Schema documentation for channel_schema.xsd

august 31, 2016

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Namespace: ""

Schema(s)

Main schema channel_schema.xsd

Namespace	No namespace
Properties	attribute form default: unqualified element form default: qualified

Included schema common_elements.xsd

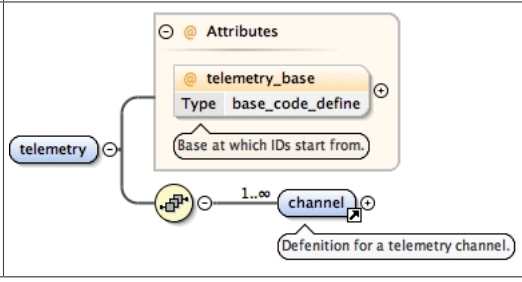
Namespace	No namespace
Properties	attribute form default: unqualified element form default: qualified

Included schema common_types.xsd

Namespace	No namespace
Properties	attribute form default: unqualified element form default: qualified

Element(s)

Element telemetry

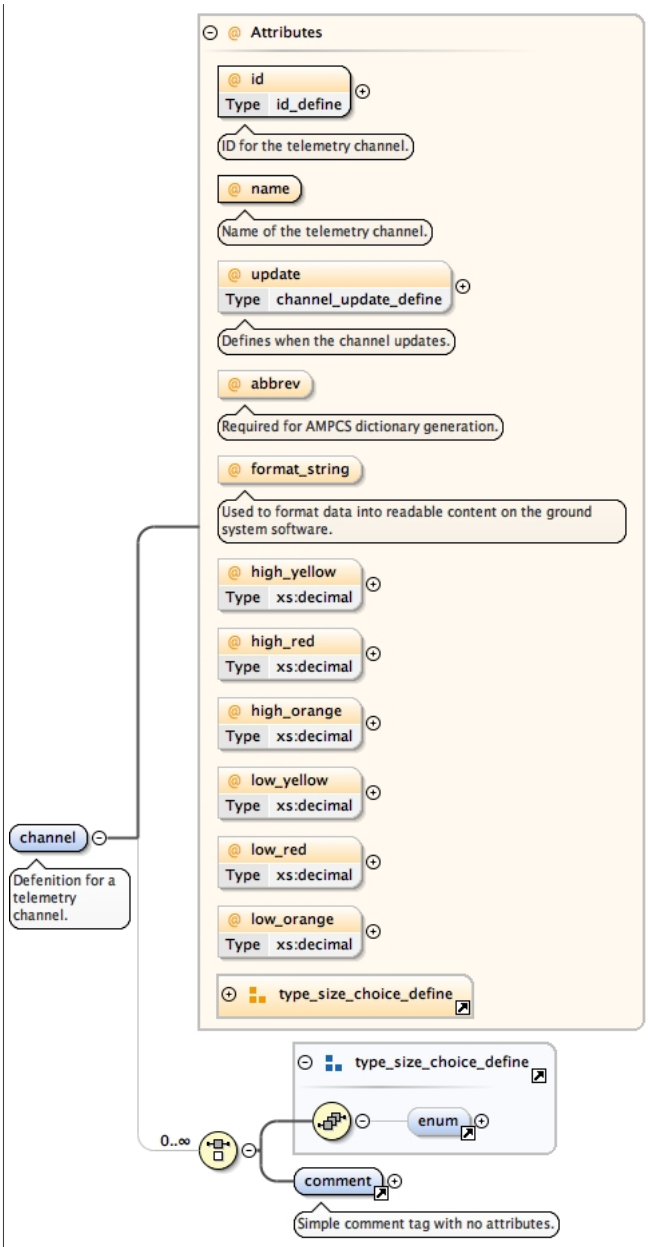
Namespace	No namespace
Diagram	

Properties	content: complex
Model	channel+
Children	channel
Instance	<telemetry telemetry_base=""> <channel abbrev="" data_type="" format_string="" high_orange="" high_red="" high_yellow="" id="" low_orange="" lo channel> </telemetry>
Attributes	**QName** / **Type** / **Use** **telemetry_base** / base_code_define / optional Base at which IDs start from.
Source	<xs:element name="telemetry"> <xs:complexType> <xs:sequence> <xs:element maxOccurs="unbounded" ref="channel"/> </xs:sequence> <xs:attribute name="telemetry_base" type="base_code_define"> <xs:annotation> <xs:documentation>Base at which IDs start from.</xs:documentation> </xs:annotation> </xs:attribute> </xs:complexType> </xs:element>

Element channel

Namespace	No namespace
Annotations	Defenition for a telemetry channel.

Diagram



Properties	content:	complex
Used by	Element	telemetry
Model	(enum{0,1}) | comment	
Children	comment, enum	

Instance

```
<channel abbrev="" data_type="" format_string="" high_orange="" high_red="" high_yellow="" id="" low_orange="" low
  <enum name="">{0,1}</enum>
  <comment>{1,1}</comment>
</channel>
```

Attributes

QName	Type	Use	
abbrev		optional	
	Required for AMPCS dictionary generation.		
data_type	union of(xs:string, restriction of xs:token, restriction of xs:token)	optional	
format_string		optional	
	Used to format data into readable content on the ground system software.		
high_orange	xs:decimal	optional	

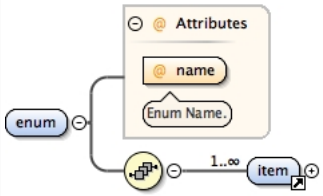
QName	Type	Use	
high_red	xs:decimal	optional	
high_yellow	xs:decimal	optional	
id	id_define	required	
	`ID for the telemetry channel.`		
low_orange	xs:decimal	optional	
low_red	xs:decimal	optional	
low_yellow	xs:decimal	optional	
name		required	
	`Name of the telemetry channel.`		
size	xs:nonNegativeInteger	optional	
	`The size of the argument.`		
type	union of(xs:string, restriction of xs:token, restriction of xs:token)	optional	
update	channel_update_define	optional	
	`Defines when the channel updates.`		

Source

```
<xs:element name="channel">
  <xs:annotation>
    <xs:documentation>Defenition for a telemetry channel.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:group ref="type_size_choice_define"/>
      <xs:element ref="comment"/>
    </xs:choice>
    <xs:attribute name="id" use="required" type="id_define">
      <xs:annotation>
        <xs:documentation>ID for the telemetry channel.</xs:documentation>
      </xs:annotation>
    </xs:attribute>
    <xs:attribute name="name" use="required">
      <xs:annotation>
        <xs:documentation>Name of the telemetry channel.</xs:documentation>
      </xs:annotation>
    </xs:attribute>
    <xs:attribute name="update" type="channel_update_define">
      <xs:annotation>
        <xs:documentation>Defines when the channel updates.</xs:documentation>
      </xs:annotation>
    </xs:attribute>
    <xs:attribute name="abbrev">
      <xs:annotation>
        <xs:documentation>Required for AMPCS dictionary generation.</xs:documentation>
      </xs:annotation>
    </xs:attribute>
    <xs:attribute name="format_string">
      <xs:annotation>
        <xs:documentation>Used to format data into readable content on the ground system software.</
xs:documentation>
      </xs:annotation>
    </xs:attribute>
    <xs:attribute name="high_yellow" type="xs:decimal"/>
    <xs:attribute name="high_red" type="xs:decimal"/>
    <xs:attribute name="high_orange" type="xs:decimal"/>
    <xs:attribute name="low_yellow" type="xs:decimal"/>
    <xs:attribute name="low_red" type="xs:decimal"/>
    <xs:attribute name="low_orange" type="xs:decimal"/>
    <xs:attributeGroup ref="type_size_choice_define"/>
  </xs:complexType>
</xs:element>
```

Element enum

Namespace	No namespace

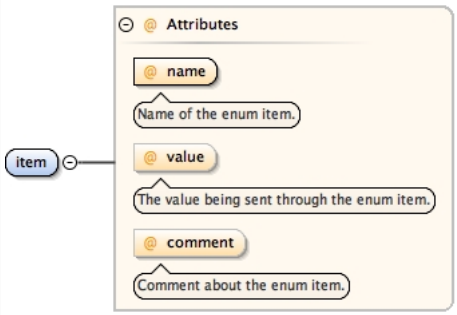
Diagram	
Properties	content: complex
Used by	Element Group type_size_choice_define
Model	item+
Children	item

Instance	`<enum name="">`
	`  <item comment="" name="" value="">{1,unbounded}</item>`
	`</enum>`

Attributes	**QName** / **Type** / **Use** **name** / / required / Enum Name.

