TAPI UML Model

STREAMING

Version 2.5.0

ONF Document Type: Technical Recommendation

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Table of Contents

List of Figures

List of Tables

Document History

Version	Date	Description of Change
2.3	May 27, 2021	Model Dump *Gendoc generates documentation from Eclipse Modeling Framework (EMF) models using document templates in formats such as OpenOffice Writer (.odt), Microsoft Word (.docx), Microsoft Excel (.xlsx) and Microsoft Powerpoint (.pptx).*
2.4.0	December 2022	See high level diff document in Github
2.4.1	March 2023	See high level diff document in Github
2.5.0	October 2023	See high level diff document in Github

1 Streaming Model

TapiStreaming: This module contains TAPI Streaming Model definitions. Source: TapiStreaming.uml

1.1 Diagrams

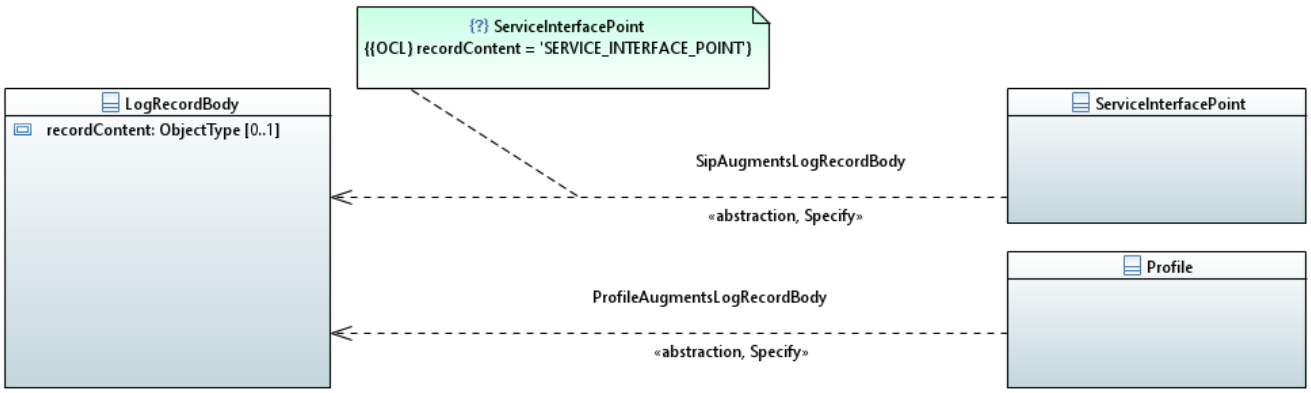

Figure 1 – Diagram *CommonAugmentationForStreaming*

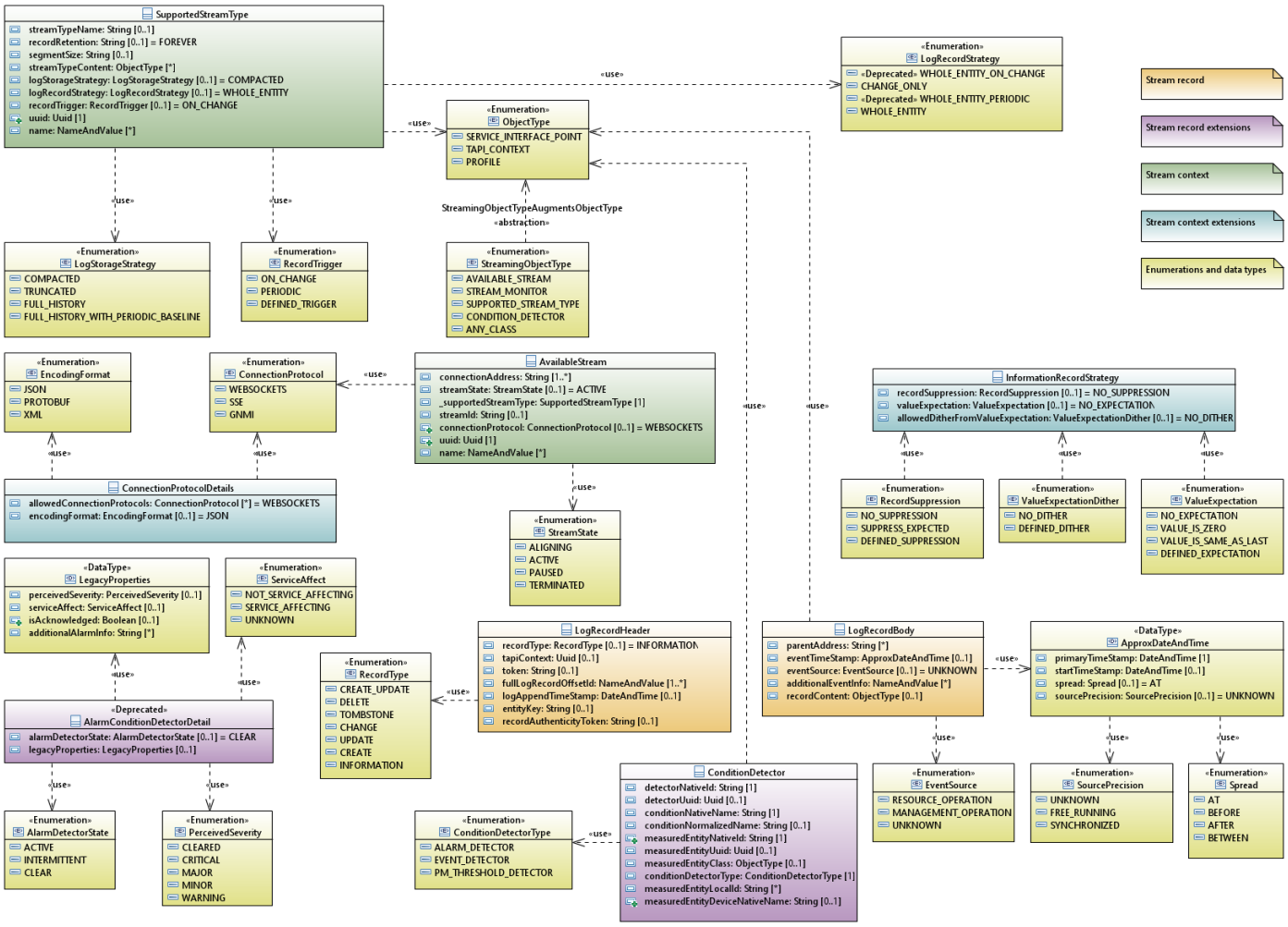

Figure 2 – Diagram *StreamDataTypes*

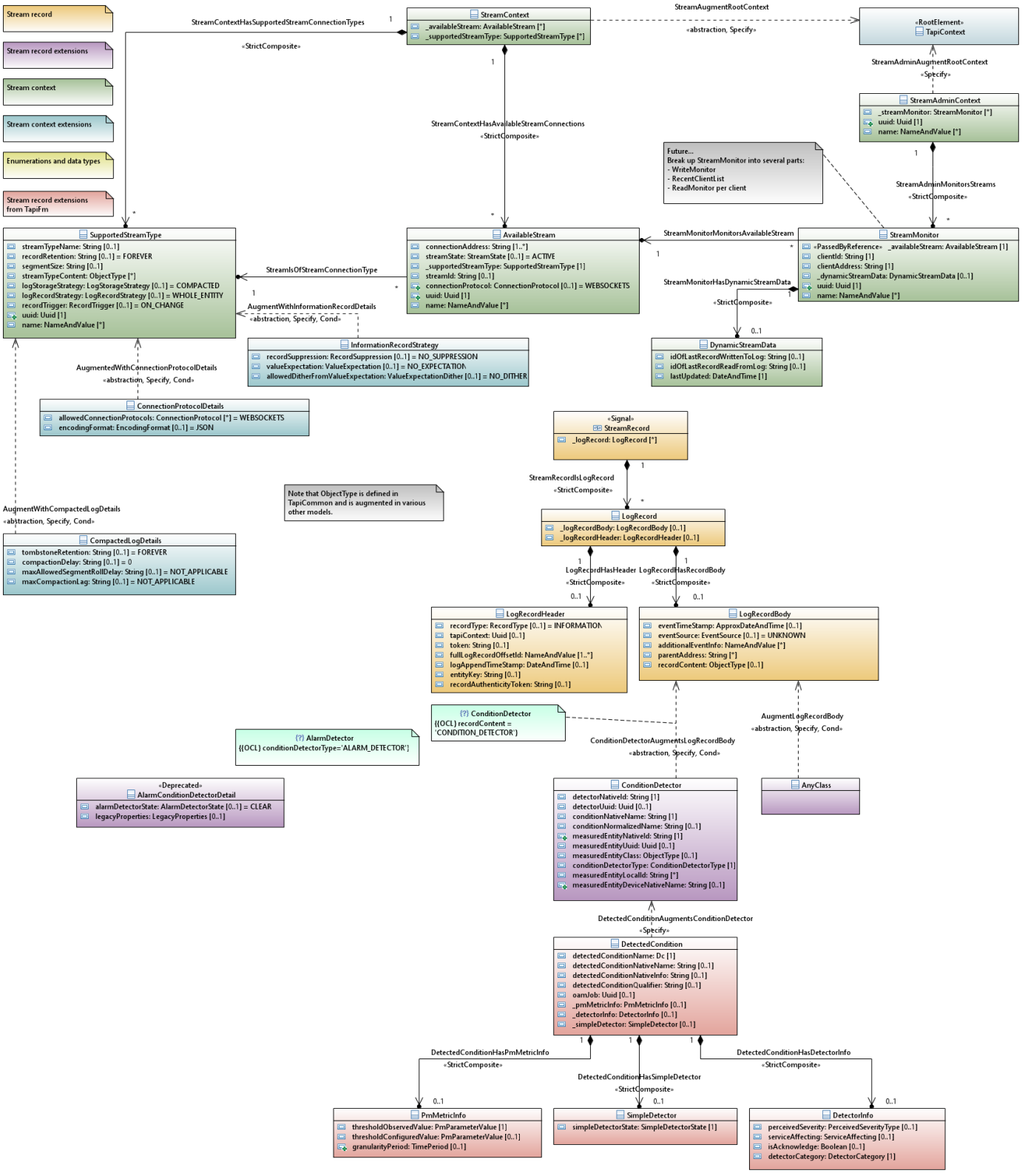

Figure 3 – Diagram *StreamDetail*

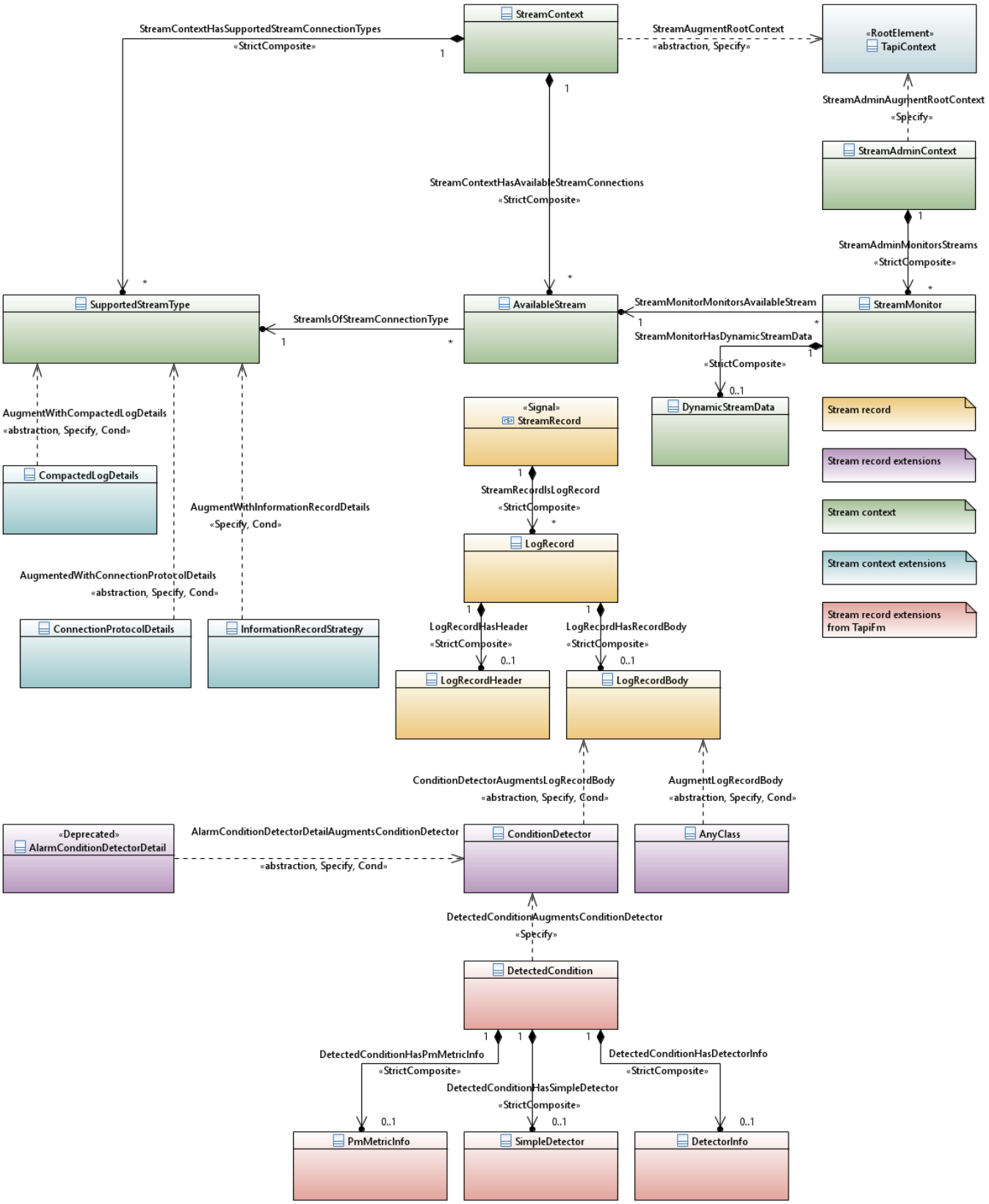

Figure 4 – Diagram *StreamSkeleton*

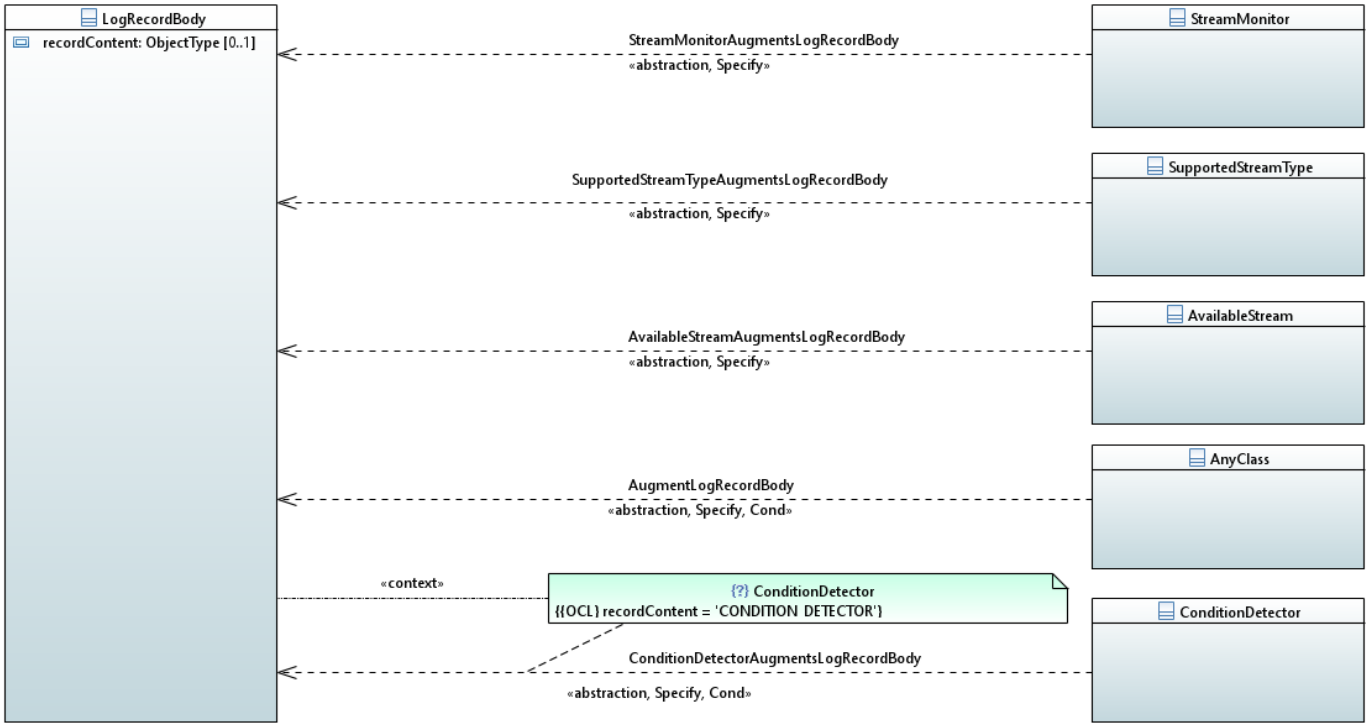

Figure 5 – Diagram *StreamingAugmentationForStreaming*

1.2 Classes

1.2.1 AlarmConditionDetectorDetail

Description:

- A record of the state of a detector where that detector has two underling states that are of asymmetric importance.

Applied stereotypes:

- Deprecated
- OpenModelClass
  - support: MANDATORY
- OpenInterfaceModelClass
  - objectCreationNotification: NA
  - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
alarmDetectorState	AlarmDetectorState Default value: *CLEAR*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The state of the detector. The detector state accounts for the time characteristics of the detected condition. CONDITION: Mandatory where the detector state is not default.			
