specified ones.
862 raiseToAll: Boolean!
863
864 alertData: AlmasAlertDataTypeInput
865
866 receiverKinds: [AlmasReceiverKindTypeInput!]!
867 }
868 type AlmasAlertUpdate {
869 # The instance that has been updated (or deleted if Deleted flag is true).
870 instance: AlmasAlert!

```



```

871 # True if the instance has been deleted, false otherwise (i.e. on creation-
      or update).
872 deleted: Boolean!
873 }
874
875 # Operation:
876 # Retrieves data for a specific raised alert from ALMAS given the passed-
      AlertID.
877 # Assumes the requestor knows the AlertID to retrieve.
878 # Interface:
879 # The ALMASManager interface provides the minimal set of APIs necessary to-
      track
880 # ALMAS activity. Additionally, the ALMASManager provides the interface in-
      ALMAS
881 # for retrieving Alerts and AlertTemplates, and registering for the-
      notification of
882 # delivery of Alerts. Note that the registration of receivers is done via-
      the
883 # ALMAS Responder class.
884 # Note: The methods found in the ALMASProducer interface allow the system to-
      update
885 # the status or attributes of an alert during runtime.
886 # Class:
887 # An active alert within ALMAS. The Alert class provides the main entity-
      that
888 # ALMAS uses for tracking the state of an alert. The specific data such as-
      message
889 # and other attributes for an active alert is provided in the AlertData class
      which
890 # is a member attribute of the Alert
891 type AlmasAlert {
892   # Attribute:
893   # The instance id for the specific instance of the alert.
894   alertId: Int!
895   # Attribute:
896   # The time at which the alert was raised.

```

```

| 897 raisingTime: Long!
| 898 # Attribute:
| 899 # Holds the current state of the alert, valid states are determined by the
| category
| 900 # of the alert, {Raised, Routed, Received, Acknowledged, Handled,
| Cancelled,
| 901 # Timed_Out}. Note that Handled is not a valid state for Information and
| Warning
| 902 # Alerts.
| 903 currentState: AlmasStateType
| 904 # Attribute:
| 905 # The producer freetext ID corresponds to CAP source
| 906 producerId: String!
| 907
| 908 alertData: AlmasAlertDataType
| 909
| 910 receivers: [AlmasAvailableAlertReceiverType!]!
| 911 }
| 912
| 913 # Operation:
| 914 # Retrieves data for a specific raised alert from ALMAS given the passed
| AlertID.
| 915 # Assumes the requestor knows the AlertID to retrieve.
| 916 # Interface:
| 917 # The ALMASManager interface provides the minimal set of APIs necessary to
| track
| 918 # ALMAS activity. Additionally, the ALMASManager provides the interface in
| ALMAS
| 919 # for retrieving Alerts and AlertTemplates, and registering for the
| notification of
| 920 # delivery of Alerts. Note that the registration of receivers is done via
| the
| 921 # ALMAS Responder class.
| 922 # Note: The methods found in the ALMASProducer interface allow the system to
| update

```

```

923 # the status or attributes of an alert during runtime.
924 # Class:
925 # An active alert within ALMAS. The Alert class provides the main entity
that
926 # ALMAS uses for tracking the state of an alert. The specific data such as
message
927 # and other attributes for an active alert is provided in the AlertData class
which
928 # is a member attribute of the Alert
929 input AlmasAlertInput {
930 # Attribute:
931 # The instance id for the specific instance of the alert.
932 alertId: Int!
933 # Attribute:
934 # The time at which the alert was raised.
935 raisingTime: Long!
936 # Attribute:
937 # Holds the current state of the alert, valid states are determined by the
category
938 # of the alert, {Raised, Routed, Received, Acknowledged, Handled,
Cancelled,
939 # Timed_Out}. Note that Handled is not a valid state for Information and
Warning
940 # Alerts.
941 currentState: AlmasStateType
942 # Attribute:
943 # The producer freetext ID corresponds to CAP source
944 producerId: String!
945
946 alertData: AlmasAlertDataTypeInput
947
948 receivers: [AlmasAvailableAlertReceiverTypeInput!]!
949 }
950 type AlmasManagerUpdate {

```

```

| 951 # The instance that has been updated (or deleted if Deleted flag is true).
| 952 instance: AlmasManager!
| 953 # True if the instance has been deleted, false otherwise (i.e. on creation
| or update).
| 954 deleted: Boolean!
| 955 }
| 956
| 957 # Class:
| 958 # Need a singleton topic for ALMAS_Manager since it has attributes
| 959 type AlmasManager {
| 960 systemId: String!
| 961 }
| 962
| 963 # Class:
| 964 # Need a singleton topic for ALMAS_Manager since it has attributes
| 965 input AlmasManagerInput {
| 966 systemId: String!
| 967 }
| 968 type AlmasRaiseAlertFromTemplateUpdate {
| 969 # The instance that has been updated (or deleted if Deleted flag is true).
| 970 instance: AlmasRaiseAlertFromTemplate!
| 971 # True if the instance has been deleted, false otherwise (i.e. on creation
| or update).
| 972 deleted: Boolean!
| 973 }
| 974
| 975 # Operation:
| 976 # Raise an alert without any of the optional parameters for optimal use in
| the
| 977 # normal case.
| 978 # Interface:

```

~~979 # Provides the API by which system objects producing alerts can create and
update~~

~~980 # alerts that are generated. A CallStatus object will be returned to indicate~~

~~981 # whether the request has been accepted by ALMAS. If a system wished to
track the~~

~~982 # lifecycle of the alert, they must implement the NotificationListener~~

~~983 # functionality to receive updates.~~

~~984 # Three mechanisms by which alerts can be raised are provided by the
ALMASProducer~~

~~985 # interface class. Two variants RaiseAlertFromTemplate and
RaiseAlertFromOverrides~~

~~986 # allow the system to raise an alert by simply specifying the alert ID,
template ID~~

~~987 # and their own ProducerID, one of these also allows the over-ride of any~~

~~988 # placeholders that may be present in the 'Message' attribute of the alert
data~~

~~989 # class associated with that template. The raiser may also optionally
override any~~

~~990 # of the following parameters: Message, MessageLanguage, Category, Status,
Scope,~~

~~991 # Timeout, ConfirmationRequired, AlertReceiverSet, Priority, TimeoutAction
and~~

~~992 # AcknowledgementModel.~~

~~993 # The RaiseAlertFromData method allows the raiser to specify a completely new
alert~~

~~994 # with no basis on any existing templates. Systems using ALMAS may not wish
to~~

~~995 # support alert templates depending on their size, complexity and level of
alert~~

~~996 # usage, in which case that system can always use RaiseAlertFromData without
need~~

~~997 # to instantiate any templates at any point during operation.~~

~~998 # The status or attributes of an alert can be updated during runtime by
calling the~~

~~999 # UpdateAlert method found in the ALMASProducer interface. The ALMASProducer
then~~

~~1000 # works with the ALMAS system to ensure state and data is properly
maintained in~~

~~1001 # the system.~~