Source	`<xs:element name="enum">`
	`  <xs:complexType>`
	`  <xs:sequence>`
	`  <xs:element maxOccurs="unbounded" ref="item"/>`
	`  </xs:sequence>`
	`  <xs:attribute name="name" use="required">`
	`  <xs:annotation>`
	`  <xs:documentation>Enum Name.</xs:documentation>`
	`  </xs:annotation>`
	`  </xs:attribute>`
	`  </xs:complexType>`
	`</xs:element>`

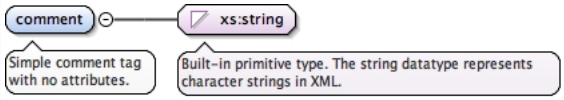
Element item

Namespace	No namespace
Diagram	
Properties	content: complex
Used by	Element enum
Attributes	**QName** / **Type** / **Use** **comment** / / optional / Comment about the enum item. **name** / / required / Name of the enum item. **value** / / optional / The value being sent through the enum item.

Source	`<xs:element name="item">`
	`  <xs:complexType>`
	`  <xs:attribute name="name" use="required">`
	`  <xs:annotation>`
	`  <xs:documentation>Name of the enum item.</xs:documentation>`
	`  </xs:annotation>`
	`  </xs:attribute>`
	`  <xs:attribute name="value">`

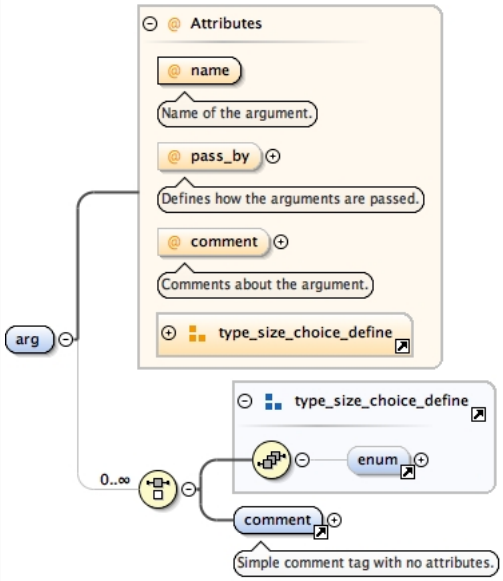
```
      <xs:annotation>
        <xs:documentation>The value being sent through the enum item.</xs:documentation>
      </xs:annotation>
    </xs:attribute>
    <xs:attribute name="comment">
      <xs:annotation>
        <xs:documentation>Comment about the enum item.</xs:documentation>
      </xs:annotation>
    </xs:attribute>
  </xs:complexType>
</xs:element>
```

Element comment

Namespace	No namespace
Annotations	Simple comment tag with no attributes.
Diagram	
Type	xs:string
Properties	content: simple
Used by	Elements arg_define/arg, channel, external_arg_define/arg, return

Source	`<xs:element name="comment" type="xs:string">`
	`  <xs:annotation>`
	`  <xs:documentation>Simple comment tag with no attributes.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

Element arg_define / arg

Namespace	No namespace
Diagram	
Properties	content: complex
Model	(enum{0,1}) | comment
Children	comment, enum

Instance	`<arg comment="" data_type="" name="" pass_by="" size="" type="">`
	`  <enum name="">{0,1}</enum>`
	`  <comment>{1,1}</comment>`
	`</arg>`

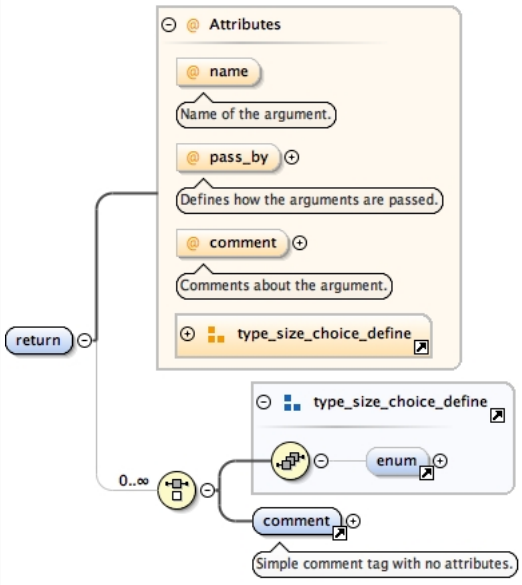
Attributes	**QName** / **Type** / **Use** **comment** / xs:string / optional Comments about the argument.

	QName	Type	Use	
	data_type	union of(xs:string, restriction of xs:token, restriction of xs:token)	optional	
	name		required	
		`Name of the argument.`		
	pass_by	pass_by_define	optional	
		`Defines how the arguments are passed.`		
	size	xs:nonNegativeInteger	optional	
		`The size of the argument.`		
	type	union of(xs:string, restriction of xs:token, restriction of xs:token)	optional	

Source

```
<xs:element name="arg">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:group ref="type_size_choice_define"/>
      <xs:element ref="comment"/>
    </xs:choice>
    <xs:attribute name="name" use="required">
      <xs:annotation>
        <xs:documentation>Name of the argument.</xs:documentation>
      </xs:annotation>
    </xs:attribute>
    <xs:attribute name="pass_by" type="pass_by_define">
      <xs:annotation>
        <xs:documentation>Defines how the arguments are passed.</xs:documentation>
      </xs:annotation>
    </xs:attribute>
    <xs:attribute name="comment" type="xs:string">
      <xs:annotation>
        <xs:documentation>Comments about the argument.</xs:documentation>
      </xs:annotation>
    </xs:attribute>
    <xs:attributeGroup ref="type_size_choice_define"/>
  </xs:complexType>
</xs:element>
```

Element `return`

Namespace	No namespace
Diagram	
Properties	content: `complex`
Model	(enum{0,1}) | comment
Children	comment, enum
Instance	`<return comment="" data_type="" name="" pass_by="" size="" type="">`

```
  <enum name="">{0,1}</enum>
  <comment>{1,1}</comment>
</return>
```

Attributes

QName	Type	Use	
comment	xs:string	optional	
	Comments about the argument.		
data_type	union of(xs:string, restriction of xs:token, restriction of xs:token)	optional	
name		optional	
	Name of the argument.		
pass_by	pass_by_define	optional	
	Defines how the arguments are passed.		
size	xs:nonNegativeInteger	optional	
	The size of the argument.		
type	union of(xs:string, restriction of xs:token, restriction of xs:token)	optional	