legacyProperties	LegacyProperties	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Alarm systems of the 20th century were based primarily on local lamps (initially filament bulbs) and bells. Lamps can only be on or off, and bells sounding or not sounding, so alarms were Boolean in nature. Where a detector was essentially multi-state it was converted into multiple Boolean statements. The management of the equipments was essentially human only and local only (there were rarely remote systems). The device with the problem was the only possible indicator of importance and it had only three distinct bulbs to illuminate (filament bulbs tend to fail requiring costly replacement). The devices were relatively simple in function and analysis of the detectors was crude. There was only the device to indicate severity The device also could provide the best view as to whether a service was impacted, although clearly it had almost no knowledge. In a modern solution with well-connected remote systems that increasingly analyze problems and where there is increasingly "lights out" building operation, the device's guess at severity etc. is irrelevant. In addition, with sophisticated resilience mechanisms, the device cannot make any relevant statement on whether the customer service has been impacted. Likewise, in a world where there were no remote systems and local management was the only practice, alarms had to be locally "acknowledged". Where there are remote systems, per alarm acknowledge is burdensome. However, many solutions and operational practices continue to use the historic schemes. On that basis, the schemes are supported but relegated to optional. CONDITION: Mandatory where legacy properties are to be conveyed.			

Table 1 – Attributes for class *AlarmConditionDetectorDetail*

1.2.2 AnyClass

Description:

- Used where the structure to be sent is not a standard TAPI class. It is expected that this structure would be augmented with other defined data.

Applied stereotypes:

- OpenModelClass
  - support: MANDATORY
- OpenInterfaceModelClass
  - objectCreationNotification: NA
  - objectDeletionNotification: NA

1.2.3 AvailableStream

Description:

- Details of a stream that can be connected to by a client application.

Applied stereotypes:

- OpenModelClass
  - support: MANDATORY
- OpenInterfaceModelClass
  - objectCreationNotification: NA
  - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
