

<b>Document Title</b>	Collection of constraints on AUTOSAR M1 models
<b>Document Owner</b>	AUTOSAR
<b>Document Responsibility</b>	AUTOSAR
<b>Document Identification No</b>	635

<b>Document Status</b>	published
<b>Part of AUTOSAR Standard</b>	Foundation
<b>Part of Standard Release</b>	R25-11

Document Change History			
Date	Release	Changed by	Description
2025-11-27	R25-11	AUTOSAR Release Management	<ul style="list-style-type: none"> <li>Updated constraints according to changes in TPS documents</li> </ul>
2024-11-27	R24-11	AUTOSAR Release Management	<ul style="list-style-type: none"> <li>Updated constraints according to changes in TPS documents</li> </ul>
2023-11-23	R23-11	AUTOSAR Release Management	<ul style="list-style-type: none"> <li>Updated constraints according to changes in TPS documents</li> </ul>
2022-11-24	R22-11	AUTOSAR Release Management	<ul style="list-style-type: none"> <li>Updated constraints according to changes in TPS documents</li> </ul>
2021-11-25	R21-11	AUTOSAR Release Management	<ul style="list-style-type: none"> <li>Updated constraints according to changes in TPS documents</li> </ul>
2020-11-30	R20-11	AUTOSAR Release Management	<ul style="list-style-type: none"> <li>Updated constraints according to changes in TPS documents</li> <li>Removed all SWS constraints</li> <li>Split document into 3 documents, reflecting the standards CP, AP, FO</li> </ul>
2019-11-28	R19-11	AUTOSAR Release Management	<ul style="list-style-type: none"> <li>Updated constraints according to changes in SWS and TPS documents</li> <li>Changed Document Status from Final to published</li> </ul>
2018-10-31	4.4.0	AUTOSAR Release Management	<ul style="list-style-type: none"> <li>Completion of constraint context by adding tables and classtables referenced by model constraints to this document</li> </ul>



△

2017-12-08	4.3.1	AUTOSAR Release Management	• minor corrections / clarifications / editorial changes; For details please refer to the ChangeDocumentation
2016-11-30	4.3.0	AUTOSAR Release Management	• minor corrections / clarifications / editorial changes; For details please refer to the ChangeDocumentation
2015-07-31	4.2.2	AUTOSAR Release Management	• minor corrections / clarifications / editorial changes; For details please refer to the ChangeDocumentation
2014-10-31	4.2.1	AUTOSAR Release Management	• Editorial changes
2013-10-31	4.1.2	AUTOSAR Release Management	• Updated constraints according to changes in SWS and TPS documents
2013-03-15	4.1.1	AUTOSAR Administration	• Initial Release

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# 1 Document Information and Content

This auxiliary document provides a collection of constraints for AUTOSAR models. All constraints are copied from template specification from the AUTOSAR Foundation, so this document does not introduce any new constraints.

A list of the documents that the constraints originate from can be found in the table of contents. Chapter [2](#) contains the collected constraints, grouped by source documents. All constraints from the same source document are contained within a single section.

## 2 Autosar Model Constraints

### 2.1 FO\_TPS\_AbstractPlatformSpecification

#### [constr\_6803] Standardized values of [CompositionSwComponentType.category](#)

*Status:* DRAFT

*Imposition time:* IT\_Apsd

[In a [System](#) with the [category](#) set to ABSTRACT\_PLATFORM\_SYSTEM\_DESCRIPTION, any [CompositionSwComponentType](#) which is referenced by a [SwComponentPrototype](#) in the role [type](#) shall have the [category](#) set to:

- XP\_COMPONENT\_APPLICATION

]

#### [constr\_6806] Standardized values of [ApplicationInterface.category](#)

*Status:* DRAFT

*Imposition time:* IT\_Apsd

[The [category](#) of a [ApplicationInterface](#) can be set to either:

- XP\_PORT\_SECURITY
- XP\_PORT\_TIMESYNC
- XP\_PORT\_STORAGE
- XP\_PORT\_APPLICATION
- XP\_PORT\_SAFETY

]

#### [constr\_6807] Exclusivity of a [ApplicationInterface](#) to an Abstract Platform

*Status:* DRAFT

*Imposition time:* IT\_Apsd

[A [ApplicationInterface](#) shall not type a [PortPrototype](#) unless the [category](#) of the [System](#) is ABSTRACT\_PLATFORM\_SYSTEM\_DESCRIPTION.]

# [constr\_6810] Applicable **categorys** for data types in an abstract platform

Status: DRAFT

Imposition time: IT\_Apsd

[

Category	Applicable to ...							Description
	ApplicationDataType	ApplicationDeferredDataType	ApplicationArrayDataType	ApplicationRecordDataType	ApplicationPrimitiveDataType	ApplicationRecordElement	ApplicationArrayElement	
VALUE				x	x	x		Contains a single value.
STRUCTURE			x		x	x		Holds one or several further elements which can have different <a href="#">AutosarDataTypes</a> .
STRING				x	x	x		Contains a single value interpreted as a text string (note that it appears as a single value for the application domain).
ARRAY		x			x	x		A fixed-sized array of sub-elements of the same type.
BOOLEAN				x	x	x		Contains a single boolean (true/false) state.

]

## [constr\_6812] Supported **SwDataDefProps** applicable to **Application-DataTypes** exclusive to the abstract platform

Status: DRAFT

Imposition time: IT\_Apsd

[

Attributes of SwDataDefProps	Root Elem.				Attribute Existence per Category				
	ApplicationDataType	ApplicationDeferredDataType	ApplicationRecordElement	ApplicationArrayElement	VALUE	STRUCTURE	ARRAY	STRING	BOOLEAN
annotation	x	x	x	x	*	*	*	*	*
compuMethod	x				0..1				0..1
dataConstr.dataConstrRule.physConstrs	x		x	x	0..1		0..1		0..1
dataConstr.dataConstrRule.internalConstrs	x		x	x	d/c <sup>1</sup>		d/c		d/c
displayFormat	x		x	x	0..1		0..1	0..1	0..1
invalidValue	x				0..1			0..1	0..1
swTextProps	x							1	
unit	x				0..1			0..1	0..1
Other Attributes below the Root Element									
element:ApplicationRecordElement	x		x	x		1..*			
element:ApplicationArrayElement	x		x	x			1		
ApplicationArrayElement.arraySizeSemantics	x						0..1		
ApplicationArrayElement.maxNumberOfElements	x						1		

]

## [constr\_6814] Restriction of **ApplicationDeferredDataType.category**

Status: DRAFT

Imposition time: IT\_Apsd

[The **category** of an **ApplicationDeferredDataType** shall be unassigned/undefined.]

## 2.2 FO\_TPS\_FeatureModelExchangeFormat

### [constr\_3657] Multiplicity of **FMAtributeDef.max** and **FMAtributeDef.min**

Imposition time: IT\_FeatMod

[For each **FMAtributeDef** the attributes **max** and **min** shall exist.]

<sup>1</sup>don't care



**[constr\_3658] Multiplicity of `FMFeatureDecomposition.category`***Imposition time:* IT\_FeatMod[For each `FMFeatureDecomposition` the attribute `category` shall exist.]**[constr\_3659] Multiplicity of `FMFeatureDecomposition.feature`***Imposition time:* IT\_FeatMod[For each `FMFeatureDecomposition` at least one reference in the role `feature` shall exist.]**[constr\_3660] Multiplicity of `FMFeatureRelation.feature`***Imposition time:* IT\_FeatMod[For each `FMFeatureRelation` at least one reference in the role `feature` shall exist.]**[constr\_3661] Multiplicity of `FMFeatureSelection.feature`***Imposition time:* IT\_FeatMod[For each `FMFeatureSelection` the reference in the role `feature` shall exist.]**[constr\_3662] Multiplicity of `FMFeatureSelection.state`***Imposition time:* IT\_FeatMod[For each `FMFeatureSelection` the attribute `state` shall exist.]**[constr\_3663] Multiplicity of `FMAtributeValue.definition`***Imposition time:* IT\_FeatMod[For each `FMAtributeValue` the reference in the role `definition` shall exist.]**[constr\_3664] Multiplicity of `FMAtributeValue.value`***Imposition time:* IT\_FeatMod[For each `FMAtributeValue` the attribute `value` shall exist.]**[constr\_3665] Multiplicity of `FMFormulaByFeaturesAndAttributes.attribute`***Imposition time:* IT\_FeatMod[For each `FMFormulaByFeaturesAndAttributes` the reference in the role `attribute` shall exist.]**[constr\_3666] Multiplicity of `FMFormulaByFeaturesAndAttributes.feature`***Imposition time:* IT\_FeatMod[For each `FMFormulaByFeaturesAndAttributes` the reference in the role `feature` shall exist.]

**[constr\_3667] Multiplicity of `FMFormulaByFeaturesAndSwSystemconsts.feature`**

*Imposition time:* IT\_FeatMod

[For each `FMFormulaByFeaturesAndSwSystemconsts` the reference in the role `feature` shall exist.]

**[constr\_5001] `FMFeatureRelation` shall not establish self-references**

*Imposition time:* IT\_FeatMod

[A `FMFeatureRelation` that is aggregated by a `FMFeature`  $f$  shall not reference  $f$  in the role `feature`. In other words: self-references are not allowed.]

**[constr\_5002] `FMFeatureSelectionSet` shall not have cycles in the `include` relation**

*Imposition time:* IT\_FeatMod

[Let  $S$  be a `FMFeatureSelectionSet` and let  $G$  be the *inclusion graph* for all `FMFeatureSelectionSets` as defined in [TPS\_FMDT\_00032]. There shall be no cycles in the inclusion graph.]

**[constr\_5003] `FMFeatureSelectionSet` shall not overwrite the state of included features**

*Imposition time:* IT\_FeatMod

[Let  $S$  be a `FMFeatureSelectionSet` that aggregates a `FMFeatureSelection` that has the `state`  $s$  and which refers to a `FMFeature`  $f$  in the role `feature`. Furthermore, let  $S_1$  be a `FMFeatureSelectionSet` that aggregates a `FMFeatureSelection` that has the `state`  $s_1$  and refers to the same `FMFeature`  $f$  in the role `feature`. Finally assume that  $S$  refers to  $S_1$  in the role `include`.

Then the following conditions shall hold:

1. If the value of the attribute `state` of  $s_1$  is `undecided`, then the value of the attribute `state` of  $s$  may be one of `selected`, `deselected`, and `undecided`.
2. If the value of the attribute `state` of  $s_1$  is `selected` or `deselected`, then the value of the attribute `state` of  $s$  shall be the same as the attribute `state` in  $s_1$ , or `undecided`.
3. Any other constellation is considered an error.

]

**[constr\_5005] `FMFeature` shall not be referenced from more than one `FMFeatureDecomposition`**

*Imposition time:* IT\_FeatMod

[Let  $f$  be a `FMFeature` that is referenced from a `FMFeatureDecomposition` in the role `feature`. Then no other `FMFeatureDecomposition` shall reference  $f$  in the role `feature`.]

**[constr\_5007] FMFeature shall only be referenced from one FMFeatureModel in the role feature**

*Imposition time:* IT\_FeatMod

[Let  $f$  be a FMFeature, and  $F, F'$  be FMFeatureModels where  $F$  references  $f$  in the role feature, and  $F'$  also references  $f$  in the role feature. Then  $F = F'$ .]

**[constr\_5008] If present, the root feature shall be part of the feature model**

*Imposition time:* IT\_FeatMod

[Let  $r$  be the FMFeature referenced from FMFeatureModel in the role root, and  $\{f_1, f_2, \dots, f_n\}$  the set of features referenced from the same FMFeatureModel in the role feature.

Then the following condition shall hold:  $r \in \{f_1, f_2, \dots, f_n\}$ .]

**[constr\_5009] Root feature shall be present if and only if the feature model is not empty**

*Imposition time:* IT\_FeatMod

[If a FMFeatureModel refers to one or more FMFeature elements in the role feature, then exactly one of them shall be referenced by FMFeatureModel in the role root.

On the contrary, if FMFeatureModel does not refer to any FMFeatures in the role feature, then root shall be empty.]

**[constr\_5010] FMFeatureDecomposition may refer to a root feature of another feature model, but only once.**

*Imposition time:* IT\_FeatMod

[Let  $f_A$  be a FMFeature that is referenced by FMFeatureModel  $A$  in the role feature, but is also referenced from a FMFeatureDecomposition that is aggregated by a FMFeature  $f_B$  in the role decomposition.

Furthermore, let  $B$  be the FMFeatureModel that references  $f_B$  in the role feature with  $A \neq B$ . That is,  $f_A$  and  $f_B$  belong to different feature models.

Then both the following conditions shall hold:

1.  $f_A$  is referenced from  $A$  in the role root.
2. There is no other FMFeatureDecomposition (neither in  $B$  nor in any other FMFeatureModel) that references  $f_B$  in the role feature.

]

**[constr\_5011] FMFormulaByFeaturesAndAttributes** can refer to **FMFeatures** and **FMAttributeDefs**, but not to system constants

*Imposition time:* IT\_FeatMod

[A formula of class **FMFormulaByFeaturesAndAttributes** is an expression that can use **FMFeatures** and **FMAttributeDefs**, but is not allowed to use **SwSystem-consts**.]

**[constr\_5013] Attributes min and max of FMFeatureDecomposition reserved for category MULTIPLEFEATURE**

*Imposition time:* IT\_FeatMod

[The optional attributes **min** and **max** of **FMFeatureDecomposition** are only allowed to be present if the **category** of the **FMFeatureDecomposition** is **MULTIPLEFEATURE**.]

**[constr\_5018] FMFeatureSelectionSet** shall not include the same feature twice

*Imposition time:* IT\_FeatMod

[Let  $\{s_1, s_2, \dots, s_n\}$  be the set of **FMFeatureSelection** elements that are aggregated by a **FMFeatureSelectionSet** in the role **selection**. Furthermore, for each  $s_i$ , let  $f_i$  be the **FMFeature** that is referred to in the role **feature**. Then the following condition shall hold true:

$$\forall i, j \in \{1, 2, \dots, n\} : i \neq j \Rightarrow f_i \neq f_j$$

]

**[constr\_5019] FMFeatureModel** shall not contain the same **FMFeature** twice

*Imposition time:* IT\_FeatMod

[Let  $F$  be a **FMFeatureModel**, and let  $f, f'$  be **FMFeatures** that are referenced from  $F$  in the role **feature**. Then  $f \neq f'$ .]

**[constr\_5020] Every FMFeature shall be contained in a FMFeatureModel**

*Imposition time:* IT\_FeatMod

[For every **FMFeature**  $f$ , there shall be a **FMFeatureModel** that refers to  $f$  in the role **feature**.]

**[constr\_5021] The underlying graph of a feature model shall be a tree.**

*Imposition time:* IT\_FeatMod

[Let  $F$  be a **FMFeatureModel** and  $G$  be the underlying graph of  $F$  as defined in [TPS\_FMDT\_00034]. Then  $G$  shall be a tree. Hence, we also refer to  $G$  as the *underlying tree* of  $F$ .]