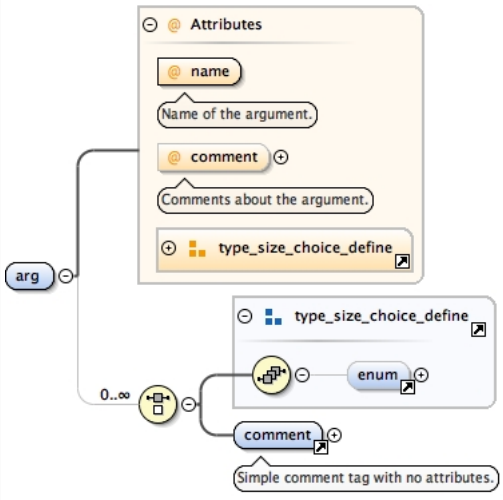
Source

```
<xs:element name="return">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:group ref="type_size_choice_define"/>
      <xs:element ref="comment"/>
    </xs:choice>
    <xs:attribute name="name">
      <xs:annotation>
        <xs:documentation>Name of the argument.</xs:documentation>
      </xs:annotation>
    </xs:attribute>
    <xs:attribute name="pass_by" type="pass_by_define">
      <xs:annotation>
        <xs:documentation>Defines how the arguments are passed.</xs:documentation>
      </xs:annotation>
    </xs:attribute>
    <xs:attribute name="comment" type="xs:string">
      <xs:annotation>
        <xs:documentation>Comments about the argument.</xs:documentation>
      </xs:annotation>
    </xs:attribute>
    <xs:attributeGroup ref="type_size_choice_define"/>
  </xs:complexType>
</xs:element>
```

Element `external_arg_define / arg`

Namespace: No namespace

Diagram



Properties

content: complex

Model

(enum{0,1}) | comment

Children	comment, enum

Instance	`<arg comment="" data_type="" name="" size="" type="">`
	`  <enum name="">{0,1}</enum>`
	`  <comment>{1,1}</comment>`
	`</arg>`

Attributes

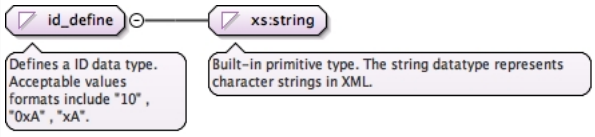
QName	Type	Use	
comment	xs:string	optional	
	Comments about the argument.		
data_type	union of(xs:string, restriction of xs:token, restriction of xs:token)	optional	
name		required	
	Name of the argument.		
size	xs:nonNegativeInteger	optional	
	The size of the argument.		
type	union of(xs:string, restriction of xs:token, restriction of xs:token)	optional	

Source

```
<xs:element name="arg">
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:group ref="type_size_choice_define"/>
      <xs:element ref="comment"/>
    </xs:choice>
    <xs:attribute name="name" use="required">
      <xs:annotation>
        <xs:documentation>Name of the argument.</xs:documentation>
      </xs:annotation>
    </xs:attribute>
    <xs:attribute name="comment" type="xs:string">
      <xs:annotation>
        <xs:documentation>Comments about the argument.</xs:documentation>
      </xs:annotation>
    </xs:attribute>
    <xs:attributeGroup ref="type_size_choice_define"/>
  </xs:complexType>
</xs:element>
```

Simple Type(s)

Simple Type `id_define`

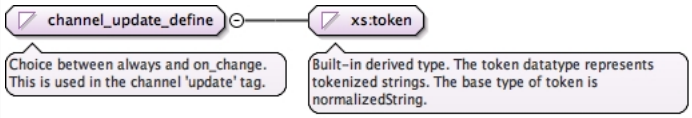
Namespace	No namespace
Annotations	Defines a ID data type. Acceptable values formats include "10" , "0xA" , "xA".
Diagram	
Type	restriction of xs:string
Facets	pattern ((0?x\d+)|\d+)
Used by	Attribute channel/@id

Source

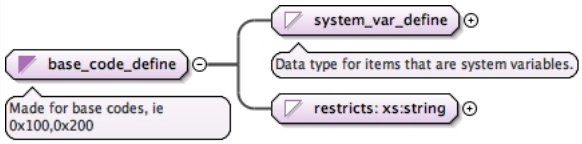
```
<xs:simpleType name="id_define">
  <xs:annotation>
    <xs:documentation>Defines a ID data type. Acceptable values formats include "10" , "0xA" ,
 "xA".</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:pattern value="((0?x\d+)|\d+)"/>
  </xs:restriction>
</xs:simpleType>
```

Simple Type `channel_update_define`

Namespace	No namespace

Annotations	Choice between always and on_change. This is used in the channel 'update' tag.
Diagram	
Type	restriction of xs:token
Facets	enumeration always enumeration on_change
Used by	Attribute channel/@update
Source	<xs:simpleType name="channel_update_define"> <xs:annotation> <xs:documentation>Choice between always and on_change. This is used in the channel 'update' tag.</xs:documentation> </xs:annotation> <xs:restriction base="xs:token"> <xs:enumeration value="always"/> <xs:enumeration value="on_change"/> </xs:restriction> </xs:simpleType>

Simple Type base_code_define

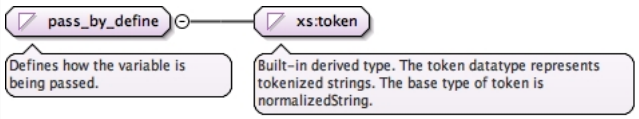
Namespace	No namespace
Annotations	Made for base codes, ie 0x100,0x200
Diagram	
Type	union of(system_var_define, restriction of xs:string)
Used by	Attribute telemetry/@telemetry_base
Source	<xs:simpleType name="base_code_define"> <xs:annotation> <xs:documentation>Made for base codes, ie 0x100,0x200</xs:documentation> </xs:annotation> <xs:union memberTypes="system_var_define"> <xs:simpleType> <xs:restriction base="xs:string"> <xs:pattern value="(((0?x\d+)|\d+)(,?))+"/> </xs:restriction> </xs:simpleType> </xs:union> </xs:simpleType>

Simple Type full_items_define

Namespace	No namespace
Annotations	Valid values for the full tag.
Diagram	
Type	restriction of xs:token
Facets	enumeration drop enumeration assert enumeration block
Source	<xs:simpleType name="full_items_define"> <xs:annotation> <xs:documentation>Valid values for the full tag.</xs:documentation> </xs:annotation> <xs:restriction base="xs:token"> <xs:enumeration value="drop"/>

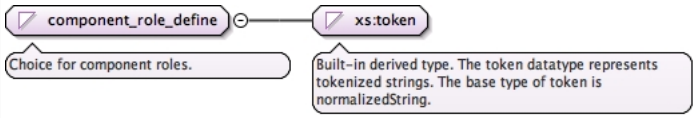
```
    <xs:enumeration value="assert"/>
    <xs:enumeration value="block"/>
  </xs:restriction>
</xs:simpleType>
```

Simple Type `pass_by_define`

Namespace	No namespace
Annotations	`Defines how the variable is being passed.`
Diagram	
Type	restriction of xs:token
Facets	enumeration `reference` enumeration `value` enumeration `pointer`
Used by	Attributes arg_define/arg/@pass_by, return/@pass_by
Source	

```
<xs:simpleType name="pass_by_define">
  <xs:annotation>
    <xs:documentation>Defines how the variable is being passed.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:token">
    <xs:enumeration value="reference"/>
    <xs:enumeration value="value"/>
    <xs:enumeration value="pointer"/>
  </xs:restriction>
</xs:simpleType>
```