connectionAddress	PrimitiveTypes::String	1..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: Provides the address for the connection. The format of the address and attachment mechanism will depend on the connection protocol defined in another attribute of this class. There may be a sequence of operations required, in which case, these should be listed as separate strings. A string may include wildcard sub-statements. A single string may list alternatives separated by an appropriate delimiter.			
streamState	StreamState Default value: *ACTIVE*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: The state of the stream. CONDITION: Mandatory where stream state is not ALWAYS default.			
_supportedStreamType *Navigable association end of:* *StreamIsOfStreamConnectionType*	SupportedStreamType	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: MANDATORY PassedByReference
	Description: Identifies the type of stream that is available for connection.			
streamId	PrimitiveTypes::String	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The id of the stream (alternative to the uuid). CONDITION: Mandatory where an alternative id to the uuid is available.			
connectionProtocol	ConnectionProtocol Default value: *WEBSOCKETS*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Names the connection protocol for this particular available stream. The connection protocol is chosen from the list of connection protocols identified in the referenced SupportedStreamType. CONDITION: Mandatory where not default and multiple options offered in the supported stream type.			
uuid Inherited: *TapiCommon::ObjectClasses::GlobalClass::uuid*	TapiCommon::TypeDefinitions::Uuid	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-' + '[0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: *TapiCommon::ObjectClasses::GlobalClass::name*	TapiCommon::TypeDefinitions::NameAndValue	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 2 – Attributes for class *AvailableStream*

1.2.4 CompactedLogDetails

Description:

- Details relevant for a CompactedLog. The essential Compacted Log strategy is to remove historic records about a particular thing such that only the latest record about each thing exists in the log. The essential strategy is refined by the parameters of this structure.