```

1002 type AlmasRaiseAlertFromTemplate {
1003     requestId: Long!
1004
1005     producerId: String!
1006
1007     templateId: Int!
1008 }
1009
1010 # Operation:
1011 # Raise an alert without any of the optional parameters for optimal use in
1012 # the
1013 # normal case.
1014 # Interface:
1015 # Provides the API by which system objects producing alerts can create and
1016 # update
1017 # alerts that are generated. A CallStatus object will be returned to
1018 # indicate
1019 # whether the request has been accepted by ALMAS. If a system wished to
1020 # track the
1021 # lifecycle of the alert, they must implement the NotificationListener
1022 # functionality to receive updates.
1023 # Three mechanisms by which alerts can be raised are provided by the
1024 # ALMASProducer
1025 # interface class. Two variants RaiseAlertFromTemplate and
1026 # RaiseAlertFromOverrides
1027 # allow the system to raise an alert by simply specifying the alert ID,
1028 # template ID
1029 # and their own ProducerID, one of these also allows the over-ride of any
1030 # placeholders that may be present in the 'Message' attribute of the alert
1031 # data
1032 # class associated with that template. The raiser may also optionally
1033 # override any
1034 # of the following parameters: Message, MessageLanguage, Category, Status,
1035 # Scope,
1036 # Timeout, ConfirmationRequired, AlertReceiverSet, Priority, TimeoutAction
1037 # and

```

```

1027 # AcknowledgementModel.
1028 # The RaiseAlertFromData method allows the raiser to specify a completely
    new alert
1029 # with no basis on any existing templates. Systems using ALMAS may not wish
    to
1030 # support alert templates depending on their size, complexity and level of
    alert
1031 # usage, in which case that system can always use RaiseAlertFromData
    without need
1032 # to instantiate any templates at any point during operation.
1033 # The status or attributes of an alert can be updated during runtime by
    calling the
1034 # UpdateAlert method found in the ALMASProducer interface. The
    ALMASProducer then
1035 # works with the ALMAS system to ensure state and data is properly
    maintained in
1036 # the system.
1037 input AlmasRaiseAlertFromTemplateInput {
1038     requestId: Long!
1039
1040     producerId: String!
1041
1042     templateId: Int!
1043 }
1044 type AlmasRegisterReceiverUpdate {
1045     # The instance that has been updated (or deleted if Deleted flag is
    true).
1046     instance: AlmasRegisterReceiver!
1047     # True if the instance has been deleted, false otherwise (i.e. on
    creation or update).
1048     deleted: Boolean!
1049 }
1050
1051 # Operation:
1052 # This registers a receiver with ALMAS, the parameters are ReceiverHandle
    (for

```

```

| 1053 # callback); ReceiverID (for use in all other methods, including
| 1054 # UnregisterReceiver) and RKType to provide link to RK hierarchy.
| 1055 # Interface:
| 1056 # Provides the API for systems to respond to and provide feedback to ALMAS
|   about
| 1057 # alertsreceived. Embedded in this class are the methods to register and
| 1058 # un-register your system-specific receiver.
| 1059 # The system notifies ALMAS through this interface of significant events
|   that have
| 1060 # occurred to change the state of an alert.
| 1061 type AlmasRegisterReceiver {
| 1062   requestId: Long!
| 1063
| 1064   receiverId: String!
| 1065
| 1066   rkType: String!
| 1067 }
| 1068
| 1069 # Operation:
| 1070 # This registers a receiver with ALMAS, the parameters are ReceiverHandle
|   (for
| 1071 # callback); ReceiverID (for use in all other methods, including
| 1072 # UnregisterReceiver) and RKType to provide link to RK hierarchy.
| 1073 # Interface:
| 1074 # Provides the API for systems to respond to and provide feedback to ALMAS
|   about
| 1075 # alertsreceived. Embedded in this class are the methods to register and
| 1076 # un-register your system-specific receiver.
| 1077 # The system notifies ALMAS through this interface of significant events
|   that have
| 1078 # occurred to change the state of an alert.
| 1079 input AlmasRegisterReceiverInput {
| 1080   requestId: Long!

```



```

| 1081—
| 1082— receiverId: String!
| 1083—
| 1084— rkType: String!
| 1085— }
| 1086— type AlmasUnregisterReceiverUpdate {
| 1087— # The instance that has been updated (or deleted if Deleted flag is
| 1088— # true).
| 1089— instance: AlmasUnregisterReceiver!
| 1090— # True if the instance has been deleted, false otherwise (i.e. on-
| 1091— # creation or update).
| 1092— deleted: Boolean!
| 1093— }
| 1094— # Operation:
| 1095— # Removes a registered receiver from ALMAS, indicating that they are no-
| 1096— # longer
| 1097— # avail-able for receipt of alert data.
| 1098— # Interface:
| 1099— # Provides the API for systems to respond to and provide feedback to ALMAS
| 1100— # about
| 1101— # alertsreceived. Embedded in this class are the methods to register and
| 1102— # un-register your system-specific receiver.
| 1103— # The system notifies ALMAS through this interface of significant events
| 1104— # that have
| 1105— # occurred to change the state of an alert.
| 1106— type AlmasUnregisterReceiver {
| 1107— requestId: Long!
| 1108— receiverId: String!
| 1109— }
| 1110— }
| 1111— # Operation:

```

```

1109 # Removes a registered receiver from ALMAS, indicating that they are no-
      longer
1110 # avail-able for receipt of alert data.
1111 # Interface:
1112 # Provides the API for systems to respond to and provide feedback to ALMAS-
      about
1113 # alertsreceived. Embedded in this class are the methods to register and
1114 # un-register your system-specific receiver.
1115 # The system notifies ALMAS through this interface of significant events-
      that have
1116 # occurred to change the state of an alert.
1117 input AlmasUnregisterReceiverInput {
1118     requestId: Long!
1119
1120     receiverId: String!
1121 }
1122 type AlmasRaiseAlertWithDynamicDataUpdate {
1123     # The instance that has been updated (or deleted if Deleted flag is-
      true).
1124     instance: AlmasRaiseAlertWithDynamicData!
1125     # True if the instance has been deleted, false otherwise (i.e. on-
      creation or update).
1126     deleted: Boolean!
1127 }
1128
1129 # Operation:
1130 # This will cause an alert based on a known alert template
1131 # to be created and raised, whilst only specifying the dynamic data content
      that
1132 # differs from the template definition.
1133 # All parameters are mandatory
1134 # Return parameter indicates success or failure reason.
1135 # Interface:

```

~~1136 # Provides the API by which system objects producing alerts can create and update~~

~~1137 # alerts that are generated. A CallStatus object will be returned to indicate~~

~~1138 # whether the request has been accepted by ALMAS. If a system wished to track the~~

~~1139 # lifecycle of the alert, they must implement the NotificationListener~~

~~1140 # functionality to receive updates.~~

~~1141 # Three mechanisms by which alerts can be raised are provided by the ALMASProducer~~

~~1142 # interface class. Two variants RaiseAlertFromTemplate and RaiseAlertFromOverrides~~

~~1143 # allow the system to raise an alert by simply specifying the alert ID, template ID~~

~~1144 # and their own ProducerID, one of these also allows the over-ride of any~~

~~1145 # placeholders that may be present in the 'Message' attribute of the alert data~~

~~1146 # class associated with that template. The raiser may also optionally override any~~

~~1147 # of the following parameters: Message, MessageLanguage, Category, Status, Scope,~~

~~1148 # Timeout, ConfirmationRequired, AlertReceiverSet, Priority, TimeoutAction and~~

~~1149 # AcknowledgementModel.~~

~~1150 # The RaiseAlertFromData method allows the raiser to specify a completely new alert~~

~~1151 # with no basis on any existing templates. Systems using ALMAS may not wish to~~

~~1152 # support alert templates depending on their size, complexity and level of alert~~

~~1153 # usage, in which case that system can always use RaiseAlertFromData without need~~

~~1154 # to instantiate any templates at any point during operation.~~

~~1155 # The status or attributes of an alert can be updated during runtime by calling the~~

~~1156 # UpdateAlert method found in the ALMASProducer interface. The ALMASProducer then~~

~~1157 # works with the ALMAS system to ensure state and data is properly maintained in~~

