

Translation rules XML to JSON

JSON Task Force

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The concept underlying translation is that XML Schema will be used to determine how JSON is marshalled.

We have also developed the following rules for XML simplification which will avoid messy translations:

- No mixed elements with complex content
- Limit use of attributes
- Limit namespace to top level element in instance document.
- Do not use global elements in XML schemas as this will cause you to qualify elements in instance documents to get validation.
- An element can be repeatable but an element name should not be used twice in a sequence.

XML feature	Translation
Attribute, complex content	Attributes on a complex element with complex content will be treated as another property value pair in the objects properties list. text2 → "A":{"attr":"text","B":"text2"}
Attribute, simple content	The simple content will be converted into a new object names for the simple element. If the attribute is optional according to the schema, this object will still be used. This property will be reused within the object: text2 → "A":{"attr":"text","A":"text2"}
XML numeric value (e.g., xs:integer)	Use the schema to determine if the value of a attribute or an element is a number or a string: <A>3 If a XML schema type is numeric "A":3 If a string or not typed "A":"3"
XML xs:boolean	Use the XML schema to determine if it is a JSON boolean or a string <A>true If xs:boolean "A": true If not "A":"true"

Repeatable element	The values of a repeatable element are translated to a JSON array. <A>text1 If element is repeatable (maxOccurs > 1): "A":["text1"] Otherwise maxOccurs = "1" "A":text1
xs:list	If the schema specifies a list then the space separated list is specified as an array <A>A B C → "A":["A","B","C"]
xs:date xs:time xs:dateTime	Use the date time format from the XML schema description which uses ISO 8601. For xs:dateTime <A>1990-09-02T03:03:00-0500 → "A":1990-09-02T03:03:00-0500
If xs:nillable = "true" and xs:minOccurs= "0" and xsi:nil = "true"	<A xsi:nil = "true"/> or <A xsi:nil = "true"> → "A":null
Empty tag Empty String	<A/> or <A> in schema but not in XML instance → exclude property <A> → "A":"" or if repeatable <A> → "A":[""]
XML comments	Not translated: <!--comment -->
XML Processing Instructions	Not translated: <? xml version = "1.0" encoding = "utf-8" ?>
namespaces	Do not use namespaces or namespace prefixes in JSON. If user defined extensions need to be qualified, consider changing user defined extensions in XML from xs:any to a URL for separate user defined documents
XPath in XML elements	Review JSON Path or JSON Pointer for solutions since PESC uses XPath in ePortfolio. How do we recognize these from strings? Do we need a standard type?
xs:sequence	Property names should appear in JSON in the same sequence as XML (after the added attributes)
xs:choice	If maxOccurs is greater than one, keep the order in JSON as listed in the choice definition.