Applied stereotypes:

- OpenModelClass
  - support: MANDATORY
- OpenInterfaceModelClass
  - objectCreationNotification: NA
  - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
tombstoneRetention	PrimitiveTypes::String Default value: *FOREVER*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Time in minutes. The time period for which a Tombstone record will be held in the log from when it was logged. This provides an adjustment to the essential Compaction strategy such that after the tombstoneRetention period there will be no records about a particular thing that existed but no longer exists. Tombstone retention overrides recordRetention for Tombstones. Key word "FOREVER" means that Tombstone records will never be removed from the log. Can be adjusted by an administrator (via a separate view) through the life of the stream. CONDITION: Mandatory where not default.			
compactionDelay	PrimitiveTypes::String Default value: *0*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Time in minutes. The delay between logging the record and making the record available for compaction. This provides an adjustment to the essential Compaction strategy such that there may be several distinct records for the same thing in the where those records are not older than the Compaction Delay. Can be adjusted by an administrator (via a separate view) through the life of the stream. CONDITION: Mandatory where not default.			
maxAllowedSegmentRollDelay	PrimitiveTypes::String Default value: *NOT_APPLICABLE*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The maximum time the log head segment can be allowed to be not made available for compaction. Applicable where the log is segmented, and the head segment is not available for compaction. The setting influences the compaction behavior and may cause a delay before compaction that is much greater than the defined compaction delay. Time in seconds. Can be "FOREVER". Can be "NOT_APPLICABLE" (which indicates that compaction can act on the head segment). CONDITION: Mandatory if log is segmented in such a way that the active head segment is not available for compaction.			
maxCompactionLag	PrimitiveTypes::String Default value: *NOT_APPLICABLE*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: The maximum delay, in seconds, beyond the defined compaction delay for compaction processing to take place. May be "NOT_APPLICABLE" if compaction is essentially immediate (i.e., there is negligible delay). CONDITION: Mandatory where not default.			

Table 3 – Attributes for class *CompactedLogDetails*

1.2.5 ConditionDetector

Description:

- ConditionDetector represents any monitoring component that assesses properties of something and determines from those properties what conditions are associated with the thing. For example, a thing might be "too hot" or might be "unreliable". The monitor may a multi-state output. The ConditionDetector lifecycle depends upon the lifecycle of the thing it is monitoring (this is a general OAM model consideration). The entityKey in the AppendLogRecordHeader for a ConditionDetector record is the nativeDetector Id which may be derived from other ids (most robustly, nativeOwningEntityName (to which the detector is associated) + natveConditionName).

Applied stereotypes:

- OpenModelClass
  - support: MANDATORY
- OpenInterfaceModelClass
  - objectCreationNotification: NA
  - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
conditionNativeName	PrimitiveTypes::String	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The name used for the Condition by the source of the information.			
measuredEntityUuid	TapiCommon::TypeDefinitions::Uuid	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: The uuid of the TAPI entity that represents the entity measured at source. If the TAPI entity cannot be identified as it cannot be mapped, then this property can be omitted. If the TAPI entity is a local class, then this is the UUID of the GlobalClass parent of the entity of which this is part. CONDITION: Mandatory where there is a standard TAPI entity (normally the case).			
measuredEntityNativeId	PrimitiveTypes::String	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: MANDATORY
	Description: The identifier (invariant over the life) of the instance of the measured entity at the source.			
measuredEntityDeviceNativeName	PrimitiveTypes::String	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The name of the device (as used by the device) that includes the measured entity. CONDITION: Mandatory where the device name is necessary to interpret the detector native id.			
conditionNormalizedName	PrimitiveTypes::String	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: It is often the case that there is a Condition Name that is commonly used or even standardized that has not been used by the source of the condition. If this is the case, then that common/standard name is provided in via this property. CONDITION: Mandatory where the condition has a normalized name.			

Attribute Name	Type	Mult.	Access	Stereotypes
measuredEntityClass	TapiCommon::TypeDefinitions::ObjectType	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: The TAPI class of the measured entity. If the class cannot be identified as it cannot be mapped, then this property can be omitted. CONDITION: Mandatory where the measured entity class is known.			
detectorUuid	TapiCommon::TypeDefinitions::Uuid	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: The uuid of the TAPI entity that represents the detector. If the TAPI entity cannot be identified as it cannot be mapped, then this property can be omitted. Where the detector is not modelled independently, but instead is a part of the measured entity such that it is identified by a "local id" built from the UUID of the measured entity and the condition name, then this property may be omitted. CONDITION: Mandatory where the detector has a normalized form with a uuid.			
detectorNativeId	PrimitiveTypes::String	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: MANDATORY
	Description: The identifier (invariant over the life) of the instance of the detector at the source (e.g. a device). The string reported in this field must include the: - device identifier - one or more resource identifiers including that of the measured entity It need not include the condition name.			
conditionDetectorType	ConditionDetectorType	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: MANDATORY
	Description: Identifies the type of detector. This drives the conditional augmentation. Some types of detector may not need specific augmentation.			

Attribute Name	Type	Mult.	Access	Stereotypes
measuredEntityLocalId	PrimitiveTypes::String	0..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Where the measured entity is a local class and hence does not have a UUID the local ID is provided in conjunction with the parents ID. The parent may also be a local class in which case its ID is a a local ID along with its parent ID. There will be a parent which is a global class which then supplies a UUID. The ID of the entity that is being measured is the combination of the UUID and the ordered list of local IDs. The local ID may not be provided where: - the report about a global class - the report is relying on the detectorNativeId. CONDITION: Mandatory where the measured entity is a local class and hence needs local id as well as parent uuid.			

Table 4 – Attributes for class *ConditionDetector*

1.2.6 ConnectionProtocolDetails

Description:

- Details of the connection protocols available for the specific stream.

Applied stereotypes:

- OpenModelClass
  - support: MANDATORY
- OpenInterfaceModelClass
  - objectCreationNotification: NA
  - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
allowedConnectionProtocols	ConnectionProtocol Default value: *WEBSOCKETS*	0..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Name of the allowed protocol(s). Where there is a list: - all protocols must use the same encoding format - there will be one or more available streams per connection protocol CONDITION: Mandatory where not default.			

Attribute Name	Type	Mult.	Access	Stereotypes
encodingFormat	EncodingFormat Default value: *JSON*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: The encoding format of the streamed records. CONDITION: Mandatory where not default.			

Table 5 – Attributes for class *ConnectionProtocolDetails*

1.2.7 DynamicStreamData

Description:

- Dynamic information on the monitoring of the use of a specific AvailableStream by a specific TAPI client.

Applied stereotypes:

- OpenModelClass
  - support: MANDATORY
- OpenInterfaceModelClass
  - objectCreationNotification: NA
  - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
idOfLastRecordWrittenToLog	PrimitiveTypes::String	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: The id/key of the last (most recent) record written to the log. This is the same value for all clients of the stream. CONDITION: Mandatory where the most recent record written is being recorded.			
idOfLastRecordReadFromLog	PrimitiveTypes::String	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The id/key of the last (most recent) record read from the log by the client stream. The analysis of this value needs to account for stream buffering in the comms layer. CONDITION: Mandatory where last record read is being recorded.			
lastUpdated	TapiCommon::TypeDefinitions::DateAndTime	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The date/time when the values provided were recorded.			

Table 6 – Attributes for class *DynamicStreamData*

1.2.8 InformationRecordStrategy

Description:

- Properties relevant for a stream that may convey records of INFORMATION record type.

Applied stereotypes:

- OpenModelClass
  - support: MANDATORY
- OpenInterfaceModelClass
  - objectCreationNotification: NA
  - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
recordSuppression	RecordSuppression Default value: *NO_SUPPRESSION*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Indicates whether records are suppressed and if so, what the suppression strategy is. CONDITION: Mandatory where not default.			
valueExpectation	ValueExpectation Default value: *NO_EXPECTATION*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: Where there is record suppression this indicates what the relevant expected value is. If the value is as expected the record will be suppressed. CONDITION: Mandatory where not default.			
allowedDitherFromValueExpectation	ValueExpectationDither Default value: *NO_DITHER*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Defines the dither in an expected value that is allowed for the value to still be considered as expected. CONDITION: Mandatory where not default.			