**[constr\_5022]** The root feature of a **FMFeatureModel** refers to the root of the underlying tree.

*Imposition time:* IT\_FeatMod

[Let  $F$  be a **FMFeatureModel** and  $G$  be the underlying tree of  $F$  as defined in [TPS\_FMDT\_00034]. Furthermore, let  $r$  be the **FMFeature** referred to by the **root** feature of the **FMFeatureModel**.

Then the node in  $G$  which corresponds to  $r$  is the root of the tree  $G$ .]

**[constr\_5023]** **FMFeatureSelectionSet** may only refer to **FMFeatures** from the associated **FMFeatureModel**

*Imposition time:* IT\_FeatMod

[Let  $S$  be a **FMFeatureSelectionSet**, and  $\{f_1, f_2, \dots, f_n\}$  be its *feature set* ([TPS\_FMDT\_00009]). Furthermore, let  $\{g_1, g_2, \dots, g_m\}$  be the combined *feature sets* of the **FMFeatureModels** to which  $S$  refers to in the role **featureModel**.

Then the following condition shall hold:  $\{f_1, f_2, \dots, f_n\} \subseteq \{g_1, g_2, \dots, g_m\}$ .]

**[constr\_5024]** **FMFeatureSelectionSet** shall not include itself

*Imposition time:* IT\_FeatMod

[Let  $S$  be a **FMFeatureSelectionSet** and let  $S'$  be the **FMFeatureSelectionSet** to which  $S$  refers to in the role **include**.

Then the following condition shall hold:  $S \neq S'.z$ ]

**[constr\_5025]** **FMFeatureSelectionSet** shall not overwrite the state of included features

*Imposition time:* IT\_FeatMod

[Let  $S$  be a **FMFeatureSelectionSet** that aggregates a **FMFeatureSelection** that has the **state**  $s$  and which refers to a **FMFeature**  $f$  in the role **feature**. Furthermore, let  $S_1$  ( $S_2$ ) be a **FMFeatureSelectionSet** that aggregates a **FMFeatureSelection** that has the **state**  $s_1$  ( $s_2$ ) and refers to the same **FMFeature**  $f$  in the role **feature**. Finally assume that  $S$  refers to  $S_1$  and  $S_2$  in the role **include**.

Then the following conditions shall hold:

1. If the values of the attributes **state** of  $s_1$  and  $s_2$  are both **undecided**, then the value of the attribute **state** of  $s$  may be **selected**, **deselected** or **undecided**.
2. If the value of the attribute **state** of  $s_1$  is **undecided** and the value of the attribute **state** of  $s_2$  is **selected** or **deselected**, then the value of the attribute **state** of  $s$  shall be the same as the attribute **state** in  $s_2$ , or **undecided**.
3. If the value of the attribute **state** of  $s_2$  is **undecided** and the value of the attribute **state** of  $s_1$  is **selected** or **deselected**, then the value of the attribute **state** of  $s$  shall be the same as the attribute **state** in  $s_1$ , or **undecided**.

4. If the values of the attributes `state` of  $s_1$  and  $s_2$  are both either `selected` or `deselected`, then the value of the attribute `state` of  $s$  shall be the same as in attribute  $s_1$ , or `undecided`.
5. Any other constellation is considered an error.

]

#### [constr\_5026] Semantics of attributes `max` and `min` in class `FMAAttributeDef`

*Imposition time:* IT\_FeatMod

[The following conditions shall hold for all instances of the class `FMAAttributeDef`:

- $\min \leq \text{defaultValue} \leq \max$  (`min` and `max` are both closed intervals)
- $\min < \text{defaultValue} \leq \max$  (`min` is an open interval, `max` is a closed interval)
- $\min < \text{defaultValue} < \max$  (`min` and `max` are both open intervals)
- $\min \leq \text{defaultValue} < \max$  (`min` is a closed interval, `max` is an open interval)

]

#### [constr\_5027] Semantics of attributes `max` and `min` of `FMAAttributeDef` in class `FMAAttributeValue`

*Imposition time:* IT\_FeatMod

[Let  $v$  be the attribute `value` of an `FMAAttributeValue`  $V$  that refers to `FMAAttributeDef`  $D$  in the role `definition`. Furthermore, let  $\min$  and  $\max$  be the values of the attributes `min` and `max` of  $D$ .

The following condition shall hold true:

$$\min \leq v \leq \max$$

]

#### [constr\_5028] Only one `FMAAttributeValue` per `FMAAttributeDef`

*Imposition time:* IT\_FeatMod

[Let  $S$  be a `FMFeatureSelectionSet` whose `FMFeatureSelections` aggregate `FMAAttributeValues`  $\{v_1, v_2, \dots, v_n\}$  in the role `attributeValue`. For each  $v_i$ , let  $f_i$  be the `FMFeature` to which  $v_i$  refers to in the role `attributeDef`. Then the following condition shall hold:

$$\forall i \in \{1, \dots, n\} : i \neq j \Rightarrow f_i \neq f_j$$

]

## 2.3 FO\_TPS\_LogAndTraceExtract

### [constr\_5098] Allowed **SwDataDefProps** attributes for **DltArgumentProps.networkRepresentation**

*Imposition time:* IT\_LogTrace

[

Attributes of <b>SwDataDefProps</b>	<b>networkRepresentation</b>
<b>annotation</b>	N/A
<b>baseType</b>	D
<b>compuMethod</b>	D
<b>dataConstr</b>	D
<b>displayFormat</b>	D
<b>displayPresentation</b>	N/A
<b>invalidValue</b>	N/A
<b>swComparisonVariable</b>	N/A
<b>swHostVariable</b>	N/A
<b>swTextProps</b>	D
<b>unit</b>	D

]

### [constr\_5294] Existence of **DltEcu.ecuId**

*Imposition time:* IT\_LogTrace

[For each **DltEcu**, the attribute **ecuId** shall exist.]

### [constr\_5295] Existence of **DltApplication.context**

*Imposition time:* IT\_LogTrace

[Each **DltApplication** shall reference at least one **DltContext** in the role **context**.]

### [constr\_5296] Existence of **DltApplication.applicationId**

*Imposition time:* IT\_LogTrace

[For each **DltApplication**, the attribute **applicationId** shall exist.]

### [constr\_5297] Existence of **DltApplication.applicationDescription**

*Imposition time:* IT\_LogTrace

[For each **DltApplication**, the attribute **applicationDescription** shall exist.]

### [constr\_5298] Existence of **DltContext.contextId**

*Imposition time:* IT\_LogTrace

[For each **DltContext**, the attribute **contextId** shall exist.]

### [constr\_5299] Existence of **DltContext.contextDescription**

*Imposition time:* IT\_LogTrace

[For each **DltContext**, the attribute **contextDescription** shall exist.]

**[constr\_5300] Existence of `DltContext.dltMessage`***Imposition time:* IT\_LogTrace

[Each `DltContext` shall reference at least one `DltMessage` in the role `dltMessage`.]

**[constr\_5301] Existence of `DltMessage.messageId`***Imposition time:* IT\_LogTrace

[For each `DltMessage`, the attribute `messageId` shall exist.]

**[constr\_5303] Restriction of `baseTypeSize` of a `DltArgument`***Imposition time:* IT\_LogTrace

[The `baseTypeSize` in the `networkRepresentation` of a `DltArgument` is restricted to 8, 16, 32, and 64 Bits.]

**[constr\_5304] Datatype of an Array***Imposition time:* IT\_LogTrace

[The `dltArgumentEntry` that is aggregated by `DltArgumentProps` that has the `length` attribute set to a value (represents an Array) shall not define a `SwBaseType` in the `networkRepresentation` since the data type of the Array is described by the `SwBaseType` in the `networkRepresentation` of the aggregating `DltArgumentProps`.]

**[constr\_5305] `CompuMethod` in `DltArgumentProps.networkRepresentation`***Imposition time:* IT\_LogTrace

[The `CompuMethod` that is used in the `networkRepresentation` of `DltArgumentProps` referenced by `DltArgument` is limited to category TEXTTABLE.]

**[constr\_5340] Range of `DltMessage.privacyLevel.privacyLevel`***Imposition time:* IT\_LogTrace

[The value of `DltMessage.privacyLevel.privacyLevel` shall be in the range between 0 and 255.]

**[constr\_5341] Range of `PrivacyLevel.compuMethod`***Imposition time:* IT\_LogTrace

[The `CompuMethod` that is referenced from `PrivacyLevel` in the role `compuMethod` shall have the category TEXTTABLE.]



### [constr\_5363] Allowed usage of attributes for description of payload data types

*Imposition time:* IT\_LogTrace

[

Type	length	dltArgumentEntry	SwBaseType of top level DltArgumentProps
Predefined Text	NA	NA	NA
primitive Type	NA	NA	D
String	D	NA	D
1-dimensional Array	D	NA	D
n-dimensional Array	D	D	D
Struct	NA	D	NA

]

### [constr\_5364] Allowed usage of attributes in case of a **dltArgumentEntry**

*Imposition time:* IT\_LogTrace

[

dltArgumentEntry type	length	dltArgumentEntry	SwBaseType of DltArgumentEntry
Struct member	NA	D	D
Array dimension	D	D	NA

]

### [constr\_9364] Mutually exclusive existence of **DltArgument.optional** and **DltArgument.predefinedText** attributes

*Imposition time:* IT\_LogTrace

[A **DltArgument** element shall never define the attributes **DltArgument.optional** and **DltArgument.predefinedText** at the same time.]

### [constr\_9365] **DltArgument** with **predefinedText**

*Imposition time:* IT\_LogTrace

[If the **predefinedText** of a **DltArgument** is set to true then the **DltArgument** shall not reference **DltArgumentProps** in the role **dltArgumentProps**.]

## 2.4 FO\_TPS\_SecurityExtractTemplate

### [constr\_5600] Valid interval for attribute **SecurityEventDefinition.id**

*Status:* DRAFT

[The valid interval for attribute **SecurityEventDefinition.id** is 0..65534.]

**[constr\_5601] Uniqueness of `SecurityEventDefinition.id`***Status:* DRAFT

[Within the scope of an IDS, i.e. for all `SecurityEventDefinitions` referenced by the same `IdsDesign`, there shall be no attribute `id` of any other `SecurityEventDefinition` that has the same value.]

**[constr\_5602] Valid interval for attribute `SecurityEventOneEveryNFilter.n`***Status:* DRAFT

[The valid interval for attribute `SecurityEventOneEveryNFilter.n` is 2..65535.]

**[constr\_5603] Valid interval for attribute `SecurityEventAggregationFilter.minimumIntervalLength`***Status:* DRAFT

[The valid interval for attribute `SecurityEventAggregationFilter.minimumIntervalLength` is ]0..INF[ seconds.]

**[constr\_5604] Valid interval for attribute `SecurityEventThresholdFilter.intervalLength`***Status:* DRAFT

[The valid interval for attribute `SecurityEventThresholdFilter.intervalLength` is ]0..INF[ seconds.]

**[constr\_5605] Valid interval for attribute `SecurityEventThresholdFilter.thresholdNumber`***Status:* DRAFT

[The valid interval for attribute `SecurityEventThresholdFilter.thresholdNumber` is 2..65535.]

**[constr\_5606] Valid interval for attribute `IdsmRateLimitation.timeInterval`***Status:* DRAFT

[The valid interval for attribute `IdsmRateLimitation.timeInterval` is 0..65535 seconds.]

**[constr\_5607] Valid interval for attribute `IdsmRateLimitation.maxEventsInInterval`***Status:* DRAFT

[The valid interval for attribute `IdsmRateLimitation.maxEventsInInterval` is 1..65535.]

**[constr\_5608] Valid interval for attribute `IdsmTrafficLimitation.timeInterval`***Status:* DRAFT

[The valid interval for attribute `IdsmTrafficLimitation.timeInterval` is 0..65535 seconds.]

**[constr\_5609] Valid interval for attribute `IdsmTrafficLimitation.maxBytesInInterval`***Status:* DRAFT

[The valid interval for attribute `IdsmTrafficLimitation.maxBytesInInterval` is 1..65535.]

**[constr\_5610] Unambiguous definition of execution platform for an `IdsmInstance`***Status:* DRAFT

[For the meta-class `IdsmInstance`, either the reference in the role `ecuInstance` or the reference in the role `idsmModuleInstantiation` shall be defined in order to ensure that the platform (Classic or Adaptive) on which an `IdsmInstance` is targeted to run is unambiguously defined.]

**[constr\_5611] Unambiguous configuration of platform-dependent signature support for an `IdsmInstance`***Status:* DRAFT

[For the meta-class `IdsmInstance`, either the aggregation of `IdsmSignatureSupportCp` or of `IdsmSignatureSupportAp` shall be defined in order to ensure that the platform-dependent signature support is unambiguously configured.]

**[constr\_5612] Unambiguous definition of platform-dependent network configuration for an `IdsmInstance`***Status:* DRAFT

[For the meta-class `IdsmInstance`, either the configuration of one `GeneralPurposeIPdu` with `category="IDS"` (for the Classic Platform as specified in [TPS\_SECXT\_01038]) or the network configuration through the reference `idsmModuleInstantiation` (for the Adaptive Platform as specified in [TPS\_SECXT\_01039]) shall be defined in order to ensure that the platform-dependent network configuration is unambiguously defined.]

**[constr\_5613] Unambiguous definition of `SecurityEventStateFilter` for CP or AP***Status:* DRAFT

[For `SecurityEventStateFilter`, either the references in the role `blockIfStateActiveCp` or the references in the role `blockIfStateActiveAp` shall be defined in order to ensure the unambiguous applicability of the `SecurityEventStateFilter` towards the Classic or the Adaptive Platform.]

**[constr\_5614] Upper bound for multiplicity of `BlockStates` aggregated by `IdsmInstance`***Status: DRAFT*

[For the meta-class `IdsmInstance`, the maximum number of aggregated `BlockStates` in the role `blockState` shall be 16.]

**[constr\_5615] Restriction of `SecurityEventStateFilter` referencing `BlockStates` on CP***Status: DRAFT*

[For a `SecurityEventStateFilter` on the Classic Platform, the references in the role `blockIfStateActiveCp` shall only reference those `BlockStates` that are aggregated in the role `blockState` by the `IdsmInstance` which is mapped (by `SecurityEventContextMapping`) to that `SecurityEventFilterChain` of which the `SecurityEventStateFilter` is part of.]

**[constr\_9339] `SecurityEventContextDataElement.maxLength` usage restriction***Status: DRAFT*

[The `SecurityEventContextDataElement.maxLength` attribute shall only be set if the `SecurityEventContextDataElement.networkRepresentation` defines an Array or a String.]

**[constr\_9340] Datatype of an Array***Status: DRAFT*

[The `nestedContextData` that is aggregated by a `SecurityEventContextDataElement` that has the `maxLength` attribute set to a value (represents an Array) shall not define a `SwBaseType` in the `networkRepresentation` since the data type of the Array is described by the `SwBaseType` in the `networkRepresentation` of the aggregating `SecurityEventContextDataElement`.]