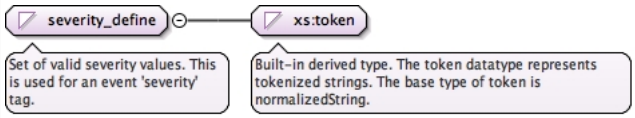
Simple Type `component_role_define`

Namespace	No namespace
Annotations	`Choice for component roles.`
Diagram	
Type	restriction of xs:token
Facets	enumeration `LogEvent` enumeration `LogTextEvent` enumeration `TimeGet` enumeration `ParamSet` enumeration `ParamGet` enumeration `Telemetry` enumeration `CmdRegistration` enumeration `Cmd` enumeration `CmdResponse`
Source	

```
<xs:simpleType name="component_role_define">
  <xs:annotation>
    <xs:documentation>Choice for component roles.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:token">
    <xs:enumeration value="LogEvent"/>
    <xs:enumeration value="LogTextEvent"/>
    <xs:enumeration value="TimeGet"/>
    <xs:enumeration value="ParamSet"/>
    <xs:enumeration value="ParamGet"/>
    <xs:enumeration value="Telemetry"/>
    <xs:enumeration value="CmdRegistration"/>
    <xs:enumeration value="Cmd"/>
    <xs:enumeration value="CmdResponse"/>
  </xs:restriction>
```

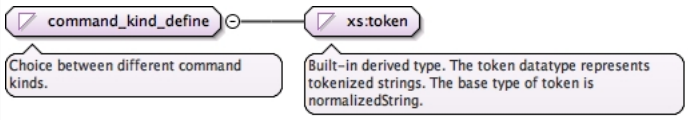
```
</xs:simpleType>
```

Simple Type severity_define

Namespace	No namespace
Annotations	Set of valid severity values. This is used for an event 'severity' tag.
Diagram	
Type	restriction of xs:token
Facets	enumeration COMMAND enumeration ACTIVITY_LO enumeration ACTIVITY_HI enumeration WARNING_LO enumeration WARNING_HI enumeration DIAGNOSTIC enumeration FATAL

Source	`<xs:simpleType name="severity_define">`
	`  <xs:annotation>`
	`  <xs:documentation>Set of valid severity values. This is used for an event 'severity' tag.</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:restriction base="xs:token">`
	`  <xs:enumeration value="COMMAND"/>`
	`  <xs:enumeration value="ACTIVITY_LO"/>`
	`  <xs:enumeration value="ACTIVITY_HI"/>`
	`  <xs:enumeration value="WARNING_LO"/>`
	`  <xs:enumeration value="WARNING_HI"/>`
	`  <xs:enumeration value="DIAGNOSTIC"/>`
	`  <xs:enumeration value="FATAL"/>`
	`  </xs:restriction>`
	`</xs:simpleType>`

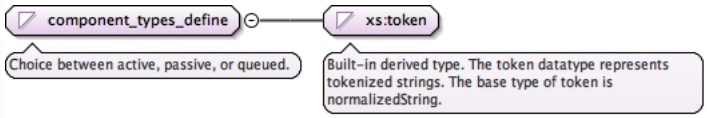
Simple Type command_kind_define

Namespace	No namespace
Annotations	Choice between different command kinds.
Diagram	
Type	restriction of xs:token
Facets	enumeration async enumeration sync enumeration guarded

Source	`<xs:simpleType name="command_kind_define">`
	`  <xs:annotation>`
	`  <xs:documentation>Choice between different command kinds.</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:restriction base="xs:token">`
	`  <xs:enumeration value="async"/>`
	`  <xs:enumeration value="sync"/>`
	`  <xs:enumeration value="guarded"/>`
	`  </xs:restriction>`
	`</xs:simpleType>`

Simple Type component_types_define

Namespace	No namespace
Annotations	Choice between active, passive, or queued.

Diagram	
Type	restriction of xs:token
Facets	enumeration `active` enumeration `passive` enumeration `queued`

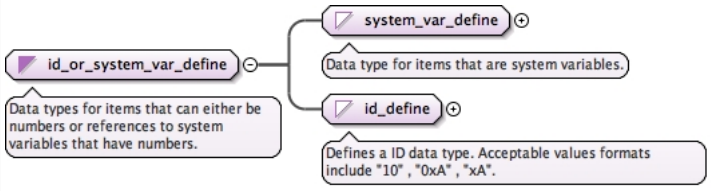
Source	`<xs:simpleType name="component_types_define">`
	`  <xs:annotation>`
	`  <xs:documentation>Choice between active, passive, or queued.</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:restriction base="xs:token">`
	`  <xs:enumeration value="active"/>`
	`  <xs:enumeration value="passive"/>`
	`  <xs:enumeration value="queued"/>`
	`  </xs:restriction>`
	`</xs:simpleType>`

Simple Type `port_types_define`

Namespace	No namespace
Annotations	`Choice between different port types.`
Diagram	
Type	restriction of xs:token
Facets	enumeration `input` enumeration `sync_input` enumeration `guarded_input` enumeration `async_input` enumeration `model_input` enumeration `output`

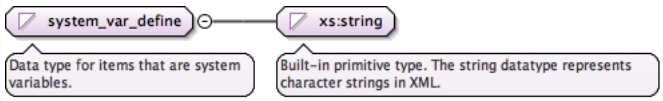
Source	`<xs:simpleType name="port_types_define">`
	`  <xs:annotation>`
	`  <xs:documentation>Choice between different port types.</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:restriction base="xs:token">`
	`  <xs:enumeration value="input"/>`
	`  <xs:enumeration value="sync_input"/>`
	`  <xs:enumeration value="guarded_input"/>`
	`  <xs:enumeration value="async_input"/>`
	`  <xs:enumeration value="model_input"/>`
	`  <xs:enumeration value="output"/>`
	`  </xs:restriction>`
	`</xs:simpleType>`

Simple Type `id_or_system_var_define`

Namespace	No namespace
Annotations	`Data types for items that can either be numbers or references to system variables that have numbers.`
Diagram	
Type	union of(system_var_define, id_define)
Source	`<xs:simpleType name="id_or_system_var_define">` `  <xs:annotation>`

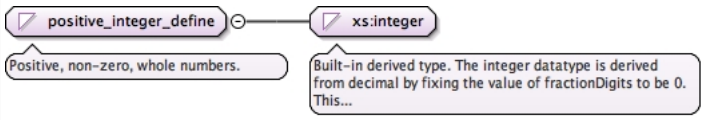
```
    <xs:documentation>Data types for items that can either be numbers or references to system
 variables that have numbers.</xs:documentation>
  </xs:annotation>
  <xs:union memberTypes="system_var_define id_define"/>
</xs:simpleType>
```

Simple Type `system_var_define`

Namespace	No namespace
Annotations	`Data type for items that are system variables.`
Diagram	
Type	restriction of xs:string
Facets	pattern `$[\w|_|\-]+`

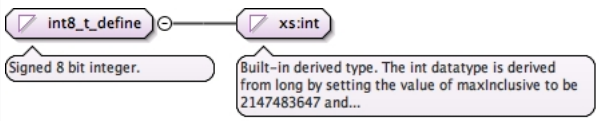
Source	`<xs:simpleType name="system_var_define">`
	`  <xs:annotation>`
	`  <xs:documentation>Data type for items that are system variables.</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:restriction base="xs:string">`
	`  <xs:pattern value="$[\w|_|\-]+"/>`
	`  </xs:restriction>`
	`</xs:simpleType>`

Simple Type `positive_integer_define`

Namespace	No namespace
Annotations	`Positive, non-zero, whole numbers.`
Diagram	
Type	restriction of xs:integer
Facets	minInclusive `1`

