Guide to Schematron Rules and Patterns

ARH Schematron Guide

Version 3

6 September 2013

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Chapter 1 - Introduction

1.1 - Purpose

(U) The following documentation is informative. The actual Schematron files are the normative record. This documentation is generated from the Schematron files via XSLT it may be missing some file or pieces of a file but whatever is here other than titles came from the original file.

(U) It is envisioned that this will be a useful resource to search and read but for questions and debates the source files should be consulted.

(U) Rules identifiers are all of the format ARH-ID-XXXXX, with rule files named ARH_ID_XXXXX.sch. Any other heading indicates a supporting file that may strongly influence a rule but is not actually a numbered rule.

Chapter 2 - Rules

All of the numbered Rules for ARH are listed in this section. These rules may depend strongly on patterns defined in the Abstract Patterns section or on variables defined in the Schematron Schema section.

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2.1 - .//Rules/generalConstraints/ARH_ID_00001.sch

Rule Description: ARH-ID-00001 [ARH-ID-00001][Error] The ARH elements cannot be used as root elements. Human Readable: ARH is not designed to stand-alone and therefore should never be used as a root element.

Code Description: We make sure that ARH:Security or ARH:ExternalSecurity are not used as the root element.

Schematron Code:

```
<?ICEA pattern?><!-- Notices - Distribution Notice:
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available for use without restriction.
      -->
<sch:pattern id="ARH-ID-00001">


            <sch:rule context="/arh:*">
                <sch:assert test="false()" flag="error">
        [ARH-ID-00001][Error] The ARH elements cannot be used as root
elements.

        Human Readable: ARH is not designed to stand-alone and therefore
should never
        be used as a root element.
     </sch:assert>
            </sch:rule>
          </sch:pattern>
```

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2.2 - .//Rules/generalConstraints/ARH_ID_00002.sch

Rule Description: ARH-ID-00002 [ARH-ID-00002][Error] The attribute DESVersion in the namespace urn:us:gov:ic:arh must be specified. Human Readable: The data encoding specification version number must be specified.

Code Description: Make sure that the attribute arh:DESVersion is specified.

Schematron Code:

```
<?ICEA pattern?><!-- Notices - Distribution Notice:
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available for use without restriction.
      -->
<sch:pattern id="ARH-ID-00002">


                <sch:rule context="/">
                    <sch:assert test="some $element in descendant-or-
self::node() satisfies $element/@arh:DESVersion"
                                flag="error">
          [ARH-ID-00002][Error] The attribute
          DESVersion in the namespace urn:us:gov:ic:arh must be specified.

          Human Readable: The data encoding specification version must
          be specified.
       </sch:assert>
                </sch:rule>
              </sch:pattern>
```

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2.3 - .//Rules/generalConstraints/ARH_ID_00003.sch

Rule Description: ARH-ID-00003 [ARH-ID-00003][Error] Every ARH attribute in the document must be specified with a non-whitespace value. Human Readable: All attributes in the ARH namespace must specify a value.

Code Description: For each element which specifies an attribute in the ARH namespace, we make sure that all attributes in the ARH namespace contain a non-whitespace value.

Schematron Code:

```
<?ICEA pattern?><!-- Notices - Distribution Notice:
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available for use without restriction.
      -->
<sch:pattern id="ARH-ID-00003">



                <sch:rule context="*[@arh:*]">
                    <sch:assert test="every $attribute in @arh:*
satisfies           string-length(normalize-space(string($attribute))) &gt;
0"
                            flag="error">
          [ARH-ID-00003][Error] Every ARH attribute in the document must be
specified with a non-whitespace value.

          Human Readable: All attributes in the ARH namespace must specify
a value.
        </sch:assert>
                </sch:rule>
            </sch:pattern>
```

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2.4 - .//Rules/generalConstraints/ARH_ID_00004.sch

Rule Description: ARH-ID-00004 [ARH-ID-00004][Error] The @ntk:DESVersion is less than the minimum version allowed: 7. Human Readable: The NTK version imported by ARH must be greater than 7.