**[constr\_9341] `CompuMethod` in `SecurityEventContextDataElement.networkRepresentation`***Status: DRAFT*

[The `CompuMethod` that is used in the `networkRepresentation` of a `SecurityEventContextDataElement` is limited to category TEXTTABLE.]

**[constr\_9342] Allowed range of `SecurityEventContextDataDefinition.version`***Status: DRAFT*

[The value given for `SecurityEventContextDataDefinition.version` shall be in the range from 0 to 65535.]

**[constr\_12000] Usage of references in the context of `SecurityEventReportInstanceValue`***Status:* DRAFT

[Within each `SecurityEventReportInstanceValue`, exactly one of the references in the role

- `flatObject`
- `object`

shall exist.]

**[constr\_12001] Existence of attribute `SecurityEventReportInstanceValue.id`***Status:* DRAFT

[For each `SecurityEventReportInstanceValue`, attribute `id` shall exist.]

**[constr\_12002] Existence of attribute `SecurityEventReportInstanceDefinition.targetType`***Status:* DRAFT

[For each `SecurityEventReportInstanceDefinition`, the attribute `targetType` shall exist.]

**[constr\_12003] Existence of reference `SecurityEventReportInstanceValue.contextDataElementIdentification`***Status:* DRAFT

[In the context of a `SecurityEventContextDataElement`, if the reference in the role `SecurityEventContextDataElement.securityEventReportInstanceDefinition` does not exist, then the `SecurityEventContextDataElement` shall not be referenced in the role `SecurityEventReportInstanceValue.contextDataElementIdentification`.]

**[constr\_12004] Valid interval for attribute `SecurityEventContextProps.sensorInstanceId`***Status:* DRAFT

[The valid interval for attribute `SecurityEventContextProps.sensorInstanceId` is 0..63.]

**[constr\_12005] Valid interval for attribute `IdsmInstance.idsmInstanceId`***Status:* DRAFT

[The valid interval for attribute `IdsmInstance.idsmInstanceId` is 0..1023.]

**[constr\_12006] Existence of attribute `IdsmInstance.idsmInstanceId`***Status:* DRAFT

[For each `IdsmInstance`, the attribute `idsmInstanceId` shall exist.]

**[constr\_12007] Existence of attribute `IdsmInstance.rateLimitationFilter`***Status:* DRAFT

[For each `IdsmInstance`, the reference to `IdsmRateLimitation` in the role `rateLimitationFilter` shall exist.]

**[constr\_12008] Existence of attribute `IdsmInstance.trafficLimitationFilter`***Status:* DRAFT

[For each `IdsmInstance`, the reference to `IdsmTrafficLimitation` in the role `trafficLimitationFilter` shall exist.]

**[constr\_12009] Existence of attribute `IdsmTrafficLimitation.maxBytesInInterval`***Status:* DRAFT

[For each `IdsmTrafficLimitation`, the attribute `maxBytesInInterval` shall exist.]

**[constr\_12010] Existence of attribute `IdsmTrafficLimitation.timeInterval`***Status:* DRAFT

[For each `IdsmTrafficLimitation`, the attribute `timeInterval` shall exist.]

**[constr\_12011] Existence of attribute `SecurityEventDefinition.id`***Status:* DRAFT

[For each `SecurityEventDefinition`, the attribute `id` shall exist.]

**[constr\_12012] Existence of attribute `SecurityEventAggregationFilter.contextDataSource`***Status:* DRAFT

[For each `SecurityEventAggregationFilter`, the attribute `contextDataSource` shall exist.]

**[constr\_12013] Existence of attribute `SecurityEventAggregationFilter.minimumIntervalLength`***Status:* DRAFT

[For each `SecurityEventAggregationFilter`, the attribute `minimumIntervalLength` shall exist.]

**[constr\_12014] Existence of attribute `SecurityEventOneEveryNFilter.n`***Status:* DRAFT

[For each `SecurityEventOneEveryNFilter`, the attribute `n` shall exist.]

**[constr\_12015] Existence of attribute `SecurityEventThresholdFilter.intervalLength`***Status:* DRAFT

[For each `SecurityEventThresholdFilter`, the attribute `intervalLength` shall exist.]

**[constr\_12016] Existence of attribute `SecurityEventThresholdFilter.thresholdNumber`***Status:* DRAFT

[For each `SecurityEventThresholdFilter`, the attribute `thresholdNumber` shall exist.]

**[constr\_12017] Existence of attribute `SecurityEventContextMapping.idsmInstance`***Status:* DRAFT

[For each `SecurityEventContextMapping`, the reference to `IdsmInstance` in the role `idsmInstance` shall exist.]

**[constr\_12018] Existence of attribute `SecurityEventContextMapping.mappedSecurityEvent`***Status:* DRAFT

[For each `SecurityEventContextMapping`, the aggregation of `SecurityEventContextProps` in the role `mappedSecurityEvent` shall exist.]

**[constr\_12019] Existence of attribute `SecurityEventContextProps.defaultReportingMode`***Status:* DRAFT

[For each `SecurityEventContextProps`, the attribute `defaultReportingMode` shall exist.]

**[constr\_12020] Existence of attribute `SecurityEventContextProps.securityEvent`***Status:* DRAFT

[For each `SecurityEventContextProps`, the reference to `SecurityEventDefinition` in the role `securityEvent` shall exist.]

**[constr\_12021] Existence of attribute `SecurityEventContextProps.sensorInstanceId`***Status:* DRAFT

[For each `SecurityEventContextProps`, the attribute `sensorInstanceId` shall exist.]

## A Mentioned Class Tables

<b>Class</b>	<b>ApplicationArrayDataType</b>			
<b>Note</b>	An application data type which is an array, each element is of the same application data type. <b>Tags:</b> atp.recommendedPackage=ApplicationDataTypes			
<b>Base</b>	ARElement, ARObject, ApplicationCompositeDataType, <a href="#">ApplicationDataType</a> , AtpBlueprint, AtpBlueprintable, AtpClassifier, AtpType, <a href="#">AutosarDataType</a> , CollectableElement, <a href="#">Identifiable</a> , MultilanguageReferrable, PackageableElement, Referrable			
<b>Aggregated by</b>	ARPackage.element			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
dynamicArraySizeProfile	String	0..1	attr	Specifies the profile which the array will follow if it is a variable size array.
element	<a href="#">ApplicationArrayElement</a>	0..1	aggr	This association implements the concept of an array element. That is, in some cases it is necessary to be able to identify single array elements, e.g. as input values for an interpolation routine.

**Table A.1: ApplicationArrayDataType**

<b>Class</b>	<b>ApplicationArrayElement</b>			
<b>Note</b>	Describes the properties of the elements of an application array data type.			
<b>Base</b>	ARObject, ApplicationCompositeElementDataPrototype, AtpFeature, AtpPrototype, DataPrototype, <a href="#">Identifiable</a> , MultilanguageReferrable, Referrable			
<b>Aggregated by</b>	<a href="#">ApplicationArrayDataType.element</a> , AtpClassifier.atpFeature			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
arraySizeHandling	ArraySizeHandlingEnum	0..1	attr	The way how the size of the array is handled.
arraySizeSemantics	ArraySizeSemanticsEnum	0..1	attr	This attribute controls how the information about the array size shall be interpreted.
indexDataType	<a href="#">ApplicationPrimitiveDataType</a>	0..1	ref	This reference can be taken to assign a <a href="#">CompuMethod</a> of category TEXTTABLE to the array. The texttable entries associate a textual value to an index number such that the element with that index number is represented by a symbolic name.
maxNumberOfElements	PositiveInteger	0..1	attr	The maximum number of elements that the array can contain. <b>Stereotypes:</b> atpVariation <b>Tags:</b> vh.latestBindingTime=preCompileTime

**Table A.2: ApplicationArrayElement**

<b>Class</b>	<b>ApplicationDataType</b> (abstract)			
<b>Note</b>	ApplicationDataType defines a data type from the application point of view. Especially it should be used whenever something "physical" is at stake. An ApplicationDataType represents a set of values as seen in the application model, such as measurement units. It does not consider implementation details such as bit-size, endianness, etc. It should be possible to model the application level aspects of a VFB system by using ApplicationDataTypes only.			
<b>Base</b>	ARElement, ARObject, AtpBlueprint, AtpBlueprintable, AtpClassifier, AtpType, <a href="#">AutosarDataType</a> , CollectableElement, <a href="#">Identifiable</a> , MultilanguageReferrable, PackageableElement, Referrable			
<b>Subclasses</b>	ApplicationCompositeDataType, <a href="#">ApplicationDeferredDataType</a> , <a href="#">ApplicationPrimitiveDataType</a>			
<b>Aggregated by</b>	ARPackage.element			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
—	—	—	—	—

**Table A.3: ApplicationDataType**



<b>Class</b>	<b>ApplicationDeferredDataType</b>			
<b>Note</b>	A placeholder data type in which the precise application data type is deferred to a later stage. <b>Tags:</b> atp.Status=draft atp.recommendedPackage=ApplicationDataTypes This Class is only used by the AUTOSAR Foundation.			
<b>Base</b>	ARElement, ARObject, <a href="#">ApplicationDataType</a> , AtpBlueprint, AtpBlueprintable, AtpClassifier, AtpType, <a href="#">AutosarDataType</a> , CollectableElement, <a href="#">Identifiable</a> , MultilanguageReferrable, PackageableElement, Referrable			
<b>Aggregated by</b>	ARPackage.element			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
–	–	–	–	–

**Table A.4: ApplicationDeferredDataType**

<b>Class</b>	<b>ApplicationInterface</b>			
<b>Note</b>	This represents the ability to define a PortInterface that consists of a composition of commands (method calls), indications (events) and attributes (fields) <b>Tags:</b> atp.Status=draft atp.recommendedPackage=Interfaces This Class is only used by the AUTOSAR Foundation.			
<b>Base</b>	ARElement, ARObject, AtpBlueprint, AtpBlueprintable, AtpClassifier, AtpType, CollectableElement, <a href="#">Identifiable</a> , MultilanguageReferrable, PackageableElement, PortInterface, Referrable			
<b>Aggregated by</b>	ARPackage.element			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
attribute	Field	*	aggr	This represents the set of attributes defined in the context of an Abstract Platform ApplicationInterface. <b>Stereotypes:</b> atpSplitable; atpVariation <b>Tags:</b> atp.Splitkey=attribute.shortName, attribute.variation Point.shortLabel atp.Status=draft vh.latestBindingTime=blueprintDerivationTime
command	ClientServerOperation	*	aggr	This represents the collection of commands or function calls (with optional data arguments) defined in the context of an ApplicationInterface. <b>Stereotypes:</b> atpSplitable; atpVariation <b>Tags:</b> atp.Splitkey=command.shortName, command.variation Point.shortLabel atp.Status=draft vh.latestBindingTime=blueprintDerivationTime
indication	VariableDataPrototype	*	aggr	This represents the collection of indication or events (with optional data argument) defined in the context of an ApplicationInterface. <b>Stereotypes:</b> atpSplitable; atpVariation <b>Tags:</b> atp.Splitkey=indication.shortName, indication.variation Point.shortLabel atp.Status=draft vh.latestBindingTime=blueprintDerivationTime

**Table A.5: ApplicationInterface**

<b>Class</b>	<b>ApplicationPrimitiveDataType</b>			
<b>Note</b>	A primitive data type defines a set of allowed values. <b>Tags:</b> atp.recommendedPackage=ApplicationDataTypes			
<b>Base</b>	ARElement, ARObject, <a href="#">ApplicationDataType</a> , AtpBlueprint, AtpBlueprintable, AtpClassifier, AtpType, <a href="#">AutosarDataType</a> , CollectableElement, <a href="#">Identifiable</a> , MultilanguageReferrable, PackageableElement, Referrable			
<b>Aggregated by</b>	ARPackage.element			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
–	–	–	–	–

**Table A.6: ApplicationPrimitiveDataType**

<b>Class</b>	<b>ApplicationRecordDataType</b>			
<b>Note</b>	An application data type which can be decomposed into prototypes of other application data types. <b>Tags:</b> atp.recommendedPackage=ApplicationDataTypes			
<b>Base</b>	ARElement, ARObject, <a href="#">ApplicationCompositeDataType</a> , <a href="#">ApplicationDataType</a> , AtpBlueprint, AtpBlueprintable, AtpClassifier, AtpType, <a href="#">AutosarDataType</a> , CollectableElement, <a href="#">Identifiable</a> , MultilanguageReferrable, PackageableElement, Referrable			
<b>Aggregated by</b>	ARPackage.element			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
element (ordered)	<a href="#">ApplicationRecordElement</a>	*	aggr	Specifies an element of a record. The aggregation of <a href="#">ApplicationRecordElement</a> is subject to variability with the purpose to support the conditional existence of elements inside a <a href="#">ApplicationRecordDataType</a> . <b>Stereotypes:</b> atp.Splitable; atp.Variation <b>Tags:</b> atp.Splitkey=element.shortName, element.variation Point.shortLabel vh.latestBindingTime=preCompileTime

**Table A.7: ApplicationRecordDataType**

<b>Class</b>	<b>ApplicationRecordElement</b>			
<b>Note</b>	Describes the properties of one particular element of an application record data type.			
<b>Base</b>	ARObject, <a href="#">ApplicationCompositeElementDataPrototype</a> , AtpFeature, AtpPrototype, DataPrototype, <a href="#">Identifiable</a> , MultilanguageReferrable, Referrable			
<b>Aggregated by</b>	<a href="#">ApplicationRecordDataType.element</a> , AtpClassifier.atpFeature			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
isOptional	Boolean	0..1	attr	This attribute represents the ability to declare the enclosing <a href="#">ApplicationRecordElement</a> as optional. This means that, at runtime, the <a href="#">ApplicationRecordElement</a> may or may not have a valid value and shall therefore be ignored. The underlying runtime software provides means to set the <a href="#">ApplicationRecordElement</a> as not valid at the sending end of a communication and determine its validity at the receiving end.