Source	`<xs:simpleType name="positive_integer_define">`
	`  <xs:annotation>`
	`  <xs:documentation>Positive, non-zero, whole numbers.</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:restriction base="xs:integer">`
	`  <xs:minInclusive value="1"/>`
	`  </xs:restriction>`
	`</xs:simpleType>`

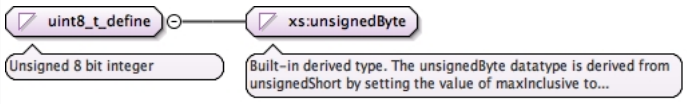
Simple Type `int8_t_define`

Namespace	No namespace
Annotations	`Signed 8 bit integer.`
Diagram	
Type	restriction of xs:int
Facets	maxInclusive `127` minInclusive `-128`
Used by	Simple Type I8_define

Source	`<xs:simpleType name="int8_t_define">`
	`  <xs:annotation>`
	`  <xs:documentation>Signed 8 bit integer.</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:restriction base="xs:int">`
	`  <xs:minInclusive value="-128"/>`
	`  <xs:maxInclusive value="127"/>`

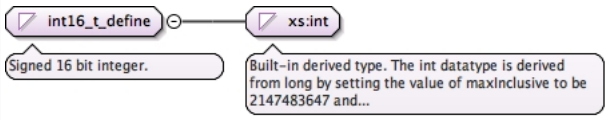
```
  </xs:restriction>
</xs:simpleType>
```

Simple Type `uint8_t_define`

Namespace	No namespace
Annotations	`Unsigned 8 bit integer`
Diagram	
Type	restriction of xs:unsignedByte
Facets	maxInclusive `255` minInclusive `0`
Used by	Simple Type U8_define
Source	

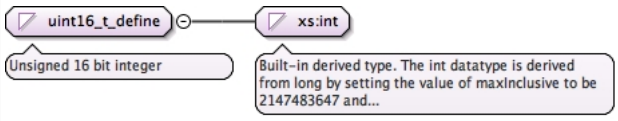
```
<xs:simpleType name="uint8_t_define">
  <xs:annotation>
    <xs:documentation>Unsigned 8 bit integer</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:unsignedByte">
    <xs:minInclusive value="0"/>
    <xs:maxInclusive value="255"/>
  </xs:restriction>
</xs:simpleType>
```

Simple Type `int16_t_define`

Namespace	No namespace
Annotations	`Signed 16 bit integer.`
Diagram	
Type	restriction of xs:int
Facets	maxInclusive `32767` minInclusive `-32768`
Used by	Simple Type I16_define
Source	

```
<xs:simpleType name="int16_t_define">
  <xs:annotation>
    <xs:documentation>Signed 16 bit integer.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:int">
    <xs:minInclusive value="-32768"/>
    <xs:maxInclusive value="32767"/>
  </xs:restriction>
</xs:simpleType>
```

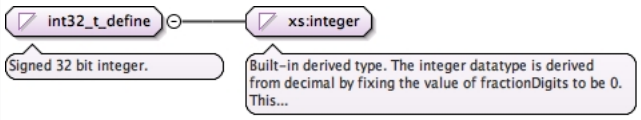
Simple Type `uint16_t_define`

Namespace	No namespace
Annotations	`Unsigned 16 bit integer`
Diagram	
Type	restriction of xs:int
Facets	maxInclusive `65535` minInclusive `0`
Used by	Simple Type U16_define
Source	

```
<xs:simpleType name="uint16_t_define">
```

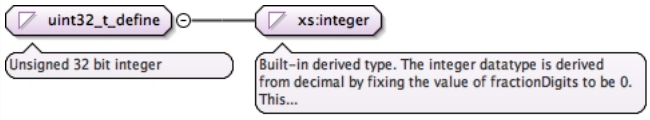
```
  <xs:annotation>
    <xs:documentation>Unsigned 16 bit integer</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:int">
    <xs:minInclusive value="0"/>
    <xs:maxInclusive value="65535"/>
  </xs:restriction>
</xs:simpleType>
```

Simple Type `int32_t_define`

Namespace	No namespace
Annotations	`Signed 32 bit integer.`
Diagram	
Type	restriction of xs:integer
Facets	maxInclusive `2147483647` minInclusive `-2147483648`
Used by	Simple Types I32_define, NATIVE_INT_TYPE_define

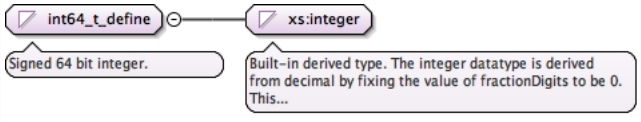
Source	`<xs:simpleType name="int32_t_define">`
	`  <xs:annotation>`
	`  <xs:documentation>Signed 32 bit integer.</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:restriction base="xs:integer">`
	`  <xs:minInclusive value="-2147483648"/>`
	`  <xs:maxInclusive value="2147483647"/>`
	`  </xs:restriction>`
	`</xs:simpleType>`

Simple Type `uint32_t_define`

Namespace	No namespace
Annotations	`Unsigned 32 bit integer`
Diagram	
Type	restriction of xs:integer
Facets	maxInclusive `4294967295` minInclusive `0`
Used by	Simple Types NATIVE_UINT_TYPE_define, U32_define

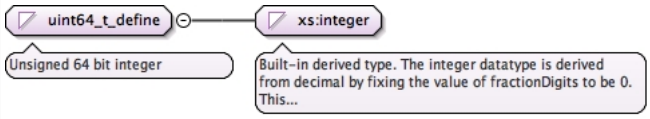
Source	`<xs:simpleType name="uint32_t_define">`
	`  <xs:annotation>`
	`  <xs:documentation>Unsigned 32 bit integer</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:restriction base="xs:integer">`
	`  <xs:minInclusive value="0"/>`
	`  <xs:maxInclusive value="4294967295"/>`
	`  </xs:restriction>`
	`</xs:simpleType>`

Simple Type `int64_t_define`

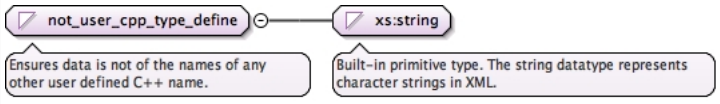
Namespace	No namespace
Annotations	`Signed 64 bit integer.`
Diagram	
Type	restriction of xs:integer

Facets	maxInclusive	9223372036854775807
	minInclusive	-9223372036854775808
Used by	Simple Type	I64_define
Source	<xs:simpleType name="int64_t_define"> <xs:annotation> <xs:documentation>Signed 64 bit integer.</xs:documentation> </xs:annotation> <xs:restriction base="xs:integer"> <xs:minInclusive value="-9223372036854775808"/> <xs:maxInclusive value="9223372036854775807"/> </xs:restriction> </xs:simpleType>	

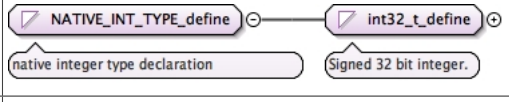
Simple Type `uint64_t_define`

Namespace	No namespace
Annotations	Unsigned 64 bit integer
Diagram	
Type	restriction of xs:integer
Facets	maxInclusive 18446744073709551615 minInclusive 0
Used by	Simple Type U64_define
Source	<xs:simpleType name="uint64_t_define"> <xs:annotation> <xs:documentation>Unsigned 64 bit integer</xs:documentation> </xs:annotation> <xs:restriction base="xs:integer"> <xs:minInclusive value="0"/> <xs:maxInclusive value="18446744073709551615"/> </xs:restriction> </xs:simpleType>