```

| 1158 # the system.
| 1159 type AlmasRaiseAlertWithDynamicData {
| 1160   requestId: Long!
| 1161
| 1162   producerId: String!
| 1163
| 1164   templateId: Int!
| 1165
| 1166   dynamicMessages: [AlmasDynamicMessageDataType!]!
| 1167 }
| 1168
| 1169 # Operation:
| 1170 # This will cause an alert based on a known alert template
| 1171 # to be created and raised, whilst only specifying the dynamic data content
| 1172 # that
| 1173 # differs from the template definition.
| 1174 # All parameters are mandatory
| 1175 # Return parameter indicates success or failure reason.
| 1176 # Interface:
| 1177 # Provides the API by which system objects producing alerts can create and
| 1178 # update
| 1179 # alerts that are generated. A CallStatus object will be returned to
| 1180 # indicate
| 1181 # whether the request has been accepted by ALMAS. If a system wished to
| 1182 # track the
| 1183 # lifecycle of the alert, they must implement the NotificationListener
| 1184 # functionality to receive updates.
| 1185 # Three mechanisms by which alerts can be raised are provided by the
| 1186 # ALMASProducer
| 1187 # interface class. Two variants RaiseAlertFromTemplate and
| 1188 # RaiseAlertFromOverrides
| 1189 # allow the system to raise an alert by simply specifying the alert ID,
| 1190 # template ID
| 1191 # and their own ProducerID, one of these also allows the over-ride of any

```

```

1185 # placeholders that may be present in the 'Message' attribute of the alert
      data
1186 # class associated with that template. The raiser may also optionally
      override any
1187 # of the following parameters: Message, MessageLanguage, Category, Status,
      Scope,
1188 # Timeout, ConfirmationRequired, AlertReceiverSet, Priority, TimeoutAction
      and
1189 # AcknowledgementModel.
1190 # The RaiseAlertFromData method allows the raiser to specify a completely
      new alert
1191 # with no basis on any existing templates. Systems using ALMAS may not wish
      to
1192 # support alert templates depending on their size, complexity and level of
      alert
1193 # usage, in which case that system can always use RaiseAlertFromData
      without need
1194 # to instantiate any templates at any point during operation.
1195 # The status or attributes of an alert can be updated during runtime by
      calling the
1196 # UpdateAlert method found in the ALMASProducer interface. The
      ALMASProducer then
1197 # works with the ALMAS system to ensure state and data is properly
      maintained in
1198 # the system.
1199 input AlmasRaiseAlertWithDynamicDataInput {
1200     requestId: Long!
1201
1202     producerId: String!
1203
1204     templateId: Int!
1205
1206     dynamicMessages: [AlmasDynamicMessageDataTypeInput!]!
1207 }
1208 type AlmasRaiseAlertFromDataUpdate {
1209     # The instance that has been updated (or deleted if Deleted flag is
      true).

```

```

| 1210 instance: AlmasRaiseAlertFromData!
| 1211 # True if the instance has been deleted, false otherwise (i.e. on
| creation or update).
| 1212 deleted: Boolean!
| 1213 }
| 1214
| 1215 # Operation:
| 1216 # Raises an alert not present in the ALMAS template
| 1217 # database. A temporary AlertTemaplate is created (whose TemplateID is
| ignored),
| 1218 # to facilitate the creation.
| 1219 # Return parameter indicates success or failure reason.
| 1220 # Interface:
| 1221 # Provides the API by which system objects producing alerts can create and
| update
| 1222 # alerts that are generated. A CallStatus object will be returned to
| indicate
| 1223 # whether the request has been accepted by ALMAS. If a system wished to
| track the
| 1224 # lifecycle of the alert, they must implement the NotificationListener
| 1225 # functionality to receive updates.
| 1226 # Three mechanisms by which alerts can be raised are provided by the
| ALMASProducer
| 1227 # interface class. Two variants RaiseAlertFromTemplate and
| RaiseAlertFromOverrides
| 1228 # allow the system to raise an alert by simply specifying the alert ID,
| template ID
| 1229 # and their own ProducerID, one of these also allows the over-ride of any
| 1230 # placeholders that may be present in the 'Message' attribute of the alert
| data
| 1231 # class associated with that template. The raiser may also optionally
| override any
| 1232 # of the following parameters: Message, MessageLanguage, Category, Status,
| Scope,
| 1233 # Timeout, ConfirmationRequired, AlertReceiverSet, Priority, TimeoutAction
| and

```

```

1234 # AcknowledgementModel.
1235 # The RaiseAlertFromData method allows the raiser to specify a completely
    new alert
1236 # with no basis on any existing templates. Systems using ALMAS may not wish
    to
1237 # support alert templates depending on their size, complexity and level of
    alert
1238 # usage, in which case that system can always use RaiseAlertFromData
    without need
1239 # to instantiate any templates at any point during operation.
1240 # The status or attributes of an alert can be updated during runtime by
    calling the
1241 # UpdateAlert method found in the ALMASProducer interface. The
    ALMASProducer then
1242 # works with the ALMAS system to ensure state and data is properly
    maintained in
1243 # the system.
1244 type AlmasRaiseAlertFromData {
1245     requestId: Long!
1246
1247     producerId: String!
1248
1249     alertInfo: AlmasAlertTemplateType
1250 }
1251
1252 # Operation+
1253 # Raises an alert not present in the ALMAS template
1254 # database. A temporary AlertTemaplate is created (whose TemplateID is
    ignored),
1255 # to facilitate the creation.
1256 # Return parameter indicates success or failure reason.
1257 # Interface+
1258 # Provides the API by which system objects producing alerts can create and
    update
1259 # alerts that are generated. A CallStatus object will be returned to
    indicate

```

~~1260 # whether the request has been accepted by ALMAS. If a system wished to track the~~

~~1261 # lifecycle of the alert, they must implement the NotificationListener~~

~~1262 # functionality to receive updates.~~

~~1263 # Three mechanisms by which alerts can be raised are provided by the ALMASProducer~~

~~1264 # interface class. Two variants RaiseAlertFromTemplate and RaiseAlertFromOverrides~~

~~1265 # allow the system to raise an alert by simply specifying the alert ID, template ID~~

~~1266 # and their own ProducerID, one of these also allows the over-ride of any~~

~~1267 # placeholders that may be present in the 'Message' attribute of the alert data~~

~~1268 # class associated with that template. The raiser may also optionally override any~~

~~1269 # of the following parameters: Message, MessageLanguage, Category, Status, Scope,~~

~~1270 # Timeout, ConfirmationRequired, AlertReceiverSet, Priority, TimeoutAction and~~

~~1271 # AcknowledgementModel.~~

~~1272 # The RaiseAlertFromData method allows the raiser to specify a completely new alert~~

~~1273 # with no basis on any existing templates. Systems using ALMAS may not wish to~~

~~1274 # support alert templates depending on their size, complexity and level of alert~~

~~1275 # usage, in which case that system can always use RaiseAlertFromData without need~~

~~1276 # to instantiate any templates at any point during operation.~~

~~1277 # The status or attributes of an alert can be updated during runtime by calling the~~

~~1278 # UpdateAlert method found in the ALMASProducer interface. The ALMASProducer then~~

~~1279 # works with the ALMAS system to ensure state and data is properly maintained in~~

~~1280 # the system.~~

~~1281 input AlmasRaiseAlertFromDataInput {~~

~~1282 requestId: Long!~~