Table 7 – Attributes for class *InformationRecordStrategy*

1.2.9 LogRecord

Description:

- A specific atomic entry in a log.

Applied stereotypes:

- OpenModelClass
  - support: MANDATORY
- OpenInterfaceModelClass
  - objectCreationNotification: NA
  - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_logRecordHeader *Navigable association end of:* *LogRecordHasHeader*	LogRecordHeader	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: The header of the log record providing general parameters of the record common to all records. CONDITION: Mandatory where log record header properties are to be conveyed.			

Attribute Name	Type	Mult.	Access	Stereotypes
_logRecordBody *Navigable association end of:* *LogRecordHasRecordBody*	LogRecordBody	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: The body of the log record providing specific logged details. CONDITION: Mandatory where log record body properties are to be conveyed.			

Table 8 – Attributes for class *LogRecord*

1.2.10 LogRecordBody

Description:

- The specific details of the Record.

Applied stereotypes:

- OpenModelClass
  - support: MANDATORY
- OpenInterfaceModelClass
  - objectCreationNotification: NA
  - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
eventTimeStamp	ApproxDateAndTime	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Time of the event at the origin of the event that triggered the generation of the record. The structure allows for time uncertainty. CONDITION: Mandatory where event time is not conveyed via another property.			
eventSource	EventSource Default value: *UNKNOWN*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: Indicates whether the source is controlled (under management control) or potentially chaotic (under resource control). The time characteristic of the source may be determined from the metadata describing the resource (e.g., a detector). Where there is an alternative (and probably more detailed) source of information on time characteristic this attribute can be omitted. CONDITION: Mandatory where not default.			
additionalEventInfo	TapiCommon::TypeDefinitions::NameAndValue	0..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Addition information related to the event such as change reason where changeReason would be the name and the value text would provide information on the reason for change. CONDITION: Mandatory where there is additional info to convey.			
parentAddress	PrimitiveTypes::String	0..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Where the entity is a local class this provides the ordered list of ids from the closest global class (a UUID cast as a string) to the direct parent (which may be the global class). The field can include all entities back to the Context and hence can be used for global classes where the tree is being represented in full. Gives the position of the entity in the address tree (usually containment) that is raising the event by providing the name/id values in the address of the parent. Is the sequence of named levels in the tree up to but excluding the entity of the notification. It includes the device id where relevant. CONDITION: Mandatory where the class has a parent, and the parent is not context.			
recordContent	TapiCommon::TypeDefinitions::ObjectType	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: The identifier of the object class in the record body detail. This property is used to control the conditional augmentation of the body with detail. CONDITION: Mandatory where the record content is (the whole of or part of) a standard TAPI object.			

Table 9 – Attributes for class *LogRecordBody*

1.2.11 LogRecordHeader

Description:

- The header of the log record providing general parameters of the record common to all records.

Applied stereotypes:

- OpenModelClass
  - support: MANDATORY
- OpenInterfaceModelClass
  - objectCreationNotification: NA
  - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
tapiContext	TapiCommon::TypeDefinitions::Uuid	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: The identifier of the context. CONDITION: Mandatory where there is information related to more than one tapi context in the stream.			
token	PrimitiveTypes::String	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: A coded (and compact) form of the fullLogRecordOffsetId. This property is used to request streaming from a particular point (e.g., the last correctly handled record). For a basic log solution this may simply be the sequence number. CONDITION: Mandatory where the stream type is from a compacted log OR it offers an opportunity to recover from a particular record using the token.			
fullLogRecordOffsetId	TapiCommon::TypeDefinitions::NameAndValue	1..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: This property must minimally provide a logging sequence number. Note that when compaction is active, the streamed sequence may not have sequence numbers that simply increment by one. In a complex log solution there may be various parts to the log. The record token is a compressed form of log record reference. This property provides the verbose form For example, it may include: - stream id - topic - partition - partition offset - sequence number (the offset is essentially the sequence number associated with the partition)			
logAppendTimeStamp	TapiCommon::TypeDefinitions::DateAndTime	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: The time when the record was appended to the log. CONDITION: Mandatory where the log is compacted.			
entityKey	PrimitiveTypes::String	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: The identifier of the entity that is used in a Compacted log as the compaction key. The entityKey value, where appropriate, may be based upon the identifiers from the event source. It can be built from some specific detail combination that meets the necessary uniqueness and durability requirements. entityKey is the value used during compaction. Ideally it is a UUID format, if this can be formed from the source identifier. CONDITION: Mandatory where the log is compacted.			
recordType	RecordType Default value: *INFORMATION*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: The type of the record. Can be used to understand which elements of the record will be present. CONDITION: Mandatory where not default.			

Attribute Name	Type	Mult.	Access	Stereotypes
recordAuthenticityToken	PrimitiveTypes::String	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: A token generated using a method that allows the client to validate that the record came from the expected provider. CONDITION: Mandatory where authenticity method providing a token is required.			

Table 10 – Attributes for class *LogRecordHeader*

1.2.12 StreamAdminContext

Description:

- Context providing access to stream administration.

Applied stereotypes:

- OpenModelClass
  - support: MANDATORY
- OpenInterfaceModelClass
  - objectCreationNotification: NA
  - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_streamMonitor *Navigable association end of:* *StreamAdminMonitorsStreams*	StreamMonitor	0..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • condition:
	Description: The list of available stream monitors. Note that this may be an empty list.			
uuid Inherited: *TapiCommon::ObjectClasses::GlobalClass::uuid*	TapiCommon::TypeDefinitions::Uuid	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-' + '[0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: *TapiCommon::ObjectClasses::GlobalClass::name*	TapiCommon::TypeDefinitions::NameAndValue	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 11 – Attributes for class *StreamAdminContext*

1.2.13 StreamContext

Description:

- All streams relevant to the specific TapiContext.

Applied stereotypes:

- OpenModelClass
  - support: MANDATORY
- OpenInterfaceModelClass
  - objectCreationNotification: NA
  - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_availableStream *Navigable association end of:* *StreamContextHasAvailableStreamConnections*	AvailableStream	0..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • condition:
	Description: The list of streams that are available for client connection. Note that this may be an empty list.			
_supportedStreamType *Navigable association end of:* *StreamContextHasSupportedStreamConnectionTypes*	SupportedStreamType	0..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • condition:

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The list of stream types supported by the provider. Note that this may be an empty list.			

Table 12 – Attributes for class *StreamContext*

1.2.14 StreamMonitor

Description:

- Information on the monitoring of the use of a specific AvailableStream by a specific TAPI client.

Applied stereotypes:

- OpenModelClass
  - support: MANDATORY
- OpenInterfaceModelClass
  - objectCreationNotification: NA
  - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_availableStream *Navigable association end of:* *StreamMonitorMonitorsAvailableStream*	AvailableStream	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: MANDATORY PassedByReference
	Description:			
clientId	PrimitiveTypes::String	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The id of the connected client.			
clientAddress	PrimitiveTypes::String	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The address of the connected client that is being monitored.			

