



Guide to Schematron Rules and Patterns

IC-TDF Schematron Guide

Version 2014-DECr2017-JUL

July 21, 2017

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Chapter 1 - Introduction

1.1 - Purpose

This is an informative supplement for IC-TDF. This guide is generated from the IC-TDF 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 IC-TDF. 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 IC-TDF. The abstract patterns may be used in numbered rules or provided as reference for use in rules developed by users of IC-TDF. 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 IC-TDF are encoded using ISO Schematron. Schematron is a rule-based validation language that uses XML Path Language to make assertions about an XML document.

IC-TDF 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 IC-TDF's Schematron rules.

Chapter 2 - Rules

All of the numbered Rules for IC-TDF 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 IC-TDF-ID-XXXXX, with rule files named IC-TDF_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/IC-TDF_ID_00001.sch

Rule Description

[IC-TDF-ID-00001][Error] All attributes in the TDF namespace MUST contain a non-whitespace value. Human Readable: All attributes in the TDF namespace must specify a value.

Code Description

For all attributes in the tdf namespace, this rule ensures that each contains a non-whitespace value.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00001">
    <sch:rule id="IC-TDF-ID-00001-R1" context="*[@tdf:*]">
        <sch:assert test="every $attribute in @tdf:* satisfies normalize-space(string($attribute))"
                    flag="error"
                    role="error">[IC-TDF-ID-00001][Error] All attributes in the TDF namespace must specify a value.</sch:assert>
    </sch:rule>
</sch:pattern>
```

2.2 - ../Rules/IC-TDF_ID_00002.sch

Rule Description

[IC-TDF-ID-00002][Error] If the root element is TrustedDataObject, then it must specify attribute version. Human Readable: If TrustedDataObject is the root element, then it must declare a TDF version to which it complies.

Code Description

For a tdf:TrustedDataObject element that is a root element, this rule ensures that it specifies attribute tdf:version.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00002">
    <sch:rule id="IC-TDF-ID-00002-R1" context="/tdf:TrustedDataObject">
        <sch:assert test="@tdf:version" flag="error" role="error">[IC-TDF-ID-00002][Error] If TrustedDataObject is the root element, then it must declare a TDF version to which
it complies.</sch:assert>
    </sch:rule>
</sch:pattern>
```


2.3 - ../Rules/IC-TDF_ID_00003.sch

Rule Description

[IC-TDF-ID-00003][Error] For element TrustedDataObject, there must be at least one element HandlingAssertion which specifies attribute scope containing [PAYL]. Human Readable: There must exist at least one handling marking for the payload.

Code Description

For each TrustedDataObject, this rule ensures that the count of HandlingAssertion element which specify attribute scope containing [PAYL] is greater than or equal to 1.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00003">
    <sch:rule id="IC-TDF-ID-00003-R1" context="tdf:TrustedDataObject">
        <sch:assert test="count(child::tdf:HandlingAssertion[util:containsAnyOfTheTokens(@tdf:scope, ('PAYL'))])>= 1"
            flag="error"
            role="error">[IC-TDF-ID-00003][Error] For element TrustedDataObject, there must be at least one element HandlingAssertion which specifies attribute scope
containing [PAYL]. Human Readable: There must exist at least one handling marking for the payload.</sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.4 - ../Rules/IC-TDF_ID_00004.sch

Rule Description

[IC-TDF-ID-00004][Error] For element TrustedDataObject, there must be exactly one element HandlingAssertion that specifies attribute scope containing [TDO] and contains an EDH element. Human Readable: There must exist a single EDH HandlingAssertion scoped for the entire TrustedDataObject.