Code Description: For all elements that contain @ntk:DESVersion, we verify that the version is greater than the minimum allowed version: 7.

Schematron Code:

```
<?ICEA pattern?><!-- Notices - Distribution Notice:
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available for use without restriction.
        -->
<sch:pattern id="ARH-ID-00004">


                <sch:rule context="*[@ntk:DESVersion]">
                    <sch:assert test="number(@ntk:DESVersion) &gt;= 7"
flag="error">
            [ARH-ID-00004][Error] The @ntk:DESVersion is less than the
minimum version
            allowed: 7.

            Human Readable: The NTK version imported by ARH must be greater
than 7.
        </sch:assert>
                </sch:rule>
            </sch:pattern>
```

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2.5 - .//Rules/generalConstraints/ARH_ID_00005.sch

Rule Description: ARH-ID-00005 [ARH-ID-00005][Error] The @ism:DESVersion is less than the minimum version allowed: 12. Human Readable: The ism version imported by ARH must be greater than or equal to 12.

Code Description: For all elements that contain @ism:DESVersion, we verify that the version is greater than or equal to the minimum allowed version: 12.

Schematron Code:

```
<?ICEA pattern?><!-- Notices - Distribution Notice:
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       -->
<sch:pattern id="ARH-ID-00005">


                  <sch:rule context="*[@ism:DESVersion]">
                     <sch:assert test="number(@ism:DESVersion) &gt;= 12"
flag="error">
            [ARH-ID-00005][Error] The @ism:DESVersion is less than the
minimum version
            allowed: 12.

            Human Readable: The ism version imported by ARH must be greater
than or equal to 12.
        </sch:assert>
                  </sch:rule>
                </sch:pattern>
```

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Chapter 3 - Abstract Patterns

There are no Abstract Patterns currently defined for ARH.

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Chapter 4 - Schematron Schema

The top level Schematron file for ARH is in this section. This file imports all of the others and also defines many global variables they are all dependent on.

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4.1 - .//ARH_XML.sch

Rule Description:

Code Description:

Schematron Code:

```
<?ICEA master?><!-- Notices - Distribution Notice:
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            to Federal, State, Local, Tribal, and Foreign Partners and
associated contractors. Approval for
            any further distribution must be coordinated via the Intelligence
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            Officer, Mission Engagement Division at standardssupport@dni.gov--
>
<sch:schema queryBinding="xslt2">
                  <sch:ns uri="urn:us:gov:ic:pubs" prefix="pubs"/>
                  <sch:ns uri="urn:us:gov:ic:cve" prefix="cve"/>
                  <sch:ns uri="http://www.w3.org/1999/xlink" prefix="xlink"/>
                  <sch:ns uri="urn:us:gov:ic:ism" prefix="ism"/>
                  <sch:ns uri="urn:us:gov:ic:ntk" prefix="ntk"/>
                  <sch:ns uri="urn:us:gov:ic:arh" prefix="arh"/>
                  <sch:ns uri="http://www.w3.org/2001/XMLSchema" prefix="xs"/>

                  <!--****************************-->
<!-- (U) ARH ID Rules -->
<!--***************************-->

<!--(U) generalConstraints-->
   <sch:include href="./Rules/generalConstraints/ARH_ID_00001.sch"/>
                  <sch:include href="./Rules/generalConstraints/
ARH_ID_00002.sch"/>
                  <sch:include href="./Rules/generalConstraints/
ARH_ID_00003.sch"/>
                  <sch:include href="./Rules/generalConstraints/
ARH_ID_00004.sch"/>
                  <sch:include href="./Rules/generalConstraints/
ARH_ID_00005.sch"/>
                </sch:schema>
```

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Chapter 5 - Removed Rules

There are no rules that have been removed for ARH.

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