**Table A.8: ApplicationRecordElement**

<b>Class</b>	<b>AutosarDataType</b> (abstract)			
<b>Note</b>	Abstract base class for user defined AUTOSAR data types for software.			
<b>Base</b>	<i>ARElement</i> , <i>ARObject</i> , <i>AtpClassifier</i> , <i>AtpType</i> , <i>CollectableElement</i> , <i>Identifiable</i> , <i>MultilanguageReferrable</i> , <i>PackageableElement</i> , <i>Referrable</i>			
<b>Subclasses</b>	<i>AbstractImplementationDataType</i> , <i>ApplicationDataType</i>			
<b>Aggregated by</b>	ARPackage.element			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
swDataDef Props	<a href="#">SwDataDefProps</a>	0..1	aggr	The properties of this AutosarDataType. <b>Stereotypes:</b> atpSplittable <b>Tags:</b> atp.Splitkey=swDataDefProps

**Table A.9: AutosarDataType**

<b>Class</b>	<b>BaseTypeDirectDefinition</b>			
<b>Note</b>	This BaseType is defined directly (as opposite to a derived BaseType)			
<b>Base</b>	<i>ARObject</i> , <i>BaseTypeDefinition</i>			
<b>Aggregated by</b>	<i>BaseType.baseTypeDefinition</i>			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
baseType Encoding	BaseTypeEncoding String	0..1	attr	This specifies, how an object of the current BaseType is encoded, e.g. in an ECU within a message sequence. <b>Tags:</b> xml.sequenceOffset=90
baseTypeSize	PositiveInteger	0..1	attr	Describes the length of the data type specified in the container in bits. <b>Tags:</b> xml.sequenceOffset=70
byteOrder	ByteOrderEnum	0..1	attr	This attribute specifies the byte order of the base type. <b>Tags:</b> xml.sequenceOffset=110
memAlignment	PositiveInteger	0..1	attr	This attribute describes the alignment of the memory object in bits. E.g. "8" specifies, that the object in question is aligned to a byte while "32" specifies that it is aligned four byte. If the value is set to "0" the meaning shall be interpreted as "unspecified". <b>Tags:</b> xml.sequenceOffset=100
native Declaration	NativeDeclarationString	0..1	attr	This attribute describes the declaration of such a base type in the native programming language, primarily in the Programming language C. This can then be used by a code generator to include the necessary declarations into a header file. For example BaseType with shortName: "MyUnsignedInt" native Declaration: "unsigned short" Results in typedef unsigned short MyUnsignedInt; If the attribute is not defined the referring Implementation DataTypes will not be generated as a typedef by RTE. If a nativeDeclaration type is given it shall fulfill the characteristic given by baseTypeEncoding and baseTypeSize. This is required to ensure the consistent handling and interpretation by software components, RTE, COM and MCM systems. <b>Tags:</b> xml.sequenceOffset=120

**Table A.10: BaseTypeDirectDefinition**

Class	BlockState			
Note	<p>This meta-class defines a block state that is part of the collection of block states belonging to a specific IdsmInstance. The Idsm shall discard any reported security event that is mapped to a filter chain containing a SecurityEventStateFilter that references the block state which is currently active in the Idsm.</p> <p><b>Tags:</b> atp.Status=candidate</p> <p>This Class is only used by the AUTOSAR Classic Platform.</p>			
Base	ARObject, <a href="#">Identifiable</a> , <a href="#">MultilanguageReferrable</a> , <a href="#">Referrable</a>			
Aggregated by	<a href="#">IdsmInstance.blockState</a>			
Attribute	Type	Mult.	Kind	Note
–	–	–	–	–

Table A.11: BlockState

Class	CompositionSwComponentType			
Note	<p>A <a href="#">CompositionSwComponentType</a> aggregates <a href="#">SwComponentPrototypes</a> (that in turn are typed by <a href="#">SwComponentType</a>s) as well as <a href="#">SwConnectors</a> for primarily connecting <a href="#">SwComponentPrototypes</a> among each others and towards the surface of the <a href="#">CompositionSwComponentType</a>. By this means, a hierarchical structures of software-components can be created.</p> <p><b>Tags:</b> atp.recommendedPackage=SwComponentTypes</p>			
Base	<a href="#">ARElement</a> , <a href="#">ARObject</a> , <a href="#">AtpBlueprint</a> , <a href="#">AtpBlueprintable</a> , <a href="#">AtpClassifier</a> , <a href="#">AtpType</a> , <a href="#">CollectableElement</a> , <a href="#">Identifiable</a> , <a href="#">MultilanguageReferrable</a> , <a href="#">PackageableElement</a> , <a href="#">Referrable</a> , <a href="#">SwComponentType</a>			
Aggregated by	<a href="#">ARPackage.element</a>			
Attribute	Type	Mult.	Kind	Note
component	<a href="#">SwComponentPrototype</a>	*	aggr	<p><b>Stereotypes:</b> atpSplittable; atpVariation</p> <p><b>Tags:</b>  atp.Splitkey=component.shortName, component.variation  Point.shortLabel  vh.latestBindingTime=postBuild</p>
connector	<a href="#">SwConnector</a>	*	aggr	<p><a href="#">SwConnectors</a> have the principal ability to establish a connection among <a href="#">PortPrototypes</a>. They can have many roles in the context of a <a href="#">CompositionSwComponentType</a>. Details are refined by subclasses.</p> <p>The aggregation of <a href="#">SwConnectors</a> is subject to variability with the purpose to support variant data flow.</p> <p><b>Stereotypes:</b> atpSplittable; atpVariation</p> <p><b>Tags:</b>  atp.Splitkey=connector.shortName, connector.variation  Point.shortLabel  vh.latestBindingTime=postBuild</p>
physical Dimension Mapping	<a href="#">PhysicalDimensionMappingSet</a>	0..1	ref	<p>This reference identifies the <a href="#">PhysicalDimensionMappingSet</a> that is applicable in the context of the enclosing <a href="#">CompositionSwComponentType</a>. The <a href="#">PhysicalDimensionMappings</a> contained in the <a href="#">PhysicalDimensionMappingSet</a> shall be taken into account for the assessment of the compatibility of <a href="#">PhysicalDimensions</a> in the context of creation of a <a href="#">PortInterfaceMapping</a> in the scope of the <a href="#">CompositionSwComponentType</a>.</p>

Table A.12: CompositionSwComponentType

Class	CompuMethod
Note	<p>This meta-class represents the ability to express the relationship between a physical value and the mathematical representation.</p> <p>Note that this is still independent of the technical implementation in data types. It only specifies the formula how the internal value corresponds to its physical pendant.</p> <p><b>Tags:</b> atp.recommendedPackage=CompuMethods</p>





Class	CompuMethod			
Base	ARElement, ARObject, AtpBlueprint, AtpBlueprintable, CollectableElement, <a href="#">Identifiable</a> , Multilanguage Referrable, PackageableElement, Referrable			
Aggregated by	ARPackage.element			
Attribute	Type	Mult.	Kind	Note
compuInternalToPhys	Compu	0..1	aggr	This specifies the computation from internal values to physical values. <b>Stereotypes:</b> atpSplittable <b>Tags:</b> atp.Splitkey=compuInternalToPhys xml.sequenceOffset=80
compuPhysToInternal	Compu	0..1	aggr	This represents the computation from physical values to the internal values. <b>Stereotypes:</b> atpSplittable <b>Tags:</b> atp.Splitkey=compuPhysToInternal xml.sequenceOffset=90
displayFormat	DisplayFormatString	0..1	attr	This property specifies, how the physical value shall be displayed e.g. in documents or measurement and calibration tools. <b>Tags:</b> xml.sequenceOffset=20
unit	Unit	0..1	ref	This is the physical unit of the Physical values for which the CompuMethod applies. <b>Tags:</b> xml.sequenceOffset=30

Table A.13: CompuMethod

Class	DataConstr			
Note	This meta-class represents the ability to specify constraints on data. <b>Tags:</b> atp.recommendedPackage=DataConstrs			
Base	ARElement, ARObject, AtpBlueprint, AtpBlueprintable, CollectableElement, <a href="#">Identifiable</a> , Multilanguage Referrable, PackageableElement, Referrable			
Aggregated by	ARPackage.element			
Attribute	Type	Mult.	Kind	Note
dataConstrRule	<a href="#">DataConstrRule</a>	*	aggr	This is one particular rule within the data constraints. <b>Tags:</b> xml.roleElement=true xml.roleWrapperElement=true xml.sequenceOffset=30 xml.typeElement=false xml.typeWrapperElement=false

Table A.14: DataConstr

Class	DataConstrRule			
Note	This meta-class represents the ability to express one specific data constraint rule.			
Base	ARObject			
Aggregated by	<a href="#">DataConstr.dataConstrRule</a>			
Attribute	Type	Mult.	Kind	Note





Class	DataConstrRule			
constrLevel	Integer	0..1	attr	This attribute describes the category of a constraint. One of its functions is in the area of constraint violation, where it can be used from a certain level, to produce error messages. The lower the level, the more stringent the check. Used to distinguish hard or soft limits. <b>Tags:</b> xml.sequenceOffset=20
internalConstrs	InternalConstrs	0..1	aggr	Describes the limitations applicable on the internal domain (as opposed to the physical domain). <b>Tags:</b> xml.sequenceOffset=40
physConstrs	PhysConstrs	0..1	aggr	Describes the limitations applicable on the physical domain (as opposed to the internal domain). <b>Tags:</b> xml.sequenceOffset=30

Table A.15: DataConstrRule

Class	DltApplication			
<b>Note</b>	This meta-class represents the application from which the log and trace message originates.			
<b>Base</b>	ARObject, <a href="#">Identifiable</a> , <a href="#">MultilanguageReferrable</a> , <a href="#">Referrable</a>			
<b>Aggregated by</b>	<a href="#">DltEcu.application</a>			
Attribute	Type	Mult.	Kind	Note
applicationDescription	String	0..1	attr	This attribute can be used to describe the applicationId that is used in the log and trace message in more detail.
applicationId	String	0..1	attr	This attribute identifies the SW-C/BSW module in the log and trace message.
context	<a href="#">DltContext</a>	*	ref	Definition of ContextIds for the Application. <b>Stereotypes:</b> atpSplitable; atpVariation <b>Tags:</b> atp.Splitkey=context.dltContext, context.variationPoint.shortLabel vh.latestBindingTime=systemDesignTime

Table A.16: DltApplication

Class	DltArgument			
<b>Note</b>	This element defines an Argument in a DltMessage.			
<b>Base</b>	ARObject, <a href="#">Identifiable</a> , <a href="#">MultilanguageReferrable</a> , <a href="#">Referrable</a>			
<b>Aggregated by</b>	<a href="#">DltMessage.dltArgument</a>			
Attribute	Type	Mult.	Kind	Note
dltArgumentProps	<a href="#">DltArgumentProps</a>	0..1	ref	Additional properties of DltArguments <b>Stereotypes:</b> atpSplitable; atpVariation <b>Tags:</b> atp.Splitkey=dltArgumentProps.dltArgumentProps, dltArgumentProps.variationPoint.shortLabel vh.latestBindingTime=systemDesignTime
optional	Boolean	0..1	attr	This attribute defines whether the argument is optional or not. If set to true, the argument can be omitted from the payload of a DLT message.
predefinedText	Boolean	0..1	attr	This attribute defines whether the DltArgument is a predefinedText (Static Data).

Table A.17: DltArgument

Class	DltArgumentProps			
Note	This element defines reusable DltArgument properties that may be used by DltArguments of different Dlt Messages.			
Base	ARObject, <a href="#">Identifiable</a> , <a href="#">MultilanguageReferrable</a> , <a href="#">Referrable</a>			
Aggregated by	<a href="#">DltArgumentProps.dltArgumentEntry</a> , <a href="#">DltArgumentPropsSet.dltArgumentProps</a>			
Attribute	Type	Mult.	Kind	Note
dltArgumentEntry	<a href="#">DltArgumentProps</a>	*	aggr	This aggregation is used to describe subElements of DltArgumentProps that defines a Structure.
length	PositiveInteger	0..1	attr	Describes the DltArgument length in case of Arrays and Strings in number of BaseType.
networkRepresentation	<a href="#">SwDataDefProps</a>	0..1	aggr	Definition of the networkRepresentation of the DltArgument. <b>Stereotypes:</b> atpSplittable; atpVariation <b>Tags:</b> atp.Splitkey=networkRepresentation, networkRepresentation.variationPoint.shortLabel vh.latestBindingTime=systemDesignTime
variableLength	Boolean	0..1	attr	This attribute defines whether the length of the DltArgument is variable (determined at runtime) or not.

Table A.18: DltArgumentProps

Class	DltContext			
Note	This meta-class represents the Context that groups Log and Trace Messages that are generated by an application. <b>Tags:</b> atp.recommendedPackage=DltContexts			
Base	ARElement, ARObject, <a href="#">CollectableElement</a> , <a href="#">Identifiable</a> , <a href="#">MultilanguageReferrable</a> , <a href="#">PackageableElement</a> , <a href="#">Referrable</a> , <a href="#">UploadableDesignElement</a> , <a href="#">UploadablePackageElement</a>			
Aggregated by	ARPackage.element			
Attribute	Type	Mult.	Kind	Note
contextDescription	String	0..1	attr	This attribute can be used to describe the contextId that is used in the log and trace message in more detail.
contextId	String	0..1	attr	This attribute is used to group log and trace messages produced by an application to distinguish functionality.
dltMessage	<a href="#">DltMessage</a>	*	ref	Group of Log and Trace Messages assigned to the DltContext <b>Stereotypes:</b> atpSplittable; atpVariation <b>Tags:</b> atp.Splitkey=dltMessage.dltMessage, dltMessage.variationPoint.shortLabel vh.latestBindingTime=systemDesignTime

Table A.19: DltContext

Class	DltEcu			
Note	This element represents an Ecu or Machine that produces logging and tracing information. <b>Tags:</b> atp.recommendedPackage=DltEcus			
Base	ARElement, ARObject, <a href="#">CollectableElement</a> , <a href="#">Identifiable</a> , <a href="#">MultilanguageReferrable</a> , <a href="#">PackageableElement</a> , <a href="#">Referrable</a> , <a href="#">UploadableDesignElement</a> , <a href="#">UploadablePackageElement</a>			
Aggregated by	ARPackage.element			
Attribute	Type	Mult.	Kind	Note





Class	DltEcu			
application	<a href="#">DltApplication</a>	*	aggr	Application on DltEcu that provides log or trace data. <b>Stereotypes:</b> atpSplittable; atpVariation <b>Tags:</b> atp.Splitkey=application.shortName, application.variation Point.shortLabel vh.latestBindingTime=systemDesignTime
eculd	String	0..1	attr	This attribute defines the name of the ECU for use within the Dlt protocol.

**Table A.20: DltEcu**

Class	DltMessage			
Note	This element defines a DltMessage.			
Base	ARObject, <a href="#">Identifiable</a> , <a href="#">MultilanguageReferrable</a> , <a href="#">Referrable</a>			
Aggregated by	LogAndTraceMessageCollectionSet.dltMessage			
Attribute	Type	Mult.	Kind	Note
dltArgument (ordered)	<a href="#">DltArgument</a>	*	aggr	Ordered collection of DltArguments in the DltMessage.
messageId	PositiveInteger	0..1	attr	This attribute defines the unique Id for the DltMessage.
messageLine Number	PositiveInteger	0..1	attr	This attribute describes the position in the source file in which this log message was called.
messageSource File	String	0..1	attr	This attribute describes the source file in which this log message was called.
messageType Info	String	0..1	attr	This attribute describes the message Type
privacyLevel	<a href="#">PrivacyLevel</a>	0..1	aggr	The Privacy Level helps to identify the Log and Trace content towards the degree of privacy to it.