Simple Type `not_user_cpp_type_define`

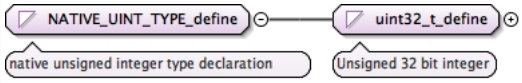
Namespace	No namespace
Annotations	Ensures data is not of the names of any other user defined C++ name.
Diagram	
Type	xs:string
Source	<xs:simpleType name="not_user_cpp_type_define"> <xs:annotation> <xs:documentation>Ensures data is not of the names of any other user defined C++ name.</xs:documentation> </xs:annotation> <xs:restriction base="xs:string"/> </xs:simpleType>

Simple Type `NATIVE_INT_TYPE_define`

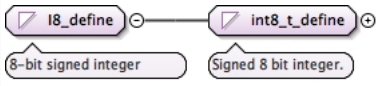
Namespace	No namespace
Annotations	native integer type declaration
Diagram	
Type	int32_t_define
Type hierarchy	• xs:integer • int32_t_define

	• NATIVE_INT_TYPE_define
Facets	maxInclusive 2147483647 minInclusive -2147483648
Source	<xs:simpleType name="NATIVE_INT_TYPE_define"> <xs:annotation> <xs:documentation>native integer type declaration</xs:documentation> </xs:annotation> <xs:restriction base="int32_t_define"/> </xs:simpleType>

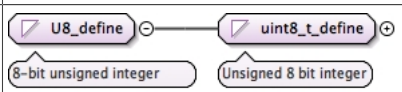
Simple Type `NATIVE_UINT_TYPE_define`

Namespace	No namespace
Annotations	native unsigned integer type declaration
Diagram	
Type	uint32_t_define
Type hierarchy	• xs:integer • uint32_t_define • NATIVE_UINT_TYPE_define
Facets	maxInclusive 4294967295 minInclusive 0
Source	<xs:simpleType name="NATIVE_UINT_TYPE_define"> <xs:annotation> <xs:documentation>native unsigned integer type declaration</xs:documentation> </xs:annotation> <xs:restriction base="uint32_t_define"/> </xs:simpleType>

Simple Type `I8_define`

Namespace	No namespace
Annotations	8-bit signed integer
Diagram	
Type	int8_t_define
Type hierarchy	• xs:int • int8_t_define • I8_define
Facets	maxInclusive 127 minInclusive -128
Source	<xs:simpleType name="I8_define"> <xs:annotation> <xs:documentation>8-bit signed integer</xs:documentation> </xs:annotation> <xs:restriction base="int8_t_define"/> </xs:simpleType>

Simple Type `U8_define`

Namespace	No namespace
Annotations	8-bit unsigned integer
Diagram	

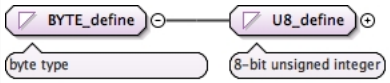
Type	uint8_t_define

Type hierarchy	• xs:unsignedByte
	  • uint8_t_define
	  • U8_define

Facets	maxInclusive 255 minInclusive 0
Used by	Simple Type BYTE_define

Source	`<xs:simpleType name="U8_define">`
	`  <xs:annotation>`
	`  <xs:documentation>8-bit unsigned integer</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:restriction base="uint8_t_define"/>`
	`</xs:simpleType>`

Simple Type `BYTE_define`

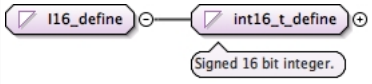
Namespace	No namespace
Annotations	byte type
Diagram	
Type	U8_define

Type hierarchy	• xs:unsignedByte
	  • uint8_t_define
	  • U8_define
	  • BYTE_define

Facets	maxInclusive 255 minInclusive 0

Source	`<xs:simpleType name="BYTE_define">`
	`  <xs:annotation>`
	`  <xs:documentation>byte type</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:restriction base="U8_define"/>`
	`</xs:simpleType>`

Simple Type `I16_define`

Namespace	No namespace
Diagram	
Type	int16_t_define

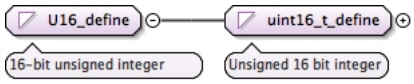
Type hierarchy	• xs:int
	  • int16_t_define
	  • I16_define

Facets	maxInclusive 32767 minInclusive -32768

Source	`<xs:simpleType name="I16_define">`
	`  <xs:restriction base="int16_t_define"/>`
	`</xs:simpleType>`

Simple Type `U16_define`

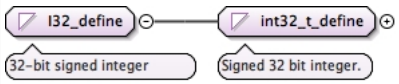
Namespace	No namespace

Annotations	16-bit unsigned integer
Diagram	
Type	uint16_t_define

Type hierarchy	• xs:int
	  • uint16_t_define
	  • U16_define

Facets	maxInclusive 65535 minInclusive 0
Source	<xs:simpleType name="U16_define"> <xs:annotation> <xs:documentation>16-bit unsigned integer</xs:documentation> </xs:annotation> <xs:restriction base="uint16_t_define"/> </xs:simpleType>

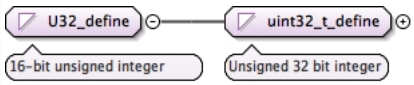
Simple Type I32_define

Namespace	No namespace
Annotations	32-bit signed integer
Diagram	
Type	int32_t_define

Type hierarchy	• xs:integer
	  • int32_t_define
	  • I32_define

Facets	maxInclusive 2147483647 minInclusive -2147483648
Source	<xs:simpleType name="I32_define"> <xs:annotation> <xs:documentation>32-bit signed integer</xs:documentation> </xs:annotation> <xs:restriction base="int32_t_define"/> </xs:simpleType>

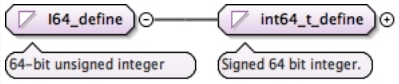
Simple Type U32_define

Namespace	No namespace
Annotations	16-bit unsigned integer
Diagram	
Type	uint32_t_define

Type hierarchy	• xs:integer
	  • uint32_t_define
	  • U32_define

Facets	maxInclusive 4294967295 minInclusive 0
Source	<xs:simpleType name="U32_define"> <xs:annotation> <xs:documentation>16-bit unsigned integer</xs:documentation> </xs:annotation> <xs:restriction base="uint32_t_define"/> </xs:simpleType>

Simple Type `I64_define`

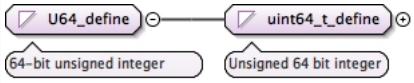
Namespace	No namespace
Annotations	`64-bit unsigned integer`
Diagram	
Type	int64_t_define

Type hierarchy	• xs:integer
	  • int64_t_define
	  • I64_define

Facets	maxInclusive `9223372036854775807` minInclusive `-9223372036854775808`

Source	`<xs:simpleType name="I64_define">`
	`  <xs:annotation>`
	`  <xs:documentation>64-bit unsigned integer</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:restriction base="int64_t_define"/>`
	`</xs:simpleType>`

Simple Type `U64_define`

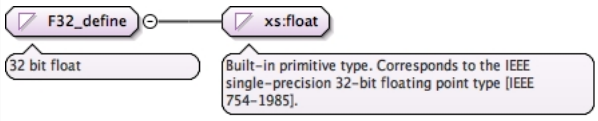
Namespace	No namespace
Annotations	`64-bit unsigned integer`
Diagram	
Type	uint64_t_define

Type hierarchy	• xs:integer
	  • uint64_t_define
	  • U64_define

Facets	maxInclusive `18446744073709551615` minInclusive `0`

Source	`<xs:simpleType name="U64_define">`
	`  <xs:annotation>`
	`  <xs:documentation>64-bit unsigned integer</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:restriction base="uint64_t_define"/>`
	`</xs:simpleType>`