```

1283—
1284— producerId: String!
1285—
1286— alertInfo: AlmasAlertTemplateTypeInput
1287— }
1288— type AlmasUpdateAlertPriorityUpdate {
1289— # The instance that has been updated (or deleted if Deleted flag is
      true).
1290— instance: AlmasUpdateAlertPriority!
1291— # True if the instance has been deleted, false otherwise (i.e. on
      creation or update).
1292— deleted: Boolean!
1293— }
1294—
1295— # Operation:
1296— # Update an existing raised alert instance's priority.
1297— # Interface:
1298— # Provides the API by which system objects producing alerts can create and
      update
1299— # alerts that are generated. A CallStatus object will be returned to
      indicate
1300— # whether the request has been accepted by ALMAS. If a system wished to
      track the
1301— # lifecycle of the alert, they must implement the NotificationListener
1302— # functionality to receive updates.—
1303— # Three mechanisms by which alerts can be raised are provided by the
      ALMASProducer
1304— # interface class. Two variants RaiseAlertFromTemplate and
      RaiseAlertFromOverrides
1305— # allow the system to raise an alert by simply specifying the alert ID,—
      template ID
1306— # and their own ProducerID, one of these also allows the over-ride of any
1307— # placeholders that may be present in the 'Message' attribute of the alert
      data
1308— # class associated with that template. The raiser may also optionally
      override any

```

```

1309 # of the following parameters: Message, MessageLanguage, Category, Status,
Scope,
1310 # Timeout, ConfirmationRequired, AlertReceiverSet, Priority, TimeoutAction
and
1311 # AcknowledgementModel.
1312 # The RaiseAlertFromData method allows the raiser to specify a completely
new alert
1313 # with no basis on any existing templates. Systems using ALMAS may not wish
to
1314 # support alert templates depending on their size, complexity and level of
alert
1315 # usage, in which case that system can always use RaiseAlertFromData
without need
1316 # to instantiate any templates at any point during operation.
1317 # The status or attributes of an alert can be updated during runtime by
calling the
1318 # UpdateAlert method found in the ALMASProducer interface. The
ALMASProducer then
1319 # works with the ALMAS system to ensure state and data is properly
maintained in
1320 # the system.
1321 type AlmasUpdateAlertPriority {
1322     requestId: Long!
1323
1324     producerId: String!
1325
1326     alertId: Int!
1327
1328     priority: Short!
1329 }
1330
1331 # Operation:
1332 # Update an existing raised alert instance's priority.
1333 # Interface:

```

~~1334 # Provides the API by which system objects producing alerts can create and update~~

~~1335 # alerts that are generated. A CallStatus object will be returned to indicate~~

~~1336 # whether the request has been accepted by ALMAS. If a system wished to track the~~

~~1337 # lifecycle of the alert, they must implement the NotificationListener~~

~~1338 # functionality to receive updates.~~

~~1339 # Three mechanisms by which alerts can be raised are provided by the ALMASProducer~~

~~1340 # interface class. Two variants RaiseAlertFromTemplate and RaiseAlertFromOverrides~~

~~1341 # allow the system to raise an alert by simply specifying the alert ID, template ID~~

~~1342 # and their own ProducerID, one of these also allows the over-ride of any~~

~~1343 # placeholders that may be present in the 'Message' attribute of the alert data~~

~~1344 # class associated with that template. The raiser may also optionally override any~~

~~1345 # of the following parameters: Message, MessageLanguage, Category, Status, Scope,~~

~~1346 # Timeout, ConfirmationRequired, AlertReceiverSet, Priority, TimeoutAction and~~

~~1347 # AcknowledgementModel.~~

~~1348 # The RaiseAlertFromData method allows the raiser to specify a completely new alert~~

~~1349 # with no basis on any existing templates. Systems using ALMAS may not wish to~~

~~1350 # support alert templates depending on their size, complexity and level of alert~~

~~1351 # usage, in which case that system can always use RaiseAlertFromData without need~~

~~1352 # to instantiate any templates at any point during operation.~~

~~1353 # The status or attributes of an alert can be updated during runtime by calling the~~

~~1354 # UpdateAlert method found in the ALMASProducer interface. The ALMASProducer then~~

~~1355 # works with the ALMAS system to ensure state and data is properly maintained in~~

```

| 1356 # the system.
| 1357 input AlmasUpdateAlertPriorityInput {
| 1358     requestId: Long!
| 1359
| 1360     producerId: String!
| 1361
| 1362     alertId: Int!
| 1363
| 1364     priority: Short!
| 1365 }
| 1366 type AlmasCancelAlertUpdate {
| 1367     # The instance that has been updated (or deleted if Deleted flag is
| 1368     # true).
| 1369     instance: AlmasCancelAlert!
| 1370
| 1371     # True if the instance has been deleted, false otherwise (i.e. on
| 1372     # creation or update).
| 1373     deleted: Boolean!
| 1374 }
| 1375 # Operation+
| 1376 # Cancel a specific alert within ALMAS
| 1377 # Return parameter indicates success or failure reason.
| 1378 # Interface+
| 1379 # Provides the API by which system objects producing alerts can create and
| 1380 # update
| 1381 # alerts that are generated. A CallStatus object will be returned to
| 1382 # indicate
| 1383 # whether the request has been accepted by ALMAS. If a system wished to
| 1384 # track the
| 1385 # lifecycle of the alert, they must implement the NotificationListener
| 1386 # functionality to receive updates.
| 1387 # Three mechanisms by which alerts can be raised are provided by the
| 1388 # ALMASProducer

```

```

1383 # interface class. Two variants RaiseAlertFromTemplate and
      RaiseAlertFromOverrides
1384 # allow the system to raise an alert by simply specifying the alert ID,
      template ID
1385 # and their own ProducerID, one of these also allows the over-ride of any
1386 # placeholders that may be present in the 'Message' attribute of the alert
      data
1387 # class associated with that template. The raiser may also optionally
      override any
1388 # of the following parameters: Message, MessageLanguage, Category, Status,
      Scope,
1389 # Timeout, ConfirmationRequired, AlertReceiverSet, Priority, TimeoutAction
      and
1390 # AcknowledgementModel.
1391 # The RaiseAlertFromData method allows the raiser to specify a completely
      new alert
1392 # with no basis on any existing templates. Systems using ALMAS may not wish
      to
1393 # support alert templates depending on their size, complexity and level of
      alert
1394 # usage, in which case that system can always use RaiseAlertFromData
      without need
1395 # to instantiate any templates at any point during operation.
1396 # The status or attributes of an alert can be updated during runtime by
      calling the
1397 # UpdateAlert method found in the ALMASProducer interface. The
      ALMASProducer then
1398 # works with the ALMAS system to ensure state and data is properly
      maintained in
1399 # the system.
1400 type AlmasCancelAlert {
1401     requestId: Long!
1402
1403     cancellerId: String!
1404
1405     alertId: Int!
1406

```

| ~~1407 cancellationReason: String!~~
| ~~1408 }~~
| ~~1409~~
| ~~1410 # Operation:~~
| ~~1411 # Cancel a specific alert within ALMAS~~
| ~~1412 # Return parameter indicates success or failure reason.~~
| ~~1413 # Interface:~~
| ~~1414 # Provides the API by which system objects producing alerts can create and~~
| ~~update~~
| ~~1415 # alerts that are generated. A CallStatus object will be returned to~~
| ~~indicate~~
| ~~1416 # whether the request has been accepted by ALMAS. If a system wished to~~
| ~~track the~~
| ~~1417 # lifecycle of the alert, they must implement the NotificationListener~~
| ~~1418 # functionality to receive updates.~~
| ~~1419 # Three mechanisms by which alerts can be raised are provided by the~~
| ~~ALMASProducer~~
| ~~1420 # interface class. Two variants RaiseAlertFromTemplate and~~
| ~~RaiseAlertFromOverrides~~
| ~~1421 # allow the system to raise an alert by simply specifying the alert ID,~~
| ~~template ID~~
| ~~1422 # and their own ProducerID, one of these also allows the over-ride of any~~
| ~~1423 # placeholders that may be present in the 'Message' attribute of the alert-~~
| ~~data~~
| ~~1424 # class associated with that template. The raiser may also optionally~~
| ~~override any~~
| ~~1425 # of the following parameters: Message, MessageLanguage, Category, Status,~~
| ~~Scope,~~
| ~~1426 # Timeout, ConfirmationRequired, AlertReceiverSet, Priority, TimeoutAction~~
| ~~and~~
| ~~1427 # AcknowledgementModel.~~
| ~~1428 # The RaiseAlertFromData method allows the raiser to specify a completely~~
| ~~new alert~~
| ~~1429 # with no basis on any existing templates. Systems using ALMAS may not wish~~
| ~~to~~
| ~~1430 # support alert templates depending on their size, complexity and level of~~
| ~~alert~~

