



# **Guide to Schematron Rules and Patterns**

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## **MIME Schematron Guide**

### **Version 2016-SEP**

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# Chapter 1 - Introduction

## 1.1 - Purpose

This is an informative supplement for MIME. This guide is generated from the MIME Schematron rules and provides a consolidated reference for the business rules of this specification.

## 1.2 - Overview

Chapter 2 is a listing of all the numbered rules in MIME. For each rule, there is a rule description, a code description, and a code block with the Schematron rule.

Chapter 3 is a listing of abstract patterns used in MIME. The abstract patterns may be used in numbered rules or provided as reference for use in rules developed by users of MIME. Each abstract pattern has a code description and a code block with the abstract Schematron pattern.

Chapter 4 is a listing of the master ISM Schematron file with all of the imports of rules and patterns. Many of the rules and patterns listed in Chapters 3 and 4 rely on functions and variables defined in the master file.

Chapter 5 is a listing of rules that have been deleted.

## 1.3 - Schematron

The business rules for MIME are encoded using ISO Schematron. Schematron is a rule-based validation language that uses XML Path Language to make assertions about an XML document.

MIME uses the XSLT 2.0 implementation of Schematron by Rick Jelliffe (2010-04-14) as its reference implementation. The only available identifying descriptors for this implementation are the implementer's name and date of release. This implementation may be found at the following URL: <http://code.google.com/p/schematron/>.



### Important

The Schematron rules in this specification use XSLT 2.0 query binding.

## 1.4 - Conformance

This guide is informative. The Schematron rules listed here are normative in the sense that they convey criteria that a document **MUST** adhere to, exactly as English may be used to convey normative criteria. It is not necessary for implementers to use the specific Schematron encoding in this specification. Implementers **MAY** use any encodings, tools, or languages desired to implement validation schemes for conformance to this specification. However, to conform to the specification, validation schemes **MUST** match the behavior of the reference Schematron implementation. That is, a validator **MUST** find a document valid *if and only if* the reference Schematron implementation would find the document valid according to MIME's Schematron rules.

## Chapter 2 - Rules

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

Rules identifiers are all of the format MIME-ID-XXXXX, with rule files named MIME\_ID\_XXXXX.sch. Any other heading indicates a supporting file that may influence a rule but is not actually a numbered rule.

## 2.1 - ../Rules/MIME\_ID\_00001.sch

### Rule Description

[MIME-ID-00001][Warning] Deprecated MIME types should not be used.

### Code Description

Deprecated MIME types should not be used.

### Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="MIME-ID-00001">
  <sch:rule context="*[@mime:mimeType]">
    <sch:assert test="not(some $deprecatedMimeTypeValue in $deprecatedMimeTypeList satisfies @mime:mimeType = $deprecatedMimeTypeValue)"
              flag="error">[MIME-ID-00001][Warning] Deprecated MIME types should not be used.</sch:assert>
  </sch:rule>
  <sch:rule context="mime:MimeType">
    <sch:assert test="not(some $deprecatedMimeTypeValue in $deprecatedMimeTypeList satisfies . = $deprecatedMimeTypeValue)"
              flag="error">[MIME-ID-00001][Warning] Deprecated MIME types should not be used.</sch:assert>
  </sch:rule>
</sch:pattern>
```

### Chapter 3 - Abstract Patterns

There are no Abstract Patterns currently defined for MIME.

**Chapter 4 - Schematron Schema**

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



## 4.1 - ../MIME\_XML.sch

### Schematron Code

```
<?ICEA master?>
<!-- Notices - Distribution Notice:
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-->
<sch:schema queryBinding="xslt2">
    <sch:ns uri="urn:us:gov:ic:ac" prefix="ac"/>
    <sch:ns uri="urn:us:gov:ic:edh:xsl:util" prefix="util"/>
    <sch:ns uri="http://www.w3.org/2001/XMLSchema" prefix="xs"/>
    <sch:ns uri="urn:us:gov:ic:mime" prefix="mime"/>
    <sch:ns uri="urn:us:gov:ic:cve" prefix="cve"/>
    <!--=====--><!-- (U) Universal Lets --><!--=====-->
<sch:let name="deprecatedMimeTypeList"
        value="document(' ../../CVE/MIME/CVEnumMimeType.xml')/cve:CVE/cve:Enumeration/cve:Term[./@deprecated]/cve:Value"/>
    <!--*****--><!-- (U) MIME ID Rules --><!--*****--><!--(U) -->
<sch:include href="../Rules/MIME_ID_00001.sch"/>
</sch:schema>
```

## Chapter 5 - Removed Rules

There are no rules that have been removed for MIME.