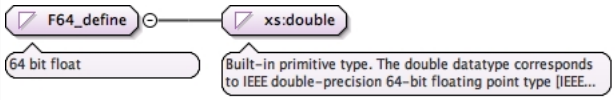
Simple Type `F32_define`

Namespace	No namespace
Annotations	`32 bit float`
Diagram	
Type	xs:float

Source	`<xs:simpleType name="F32_define">`
	`  <xs:annotation>`
	`  <xs:documentation>32 bit float</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:restriction base="xs:float"/>`
	`</xs:simpleType>`

Simple Type `F64_define`

Namespace	No namespace

Annotations	64 bit float
Diagram	
Type	xs:double

Source	`<xs:simpleType name="F64_define">`
	`  <xs:annotation>`
	`  <xs:documentation>64 bit float</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:restriction base="xs:double"/>`
	`</xs:simpleType>`

Attribute(s)

Attribute `item / @name`

Namespace	No namespace
Annotations	Name of the enum item.
Properties	use: required
Used by	Element item

Source	`<xs:attribute name="name" use="required">`
	`  <xs:annotation>`
	`  <xs:documentation>Name of the enum item.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:attribute>`

Attribute `item / @value`

Namespace	No namespace
Annotations	The value being sent through the enum item.
Used by	Element item

Source	`<xs:attribute name="value">`
	`  <xs:annotation>`
	`  <xs:documentation>The value being sent through the enum item.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:attribute>`

Attribute `item / @comment`

Namespace	No namespace
Annotations	Comment about the enum item.
Used by	Element item

Source	`<xs:attribute name="comment">`
	`  <xs:annotation>`
	`  <xs:documentation>Comment about the enum item.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:attribute>`

Attribute `enum / @name`

Namespace	No namespace
Annotations	Enum Name.
Properties	use: required
Used by	Element enum

Source	`<xs:attribute name="name" use="required">`
	`  <xs:annotation>`
	`  <xs:documentation>Enum Name.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:attribute>`

Attribute `channel / @id`

Namespace	No namespace

Annotations	ID for the telemetry channel.
Type	id_define
Properties	use: required
Facets	pattern ((0?x\d+)|\d+)
Used by	Element channel
Source	<xs:attribute name="id" use="required" type="id_define"> <xs:annotation> <xs:documentation>ID for the telemetry channel.</xs:documentation> </xs:annotation> </xs:attribute>

Attribute channel / @name

Namespace	No namespace
Annotations	Name of the telemetry channel.
Properties	use: required
Used by	Element channel
Source	<xs:attribute name="name" use="required"> <xs:annotation> <xs:documentation>Name of the telemetry channel.</xs:documentation> </xs:annotation> </xs:attribute>

Attribute channel / @update

Namespace	No namespace
Annotations	Defines when the channel updates.
Type	channel_update_define
Properties	content: simple
Facets	enumeration always enumeration on_change
Used by	Element channel
Source	<xs:attribute name="update" type="channel_update_define"> <xs:annotation> <xs:documentation>Defines when the channel updates.</xs:documentation> </xs:annotation> </xs:attribute>

Attribute channel / @abbrev

Namespace	No namespace
Annotations	Required for AMPCS dictionary generation.
Used by	Element channel
Source	<xs:attribute name="abbrev"> <xs:annotation> <xs:documentation>Required for AMPCS dictionary generation.</xs:documentation> </xs:annotation> </xs:attribute>

Attribute channel / @format_string

Namespace	No namespace
Annotations	Used to format data into readable content on the ground system software.
Used by	Element channel
Source	<xs:attribute name="format_string"> <xs:annotation> <xs:documentation>Used to format data into readable content on the ground system software.</ xs:documentation> </xs:annotation>

	</xs:attribute>

Attribute channel / @high_yellow

Namespace	No namespace
Type	xs:decimal
Properties	content: simple
Used by	Element channel
Source	<xs:attribute name="high_yellow" type="xs:decimal"/>

Attribute channel / @high_red

Namespace	No namespace
Type	xs:decimal
Properties	content: simple
Used by	Element channel
Source	<xs:attribute name="high_red" type="xs:decimal"/>

Attribute channel / @high_orange

Namespace	No namespace
Type	xs:decimal
Properties	content: simple
Used by	Element channel
Source	<xs:attribute name="high_orange" type="xs:decimal"/>

Attribute channel / @low_yellow

Namespace	No namespace
Type	xs:decimal
Properties	content: simple
Used by	Element channel
Source	<xs:attribute name="low_yellow" type="xs:decimal"/>

Attribute channel / @low_red

Namespace	No namespace
Type	xs:decimal
Properties	content: simple
Used by	Element channel
Source	<xs:attribute name="low_red" type="xs:decimal"/>

Attribute channel / @low_orange

Namespace	No namespace
Type	xs:decimal
Properties	content: simple
Used by	Element channel
Source	<xs:attribute name="low_orange" type="xs:decimal"/>

Attribute type_size_choice_define / @data_type

Namespace	No namespace

Type	union of(xs:string, restriction of xs:token, restriction of xs:token)
Properties	content: simple
Used by	Attribute Group type_size_choice_define
Source	<xs:attribute name="data_type"> <xs:simpleType> <xs:union memberTypes="xs:string"> <xs:simpleType> <xs:restriction base="xs:token"> <xs:enumeration value="string"/> </xs:restriction> </xs:simpleType> <xs:simpleType> <xs:restriction base="xs:token"> <xs:enumeration value="ENUM"/> </xs:restriction> </xs:simpleType> </xs:union> </xs:simpleType> </xs:attribute>

Attribute type_size_choice_define / @type

Namespace	No namespace
Type	union of(xs:string, restriction of xs:token, restriction of xs:token)
Properties	content: simple
Used by	Attribute Group type_size_choice_define
Source	<xs:attribute name="type"> <xs:simpleType> <xs:union memberTypes="xs:string"> <xs:simpleType> <xs:restriction base="xs:token"> <xs:enumeration value="string"/> </xs:restriction> </xs:simpleType> <xs:simpleType> <xs:restriction base="xs:token"> <xs:enumeration value="ENUM"/> </xs:restriction> </xs:simpleType> </xs:union> </xs:simpleType> </xs:attribute>

Attribute type_size_choice_define / @size

Namespace	No namespace
Annotations	The size of the argument.
Type	xs:nonNegativeInteger
Properties	content: simple
Used by	Attribute Group type_size_choice_define
Source	<xs:attribute name="size" type="xs:nonNegativeInteger"> <xs:annotation> <xs:documentation>The size of the argument.</xs:documentation> </xs:annotation> </xs:attribute>

Attribute telemetry / @telemetry_base

Namespace	No namespace
Annotations	Base at which IDs start from.
Type	base_code_define
Properties	content: simple
Used by	Element telemetry
Source	<xs:attribute name="telemetry_base" type="base_code_define">

```
  <xs:annotation>
    <xs:documentation>Base at which IDs start from.</xs:documentation>
  </xs:annotation>
</xs:attribute>
```

Attribute `arg_define / arg / @name`

Namespace	No namespace
Annotations	`Name of the argument.`
Properties	use: `required`
Used by	Element arg_define/arg

Source	`<xs:attribute name="name" use="required">`
	`  <xs:annotation>`
	`  <xs:documentation>Name of the argument.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:attribute>`