```

1431 # usage, in which case that system can always use RaiseAlertFromData
    without need
1432 # to instantiate any templates at any point during operation.
1433 # The status or attributes of an alert can be updated during runtime by
    calling the
1434 # UpdateAlert method found in the ALMASProducer interface. The
    ALMASProducer then
1435 # works with the ALMAS system to ensure state and data is properly
    maintained in
1436 # the system.
1437 input AlmasCancelAlertInput {
1438     requestId: Long!
1439
1440     cancellerId: String!
1441
1442     alertId: Int!
1443
1444     cancellationReason: String!
1445 }
1446 type AlmasAcknowledgeAlertUpdate {
1447     # The instance that has been updated (or deleted if Deleted flag is
    true).
1448     instance: AlmasAcknowledgeAlert!
1449     # True if the instance has been deleted, false otherwise (i.e. on
    creation or update).
1450     deleted: Boolean!
1451 }
1452
1453 # Operation+
1454 # Indication from an alert receiver that they have acknowledged receipt of
    the
1455 # alert and no longer require distribution of its information.
1456 # Interface+
1457 # Provides the API for systems to respond to and provide feedback to ALMAS
    about

```

```
| 1458 # alertsreceived. Embedded in this class are the methods to register and
| 1459 # un-register your system-specific receiver.
| 1460 # The system notifies ALMAS through this interface of significant events
| 1461 # that have
| 1462 # occurred to change the state of an alert.
| 1462 type AlmasAcknowledgeAlert {
| 1463   requestId: Long!
| 1464
| 1465   alertId: Int!
| 1466
| 1467   receiverId: String!
| 1468 }
| 1469
| 1470 # Operation:
| 1471 # Indication from an alert receiver that they have acknowledged receipt of
| 1472 # the
| 1473 # alert and no longer require distribution of its information.
| 1473 # Interface:
| 1474 # Provides the API for systems to respond to and provide feedback to ALMAS
| 1475 # about
| 1475 # alertsreceived. Embedded in this class are the methods to register and
| 1476 # un-register your system-specific receiver.
| 1477 # The system notifies ALMAS through this interface of significant events
| 1478 # that have
| 1479 # occurred to change the state of an alert.
| 1479 input AlmasAcknowledgeAlertInput {
| 1480   requestId: Long!
| 1481
| 1482   alertId: Int!
| 1483
| 1484   receiverId: String!
| 1485 }
```



```

1486 type AlmasHandleAlertUpdate {
1487     # The instance that has been updated (or deleted if Deleted flag is
    true).
1488     instance: AlmasHandleAlert!
1489     # True if the instance has been deleted, false otherwise (i.e. on
    creation or update).
1490     deleted: Boolean!
1491 }
1492
1493 # Operation:
1494 # Indication from an Alert Receiver that they have performed the
    appropriate action
1495 # required by an Action alert and that the alert can therefore be removed
    from
1496 # ALMAS as no longer applicable.
1497 # Interface:
1498 # Provides the API for systems to respond to and provide feedback to ALMAS
    about
1499 # alertsreceived. Embedded in this class are the methods to register and
1500 # un-register your system-specific receiver.
1501 # The system notifies ALMAS through this interface of significant events
    that have
1502 # occurred to change the state of an alert.
1503 type AlmasHandleAlert {
1504     requestId: Long!
1505
1506     alertId: Int!
1507
1508     receiverId: String!
1509 }
1510
1511 # Operation:
1512 # Indication from an Alert Receiver that they have performed the
    appropriate action

```

```

1513 # required by an Action alert and that the alert can therefore be removed
      from
1514 # ALMAS as no longer applicable.
1515 # Interface:
1516 # Provides the API for systems to respond to and provide feedback to ALMAS
      about
1517 # alertsreceived. Embedded in this class are the methods to register and
1518 # un-register your system-specific receiver.
1519 # The system notifies ALMAS through this interface of significant events
      that have
1520 # occurred to change the state of an alert.
1521 input AlmasHandleAlertInput {
1522     requestId: Long!
1523
1524     alertId: Int!
1525
1526     receiverId: String!
1527 }
1528 type AlmasConfirmReceiptUpdate {
1529     # The instance that has been updated (or deleted if Deleted flag is
      true).
1530     instance: AlmasConfirmReceipt!
1531     # True if the instance has been deleted, false otherwise (i.e. on
      creation or update).
1532     deleted: Boolean!
1533 }
1534
1535 # Operation:
1536 # Confirmation by an alert receiver that they have successfully received
      the alert
1537 # to ensure reliable distribution. The ReceiverID field enables action &
      situation
1538 # alerts to transition when sufficient confirmations have been received.

```

```

1539 # 'Sufficient' is the 'actionee' for action alerts, and anyone for
      situation
1540 # alerts. It can also be used for logging purposes.
1541 # Interface:
1542 # Provides the API for systems to respond to and provide feedback to ALMAS
      about
1543 # alertsreceived. Embedded in this class are the methods to register and
1544 # un-register your system-specific receiver.
1545 # The system notifies ALMAS through this interface of significant events
      that have
1546 # occurred to change the state of an alert.
1547 type AlmasConfirmReceipt {
1548     requestId: Long!
1549
1550     alertId: Int!
1551
1552     receiverId: String!
1553 }
1554
1555 # Operation:
1556 # Confirmation by an alert receiver that they have successfully received
      the alert
1557 # to ensure reliable distribution. The ReceiverID field enables action &
      situation
1558 # alerts to transition when sufficient confirmations have been received.
1559 # 'Sufficient' is the 'actionee' for action alerts, and anyone for
      situation
1560 # alerts. It can also be used for logging purposes.
1561 # Interface:
1562 # Provides the API for systems to respond to and provide feedback to ALMAS
      about
1563 # alertsreceived. Embedded in this class are the methods to register and
1564 # un-register your system-specific receiver.
1565 # The system notifies ALMAS through this interface of significant events
      that have

```

```

| 1566 # occurred to change the state of an alert.
| 1567 input AlmasConfirmReceiptInput {
| 1568     requestId: Long!
| 1569
| 1570     alertId: Int!
| 1571
| 1572     receiverId: String!
| 1573 }
| 1574 type AlmasSetLanguageUpdate {
| 1575     # The instance that has been updated (or deleted if Deleted flag is
| 1576     # true).
| 1577     instance: AlmasSetLanguage!
| 1578     # True if the instance has been deleted, false otherwise (i.e. on
| 1579     # creation or update).
| 1580     deleted: Boolean!
| 1581 }
| 1582 # Operation+
| 1583 # Sets the language that this specific receiver should see their message
| 1584 # text
| 1585 # displayed in where appropriate.
| 1586 # Interface+
| 1587 # Optional extensions to the alert responder functionality.
| 1588 type AlmasSetLanguage {
| 1589     requestId: Long!
| 1590
| 1591     receiverId: String!
| 1592
| 1593     language: String!
| 1594 }
| 1595 # Operation+

```