**Table A.21: DltMessage**

Class	FMAttributeDef			
Note	This metaclass represents the ability to define attributes for a feature.			
Base	ARObject, <a href="#">Identifiable</a> , <a href="#">MultilanguageReferrable</a> , <a href="#">Referrable</a>			
Aggregated by	<a href="#">FMFeature.attributeDef</a>			
Attribute	Type	Mult.	Kind	Note
defaultValue	Numerical	0..1	attr	This represents the default value of the attribute.
max	Limit	0..1	attr	Maximum possible value for the value of this attribute
min	Limit	0..1	attr	Minimum possible value for the value of this attribute

**Table A.22: FMAttributeDef**

Class	FMAttributeValue			
Note	This defines a value for the attribute that is referred to in the role definition.			
Base	ARObject			
Aggregated by	<a href="#">FMFeatureSelection.attributeValue</a>			
Attribute	Type	Mult.	Kind	Note
definition	<a href="#">FMAttributeDef</a>	0..1	ref	This refers to the definition of this attribute. <b>Stereotypes:</b> atpIdentityContributor
value	Numerical	0..1	attr	This represents the value of this attribute.

**Table A.23: FMAttributeValue**



Class	FMFeature			
Note	A FMFeature describes an essential characteristic of a product. Each FMFeature is contained in exactly one FMFeatureModel. <b>Tags:</b> atp.recommendedPackage=FMFeatureModels			
Base	ARElement, ARObject, CollectableElement, <a href="#">Identifiable</a> , MultilanguageReferrable, PackageableElement, Referrable			
Aggregated by	ARPackage.element			
Attribute	Type	Mult.	Kind	Note
attributeDef	<a href="#">FMAttributeDef</a>	*	aggr	This defines the attributes of the given feature.
decomposition	<a href="#">FMFeatureDecomposition</a>	*	aggr	Lists the sub-features of a feature.
maximum IntendedBinding Time	BindingTimeEnum	0..1	attr	Defines an upper bound for the binding time of the variation points that are associated with the FMFeature. This attribute is meant as a hint for the development process.
minimum IntendedBinding Time	BindingTimeEnum	0..1	attr	Defines a lower bound for the binding time of the variation points that are associated with the FMFeature. This attribute is meant as a hint for the development process.
relation	<a href="#">FMFeatureRelation</a>	*	aggr	Defines relations for FMFeatures, for example dependencies on other FMFeatures, or conflicts with other FMFeatures. A FMFeature can only be part of a FMFeatureSelectionSet if all its relations are fulfilled.
restriction	FMFeatureRestriction	*	aggr	Defines restrictions for FMFeatures. A FMFeature can only be part of a FMFeatureSelectionSet if at least one of its restrictions evaluates to true.

Table A.24: FMFeature

Class	FMFeatureDecomposition			
Note	A FMFeatureDecomposition describes dependencies between a list of features and their parent feature (i.e., the FMFeature that aggregates the FMFeatureDecomposition). The kind of dependency is defined by the attribute category.			
Base	ARObject			
Aggregated by	<a href="#">FMFeature.decomposition</a>			
Attribute	Type	Mult.	Kind	Note
category	CategoryString	0..1	attr	The category of a FMFeatureDecomposition defines the type of dependency that is defined by the FMFeatureDecomposition. There are four different categories: MANDATORYFEATURE, OPTIONALFEATURE, ALTERNATIVEFEATURE, and MULTIPLEFEATURE.
feature	<a href="#">FMFeature</a>	*	ref	The features that are affected by the dependency defined by the FMFeatureDecomposition.
max	PositiveInteger	0..1	attr	For a dependency of category MULTIPLEFEATURE, this defines the maximum number of features allowed.
min	PositiveInteger	0..1	attr	For a dependency of category MULTIPLEFEATURE, this defines the minimum number of features allowed.

Table A.25: FMFeatureDecomposition

Class	FMFeatureModel			
Note	A Feature model describes the features of a product line and their dependencies. Feature models are an optional part of an AUTOSAR model. <b>Tags:</b> atp.recommendedPackage=FMFeatureModels			
Base	ARElement, ARObject, CollectableElement, <a href="#">Identifiable</a> , MultilanguageReferrable, PackageableElement, Referrable			





<b>Class</b>	<b>FMFeatureModel</b>			
<b>Aggregated by</b>	ARPackage.element			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
feature	FMFeature	*	ref	"feature" holds the list of features of the feature model. No FMFeature may be contained twice in this list. Also, each FMFeature may be contained on only one feature model. <b>Stereotypes:</b> atpSplittable <b>Tags:</b> atp.Splitkey=feature
root	FMFeature	0..1	ref	The features of a feature model define a tree. The attribute root points to the root of this tree.

**Table A.26: FMFeatureModel**

<b>Class</b>	<b>FMFeatureRelation</b>			
<b>Note</b>	Defines relations for FMFeatures, for example dependencies on other FMFeatures, or conflicts with other FMFeatures. A FMFeature can only be part of a FMFeatureSelectionSet if all its relations are fulfilled.			
<b>Base</b>	ARObject, <i>Identifiable</i> , <i>MultilanguageReferrable</i> , <i>Referrable</i>			
<b>Aggregated by</b>	FMFeature.relation			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
feature	FMFeature	*	ref	The FMFeature that is targeted by this FMFeature Relation.
restriction	FMConditionByFeatures AndAttributes	0..1	aggr	If given, the condition shall evaluate to true, in order for the FMFeatureRelation to be active.

**Table A.27: FMFeatureRelation**

<b>Class</b>	<b>FMFeatureSelection</b>			
<b>Note</b>	A FMFeatureSelection represents the state of a particular FMFeature within a FMFeatureSelectionSet.			
<b>Base</b>	ARObject, <i>Identifiable</i> , <i>MultilanguageReferrable</i> , <i>Referrable</i>			
<b>Aggregated by</b>	FMFeatureSelectionSet.selection			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
attributeValue	FMAAttributeValue	*	aggr	This defines a value for the attribute that is referred to in the role definition. Note that a FMFeatureSelection cannot include two FMAAttributeValues that refer to the same FMAAttributeDef in the role definition. <b>Tags:</b> xml.sequenceOffset=50
feature	FMFeature	0..1	ref	The FMFeature whose state is defined by this FMFeature Selection. <b>Tags:</b> xml.sequenceOffset=10
maximum SelectedBinding Time	BindingTimeEnum	0..1	attr	Defines an upper bound for the binding time of the variation points that are associated with the FMFeature, and refines its maximumIntendedBindingTime. This attribute is meant as a hint for the development process. <b>Tags:</b> xml.sequenceOffset=40
minimum SelectedBinding Time	BindingTimeEnum	0..1	attr	Defines a lower bound for the binding time of the variation points that are associated with the FMFeature, and refines its minimumIntendedBindingTime. This attribute is meant as a hint for the development process. <b>Tags:</b> xml.sequenceOffset=30





Class	FMFeatureSelection			
state	<a href="#">FMFeatureSelectionState</a>	0..1	attr	Defines how the FMFeature that is described by this FMFeatureSelection contributes to the FMFeatureSelectionSet. A FMFeature may have the state selected, deselected or undecided. <b>Tags:</b> xml.sequenceOffset=20

**Table A.28: FMFeatureSelection**

Class	FMFeatureSelectionSet			
<b>Note</b>	A FMFeatureSelectionSet is a set of FMFeatures that describes a specific product. <b>Tags:</b> atp.recommendedPackage=FMFeatureModelSelectionSets			
<b>Base</b>	<i>ARElement, ARObject, CollectableElement, <a href="#">Identifiable</a>, MultilanguageReferrable, PackageableElement, Referrable</i>			
<b>Aggregated by</b>	ARPackage.element			
Attribute	Type	Mult.	Kind	Note
featureModel	<a href="#">FMFeatureModel</a>	*	ref	All FMFeatures in this FMFeatureSelectionSet shall be part of the referenced FMFeatureModel.
include	<a href="#">FMFeatureSelectionSet</a>	*	ref	Each FMFeatureSelectionSet may include one or more FMFeatureSelectionSets. This establishes a hierarchy among FMFeatureSelectionSets. See constr_5003 and constr_5025 for details.
selection	<a href="#">FMFeatureSelection</a>	*	aggr	The set of FMFeatureSelections of this FMFeatureSelectionSet.

**Table A.29: FMFeatureSelectionSet**

Enumeration	FMFeatureSelectionState
<b>Note</b>	Defines how a particular FMFeature contributes to a FMFeatureSelectionSet.
<b>Aggregated by</b>	<a href="#">FMFeatureSelection.state</a>
Literal	Description
deselected	The feature is excluded from the selection. <b>Tags:</b> atp.EnumerationLiteralIndex=0
selected	The feature is included in the selection. <b>Tags:</b> atp.EnumerationLiteralIndex=1
undecided	It is not yet decided whether the feature shall be included into or excluded from the selection. <b>Tags:</b> atp.EnumerationLiteralIndex=2

**Table A.30: FMFeatureSelectionState**

Class	«atpMixedString» <i>FMFormulaByFeaturesAndAttributes</i> (abstract)			
<b>Note</b>	An expression that has the syntax of the AUTOSAR formula language but uses only references to features or feature attributes (not system constants) as operands.			
<b>Base</b>	<i>ARObject, FormulaExpression</i>			
<b>Subclasses</b>	FMConditionByFeaturesAndAttributes			
Attribute	Type	Mult.	Kind	Note
attribute	<a href="#">FMAttributeDef</a>	0..1	ref	An expression of type FMFormulaByFeaturesAndAttributes may refer to attributes of FMFeatures.
feature	<a href="#">FMFeature</a>	0..1	ref	An expression of type FMFormulaByFeaturesAndAttributes may refer to FMFeatures.

**Table A.31: FMFormulaByFeaturesAndAttributes**

<b>Class</b>	«atpMixedString» <b>FMFormulaByFeaturesAndSwSystemconst</b> (abstract)			
<b>Note</b>	An expression that has the syntax of the AUTOSAR formula language and may use references to features or system constants as operands.			
<b>Base</b>	<i>ARObject, FormulaExpression, SwSystemconstDependentFormula</i>			
<b>Subclasses</b>	FMConditionByFeaturesAndSwSystemconst			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
feature	FMFeature	0..1	ref	An expression of type FMFormulaByFeaturesAndSwSystemconst may refer to FMFeatures.

**Table A.32: FMFormulaByFeaturesAndSwSystemconst**

<b>Class</b>	<b>GeneralPurposeIPdu</b>			
<b>Note</b>	This element is used for AUTOSAR Pdus without attributes that are routed by the PduR. Please note that the category name of such Pdus is standardized in the AUTOSAR System Template. <b>Tags:</b> atp.recommendedPackage=Pdus			
<b>Base</b>	<i>ARElement, ARObject, CollectableElement, FibexElement, IPdu, Identifiable, MultilanguageReferrable, PackageableElement, Pdu, Referrable, UploadableDesignElement, UploadablePackageElement</i>			
<b>Aggregated by</b>	ARPackage.element			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
–	–	–	–	–

**Table A.33: GeneralPurposeIPdu**

<b>Class</b>	<b>Identifiable</b> (abstract)
<b>Note</b>	Instances of this class can be referred to by their identifier (within the namespace borders). In addition to this, Identifiables are objects which contribute significantly to the overall structure of an AUTOSAR description. In particular, Identifiables might contain Identifiables.
<b>Base</b>	<i>ARObject, MultilanguageReferrable, Referrable</i>
<b>Subclasses</b>	ARPackage, AbstractDolpLogicAddressProps, AbstractEvent, AbstractImplementationDataTypeElement, AbstractSecurityEventFilter, AbstractSecurityIdsmInstanceFilter, AbstractServiceInstance, Application Endpoint, ApplicationError, AppliedStandard, ArtifactChecksum, AtpBlueprint, AtpBlueprintable, Atp Classifier, AtpFeature, AutosarOperationArgumentInstance, AutosarVariableInstance, BlockState, Build ActionEntity, BuildActionEnvironment, Chapter, ClientIdDefinition, ClientServerOperation, Code, CollectableElement, ComManagementMapping, CommConnectorPort, CommunicationConnector, CommunicationController, Compiler, ConsistencyNeeds, ConsumedEventGroup, CouplingPort, Coupling PortAbstractShaper, CouplingPortStructuralElement, CryptoKeySlot, CryptoServiceMapping, Data PrototypeGroup, DataPrototypeTransformationPropsIdent, DataTransformation, DdsAbstractService InstanceElementCp, DdsCpDomain, DdsCpPartition, DdsCpQosProfile, DdsCpTopic, DependencyOn Artifact, DiagEventDebounceAlgorithm, DiagnosticAuthTransmitCertificateEvaluation, Diagnostic ConnectedIndicator, DiagnosticDataElement, DiagnosticDebounceAlgorithmProps, DiagnosticExtended DataRecordElement, DiagnosticFunctionInhibitSource, DiagnosticParameterElement, DiagnosticRoutine Subfunction, DltApplication, DltArgument, DltArgumentProps, DltMessage, DolpInterface, DolpLogic Address, DolpRoutingActivation, EthernetWakeUpSleepOnDatalineConfig, EventHandler, ExclusiveArea, ExecutableEntity, ExecutionTime, FMAttributeDef, FMFeatureMapAssertion, FMFeatureMapCondition, FMFeatureMapElement, FMFeatureRelation, FMFeatureRestriction, FMFeatureSelection, FlexrayArTp Node, FlexrayTpPduPool, FrameTriggering, GeneralParameter, GlobalTimeGateway, GlobalTimeMaster, GlobalTimeSlave, HeapUsage, HwAttributeDef, HwAttributeLiteralDef, HwPin, HwPinGroup, IEEE1722 TpAcfBus, IEEE1722TpAcfBusPart, IPSecRule, IPv6ExtHeaderFilterList, ISignalToIPduMapping, ISignal Triggering, IdentCaption, ImpositionTime, InternalTriggeringPoint, Keyword, LifeCycleState, Linker, Mac AddressVlanMembership, MacMulticastGroup, MacSecKayParticipant, McDataInstance, Memory Section, ModeDeclaration, ModeDeclarationMapping, ModeSwitchPoint, ModeSwitchSenderComSpec Props, NetworkEndpoint, NmCluster, NmNode, PackageableElement, ParameterAccess, PduActivation RoutingGroup, PduToFrameMapping, PduTriggering, PerInstanceMemory, PhysicalChannel, PortGroup, PortInterfaceMapping, QueuedReceiverComSpecProps, ResourceConsumption, RootSwComposition Prototype, RptComponent, RptContainer, RptExecutableEntity, RptExecutableEntityEvent, RptExecution Context, RptProfile, RptServicePoint, RunnableEntityGroup, SdgAttribute, SdgClass, SecOcJob Requirement, SecureCommunicationAuthenticationProps, SecureCommunicationFreshnessProps,