Attribute Name	Type	Mult.	Access	Stereotypes
_dynamicStreamData *Navigable association end of:* *StreamMonitorHasDynamicStreamData*	DynamicStreamData	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Dynamic information on the monitoring of the use of the stream. CONDITION: Mandatory where dynamic data is to be reported.			
uuid Inherited: *TapiCommon::ObjectClasses::GlobalClass::uuid*	TapiCommon::TypeDefinitions::Uuid	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-' + '[0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: *TapiCommon::ObjectClasses::GlobalClass::name*	TapiCommon::TypeDefinitions::NameAndValue	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 13 – Attributes for class *StreamMonitor*

1.2.15 SupportedStreamType

Description:

- Definition of a type of stream that is supported by the provider.

Applied stereotypes:

- OpenModelClass
  - support: MANDATORY
- OpenInterfaceModelClass
  - objectCreationNotification: NA
  - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
streamTypeName	PrimitiveTypes::String	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Name of the stream type. CONDITION: Mandatory where assisted human interpretation is required.			
recordRetention	PrimitiveTypes::String Default value: *FOREVER*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Time in minutes. Statement of retention time and/or retention capacity in bytes. Key word "FOREVER" means that records will never be removed from the log. May be overridden for particular cases of specific LogStorageStrategy (via augment). Applies to all record types in the stream unless overridden by another parameter (such as tombstone retention for a compacted log). CONDITION: Mandatory where not default.			
segmentSize	PrimitiveTypes::String	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Size of sub-structuring of the log. CONDITION: Mandatory where log is segmented and segment size is considered relevant for client application usage.			
streamTypeContent	TapiCommon::TypeDefinitions::ObjectType	0..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: Identifies the classes that are supported through the stream. The list may be a subset of the classes within the context. CONDITION: Mandatory if the stream propagates TAPI entities. If not present a separate augment MUST explain stream content.			
logStorageStrategy	LogStorageStrategy Default value: *COMPACTED*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Indicates the storage characteristics of the log supporting the stream. CONDITION: Mandatory where not default.			
logRecordStrategy	LogRecordStrategy Default value: *WHOLE_ENTITY*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Indicates the type of content of each log record. CONDITION: Mandatory where not default.			
recordTrigger	RecordTrigger Default value: *ON_CHANGE*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Defines the trigger to log a record. CONDITION: Mandatory where not default.			
uuid Inherited: *TapiCommon::ObjectClasses::GlobalClass::uuid*	TapiCommon::TypeDefinitions::Uuid	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-' + '[0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: *TapiCommon::ObjectClasses::GlobalClass::name*	TapiCommon::TypeDefinitions::NameAndValue	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 14 – Attributes for class *SupportedStreamType*

1.3 Signals

1.3.1 StreamRecord

Description:

- The stream content.

Applied stereotypes:

- OpenModelNotification
  - triggerConditionList: invalid
  - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_logRecord	LogRecord	0..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Each stream record may include a number of log records. CONDITION: Mandatory where there is one or more conformant log records to stream.			

1.4 Associations

1.4.1 LogRecordHasHeader

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_logRecordHeader	composite	Yes	LogRecordHeader	0..1
appendlogrecord	none	No	LogRecord	1

Table 15 – Member ends for association *LogRecordHasHeader*

1.4.2 LogRecordHasRecordBody

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_logRecordBody	composite	Yes	LogRecordBody	0..1
appendlogrecord	none	No	LogRecord	1

Table 16 – Member ends for association *LogRecordHasRecordBody*

1.4.3 StreamAdminMonitorsStreams

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_streamMonitor	composite	Yes	StreamMonitor	0..*
streamadmincontext	none	No	StreamAdminContext	1

Table 17 – Member ends for association *StreamAdminMonitorsStreams*

1.4.4 StreamContextHasAvailableStreamConnections

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_availableStream	composite	Yes	AvailableStream	0..*
streamcontext	none	No	StreamContext	1

Table 18 – Member ends for association *StreamContextHasAvailableStreamConnections*

1.4.5 StreamContextHasSupportedStreamConnectionTypes

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_supportedStreamType	composite	Yes	SupportedStreamType	0..*
streamcontext	none	No	StreamContext	1

Table 19 – Member ends for association *StreamContextHasSupportedStreamConnectionTypes*

1.4.6 StreamIsOfStreamConnectionType

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_supportedStreamType	none	Yes	SupportedStreamType	1
activestream	none	No	AvailableStream	0..*

Table 20 – Member ends for association *StreamIsOfStreamConnectionType*

1.4.7 StreamMonitorHasDynamicStreamData

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_dynamicStreamData	composite	Yes	DynamicStreamData	0..1
streammonitor	none	No	StreamMonitor	1

Table 21 – Member ends for association *StreamMonitorHasDynamicStreamData*

1.4.8 StreamMonitorMonitorsAvailableStream

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_availableStream	none	Yes	AvailableStream	1
streammonitor	none	No	StreamMonitor	0..*

Table 22 – Member ends for association *StreamMonitorMonitorsAvailableStream*

1.4.9 StreamRecordIsLogRecord

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_logRecord	composite	Yes	LogRecord	0..*
streamrecord	none	No	StreamRecord	1

Table 23 – Member ends for association *StreamRecordIsLogRecord*

1.5 Abstractions

1.5.1 AlarmConditionDetectorDetailAugmentsConditionDetector

Augmenting Class	Augmented Class	Comment
AlarmConditionDetectorDetail	TapiStreaming::ObjectClasses::ConditionDetector	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody/TapiStreaming:LogRecordBody:_conditionDetector"		

Table 24 – Member ends for class abstraction *AlarmConditionDetectorDetailAugmentsConditionDetector*

1.5.2 AugmentLogRecordBody

Augmenting Class	Augmented Class	Comment
AnyClass	TapiStreaming::ObjectClasses::LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 25 – Member ends for class abstraction *AugmentLogRecordBody*

1.5.3 AugmentWithCompactedLogDetails

Augmenting Class	Augmented Class	Comment
CompactedLogDetails	TapiStreaming::ObjectClasses::SupportedStreamType	
target: "/TapiCommon:Context:_context/TapiStreaming:StreamContext:_streamContext/TapiStreaming:StreamContext:_supportedStreamType"		

Table 26 – Member ends for class abstraction *AugmentWithCompactedLogDetails*

1.5.4 AugmentWithInformationRecordDetails

Augmenting Class	Augmented Class	Comment
InformationRecordStrategy	TapiStreaming::ObjectClasses::SupportedStreamType	
target: "/TapiCommon:Context: context/TapiStreaming:StreamContext: streamContext/TapiStreaming:StreamContext: supportedStreamType"		

Table 27 – Member ends for class abstraction *AugmentWithInformationRecordDetails*

1.5.5 AugmentedWithConnectionProtocolDetails

Augmenting Class	Augmented Class	Comment
ConnectionProtocolDetails	TapiStreaming::ObjectClasses::SupportedStreamType	
target: "/TapiCommon:Context:_context/TapiStreaming:StreamContext:_streamContext/TapiStreaming:StreamContext:_supportedStreamType"		

Table 28 – Member ends for class abstraction *AugmentedWithConnectionProtocolDetails*

1.5.6 AvailableStreamAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
AvailableStream	TapiStreaming::ObjectClasses::LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 29 – Member ends for class abstraction *AvailableStreamAugmentsLogRecordBody*

1.5.7 ConditionDetectorAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
ConditionDetector	TapiStreaming::ObjectClasses::LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 30 – Member ends for class abstraction *ConditionDetectorAugmentsLogRecordBody*

1.5.8 ProfileAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
Profile	TapiStreaming::ObjectClasses::LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 31 – Member ends for class abstraction *ProfileAugmentsLogRecordBody*