```

1595 # Sets the language that this specific receiver should see their message-
      text
1596 # displayed in where appropriate.
1597 # Interface:
1598 # Optional extensions to the alert responder functionality.
1599 input AlmasSetLanguageInput {
1600     requestId: Long!
1601
1602     receiverId: String!
1603
1604     language: String!
1605 }
1606 type AlmasGetFilledMessageTextUpdate {
1607     # The instance that has been updated (or deleted if Deleted flag is-
      true)-
1608     instance: AlmasGetFilledMessageText!
1609     # True if the instance has been deleted, false otherwise (i.e. on-
      creation or update)-
1610     deleted: Boolean!
1611 }
1612
1613 # Operation:
1614 # returns the message text post related info substitutions.
1615 # This is an optional helper function as the client could derive this-
      itself-
1616 # Interface:
1617 # Optional extensions to the alert responder functionality.
1618 type AlmasGetFilledMessageText {
1619     requestId: Long!
1620
1621     alertId: Int!
1622
1623     receiverId: String!

```

```

| 1624 }
| 1625
| 1626 # Operation:
| 1627 # returns the message text post related info substitutions.
| 1628 # This is an optional helper function as the client could derive this
|     itself.
| 1629 # Interface:
| 1630 # Optional extensions to the alert responder functionality.
| 1631 input AlmasGetFilledMessageTextInput {
| 1632     requestId: Long!
| 1633
| 1634     alertId: Int!
| 1635
| 1636     receiverId: String!
| 1637 }
| 1638 type AlmasFilledMessageTextUpdate {
| 1639     # The instance that has been updated (or deleted if Deleted flag is
|     true).
| 1640     instance: AlmasFilledMessageText!
| 1641     # True if the instance has been deleted, false otherwise (i.e. on
|     creation or update).
| 1642     deleted: Boolean!
| 1643 }
| 1644
| 1645 type AlmasFilledMessageText {
| 1646     requestId: Long!
| 1647
| 1648     messages: [String!]!
| 1649 }
| 1650
| 1651 input AlmasFilledMessageTextInput {
| 1652     requestId: Long!

```

```

1653—
1654— messages: [String!]+
1655— }
1656— type AlmasLoadReceiverHierarchyUpdate {
1657—   # The instance that has been updated (or deleted if Deleted flag is
      true).
1658—   instance: AlmasLoadReceiverHierarchy!
1659—   # True if the instance has been deleted, false otherwise (i.e. on-
      creation or update).
1660—   deleted: Boolean!
1661— }
1662—
1663— # Operation:
1664— # Loads the receiver hierarchy as provided by the client via xml conforming
      to the
1665— # relevant xml schema document.
1666— # Interface:
1667— # Provides an API by which systems can configure ALMAS to behave in a more-
      tailored
1668— # manner in order to satisfy very specific requirements. There are three
1669— # categories of configuration file that can be used by ALMAS: the receiver
1670— # hierarchy, templates, and configuration information. The string filename
      is
1671— # expected to resolve to either a local file accessible to ALMAS, or a URL
1672— # accessible to ALMAS. The returned CallStatus object from each of the
      methods
1673— # provides an indication of success/failure and any additional relevant-
      rationale
1674— # describing that status.
1675— type AlmasLoadReceiverHierarchy {
1676—   requestId: Long!
1677—
1678—   filename: String!
1679— }

```

```

| 1680—
| 1681 # Operation:
| 1682 # Loads the receiver hierarchy as provided by the client via xml conforming
|   to the
| 1683 # relevant xml schema document.
| 1684 # Interface:
| 1685 # Provides an API by which systems can configure ALMAS to behave in a more-
|   tailored
| 1686 # manner in order to satisfy very specific requirements. There are three
| 1687 # categories of configuration file that can be used by ALMAS: the receiver
| 1688 # hierarchy, templates, and configuration information. The string filename
|   is
| 1689 # expected to resolve to either a local file accessible to ALMAS, or a URL
| 1690 # accessible to ALMAS. The returned CallStatus object from each of the-
|   methods
| 1691 # provides an indication of success/failure and any additional relevant-
|   rationale
| 1692 # describing that status.
| 1693 input AlmasLoadReceiverHierarchyInput {
| 1694   requestId: Long!
| 1695—
| 1696   filename: String!
| 1697—}
| 1698 type AlmasLoadTemplateSetUpdate {
| 1699   # The instance that has been updated (or deleted if Deleted flag is-
|   true)-
| 1700   instance: AlmasLoadTemplateSet!
| 1701   # True if the instance has been deleted, false otherwise (i.e. on-
|   creation or update)-
| 1702   deleted: Boolean!
| 1703—}
| 1704—
| 1705 # Operation:
| 1706 # Loads a template set into the ALMAS database.

```



```

1707 # Multiple calls to this method result in the union of the new templates-
      with the
1708 # existing templates in ALMAS.
1709 # Interface:
1710 # Provides an API by which systems can configure ALMAS to behave in a more-
      tailored
1711 # manner in order to satisfy very specific requirements. There are three
1712 # categories of configuration file that can be used by ALMAS: the receiver
1713 # hierarchy, templates, and configuration information. The string filename
      is
1714 # expected to resolve to either a local file accessible to ALMAS, or a URL
1715 # accessible to ALMAS. The returned CallStatus object from each of the-
      methods
1716 # provides an indication of success/failure and any additional relevant-
      rationale
1717 # describing that status.
1718 type AlmasLoadTemplateSet {
1719     requestId: Long!
1720
1721     filename: String!
1722 }
1723
1724 # Operation:
1725 # Loads a template set into the ALMAS database.
1726 # Multiple calls to this method result in the union of the new templates-
      with the
1727 # existing templates in ALMAS.
1728 # Interface:
1729 # Provides an API by which systems can configure ALMAS to behave in a more-
      tailored
1730 # manner in order to satisfy very specific requirements. There are three
1731 # categories of configuration file that can be used by ALMAS: the receiver
1732 # hierarchy, templates, and configuration information. The string filename
      is
1733 # expected to resolve to either a local file accessible to ALMAS, or a URL

```



```

1760 type AlmasLoadConfiguration {
1761     requestId: Long!
1762
1763     filename: String!
1764 }
1765
1766 # Operation:
1767 # Loads the ALMAS configuration file as provided by the client
1768 # Interface:
1769 # Provides an API by which systems can configure ALMAS to behave in a more-
    tailored
1770 # manner in order to satisfy very specific requirements. There are three
1771 # categories of configuration file that can be used by ALMAS: the receiver
1772 # hierarchy, templates, and configuration information. The string filename
    is
1773 # expected to resolve to either a local file accessible to ALMAS, or a URL
1774 # accessible to ALMAS. The returned CallStatus object from each of the-
    methods
1775 # provides an indication of success/failure and any additional relevant-
    rationale
1776 # describing that status.
1777 input AlmasLoadConfigurationInput {
1778     requestId: Long!
1779
1780     filename: String!
1781 }
1782 type AlmasUpdateDynamicMessageDataUpdate {
1783     # The instance that has been updated (or deleted if Deleted flag is-
    true).
1784     instance: AlmasUpdateDynamicMessageData!
1785     # True if the instance has been deleted, false otherwise (i.e. on-
    creation or update).
1786     deleted: Boolean!
1787 }

```