Class	Identifiable (abstract)			
	<p>△</p> <p>SecurityEventContextDataElement, SecurityEventContextProps, ServerComSpecProps, ServiceNeeds, SignalServiceTranslationEventProps, SignalServiceTranslationProps, SocketAddress, SomeIpTpChannel, StackUsage, StaticSocketConnection, StructuredReq, SwGenericAxisParamType, SwServiceArg, SwcServiceDependency, SystemMapping, TimeBaseResource, TimingClock, TimingClockSyncAccuracy, TimingCondition, TimingConstraint, TimingDescription, TimingExtensionResource, TimingModelInstance, Topic1, TpAddress, TraceableTable, TraceableText, TracedFailure, TransformationISignalPropsIdent, TransformationProps, TransformationTechnology, Trigger, VariableAccess, VariationPointProxy, ViewMap, VlanConfig, WaitPoint</p>			
Attribute	Type	Mult.	Kind	Note
adminData	AdminData	0..1	aggr	<p>This represents the administrative data for the identifiable object.</p> <p><b>Stereotypes:</b> atpSplittable</p> <p><b>Tags:</b> atp.Splitkey=adminData xml.sequenceOffset=-40</p>
annotation	Annotation	*	aggr	<p>Possibility to provide additional notes while defining a model element (e.g. the ECU Configuration Parameter Values). These are not intended as documentation but are mere design notes.</p> <p><b>Tags:</b> xml.sequenceOffset=-25</p>
category	CategoryString	0..1	attr	<p>The category is a keyword that specializes the semantics of the Identifiable. It affects the expected existence of attributes and the applicability of constraints.</p> <p><b>Tags:</b> xml.sequenceOffset=-50</p>
desc	MultiLanguageOverviewParagraph	0..1	aggr	<p>This represents a general but brief (one paragraph) description what the object in question is about. It is only one paragraph! Desc is intended to be collected into overview tables. This property helps a human reader to identify the object in question.</p> <p>More elaborate documentation, (in particular how the object is built or used) should go to "introduction".</p> <p><b>Tags:</b> xml.sequenceOffset=-60</p>
introduction	DocumentationBlock	0..1	aggr	<p>This represents more information about how the object in question is built or is used. Therefore it is a DocumentationBlock.</p> <p><b>Tags:</b> xml.sequenceOffset=-30</p>
uuid	String	0..1	attr	<p>The purpose of this attribute is to provide a globally unique identifier for an instance of a meta-class. The values of this attribute should be globally unique strings prefixed by the type of identifier. For example, to include a DCE UUID as defined by The Open Group, the UUID would be preceded by "DCE:". The values of this attribute may be used to support merging of different AUTOSAR models. The form of the UUID (Universally Unique Identifier) is taken from a standard defined by the Open Group (was Open Software Foundation). This standard is widely used, including by Microsoft for COM (GUIDs) and by many companies for DCE, which is based on CORBA. The method for generating these 128-bit IDs is published in the standard and the effectiveness and uniqueness of the IDs is not in practice disputed. If the id namespace is omitted, DCE is assumed. An example is "DCE:2fac1234-31f8-11b4-a222-08002b34c003". The uuid attribute has no semantic meaning for an AUTOSAR model and there is no requirement for AUTOSAR tools to manage the timestamp.</p> <p><b>Tags:</b> xml.attribute=true</p>

Table A.34: Identifiable

Class	IdsDesign			
<b>Note</b>	<p>This meta-class represents the root element of a SecurityExtract file for IDS development. It defines the scope of an IDS to be designed and implemented by referencing all SecurityExtract meta-classes that need to be included into the IDS development process.</p> <p><b>Tags:</b>  atp.Status=candidate  atp.recommendedPackage=IdsDesigns</p>			
<b>Base</b>	<i>ARElement, ARObject, CollectableElement, Identifiable, MultilanguageReferrable, PackageableElement, Referrable, UploadableDesignElement, UploadablePackageElement</i>			
<b>Aggregated by</b>	ARPackage.element			
Attribute	Type	Mult.	Kind	Note
element	IdsCommonElement	*	ref	<p>This reference includes an element with IDS related definitions into the IdsDesign.</p> <p><b>Stereotypes:</b> atpSplittable; atpVariation</p> <p><b>Tags:</b>  atp.Splitkey=element.idsCommonElement,  element.variationPoint.shortLabel  atp.Status=candidate  vh.latestBindingTime=systemDesignTime</p>

**Table A.35: IdsDesign**

Class	IdsmInstance			
<b>Note</b>	<p>This meta-class provides the ability to create a relation between an EcuInstance and a specific class of filters for security events that apply for all security events reported on the referenced EcuInstance.</p> <p><b>Tags:</b>  atp.Status=candidate  atp.recommendedPackage=IdsmInstanceToEcuInstanceMappings</p>			
<b>Base</b>	<i>ARElement, ARObject, CollectableElement, Identifiable, IdsCommonElement, MultilanguageReferrable, PackageableElement, Referrable, UploadableDesignElement, UploadablePackageElement</i>			
<b>Aggregated by</b>	ARPackage.element			
Attribute	Type	Mult.	Kind	Note
blockState	BlockState	*	aggr	<p>This reference defines the BlockState in the collection BlockStateSet.</p> <p><b>Tags:</b> atp.Status=candidate</p> <p>This Attribute is only used by the AUTOSAR Classic Platform.</p>
ecuInstance	EcuInstance	0..1	ref	<p>This reference identifies the EcuInstance whose security events (of any type) shall be limited by the specific class of filters.</p> <p><b>Stereotypes:</b> atpSplittable; atpVariation</p> <p><b>Tags:</b>  atp.Splitkey=ecuInstance.ecuInstance, ecuInstance.variationPoint.shortLabel  atp.Status=candidate  vh.latestBindingTime=systemDesignTime</p> <p>This Attribute is only used by the AUTOSAR Classic Platform.</p>
idsmInstancelId	PositiveInteger	0..1	attr	<p>This attribute is used to provide a source identification in the context of reporting security events..</p> <p><b>Tags:</b> atp.Status=candidate</p>
idsmModuleInstantiation	IdsmModuleInstantiation	0..1	ref	<p>This reference identifies the meta-class that defines the attributes for the IdsM configuration on a specific machine.</p> <p><b>Stereotypes:</b> atpSplittable</p> <p><b>Tags:</b>  atp.Splitkey=idsmModuleInstantiation  atp.Status=candidate</p> <p>This Attribute is only used by the AUTOSAR Adaptive Platform.</p>





Class	IdsmInstance			
rateLimitationFilter	<a href="#">IdsmRateLimitation</a>	0..1	ref	<p>This reference identifies the applicable rate limitation filter for all security events on the related EcuInstance.</p> <p><b>Stereotypes:</b> atpSplitable; atpVariation</p> <p><b>Tags:</b>  atp.Splitkey=rateLimitationFilter.idsmRateLimitation, rateLimitationFilter.variationPoint.shortLabel  atp.Status=candidate  vh.latestBindingTime=preCompileTime</p>
signatureSupportAp	<a href="#">IdsmSignatureSupportAp</a>	0..1	aggr	<p>The existence of this aggregation specifies that the IdsM shall add a signature to the QSEv messages it sends onto the network. The cryptographic algorithm and key to be used for this signature is further specified by the aggregated meta-class specifically for the Adaptive Platform.</p> <p><b>Stereotypes:</b> atpSplitable</p> <p><b>Tags:</b>  atp.Splitkey=signatureSupportAp  atp.Status=candidate  This Attribute is only used by the AUTOSAR Adaptive Platform.</p>
signatureSupportCp	<a href="#">IdsmSignatureSupportCp</a>	0..1	aggr	<p>The existence of this aggregation specifies that the IdsM shall add a signature to the QSEv messages it sends onto the network. The cryptographic algorithm and key to be used for this signature is further specified by the aggregated meta-class specifically for the Classic Platform.</p> <p><b>Stereotypes:</b> atpSplitable</p> <p><b>Tags:</b>  atp.Splitkey=signatureSupportCp  atp.Status=candidate  This Attribute is only used by the AUTOSAR Classic Platform.</p>
timestampFormat	String	0..1	attr	<p>The existence of this attribute specifies that the IdsM shall add a timestamp to the QSEv messages it sends onto the network. I.e., if this attribute does not exist, no timestamp shall be added to the QSEv messages.</p> <p>The content of this attribute further specifies the timestamp format as follows: - "AUTOSAR" defines AUTOSAR standardized timestamp format according to the Synchronized Time-Base Manager - Any other string defines a proprietary timestamp format.</p> <p>Note: A string defining a proprietary timestamp format shall be prefixed by a company-specific name fragment to avoid collisions.</p> <p><b>Tags:</b> atp.Status=candidate</p>
trafficLimitationFilter	<a href="#">IdsmTrafficLimitation</a>	0..1	ref	<p>This reference identifies the applicable traffic limitation filter for all security events on the related EcuInstance.</p> <p><b>Stereotypes:</b> atpSplitable; atpVariation</p> <p><b>Tags:</b>  atp.Splitkey=trafficLimitationFilter.idsmTrafficLimitation, trafficLimitationFilter.variationPoint.shortLabel  atp.Status=candidate  vh.latestBindingTime=preCompileTime</p>

Table A.36: IdsmInstance

Class	IdsmRateLimitation
Note	<p>This meta-class represents the configuration of a rate limitation filter for security events. This means that security events are dropped if the number of events (of any type) processed within a configurable time window is greater than a configurable threshold.</p> <p><b>Tags:</b> atp.Status=candidate</p>







Class	IdsmRateLimitation			
Base	ARObject, AbstractSecurityIdsmInstanceFilter, <a href="#">Identifiable</a> , <a href="#">MultilanguageReferrable</a> , <a href="#">Referrable</a>			
Aggregated by	IdsmProperties.rateLimitationFilter			
Attribute	Type	Mult.	Kind	Note
maxEventsInInterval	PositiveInteger	1	attr	This attribute configures the threshold for dropping security events if the number of all processed security events exceeds the threshold in the respective time interval. <b>Tags:</b> atp.Status=candidate
timeInterval	Float	1	attr	This attribute configures the length of the time interval in seconds for dropping security events if the number of all processed security events exceeds the configurable threshold within the respective time interval. <b>Tags:</b> atp.Status=candidate

**Table A.37: IdsmRateLimitation**

Class	IdsmSignatureSupportAp			
Note	This meta-class defines, for the Adaptive Platform, the cryptographic algorithm and key to be used by the IdsM instance for providing signature information in QSEv messages. <b>Tags:</b> atp.Status=candidate This Class is only used by the AUTOSAR Adaptive Platform.			
Base	ARObject			
Aggregated by	<a href="#">IdsmInstance.signatureSupportAp</a>			
Attribute	Type	Mult.	Kind	Note
cryptoPrimitive	String	1	attr	This attribute defines the cryptographic algorithm to be used for providing authentication information in QSEv messages. The content of this attribute shall comply to the "Cryptographic Primitives Naming Convention". <b>Tags:</b> atp.Status=candidate
keySlot	CryptoKeySlot	0..1	ref	This reference denotes the cryptographic key to be used by the cryptographic algorithm for providing authentication information in QSEv messages. <b>Tags:</b> atp.Status=candidate

**Table A.38: IdsmSignatureSupportAp**

Class	IdsmSignatureSupportCp			
Note	This meta-class defines, for the Classic Platform, the cryptographic algorithm and key to be used by the IdsM instance for providing signature information in QSEv messages. <b>Tags:</b> atp.Status=candidate This Class is only used by the AUTOSAR Classic Platform.			
Base	ARObject			
Aggregated by	<a href="#">IdsmInstance.signatureSupportCp</a>			
Attribute	Type	Mult.	Kind	Note
authentication	CryptoServicePrimitive	0..1	ref	This reference denotes the cryptographic primitives for providing authentication information in QSEv messages. <b>Tags:</b> atp.Status=candidate
cryptoServiceKey	CryptoServiceKey	0..1	ref	This reference denotes the cryptographic key to be used by the cryptographic algorithm for providing authentication information in QSEv messages. <b>Tags:</b> atp.Status=candidate

**Table A.39: IdsmSignatureSupportCp**



<b>Class</b>	<b>IdsmTrafficLimitation</b>			
<b>Note</b>	This meta-class represents the configuration of a traffic limitation filter for Security Events. This means that security events are dropped if the size (in terms of bandwidth) of security events (of any type) processed within a configurable time window is greater than a configurable threshold. <b>Tags:</b> atp.Status=candidate			
<b>Base</b>	ARObject, AbstractSecurityIdsmInstanceFilter, <a href="#">Identifiable</a> , <a href="#">MultilanguageReferrable</a> , <a href="#">Referrable</a>			
<b>Aggregated by</b>	IdsmProperties.trafficLimitationFilter			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
maxBytesInInterval	PositiveInteger	0..1	attr	This attribute configures the threshold for dropping security events if the size of all processed security events exceeds the threshold in the respective time interval. <b>Tags:</b> atp.Status=candidate
timeInterval	Float	0..1	attr	This attribute configures the length of the time interval in seconds for dropping security events if the size of all processed security events exceeds the configurable threshold within the respective time interval. <b>Tags:</b> atp.Status=candidate

**Table A.40: IdsmTrafficLimitation**

<b>Class</b>	<b>PortPrototype</b> (abstract)			
<b>Note</b>	Base class for the ports of an AUTOSAR software component. The aggregation of PortPrototypes is subject to variability with the purpose to support the conditional existence of ports.			
<b>Base</b>	ARObject, AtpBlueprintable, AtpFeature, AtpPrototype, <a href="#">Identifiable</a> , <a href="#">MultilanguageReferrable</a> , <a href="#">Referrable</a>			
<b>Subclasses</b>	AbstractProvidedPortPrototype, AbstractRequiredPortPrototype			
<b>Aggregated by</b>	AtpClassifier.atpFeature, SwComponentType.port			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
–	–	–	–	–

**Table A.41: PortPrototype**

<b>Class</b>	<b>PrivacyLevel</b>			
<b>Note</b>	This meta-class defines the Privacy Level for a Log and Trace content.			
<b>Base</b>	ARObject			
<b>Aggregated by</b>	<a href="#">DltMessage.privacyLevel</a>			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
compuMethod	<a href="#">CompuMethod</a>	0..1	ref	Reference to CompuMethod of category TEXTTABLE that defines the supported user-defined privacy levels.
privacyLevel	PositiveInteger	0..1	attr	The value that represents the privacy level and is transported in the Extension Header.