1.5.9 SipAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
ServiceInterfacePoint	TapiStreaming::ObjectClasses::LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 32 – Member ends for class abstraction *SipAugmentsLogRecordBody*

1.5.10 StreamAdminAugmentRootContext

Augmenting Class	Augmented Class	Comment
StreamAdminContext	TapiCommon::ObjectClasses::TapiContext	Augments the base TAPI Context with StreamAdminContext model.
target: "/TapiCommon:Context:_context"		

Table 33 – Member ends for class abstraction *StreamAdminAugmentRootContext*

1.5.11 StreamAugmentRootContext

Augmenting Class	Augmented Class	Comment
StreamContext	TapiCommon::ObjectClasses::TapiContext	Augments the base TAPI Context with StreamContext model.
target: "/TapiCommon:Context:_context"		

Table 34 – Member ends for class abstraction *StreamAugmentRootContext*

1.5.12 StreamMonitorAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
StreamMonitor	TapiStreaming::ObjectClasses::LogRecordBody	
target: "/TapiStreaming:StreamRecord: streamRecord/TapiStreaming:StreamRecord: logRecord/TapiStreaming:LogRecord: logRecordBody"		

Table 35 – Member ends for class abstraction *StreamMonitorAugmentsLogRecordBody*

1.5.13 StreamingObjectTypeAugmentsObjectType

Augmenting Enumeration	Augmented Enumeration
StreamingObjectType - ANY_CLASS - AVAILABLE_STREAM - CONDITION_DETECTOR - STREAM_MONITOR - SUPPORTED_STREAM_TYPE	DiagramsSERVICE_INTERFACE_POINT
Comment Enumeration Augment.	

Table 36 – Member ends for enum abstraction *StreamingObjectTypeAugmentsObjectType*

1.5.14 SupportedStreamTypeAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
SupportedStreamType	TapiStreaming::ObjectClasses::LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 37 – Member ends for class abstraction *SupportedStreamTypeAugmentsLogRecordBody*

1.6 Data Types

1.6.1 ApproxDateAndTime

Description:

- Allows for recording of an aspect of imprecise time.

Attribute Name	Type	Mult.	Access	Stereotypes
primaryTimeStamp	TapiCommon::TypeDefinitions::DateAndTime	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: true • valueRange: no range constraint • support: MANDATORY
	Description: Time of the event at the origin where known precisely. Where the event is known to be before particular time, this field records that time. Where the event is known to be after a particular time, this field records that time (this is an unusual case where there is no proposed before time). Where the event is known to have occurred in a time window, this field records the end time (the time before which the event must have occurred).			
startTimeStamp	TapiCommon::TypeDefinitions::DateAndTime	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: The time after which the event is known to have occurred when the event is known to have occurred between two times. The primaryTimeStamp provides the end time. CONDITION: Mandatory where the time is only approximately known and where the event is known to have occurred after a particular time.			
spread	Spread Default value: *AT*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Indicates the knowledge of the time of occurrence of the event. CONDITION: Mandatory where not default.			
sourcePrecision	SourcePrecision Default value: *UNKNOWN*	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Indicates how well the source time is synchronized with network time. CONDITION: Mandatory where not default.			

Table 38 – Attributes for data type *ApproxDateAndTime*

1.6.2 LegacyProperties

Description:

- At this point in the evolution of control solutions LegacyProperties are probably mandatory, however, it is anticipated that as control solutions advance the LegacyProperties will become irrelevant.

Attribute Name	Type	Mult.	Access	Stereotypes
perceivedSeverity	PerceivedSeverity	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: A device will provide an indication of importance for each alarm. This property indicates the importance. In some cases, the severity may change through the life of an active alarm. CONDITION: Mandatory where severity is known.			
serviceAffect	ServiceAffect	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Some devices will indicate, from its very narrow viewpoint, whether service has been impacted or not. This property carries this detail. CONDITION: Mandatory where it is known whether the condition detected is service affecting or not.			
isAcknowledged	PrimitiveTypes::Boolean	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition:
	Description: Devices offer a capability to acknowledge alarms (to stop the bells ringing). Often an EMS will offer a similar capability. This property reflects the current acknowledge state. CONDITION: Mandatory where there is a known state related to user acknowledgement of the condition.			

Attribute Name	Type	Mult.	Access	Stereotypes
additionalAlarmInfo	PrimitiveTypes::String	0..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: OPTIONAL
	Description: Often, alarms raised by devices have additional information. This property can be used to convey this.			

Table 39 – Attributes for data type *LegacyProperties*

1.7 Enumerations

1.7.1 AlarmDetectorState

Description:

- The state of the processed Boolean alarm detector. The source applies some analysis to the raw detector to determine the state. The processing by the source my vary.

Contains Enumeration Literals:

- ACTIVE
  - The detector is indicating the operation of the monitored entity is not within acceptable bounds with respect to the specific condition measured. If INTERMITTENT is supported there may be a requirement for persisted unacceptable operation after a problem occurs before ACTIVE is declared. An alternative may be to declare INTERMITTENT. Where INTERMITTENT is supported, ACTIVE indicates the stable presence of a problem.
- INTERMITTENT
  - The detector is indicating the operation of the monitored entity is intermittently not within acceptable bounds with respect to the specific condition measured. INTERMITTENT support is optional. Where it is supported there may be a requirement for persisted unacceptable operation after a problem occurs before ACTIVE or INTERMITTENT is declared.
- CLEAR
  - The detector is indicating the operation of the monitored entity is within acceptable bounds with respect to the specific condition measured. There may be a requirement for persisted acceptable operation after a problem before clear is declared etc. For a Compacted Log solution a CLEAR alarm will be considered as a DELETE ChangeType in the RecordBody. Hence a CLEAR will also cause a Tombstone record in a Compacted Log solution.

1.7.2 ConditionDetectorType

Description:

- The type of condition detector. The type relates to the characteristics of the detection and reporting strategies. This drives the conditional augment.

Contains Enumeration Literals:

- ALARM_DETECTOR

    - A type of detector used for reporting problems. The underlying raw detector is two state from the perspective of the monitored condition. The detector is asymmetric in nature. One state indicates that there is a problem and the other state indicates that there is no problem.
- EVENT_DETECTOR
    - A type of detector used for reporting events.
- PM_THRESHOLD_DETECTOR
    - A type of detector used for reporting threshold crossing events related to performance monitoring.

1.7.3 ConnectionProtocol

Description:

- The connection protocols.

Contains Enumeration Literals:

- WEBSOCKETS
    - WebSockets as defined at https://datatracker.ietf.org/doc/html/rfc6455.
- SSE
    - Server Sent Events as defined at https://www.w3.org/TR/2015/REC-eventsource-20150203/.
- GNMI
    - Google network Management Interface as specified at https://github.com/openconfig/reference/tree/master/rpc/gnmi.

1.7.4 EncodingFormat

Description:

- The list of possible encoding formats.

Contains Enumeration Literals:

- JSON
    - JavaScript Object Notation as defined at https://www.json.org/json-en.html.
- PROTOBUF
    - Protocol Buffers as defined at github.com/protocolbuffers/protobuf.
- XML
    - eXtensible Markup Language as defined at https://www.w3.org/standards/xml/.

1.7.5 EventSource

Description:

- Source of the event. Use to give some idea of the time characteristics of the event source.

Contains Enumeration Literals:

- RESOURCE_OPERATION
    - The event is from the operation of the network resources. The event source has a relatively fast time characteristic.
- MANAGEMENT_OPERATION
    - Event is from a Management operation (slow control). The event source has a relatively slow time characteristic.