```

1788
1789 # Operation:
1790 # Indicates a change to the value of a related object for the provided
    alert ID.
1791 # Old value is necessary in order to clearly indicate which dynamic message
    data
1792 # should be changed
1793 # Interface:
1794 # The ALMASManager interface provides the minimal set of APIs necessary to
    track
1795 # ALMAS activity. Additionally, the ALMASManager provides the interface in
    ALMAS
1796 # for retrieving Alerts and AlertTemplates, and registering for the
    notification of
1797 # delivery of Alerts. Note that the registration of receivers is done via
    the
1798 # ALMAS Responder class.
1799 # Note: The methods found in the ALMASProducer interface allow the system
    to update
1800 # the status or attributes of an alert during runtime.
1801 type AlmasUpdateDynamicMessageData {
1802     requestId: Long!
1803
1804     alertId: Int!
1805
1806     dataValue: String!
1807
1808     oldData: AlmasDynamicMessageDataType
1809 }
1810
1811 # Operation:
1812 # Indicates a change to the value of a related object for the provided
    alert ID.
1813 # Old value is necessary in order to clearly indicate which dynamic message
    data

```

```

1814 # should be changed
1815 # Interface:
1816 # The ALMASManager interface provides the minimal set of APIs necessary to
  track
1817 # ALMAS activity. Additionally, the ALMASManager provides the interface in
  ALMAS
1818 # for retrieving Alerts and AlertTemplates, and registering for the
  notification of
1819 # delivery of Alerts. Note that the registration of receivers is done via
  the
1820 # ALMAS Responder class.
1821 # Note: The methods found in the ALMASProducer interface allow the system
  to update
1822 # the status or attributes of an alert during runtime.
1823 input AlmasUpdateDynamicMessageDataInput {
1824     requestId: Long!
1825
1826     alertId: Int!
1827
1828     dataValue: String!
1829
1830     oldData: AlmasDynamicMessageDataTypeInput
1831 }
1832 type AlmasSetAlertInhibitedUpdate {
1833     # The instance that has been updated (or deleted if Deleted flag is
  true).
1834     instance: AlmasSetAlertInhibited!
1835     # True if the instance has been deleted, false otherwise (i.e. on
  creation or update).
1836     deleted: Boolean!
1837 }
1838
1839 # Operation:
1840 # Sets the inhibition status of a specific alert template to suppress or
  allow the

```

```

1841 # raising of all alerts of that template.
1842 # Interface:
1843 # The ALMASManager interface provides the minimal set of APIs necessary to
  track
1844 # ALMAS activity. Additionally, the ALMASManager provides the interface in
  ALMAS
1845 # for retrieving Alerts and AlertTemplates, and registering for the
  notification of
1846 # delivery of Alerts. Note that the registration of receivers is done via
  the
1847 # ALMAS Responder class.
1848 # Note: The methods found in the ALMASProducer interface allow the system
  to update
1849 # the status or attributes of an alert during runtime.
1850 type AlmasSetAlertInhibited {
1851     requestId: Long!
1852
1853     templateId: Int!
1854
1855     inhibition: Boolean!
1856 }
1857
1858 # Operation:
1859 # Sets the inhibition status of a specific alert template to suppress or
  allow the
1860 # raising of all alerts of that template.
1861 # Interface:
1862 # The ALMASManager interface provides the minimal set of APIs necessary to
  track
1863 # ALMAS activity. Additionally, the ALMASManager provides the interface in
  ALMAS
1864 # for retrieving Alerts and AlertTemplates, and registering for the
  notification of
1865 # delivery of Alerts. Note that the registration of receivers is done via
  the

```

```

1866 # ALMAS Responder class.
1867 # Note: The methods found in the ALMASProducer interface allow the system
    to update
1868 # the status or attributes of an alert during runtime.
1869 input AlmasSetAlertInhibitedInput {
1870     requestId: Long!
1871 
1872     templateId: Int!
1873 
1874     inhibition: Boolean!
1875 }
1876 type AlmasAttachCategorisationRuleUpdate {
1877     # The instance that has been updated (or deleted if Deleted flag is
    true).
1878     instance: AlmasAttachCategorisationRule!
1879     # True if the instance has been deleted, false otherwise (i.e. on
    creation or update).
1880     deleted: Boolean!
1881 }
1882 
1883 # Operation:
1884 # Associates a categorisation rule with an AlertTemplate
1885 # Interface:
1886 # This class contains optional extensions to the alert manager
    functionality.
1887 # These extensions may or may not be implemented in simple ALMAS
    implementations.
1888 type AlmasAttachCategorisationRule {
1889     requestId: Long!
1890 
1891     ruleId: Int!
1892 
1893     templateId: Int!

```

```

| 1894 }
| 1895
| 1896 # Operation+
| 1897 # Associates a categorisation rule with an AlertTemplate
| 1898 # Interface+
| 1899 # This class contains optional extensions to the alert manager
|     # functionality.-
| 1900 # These extensions may or may not be implemented in simple ALMAS
|     # implementations.-
| 1901 input AlmasAttachCategorisationRuleInput {
| 1902     requestId: Long!
| 1903
| 1904     ruleId: Int!
| 1905
| 1906     templateId: Int!
| 1907 }
| 1908 type AlmasDetachCategorisationRuleUpdate {
| 1909     # The instance that has been updated (or deleted if Deleted flag is
|     # true).-
| 1910     instance: AlmasDetachCategorisationRule!
| 1911     # True if the instance has been deleted, false otherwise (i.e. on
|     # creation or update).-
| 1912     deleted: Boolean!
| 1913 }
| 1914
| 1915 # Operation+
| 1916 # Disassociates a categorisation rule from an AlertTemplate
| 1917 # Interface+
| 1918 # This class contains optional extensions to the alert manager
|     # functionality.-
| 1919 # These extensions may or may not be implemented in simple ALMAS
|     # implementations.-
| 1920 type AlmasDetachCategorisationRule {

```



```

| 1921 requestId: Long!
| 1922 
| 1923 ruleId: Int!
| 1924 
| 1925 templateId: Int!
| 1926 }
| 1927 
| 1928 # Operation:
| 1929 # Disassociates a categorisation rule from an AlertTemplate
| 1930 # Interface:
| 1931 # This class contains optional extensions to the alert manager-
functionality.
| 1932 # These extensions may or may not be implemented in simple ALMAS-
implementations.
| 1933 input AlmasDetachCategorisationRuleInput {
| 1934 requestId: Long!
| 1935 
| 1936 ruleId: Int!
| 1937 
| 1938 templateId: Int!
| 1939 }
| 1940 type AlmasRemoveAlertsWithDynamicMessageDataUpdate {
| 1941 # The instance that has been updated (or deleted if Deleted flag is-
true).
| 1942 instance: AlmasRemoveAlertsWithDynamicMessageData!
| 1943 # True if the instance has been deleted, false otherwise (i.e. on-
creation or update).
| 1944 deleted: Boolean!
| 1945 }
| 1946 
| 1947 # Operation:
| 1948 # Indicates to ALMAS that a specific real world object has been removed,
and

```

```
| 1949 # therefore all associated alerts are no longer valid. These alerts shall-  
|     then be  
| 1950 # deleted from ALMAS.  
| 1951 # Implementation is optional  
| 1952 # Interface:  
| 1953 # This class contains optional extensions to the alert manager-  
|     functionality.  
| 1954 # These extensions may or may not be implemented in simple ALMAS-  
|     implementations.  
| 1955 type AlmasRemoveAlertsWithDynamicMessageData {  
| 1956     requestId: Long!  
| 1957  
| 1958     cancellerId: String!  
| 1959  
| 1960     dataType: String!  
| 1961  
| 1962     dataValue: String!  
| 1963 }  
| 1964  
| 1965 # Operation:  
| 1966 # Indicates to ALMAS that a specific real world object has been removed,  
|     and  
| 1967 # therefore all associated alerts are no longer valid. These alerts shall-  
|     then be  
| 1968 # deleted from ALMAS.  
| 1969 # Implementation is optional  
| 1970 # Interface:  
| 1971 # This class contains optional extensions to the alert manager-  
|     functionality.  
| 1972 # These extensions may or may not be implemented in simple ALMAS-  
|     implementations.  
| 1973 input AlmasRemoveAlertsWithDynamicMessageDataInput {  
| 1974     requestId: Long!  
| 1975
```