**Table A.42: PrivacyLevel**

<b>Class</b>	<b>SecurityEventAggregationFilter</b>			
<b>Note</b>	This meta-class represents the aggregation filter that aggregates all security events occurring within a configured time frame into one (i.e. the last reported) security event. <b>Tags:</b> atp.Status=candidate			
<b>Base</b>	ARObject, AbstractSecurityEventFilter, <a href="#">Identifiable</a> , <a href="#">MultilanguageReferrable</a> , <a href="#">Referrable</a>			
<b>Aggregated by</b>	<a href="#">SecurityEventFilterChain.aggregation</a>			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>





Class	SecurityEventAggregationFilter			
contextData Source	SecurityEventContext DataSourceEnum	0..1	attr	This attributes defines whether the context data of the first or last time-aggregated security event shall be used for the resulting qualified security event.
minimum IntervalLength	TimeValue	0..1	attr	This attribute represents the configuration of the minimum time window in seconds for the aggregation filter. <b>Tags:</b> atp.Status=candidate

**Table A.43: SecurityEventAggregationFilter**

Class	SecurityEventContextDataDefinition			
<b>Note</b>	This meta-class represents the possibility to add context data to the referencing SecurityEventDefinition. <b>Tags:</b> atp.Status=candidate atp.recommendedPackage=SecurityEventContextDataDefinitions			
<b>Base</b>	ARElement, ARObject, CollectableElement, <i>Identifiable</i> , IdsCommonElement, MultilanguageReferrable, PackageableElement, Referrable, UploadableDesignElement, UploadablePackageElement			
<b>Aggregated by</b>	ARPackage.element			
Attribute	Type	Mult.	Kind	Note
contextData Element (ordered)	<a href="#">SecurityEventContext DataElement</a>	*	aggr	Description of contained SecurityEventContextData Elements. If the SecurityEventContextDataDefinition has a primitive type then only one SecurityEventContextData Element shall be used. If the SecurityEventContextData Definition is structured into several elements then for each one a SecurityEventContextDataElement shall be aggregated. <b>Stereotypes:</b> atp.Splitable; atp.Variation <b>Tags:</b> atp.Splitkey=contextDataElement.shortName, context DataElement.variationPoint.shortLabel atp.Status=candidate vh.latestBindingTime=systemDesignTime
version	PositiveInteger	0..1	attr	Version number of the context data. For more details see the IDSM protocol specification. <b>Tags:</b> atp.Status=candidate

**Table A.44: SecurityEventContextDataDefinition**

Class	SecurityEventContextDataElement			
<b>Note</b>	This meta-class represents one ContextDataElement in the context of the aggregating SecurityEvent ContextDataDefinition. <b>Tags:</b> atp.Status=candidate			
<b>Base</b>	ARObject, AtpBlueprint, AtpBlueprintable, <i>Identifiable</i> , MultilanguageReferrable, Referrable			
<b>Aggregated by</b>	<a href="#">SecurityEventContextDataDefinition.contextDataElement</a> , <a href="#">SecurityEventContextDataElement.nested ContextData</a>			
Attribute	Type	Mult.	Kind	Note
maxLength	PositiveInteger	0..1	attr	Describes the maximal length of the context data in case of Arrays and Strings. <b>Tags:</b> atp.Status=candidate
nestedContext Data (ordered)	<a href="#">SecurityEventContext DataElement</a>	*	aggr	This self-aggregation supports the description of nested context data. <b>Tags:</b> atp.Status=candidate





Class	SecurityEventContextDataElement			
networkRepresentation	<a href="#">SwDataDefProps</a>	0..1	aggr	Definition of the networkRepresentation of the context data element. <b>Stereotypes:</b> atpSplitable <b>Tags:</b> atp.Splitkey=networkRepresentation atp.Status=candidate
securityEventReportInstanceDefinition	<a href="#">SecurityEventReportInstanceDefinition</a>	0..1	ref	This reference identifies the definition of the report instance. <b>Stereotypes:</b> atpSplitable <b>Tags:</b> atp.Splitkey=securityEventReportInstanceDefinition atp.Status=candidate

**Table A.45: SecurityEventContextDataElement**

Class	SecurityEventContextMapping (abstract)			
Note	This meta-class represents the ability to create an association between a collection of security events, an Idsm instance which handles the security events and the filter chains applicable to the security events. <b>Tags:</b> atp.Status=candidate			
Base	ARElement, ARObject, CollectableElement, <a href="#">Identifiable</a> , IdsCommonElement, IdsMapping, MultilanguageReferrable, PackageableElement, Referrable, UploadableDesignElement, UploadablePackageElement			
Subclasses	SecurityEventContextMappingApplication, SecurityEventContextMappingBswModule, SecurityEventContextMappingCommConnector, SecurityEventContextMappingFunctionalCluster			
Aggregated by	ARPackage.element			
Attribute	Type	Mult.	Kind	Note
filterChain	<a href="#">SecurityEventFilterChain</a>	0..1	ref	This reference defines the filter chain to be applied to each of the referenced security events (depending on the reporting mode). <b>Stereotypes:</b> atpSplitable; atpVariation <b>Tags:</b> atp.Splitkey=filterChain.securityEventFilterChain, filterChain.variationPoint.shortLabel atp.Status=candidate vh.latestBindingTime=preCompileTime
idsmInstance	<a href="#">IdsmInstance</a>	0..1	ref	This reference defines the IdsmInstance onto which the security events are mapped. <b>Stereotypes:</b> atpSplitable; atpVariation <b>Tags:</b> atp.Splitkey=idsmInstance.idsmInstance, idsmInstance.variationPoint.shortLabel atp.Status=candidate vh.latestBindingTime=systemDesignTime
mappedSecurityEvent	<a href="#">SecurityEventContextProps</a>	*	aggr	This aggregation represents (through further references) the SecurityEventDefinitions to be mapped to an Idsm Instance with additional mapping-dependent properties. <b>Stereotypes:</b> atpSplitable; atpVariation <b>Tags:</b> atp.Splitkey=mappedSecurityEvent.shortName, mappedSecurityEvent.variationPoint.shortLabel atp.Status=candidate vh.latestBindingTime=preCompileTime

**Table A.46: SecurityEventContextMapping**

<b>Class</b>	<b>SecurityEventContextProps</b>			
<b>Note</b>	This meta-class specifies the SecurityEventDefinition to be mapped to an IdsmInstance and adds mapping-dependent properties of this security event valid only for this specific mapping. <b>Tags:</b> atp.Status=candidate			
<b>Base</b>	ARObject, <a href="#">Identifiable</a> , MultilanguageReferrable, Referrable			
<b>Aggregated by</b>	<a href="#">SecurityEventContextMapping.mappedSecurityEvent</a>			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
default ReportingMode	SecurityEventReporting ModeEnum	0..1	attr	This attribute defines the default reporting mode for the referenced security event. <b>Tags:</b> atp.Status=candidate
persistent Storage	Boolean	0..1	attr	This attribute controls whether qualified reportings of the referenced security event shall be stored persistently by the mapped IdsmInstance or not. <b>Tags:</b> atp.Status=candidate
securityEvent	<a href="#">SecurityEventDefinition</a>	0..1	ref	This reference defines the security event that is mapped and enriched by SecurityEventMappingProps with mapping dependent properties. <b>Stereotypes:</b> atpSplitable; atpVariation <b>Tags:</b> atp.Splitkey=securityEvent.securityEventDefinition, securityEvent.variationPoint.shortLabel atp.Status=candidate vh.latestBindingTime=systemDesignTime
sensorInstance Id	PositiveInteger	0..1	attr	This attribute defines the ID of the security sensor that detects the referenced security event. <b>Tags:</b> atp.Status=candidate
severity	PositiveInteger	0..1	attr	This attribute defines how critical/severe the referenced security event is. Please note that currently, the severity level meanings of specific integer values is not specified by AUTOSAR but left to the party responsible for the IDS system design (e.g. the OEM). <b>Tags:</b> atp.Status=candidate

**Table A.47: SecurityEventContextProps**

<b>Class</b>	<b>SecurityEventDefinition</b>			
<b>Note</b>	This meta-class defines a security-related event as part of the intrusion detection system. <b>Tags:</b> atp.Status=candidate atp.recommendedPackage=SecurityEventDefinitions			
<b>Base</b>	ARElement, ARObject, CollectableElement, <a href="#">Identifiable</a> , IdsCommonElement, MultilanguageReferrable, PackageableElement, Referrable, UploadableDesignElement, UploadablePackageElement			
<b>Aggregated by</b>	ARPackage.element			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
eventSymbol Name	SymbolProps	0..1	aggr	This aggregation defines optionally an alternative Event Name for the SecurityEventDefinition in case there is a collision of shortNames. <b>Stereotypes:</b> atpSplitable <b>Tags:</b> atp.Splitkey=eventSymbolName.shortName atp.Status=candidate
id	PositiveInteger	0..1	attr	This attribute represents the numerical identification of the defined security event. The identification shall be unique within the scope of the IDS. <b>Tags:</b> atp.Status=candidate





Class	SecurityEventDefinition			
securityEventContextDataDefinition	<a href="#">SecurityEventContextDataDefinition</a>	*	ref	<p>Definition of additional context data that is reported with the security event in order to better support the analysis of a possible security threat.</p> <p><b>Stereotypes:</b> atpSplitable; atpVariation</p> <p><b>Tags:</b>  atp.Splitkey=securityEventContextDataDefinition.securityEventContextDataDefinition.variationPoint.shortLabel  atp.Status=candidate  vh.latestBindingTime=systemDesignTime</p>

**Table A.48: SecurityEventDefinition**

Class	SecurityEventFilterChain			
<b>Note</b>	<p>This meta-class represents a configurable chain of filters used to qualify security events. The different filters of this filter chain are applied in the follow order: SecurityEventStateFilter, SecurityEventOneEveryNFilter, SecurityEventAggregationFilter, SecurityEventThresholdFilter.</p> <p><b>Tags:</b>  atp.Status=candidate  atp.recommendedPackage=SecurityFilterChains</p>			
<b>Base</b>	<i>ARElement, ARObject, CollectableElement, <a href="#">Identifiable</a>, IdsCommonElement, MultilanguageReferrable, PackageableElement, Referrable, UploadableDesignElement, UploadablePackageElement</i>			
<b>Aggregated by</b>	ARPackage.element			
Attribute	Type	Mult.	Kind	Note
aggregation	<a href="#">SecurityEventAggregationFilter</a>	0..1	aggr	<p>This aggregation represents the aggregation filter in the filter chain.</p> <p><b>Tags:</b> atp.Status=candidate</p>
oneEveryN	<a href="#">SecurityEventOneEveryNFilter</a>	0..1	aggr	<p>This aggregation represents the sampling filter in the filter chain.</p> <p><b>Tags:</b> atp.Status=candidate</p>
state	<a href="#">SecurityEventStateFilter</a>	0..1	aggr	<p>This aggregation represents the state filter in the event chain.</p> <p><b>Tags:</b> atp.Status=candidate</p>
threshold	<a href="#">SecurityEventThresholdFilter</a>	0..1	aggr	<p>This aggregation represents the threshold filter in the filter chain.</p> <p><b>Tags:</b> atp.Status=candidate</p>

**Table A.49: SecurityEventFilterChain**

Class	SecurityEventOneEveryNFilter			
<b>Note</b>	<p>This meta-class represents the configuration of a sampling (i.e. every n-th event is sampled) filter for security events.</p> <p><b>Tags:</b> atp.Status=candidate</p>			
<b>Base</b>	<i>ARObject, AbstractSecurityEventFilter, <a href="#">Identifiable</a>, MultilanguageReferrable, Referrable</i>			
<b>Aggregated by</b>	<a href="#">SecurityEventFilterChain.oneEveryN</a>			
Attribute	Type	Mult.	Kind	Note
n	PositiveInteger	0..1	attr	<p>This attribute represents the configuration of the sampling filter, i.e. it configures the parameter "n" that controls how many events (n-1) shall be dropped after a sampled event until a new sample is created.</p> <p><b>Tags:</b> atp.Status=candidate</p>

**Table A.50: SecurityEventOneEveryNFilter**

Class	SecurityEventReportInstanceDefinition			
Note	This class shall be used to provide definition-level information for the identification of security-event context data. <b>Tags:</b> atp.Status=candidate atp.recommendedPackage=SecurityEventReportInstanceDefinitions			
Base	ARElement, ARObject, CollectableElement, <a href="#">Identifiable</a> , IdsCommonElement, MultilanguageReferrable, PackageableElement, Referrable, UploadableDesignElement, UploadablePackageElement			
Aggregated by	ARPackage.element			
Attribute	Type	Mult.	Kind	Note
contextTypeList (ordered)	String	*	attr	This attribute shall only be used for the case that an instanceRef is required. The attribute identifies the ordered collection of the type of context elements within the instanceRef. <b>Tags:</b> atp.Status=candidate
targetType	String	0..1	attr	This attribute shall only be used for the case that an instanceRef is required. The attribute identifies the type of the target element within the instanceRef. <b>Tags:</b> atp.Status=candidate

**Table A.51: SecurityEventReportInstanceDefinition**

Class	SecurityEventReportInstanceValue			
Note	This class shall be used to provide information for the identification of security-event context data on the value side. <b>Tags:</b> atp.Status=candidate atp.recommendedPackage=SecurityEventReportInstanceValues			
Base	ARElement, ARObject, CollectableElement, <a href="#">Identifiable</a> , IdsCommonElement, MultilanguageReferrable, PackageableElement, Referrable, UploadableDesignElement, UploadablePackageElement			
Aggregated by	ARPackage.element			
Attribute	Type	Mult.	Kind	Note
contextData Element Identification	<a href="#">SecurityEventContextDataElement</a>	0..1	ref	This reference contributes to the identification of the context data element. <b>Stereotypes:</b> atpSplitable; atpVariation <b>Tags:</b> atp.Splitkey=contextDataElementIdentification.securityEventContextDataElement, contextDataElementIdentification.variationPoint.shortLabel atp.Status=candidate vh.latestBindingTime=systemDesignTime
flatObject	Referrable	0..1	ref	This reference shall be used if the referenced object can directly be referenced using a flat reference. <b>Stereotypes:</b> atpUriDef <b>Tags:</b> atp.Status=candidate
id	PositiveInteger	0..1	attr	This attribute represents the numerical value used for the identification of the context data element. <b>Tags:</b> atp.Status=candidate
object	AtpFeature	0..1	iref	This reference shall be used of the target of the reference can only be identified by an instanceRef. <b>Stereotypes:</b> atpUriDef <b>Tags:</b> atp.Status=candidate <b>InstanceRef implemented by:</b> AnyInstanceRef

**Table A.52: SecurityEventReportInstanceValue**

<b>Class</b>	<b>SecurityEventStateFilter</b>			
<b>Note</b>	This meta-class represents the configuration of a state filter for security events. The referenced states represent a block list, i.e. the security events are dropped if the referenced state is the active state in the relevant state machine (which depends on whether the IdsM instance runs on the Classic or the Adaptive Platform). <b>Tags:</b> atp.Status=candidate			
<b>Base</b>	ARObject, AbstractSecurityEventFilter, <a href="#">Identifiable</a> , <a href="#">MultilanguageReferrable</a> , <a href="#">Referrable</a>			
<b>Aggregated by</b>	<a href="#">SecurityEventFilterChain.state</a>			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
blockIfState ActiveAp	ModeDeclaration	*	iref	For the AP, this reference defines the machine states of the block list. That means, if a security event (mapped to the filter chain to which the SecurityEventStateFilter belongs to) is reported when the machine is in one of the block listed states, the IdsM shall discard the reported security event. <b>Tags:</b> atp.Status=candidate <b>InstanceRef implemented by:</b> FunctionGroupStateIn FunctionGroupSetInstanceRef This Attribute is only used by the AUTOSAR Adaptive Platform.
blockIfState ActiveCp	<a href="#">BlockState</a>	*	ref	For the CP, this reference defines the states of the block list. That means, if a security event (mapped to the filter chain to which the SecurityEventStateFilter belongs to) is reported when the currently active block state in the IdsM is one of the referenced block listed states, the IdsM shall discard the reported security event. <b>Tags:</b> atp.Status=candidate This Attribute is only used by the AUTOSAR Classic Platform.