- UNKNOWN
    - The origin of the event is not known.

1.7.6 LogRecordStrategy

Description:

- Defines the different approaches for logging information about an event covering the log trigger and the log content.

Contains Enumeration Literals:

- WHOLE_ENTITY_ON_CHANGE
    - DEPRECATED Replaced by WHOLE_ENTITY with record trigger ON_CHANGE. A record provides a snapshot of a whole entity and a snapshot is taken on each change. The record includes all properties and values whether they have changed or not.

    - Applied stereotype:
        - Deprecated
- CHANGE_ONLY
    - Each record only provides a view of the changes that have occurred (on a per entity change basis). E.g., the log only includes the attribute that has changed and not other attributes that have not changed.
- WHOLE_ENTITY_PERIODIC
    - DEPRECATED Replaced by WHOLE_ENTITY with record trigger PERIODIC. A snapshot of an entity is recorded periodically regardless of whether there has been change or not.

    - Applied stereotype:
        - Deprecated
- WHOLE_ENTITY
    - A record provides a snapshot of a whole entity. The record includes all properties and values whether they have changed or not.

1.7.7 LogStorageStrategy

Description:

- Defines the storage (record retention) approach.

Contains Enumeration Literals:

- COMPACTED
    - The log uses some mechanism to remove noisy detail whilst enabling the client to achieve eventual consistency (alignment) with current state.
- TRUNCATED
    - The log only maintains recent records and disposes of old records. This log does not alone enable the client to achieve alignment with current state.
- FULL_HISTORY
    - Maintains a history from system initiation with no missing records. Provides initial state at the beginning of the history
- FULL_HISTORY_WITH_PERIODIC_BASELINE
    - Provides a history with initial state and periodic/occasional statements of current state at a particular point in time.

1.7.8 PerceivedSeverity

Description:

- The values for importance of an ACTIVE, INTERMITTENT or CLEAR alarm.

Contains Enumeration Literals:

- CRITICAL
  - The highest severity of ACTIVE/INTERMITTENT alarm.
- MAJOR
  - The middle severity of ACTIVE/INTERMITTENT alarm.
- MINOR
  - The lowest severity of ACTIVE/INTERMITTENT alarm.
- WARNING
  - An extremely low importance ACTIVE/INTERMITTENT alarm (lower than MINOR).
- CLEARED
  - The severity of a CLEAR where no other severity information is available.

1.7.9 RecordSuppression

Description:

- Defines the record suppression strategy. Where suppression is applied a record will not be logged if it meets the supression criteria.

Contains Enumeration Literals:

- NO_SUPPRESSION
  - There is no record suppression.
- SUPPRESS_EXPECTED
  - A record will be suppressed if the value of the record is exactly as expected. The absence of a record will convey to the client that the value is as the client expects.
- DEFINED_SUPPRESSION
  - Suppression will follow a strategy that is complex and specified via additional detail.

1.7.10 RecordTrigger

Description:

- The trigger for logging a record.

Contains Enumeration Literals:

- ON_CHANGE
  - A record is logged each time the value of the item to be recorded changes.
- PERIODIC
  - A record is logged for the item on a periodic basis (independent of whether the values have changed or not).
- DEFINED_TRIGGER
  - The trigger will follow a strategy that is complex and specified via additional detail.

1.7.11 RecordType

Description:

- The type of the record. Used to understand what log content will be present and how to interpret it. For some record types there is special encoding. A ACTIVE alarm and an INTERMITTENT alarm are CREATE_UPDATE. A CLEAR alarm is DELETE with an adjacent TOMBSTONE record.

Contains Enumeration Literals:

- CREATE_UPDATE
  - The record includes a create or update. Where there is an update in a non-compacted log the information with be sparse (e.g., a single attribute) and about an entity that is already known.
- DELETE
  - The record is about a delete. The record may have a LogRecordHeader and a LogRecordBody but no augmented content. The entityKey should be sufficient to identify the entity to be deleted. Under certain circumstances there may be class content in the LogRecordBody.
- TOMBSTONE
  - Used in a Compacted log to remove old records and truncate deletion history. Is only a LogRecordHeader with no LogRecordBody.
- CHANGE
  - The record includes necessary ids and only the changed parameter/parameters.
- UPDATE
  - The record is of the whole entity where it is known to have existed before.
- CREATE
  - The record is of the whole entity where it is known to have not existed before or not known to have existed before (it may have existed but the record has been lost and hence it appears to be new).
- INFORMATION
  - The record contains some information.

1.7.12 ServiceAffect

Description:

- Indicates whether the device considers the condition to be impacting service. Note that the detected condition along with knowledge of the topology and protection provide a more suitable approach.

Contains Enumeration Literals:

- SERVICE_AFFECTING
  - The condition is believed to impact service.
- NOT_SERVICE_AFFECTING
  - The condition is believed to not impact service.
- UNKNOWN
  - The service impact of the condition is not known.

1.7.13 SourcePrecision

Description:

- Alternative statements about timing precision at the event source.

Contains Enumeration Literals:

- UNKNOWN
  - The state of the clock at the event source is not known. The view of time of day at the source is suspect.
- FREE_RUNNING
  - The clock at the event source is free-running. The view of time of day at the source may be significantly different from that at other sources.
- SYNCHRONIZED
  - The clock at the event source is appropriately synchronized to the timing master. The view of time of day at the source should be essentially the same as that at other time-synchronized sources.

1.7.14 Spread

Description:

- The alternative time of occurrence statements.

Contains Enumeration Literals:

- AT
  - The event occurred at a particular time.
- BEFORE
  - The event occurred before a particular time.
- AFTER
  - The event occurred after a particular time.
- BETWEEN
  - The event occurred between two stated times.

1.7.15 StreamState

Description:

- The state of the available stream.

Contains Enumeration Literals:

- ALIGNING
  - The log that underpins the stream is aligning with other backend services and hence may not be providing full service. If events are provided, they will be completely valid.
- ACTIVE
  - The stream is operating such that if a client connects records will be provided as per back pressure etc.
- PAUSED
  - Although the stream is available it has been paused by the administrator such that the records are being appended to the log but a new client will not receive any events whilst the stream is paused.
- TERMINATED
  - The stream is essentially no longer available. It will be removed from the AvailableStreams list shortly.

1.7.16 StreamingObjectType

Description:

- The list of TAPI Streaming Object types/classes.

Contains Enumeration Literals:

- AVAILABLE_STREAM
- STREAM_MONITOR
- SUPPORTED_STREAM_TYPE
- CONDITION_DETECTOR
- ANY_CLASS

1.7.17 ValueExpectation

Description:

- Defines the value expectation where record suppression is SUPPRESS_EXPECTED.

Contains Enumeration Literals:

- NO_EXPECTATION
  - There is no expected value.
- VALUE_IS_ZERO
  - The expected value (of the relevant parameter or parameters) is (all) zero.
- VALUE_IS_SAME_AS_LAST
  - The expected value (of the relevant parameter or parameters) is (all) the same as ther were for the last record opportunity.
- DEFINED_EXPECTATION
  - Value expectation will follow a strategy that is complex and specified via additional detail.

1.7.18 ValueExpectationDither

Description:

- Defines the dither in an expected value that is allowed for the value to still be considered as expected.

Contains Enumeration Literals:

- NO_DITHER
  - No dither allowed.
- DEFINED_DITHER
  - Dither will follow a strategy that is complex and specified via additional detail.

1.8 Primitives