Attribute `arg_define / arg / @pass_by`

Namespace	No namespace
Annotations	`Defines how the arguments are passed.`
Type	pass_by_define
Properties	content: `simple`
Facets	enumeration `reference` enumeration `value` enumeration `pointer`
Used by	Element arg_define/arg

Source	`<xs:attribute name="pass_by" type="pass_by_define">`
	`  <xs:annotation>`
	`  <xs:documentation>Defines how the arguments are passed.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:attribute>`

Attribute `arg_define / arg / @comment`

Namespace	No namespace
Annotations	`Comments about the argument.`
Type	xs:string
Properties	content: `simple`
Used by	Element arg_define/arg

Source	`<xs:attribute name="comment" type="xs:string">`
	`  <xs:annotation>`
	`  <xs:documentation>Comments about the argument.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:attribute>`

Attribute `return / @name`

Namespace	No namespace
Annotations	`Name of the argument.`
Used by	Element return

Source	`<xs:attribute name="name">`
	`  <xs:annotation>`
	`  <xs:documentation>Name of the argument.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:attribute>`

Attribute `return / @pass_by`

Namespace	No namespace

Annotations	Defines how the arguments are passed.
Type	pass_by_define
Properties	content: simple
Facets	enumeration reference enumeration value enumeration pointer
Used by	Element return
Source	<xs:attribute name="pass_by" type="pass_by_define"> <xs:annotation> <xs:documentation>Defines how the arguments are passed.</xs:documentation> </xs:annotation> </xs:attribute>

Attribute `return / @comment`

Namespace	No namespace
Annotations	Comments about the argument.
Type	xs:string
Properties	content: simple
Used by	Element return
Source	<xs:attribute name="comment" type="xs:string"> <xs:annotation> <xs:documentation>Comments about the argument.</xs:documentation> </xs:annotation> </xs:attribute>

Attribute `external_arg_define / arg / @name`

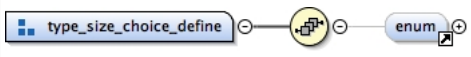
Namespace	No namespace
Annotations	Name of the argument.
Properties	use: required
Used by	Element external_arg_define/arg
Source	<xs:attribute name="name" use="required"> <xs:annotation> <xs:documentation>Name of the argument.</xs:documentation> </xs:annotation> </xs:attribute>

Attribute `external_arg_define / arg / @comment`

Namespace	No namespace
Annotations	Comments about the argument.
Type	xs:string
Properties	content: simple
Used by	Element external_arg_define/arg
Source	<xs:attribute name="comment" type="xs:string"> <xs:annotation> <xs:documentation>Comments about the argument.</xs:documentation> </xs:annotation> </xs:attribute>

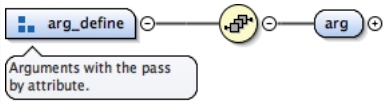
Element Group(s)

Element Group `type_size_choice_define`

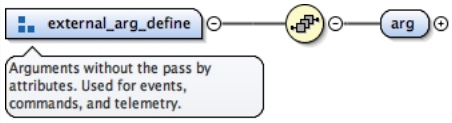
Namespace	No namespace
Diagram	

Used by	Elements arg_define/arg, channel, external_arg_define/arg, return
Model	enum{0,1}
Children	enum
Source	<xs:group name="type_size_choice_define"> <xs:sequence> <xs:element minOccurs="0" ref="enum"/> </xs:sequence> </xs:group>

Element Group `arg_define`

Namespace	No namespace
Annotations	Arguments with the pass by attribute.
Diagram	
Model	arg
Children	arg
Source	<xs:group name="arg_define"> <xs:annotation> <xs:documentation>Arguments with the pass by attribute.</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="arg"> <xs:complexType> <xs:choice minOccurs="0" maxOccurs="unbounded"> <xs:group ref="type_size_choice_define"/> <xs:element ref="comment"/> </xs:choice> <xs:attribute name="name" use="required"> <xs:annotation> <xs:documentation>Name of the argument.</xs:documentation> </xs:annotation> </xs:attribute> <xs:attribute name="pass_by" type="pass_by_define"> <xs:annotation> <xs:documentation>Defines how the arguments are passed.</xs:documentation> </xs:annotation> </xs:attribute> <xs:attribute name="comment" type="xs:string"> <xs:annotation> <xs:documentation>Comments about the argument.</xs:documentation> </xs:annotation> </xs:attribute> <xs:attributeGroup ref="type_size_choice_define"/> </xs:complexType> </xs:element> </xs:sequence> </xs:group>

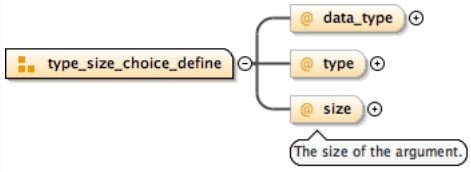
Element Group `external_arg_define`

Namespace	No namespace
Annotations	Arguments without the pass by attributes. Used for events, commands, and telemetry.
Diagram	
Model	arg
Children	arg
Source	<xs:group name="external_arg_define"> <xs:annotation> <xs:documentation>Arguments without the pass by attributes. Used for events, commands, and telemetry.</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="arg"> <xs:complexType>

```
        <xs:choice minOccurs="0" maxOccurs="unbounded">
          <xs:group ref="type_size_choice_define"/>
          <xs:element ref="comment"/>
        </xs:choice>
        <xs:attribute name="name" use="required">
          <xs:annotation>
            <xs:documentation>Name of the argument.</xs:documentation>
          </xs:annotation>
        </xs:attribute>
        <xs:attribute name="comment" type="xs:string">
          <xs:annotation>
            <xs:documentation>Comments about the argument.</xs:documentation>
          </xs:annotation>
        </xs:attribute>
        <xs:attributeGroup ref="type_size_choice_define"/>
      </xs:complexType>
    </xs:element>
  </xs:sequence>
</xs:group>
```

Attribute Group(s)

Attribute Group `type_size_choice_define`

Namespace	No namespace
Diagram	
Used by	Elements arg_define/arg, channel, external_arg_define/arg, return

Attributes

QName	Type	Use	
data_type	union of(xs:string, restriction of xs:token, restriction of xs:token)	optional	
size	xs:nonNegativeInteger	optional	
	`The size of the argument.`		
type	union of(xs:string, restriction of xs:token, restriction of xs:token)	optional	

Source

```
<xs:attributeGroup name="type_size_choice_define">
  <xs:attribute name="data_type">
    <xs:simpleType>
      <xs:union memberTypes="xs:string">
        <xs:simpleType>
          <xs:restriction base="xs:token">
            <xs:enumeration value="string"/>
          </xs:restriction>
        </xs:simpleType>
        <xs:simpleType>
          <xs:restriction base="xs:token">
            <xs:enumeration value="ENUM"/>
          </xs:restriction>
        </xs:simpleType>
      </xs:union>
    </xs:simpleType>
  </xs:attribute>
  <xs:attribute name="type">
    <xs:simpleType>
      <xs:union memberTypes="xs:string">
        <xs:simpleType>
          <xs:restriction base="xs:token">
            <xs:enumeration value="string"/>
          </xs:restriction>
        </xs:simpleType>
        <xs:simpleType>
          <xs:restriction base="xs:token">
            <xs:enumeration value="ENUM"/>
          </xs:restriction>
        </xs:simpleType>
      </xs:union>
    </xs:simpleType>
```

```
  </xs:attribute>
  <xs:attribute name="size" type="xs:nonNegativeInteger">
    <xs:annotation>
      <xs:documentation>The size of the argument.</xs:documentation>
    </xs:annotation>
  </xs:attribute>
</xs:attributeGroup>
```