**Table A.53: SecurityEventStateFilter**

<b>Class</b>	<b>SecurityEventThresholdFilter</b>			
<b>Note</b>	This meta-class represents the threshold filter that drops (repeatedly at each beginning of a configurable time interval) a configurable number of security events . All subsequently arriving security events (within the configured time interval) pass the filter. <b>Tags:</b> atp.Status=candidate			
<b>Base</b>	ARObject, AbstractSecurityEventFilter, <a href="#">Identifiable</a> , <a href="#">MultilanguageReferrable</a> , <a href="#">Referrable</a>			
<b>Aggregated by</b>	<a href="#">SecurityEventFilterChain.threshold</a>			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
intervalLength	TimeValue	0..1	attr	This attribute configures the time interval in seconds for one threshold filter operation. <b>Tags:</b> atp.Status=candidate
threshold Number	PositiveInteger	0..1	attr	This attribute configures the threshold number, i.e. how many security events in the configured time frame are dropped before subsequent events start to pass the filter. <b>Tags:</b> atp.Status=candidate

**Table A.54: SecurityEventThresholdFilter**

<b>Class</b>	<b>SwBaseType</b>			
<b>Note</b>	This meta-class represents a base type used within ECU software. <b>Tags:</b> atp.recommendedPackage=BaseTypes			
<b>Base</b>	ARElement, ARObject, AtpBlueprint, AtpBlueprintable, BaseType, CollectableElement, <a href="#">Identifiable</a> , <a href="#">MultilanguageReferrable</a> , <a href="#">PackageableElement</a> , <a href="#">Referrable</a>			
<b>Aggregated by</b>	ARPackage.element			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
–	–	–	–	–

**Table A.55: SwBaseType**



<b>Class</b>	<b>SwComponentPrototype</b>			
<b>Note</b>	Role of a software component within a composition.			
<b>Base</b>	<i>ARObject</i> , <i>AtpFeature</i> , <i>AtpPrototype</i> , <a href="#">Identifiable</a> , <i>MultilanguageReferrable</i> , <i>Referrable</i>			
<b>Aggregated by</b>	<i>AtpClassifier.atpFeature</i> , <a href="#">CompositionSwComponentType.component</a>			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
type	SwComponentType	0..1	tref	Type of the instance. <b>Stereotypes:</b> isOfType

**Table A.56: SwComponentPrototype**

<b>Class</b>	«atpVariation» <b>SwDataDefProps</b>			
<b>Note</b>	This class is a collection of properties relevant for data objects under various aspects. One could consider this class as a "pattern of inheritance by aggregation". The properties can be applied to all objects of all classes in which SwDataDefProps is aggregated. <b>Tags:</b> vh.latestBindingTime=codeGenerationTime			
<b>Base</b>	<i>ARObject</i>			
<b>Aggregated by</b>	<a href="#">AutosarDataType.swDataDefProps</a> , <i>CompositeNetworkRepresentation.networkRepresentation</i> , <i>CppImplementationDataTypeElement.swDataDefProps</i> , <i>DataPrototype.swDataDefProps</i> , <i>DataPrototypeTransformationProps.networkRepresentationProps</i> , <i>DiagnosticDataElement.swDataDefProps</i> , <i>DiagnosticEnvDataElementCondition.swDataDefProps</i> , <i>DiagnosticExtendedDataRecordElement.swDataDefProps</i> , <i>DiagnosticSovdPrimitiveContentElement.swDataDefProps</i> , <a href="#">DltArgumentProps.networkRepresentation</a> , <i>FlatInstanceDescriptor.swDataDefProps</i> , <i>ImplementationDataTypeElement.swDataDefProps</i> , <i>InstantiationDataDefProps.swDataDefProps</i> , <i>ISignal.networkRepresentationProps</i> , <i>McDataInstance.resultingProperties</i> , <i>ParameterAccess.swDataDefProps</i> , <i>PerInstanceMemory.swDataDefProps</i> , <i>ReceiverComSpec.networkRepresentation</i> , <a href="#">SecurityEventContextDataElement.networkRepresentation</a> , <i>SenderComSpec.networkRepresentation</i> , <i>SomeipDataPrototypeTransformationProps.networkRepresentation</i> , <i>SwPointerTargetProps.swDataDefProps</i> , <i>SwServiceArg.swDataDefProps</i> , <a href="#">SwSystemconst.swDataDefProps</a> , <i>SystemSignal.physicalProps</i>			
<b>Attribute</b>	<b>Type</b>	<b>Mult.</b>	<b>Kind</b>	<b>Note</b>
annotation	Annotation	*	aggr	This aggregation allows to add annotations (yellow pads ...) related to the current data object. <b>Tags:</b> xml.roleElement=true xml.roleWrapperElement=true xml.sequenceOffset=20 xml.typeElement=false xml.typeWrapperElement=false
baseType	<a href="#">SwBaseType</a>	0..1	ref	Base type associated with the containing data object. <b>Tags:</b> xml.sequenceOffset=50
compuMethod	<a href="#">CompuMethod</a>	0..1	ref	Computation method associated with the semantics of this data object. <b>Tags:</b> xml.sequenceOffset=180
dataConstr	<a href="#">DataConstr</a>	0..1	ref	Data constraint for this data object. <b>Tags:</b> xml.sequenceOffset=190
displayFormat	DisplayFormatString	0..1	attr	This property describes how a number is to be rendered e.g. in documents or in a measurement and calibration system. <b>Tags:</b> xml.sequenceOffset=210
displayPresentation	DisplayPresentationEnum	0..1	attr	This attribute controls the presentation of the related data for measurement and calibration tools.
invalidValue	ValueSpecification	0..1	aggr	Optional value to express invalidity of the actual data element. <b>Tags:</b> xml.sequenceOffset=255
swComparisonVariable	SwVariableRefProxy	*	aggr	Variables used for comparison in an MCD process. <b>Tags:</b> xml.sequenceOffset=170 xml.typeElement=false







Class	«atpVariation» SwDataDefProps			
swHostVariable	SwVariableRefProxy	0..1	aggr	Contains a reference to a variable which serves as a host-variable for a bit variable. Only applicable to bit objects. <b>Tags:</b> xml.sequenceOffset=220 xml.typeElement=false
swTextProps	SwTextProps	0..1	aggr	the specific properties if the data object is a text object. <b>Tags:</b> xml.sequenceOffset=120
unit	Unit	0..1	ref	Physical unit associated with the semantics of this data object. This attribute applies if no compuMethod is specified. If both units (this as well as via compuMethod) are specified the units shall be compatible. <b>Tags:</b> xml.sequenceOffset=350

Table A.57: SwDataDefProps

Class	SwSystemconst			
<b>Note</b>	This element defines a system constant which serves an input to select a particular variation point. In particular a system constant serves as an operand of the binding function (swSyscond) in a Variation point. Note that the binding process can only happen if a value was assigned to to the referenced system constants. <b>Tags:</b> atp.recommendedPackage=SwSystemconst			
<b>Base</b>	ARElement, ARObject, AtpDefinition, CollectableElement, <i>Identifiable</i> , MultilanguageReferrable, PackageableElement, Referrable			
<b>Aggregated by</b>	ARPackage.element			
Attribute	Type	Mult.	Kind	Note
swDataDef Props	SwDataDefProps	0..1	aggr	This denotes the data definition properties of the system constant. This supports to express the limits and optionally a conversion within the internal to physical values by a compu method. <b>Stereotypes:</b> atpSplitable <b>Tags:</b> atp.Splitkey=swDataDefProps xml.sequenceOffset=40

Table A.58: SwSystemconst

Class	System			
<b>Note</b>	The top level element of the Abstract Platform System Description. <b>Tags:</b> atp.recommendedPackage=Systems			
<b>Base</b>	ARElement, ARObject, AtpClassifier, AtpFeature, AtpStructureElement, CollectableElement, <i>Identifiable</i> , MultilanguageReferrable, PackageableElement, Referrable, UploadableDesignElement, UploadablePackageElement			
<b>Aggregated by</b>	ARPackage.element, AtpClassifier.atpFeature			
Attribute	Type	Mult.	Kind	Note
mapping	SystemMapping	*	aggr	<b>Stereotypes:</b> atpSplitable; atpVariation <b>Tags:</b> atp.Splitkey=mapping.shortName, mapping.variationPoint.shortLabel vh.latestBindingTime=postBuild
systemCom SpecDefinition	SystemComSpec DefinitionSet	*	ref	Reference to the set of ComSpec definitions that are used for inter-ECU communication in the System.
systemVersion	RevisionLabelString	0..1	attr	Version number of the System Description.

Table A.59: System

## B Change history of AUTOSAR traceable items

Please note that the lists in this chapter also include traceable items that have been removed from the specification in a later version. These items do not appear as hyperlinks in the document.

### B.1 Traceable item history of this document according to AUTOSAR Release R25-11

#### B.1.1 Added Constraints in R25-11

Number	Heading
[ <a href="#">constr_12004</a> ]	Valid interval for attribute <a href="#">SecurityEventContextProps.sensorInstanceId</a>
[ <a href="#">constr_12005</a> ]	Valid interval for attribute <a href="#">IdsmInstance.idsmInstanceId</a>
[ <a href="#">constr_12006</a> ]	Existence of attribute <a href="#">IdsmInstance.idsmInstanceId</a>
[ <a href="#">constr_12007</a> ]	Existence of attribute <a href="#">IdsmInstance.rateLimitationFilter</a>
[ <a href="#">constr_12008</a> ]	Existence of attribute <a href="#">IdsmInstance.trafficLimitationFilter</a>
[ <a href="#">constr_12009</a> ]	Existence of attribute <a href="#">IdsmTrafficLimitation.maxBytesInInterval</a>
[ <a href="#">constr_12010</a> ]	Existence of attribute <a href="#">IdsmTrafficLimitation.timeInterval</a>
[ <a href="#">constr_12011</a> ]	Existence of attribute <a href="#">SecurityEventDefinition.id</a>
[ <a href="#">constr_12012</a> ]	Existence of attribute <a href="#">SecurityEventAggregationFilter.contextDataSource</a>
[ <a href="#">constr_12013</a> ]	Existence of attribute <a href="#">SecurityEventAggregationFilter.minimumIntervalLength</a>
[ <a href="#">constr_12014</a> ]	Existence of attribute <a href="#">SecurityEventOneEveryNFilter.n</a>
[ <a href="#">constr_12015</a> ]	Existence of attribute <a href="#">SecurityEventThresholdFilter.intervalLength</a>
[ <a href="#">constr_12016</a> ]	Existence of attribute <a href="#">SecurityEventThresholdFilter.thresholdNumber</a>
[ <a href="#">constr_12017</a> ]	Existence of attribute <a href="#">SecurityEventContextMapping.idsmInstance</a>
[ <a href="#">constr_12018</a> ]	Existence of attribute <a href="#">SecurityEventContextMapping.mappedSecurityEvent</a>
[ <a href="#">constr_12019</a> ]	Existence of attribute <a href="#">SecurityEventContextProps.defaultReportingMode</a>
[ <a href="#">constr_12020</a> ]	Existence of attribute <a href="#">SecurityEventContextProps.securityEvent</a>
[ <a href="#">constr_12021</a> ]	Existence of attribute <a href="#">SecurityEventContextProps.sensorInstanceId</a>
[ <a href="#">constr_9364</a> ]	Mutually exclusive existence of <a href="#">DltArgument.optional</a> and <a href="#">DltArgument.predefinedText</a> attributes
[ <a href="#">constr_9365</a> ]	<a href="#">DltArgument</a> with <a href="#">predefinedText</a>

**Table B.1: Added Constraints in R25-11**

## B.1.2 Changed Constraints in R25-11

Number	Heading
[constr_5304]	Datatype of an Array
[constr_5305]	CompuMethod in DltArgumentProps.networkRepresentation
[constr_5363]	Allowed usage of attributes for description of payload data types
[constr_5364]	Allowed usage of attributes in case of a dltArgumentEntry
[constr_5600]	Valid interval for attribute SecurityEventDefinition.id
[constr_5602]	Valid interval for attribute SecurityEventOneEveryNFilter.n
[constr_5605]	Valid interval for attribute SecurityEventThresholdFilter.thresholdNumber
[constr_5607]	Valid interval for attribute IdsmRateLimitation.maxEventsInInterval
[constr_5609]	Valid interval for attribute IdsmTrafficLimitation.maxBytesInInterval

**Table B.2: Changed Constraints in R25-11**

## B.1.3 Deleted Constraints in R25-11

Number	Heading
[constr_5302]	Restriction in usage of DltArgument.optional attribute

**Table B.3: Deleted Constraints in R25-11**

## B.2 Traceable item history of this document according to AUTOSAR Release R24-11

### B.2.1 Added Constraints in R24-11

Number	Heading
[constr_12000]	Usage of references in the context of SecurityEventReportInstanceValue
[constr_12001]	Existence of attribute SecurityEventReportInstanceValue.id
[constr_12002]	Existence of attribute SecurityEventReportInstanceDefinition.targetType
[constr_12003]	Existence of reference SecurityEventReportInstanceValue.contextDataElementIdentification
[constr_9339]	SecurityEventContextDataElement.maxLength usage restriction
[constr_9340]	Datatype of an Array
[constr_9341]	CompuMethod in SecurityEventContextDataElement.networkRepresentation





Number	Heading
[constr_9342]	Allowed range of <code>SecurityEventContextDataDefinition.version</code>

**Table B.4: Added Constraints in R24-11**

## B.2.2 Changed Constraints in R24-11

Number	Heading
[constr_5098]	Allowed <code>SwDataDefProps</code> attributes for <code>DltArgument.networkRepresentation</code>
[constr_5301]	Existence of <code>DltMessage.messageId</code>
[constr_5302]	Restriction in usage of <code>DltArgument.optional</code> attribute
[constr_5303]	Restriction of <code>baseTypeSize</code> of a <code>DltArgument</code>
[constr_5304]	Datatype of an Array
[constr_5305]	<code>CompuMethod</code> in <code>DltArgument.networkRepresentation</code>
[constr_5340]	Range of <code>DltMessage.privacyLevel.privacyLevel</code>
[constr_5341]	Range of <code>PrivacyLevel.compuMethod</code>
[constr_5363]	Allowed usage of attributes for description of payload data types
[constr_5364]	Allowed usage of attributes in case of a <code>dltArgumentEntry</code>

**Table B.5: Changed Constraints in R24-11**

## B.2.3 Deleted Constraints in R24-11

none