```

| 1976 cancelId: String!
| 1977 
| 1978 dataType: String!
| 1979 
| 1980 dataValue: String!
| 1981 }
| 1982 type AlmasRaiseAlertFromOverridesUpdate {
| 1983 # The instance that has been updated (or deleted if Deleted flag is-
true).
| 1984 instance: AlmasRaiseAlertFromOverrides!
| 1985 # True if the instance has been deleted, false otherwise (i.e. on-
creation or update).
| 1986 deleted: Boolean!
| 1987 }
| 1988 
| 1989 # Operation:
| 1990 # This will cause an alert based on a known alert template
| 1991 # to be created and raised.
| 1992 # ProducerID, TemplateID and the out parameter AlertID
| 1993 # are mandatory, all other parameters are optional
| 1994 # Return parameter indicates success or failure reason.
| 1995 # Interface:
| 1996 # Provides the API by which system objects producing alerts can create and-
update
| 1997 # alerts that are generated. A CallStatus object will be returned to-
indicate
| 1998 # whether the request has been accepted by ALMAS. If a system wished to-
track the
| 1999 # lifecycle of the alert, they must implement the NotificationListener
| 2000 # functionality to receive updates.
| 2001 # Three mechanisms by which alerts can be raised are provided by the-
ALMASProducer
| 2002 # interface class. Two variants RaiseAlertFromTemplate and-
RaiseAlertFromOverrides

```

```

2003 # allow the system to raise an alert by simply specifying the alert ID,
      template ID
2004 # and their own ProducerID, one of these also allows the over-ride of any
2005 # placeholders that may be present in the 'Message' attribute of the alert
      data
2006 # class associated with that template. The raiser may also optionally
      override any
2007 # of the following parameters: Message, MessageLanguage, Category, Status,
      Seeper,
2008 # Timeout, ConfirmationRequired, AlertReceiverSet, Priority, TimeoutAction
      and
2009 # AcknowledgementModel.
2010 # The RaiseAlertFromData method allows the raiser to specify a completely
      new alert
2011 # with no basis on any existing templates. Systems using ALMAS may not wish
      to
2012 # support alert templates depending on their size, complexity and level of
      alert
2013 # usage, in which case that system can always use RaiseAlertFromData
      without need
2014 # to instantiate any templates at any point during operation.
2015 # The status or attributes of an alert can be updated during runtime by
      calling the
2016 # UpdateAlert method found in the ALMASProducer interface. The
      ALMASProducer then
2017 # works with the ALMAS system to ensure state and data is properly
      maintained in
2018 # the system.
2019 type AlmasRaiseAlertFromOverrides {
2020     requestId: Long!
2021
2022     producerId: String!
2023
2024     templateId: Int!
2025
2026     category: AlmasCategoryType

```

```

| 2027—
| 2028— priority: Short
| 2029—
| 2030— status: AlmasStatusType
| 2031—
| 2032— scope: AlmasScopeType
| 2033—
| 2034— timeout: Int
| 2035—
| 2036— confirmationRequired: Boolean
| 2037—
| 2038— secondaryGrouping: String
| 2039—
| 2040— persistent: Boolean
| 2041—
| 2042— reliablyDistributed: Boolean
| 2043—
| 2044— timeoutAction: AlmasTimeoutActionType
| 2045—
| 2046— acknowledgementModel: AlmasAckModelType
| 2047—
| 2048— staticMessages: [AlmasStaticMessageType!]
| 2049—
| 2050— dynamicMessages: [AlmasDynamicMessageDataType!]
| 2051—}
| 2052—
| 2053— # Operation+
| 2054— # This will cause an alert based on a known alert template
| 2055— # to be created and raised.
| 2056— # ProducerID, TemplateID and the out parameter AlertID
| 2057— # are mandatory, all other parameters are optional

```

~~2058 # Return parameter indicates success or failure reason.~~

~~2059 # Interface.~~

~~2060 # Provides the API by which system objects producing alerts can create and update~~

~~2061 # alerts that are generated. A CallStatus object will be returned to indicate~~

~~2062 # whether the request has been accepted by ALMAS. If a system wished to track the~~

~~2063 # lifecycle of the alert, they must implement the NotificationListener~~

~~2064 # functionality to receive updates.~~

~~2065 # Three mechanisms by which alerts can be raised are provided by the ALMASProducer~~

~~2066 # interface class. Two variants RaiseAlertFromTemplate and RaiseAlertFromOverrides~~

~~2067 # allow the system to raise an alert by simply specifying the alert ID, template ID~~

~~2068 # and their own ProducerID, one of these also allows the over-ride of any~~

~~2069 # placeholders that may be present in the 'Message' attribute of the alert data~~

~~2070 # class associated with that template. The raiser may also optionally override any~~

~~2071 # of the following parameters: Message, MessageLanguage, Category, Status, Scope,~~

~~2072 # Timeout, ConfirmationRequired, AlertReceiverSet, Priority, TimeoutAction and~~

~~2073 # AcknowledgementModel.~~

~~2074 # The RaiseAlertFromData method allows the raiser to specify a completely new alert~~

~~2075 # with no basis on any existing templates. Systems using ALMAS may not wish to~~

~~2076 # support alert templates depending on their size, complexity and level of alert~~

~~2077 # usage, in which case that system can always use RaiseAlertFromData without need~~

~~2078 # to instantiate any templates at any point during operation.~~

~~2079 # The status or attributes of an alert can be updated during runtime by calling the~~

```
| 2080 # UpdateAlert method found in the ALMASProducer interface. The  
|     ALMASProducer then  
|  
| 2081 # works with the ALMAS system to ensure state and data is properly  
|     maintained in  
|  
| 2082 # the system.  
|  
| 2083 input AlmasRaiseAlertFromOverridesInput {  
|  
| 2084     requestId: Long!  
|  
| 2085  
|  
| 2086     producerId: String!  
|  
| 2087  
|  
| 2088     templateId: Int!  
|  
| 2089  
|  
| 2090     category: AlmasCategoryType!  
|  
| 2091  
|  
| 2092     priority: Short  
|  
| 2093  
|  
| 2094     status: AlmasStatusType!  
|  
| 2095  
|  
| 2096     scope: AlmasScopeType!  
|  
| 2097  
|  
| 2098     timeout: Int  
|  
| 2099  
|  
| 2100     confirmationRequired: Boolean  
|  
| 2101  
|  
| 2102     secondaryGrouping: String  
|  
| 2103  
|  
| 2104     persistent: Boolean  
|  
| 2105  
|  
| 2106     reliablyDistributed: Boolean  
|  
| 2107  
|  
| 2108     timeoutAction: AlmasTimeoutActionType!  
|  
| 2109
```

```
| 2110 — acknowledgementModel: AlmasAckModelType!  
| 2111 —  
| 2112 — staticMessages: [AlmasStaticMessageTypeInput!]  
| 2113 —  
| 2114 — dynamicMessages: [AlmasDynamicMessageDataTypeInput!]  
| 2115 —}  
| 2116  
| 2117 —
```

ALMAS14-20

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