Code Description

For element TrustedDataObject, this rule ensures that the count of HandlingAssertion elements that specify attribute scope containing [TDO] and have child::tdf:HandlingStatement/edh:Edh is exactly 1.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00004">
  <sch:rule id="IC-TDF-ID-00004-R1" context="tdf:TrustedDataObject">
    <sch:assert test="count(child::tdf:HandlingAssertion[child::tdf:HandlingStatement/edh:Edh and @tdf:scope = 'TDO'])= 1"
      flag="error"
      role="error">[IC-TDF-ID-00004][Error] For element TrustedDataObject, there must be exactly one element HandlingAssertion that specifies attribute scope
containing [TDO] and contains an EDH element.</sch:assert>
  </sch:rule>
</sch:pattern>
```

2.5 - ../Rules/IC-TDF_ID_00005.sch

Rule Description

[IC-TDF-ID-00005][Error] For element TrustedDataCollection, there must be exactly one element HandlingAssertion that specifies @scope="TDC" and contains an EDH element. Human Readable: There must exist a single EDH HandlingAssertion scoped for the entire TrustedDataCollection.

Code Description

For element TrustedDataCollection, this rule ensures that the count of HandlingAssertion elements that specify attribute scope containing [TDC] and contain an EDH element is exactly 1.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00005">
    <sch:rule id="IC-TDF-ID-00005-R1" context="tdf:TrustedDataCollection">
        <sch:assert test="count(child::tdf:HandlingAssertion[child::tdf:HandlingStatement/edh:Edh and @tdf:scope = 'TDC'])= 1"
            flag="error"
            role="error">[IC-TDF-ID-00005][Error] For element TrustedDataCollection, there must be exactly one element HandlingAssertion that specifies @scope="TDC" and
contains an EDH element. Human Readable: There must exist a single EDH HandlingAssertion scoped for the entire TrustedDataCollection.</sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.6 - ../Rules/IC-TDF_ID_00006.sch

Rule Description

[IC-TDF-ID-00006][Error] For any child element of TrustedDataObject, the only allowable tokens for attribute scope are [PAYL], [TDO], or [EXPLICIT]. Human Readable: Scopes defined within a TrustedDataObject must refer to the payload, the entire TrustedDataObject, the combination of the payload and the entire TrustedDataObject, or be explicitly defined.

Code Description

For the scope attribute specified on any child element of TrustedDataObject, this rule ensures that the value only contains the tokens [PAYL], [TDO], or [EXPLICIT].

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00006">
    <sch:rule id="IC-TDF-ID-00006-R1" context="tdf:TrustedDataObject/*[@tdf:scope]">
        <sch:assert test="util:containsOnlyTheTokens(@tdf:scope, ('PAYL', 'TDO', 'EXPLICIT'))"
            flag="error"
            role="error">[IC-TDF-ID-00006][Error] For any child element of TrustedDataObject, the only allowable tokens for attribute scope are [PAYL], [TDO], or
[EXPLICIT]. Human Readable: Scopes defined within a TrustedDataObject must refer to the payload, the entire TrustedDataObject, the combination of the payload and the entire TrustedDataObject,
or be explicitly defined.</sch:assert>
    </sch:rule>
</sch:pattern>
```

2.7 - ../Rules/IC-TDF_ID_00007.sch

Rule Description

[IC-TDF-ID-00007][Error] For any child assertion of TrustedDataCollection, the only allowable tokens for attribute scope are [TDC], [DESC_PAYL], [DESC_TDO], [TDC_MEMBER], or [EXPLICIT]. Human Readable: Scopes defined within a TrustedDataCollection must refer to the descendent TDOs (the list of TDOs), the descendent Payloads, a TDC Member, the entire TrustedDataCollection, or be explicitly defined.

Code Description

For the scope attribute specified on any child element of TrustedDataCollection, this rule ensures that the value only contains the tokens [TDC], [DESC_PAYL], [DESC_TDO], [TDC_MEMBER], or [EXPLICIT].

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00007">
    <sch:rule id="IC-TDF-ID-00007-R1"
        context="tdf:TrustedDataCollection/*[@tdf:scope]">
        <sch:assert test="util:containsOnlyTheTokens(@tdf:scope, ('TDC', 'DESC_PAYL', 'DESC_TDO', 'TDC_MEMBER', 'EXPLICIT'))"
            flag="error"
            role="error">[IC-TDF-ID-00007][Error] For any child element of TrustedDataCollection, the only allowable tokens for attribute scope are [TDC], [DESC_PAYL],
[DESC_TDO], [TDC_MEMBER], or [EXPLICIT]. Human Readable: Scopes defined within a TrustedDataCollection must refer to the descendent TDOs (the list of TDOs), the descendent Payloads, a TDC
Member, the entire TrustedDataCollection, or be explicitly defined.</sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.8 - ../Rules/IC-TDF_ID_00008.sch

Rule Description

[IC-TDF-ID-00008][Error] The use of EXPLICIT scope is not currently allowed. Key questions regarding the functionality of Binding within EXPLICIT scope are still being defined. The rest of the rules/structure relating to EXPLICIT scope are included in the spec to give the community an idea of how these rules/structures will be defined. If there is a use-case which requires EXPLICIT scope, please send an email to ic-standards-support@iarpa.gov so that the use-case can be incorporated while defining the behavior of EXPLICIT scope.

Code Description

For any element which specifies attribute scope containing [EXPLICIT], we instantly fail because EXPLICIT scope is currently not supported.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00008">
    <sch:rule id="IC-TDF-ID-00008-R1"
        context="*[util:containsAnyOfTheTokens(@tdf:scope, ('EXPLICIT'))]">
        <sch:assert test="false()" flag="error" role="error">[IC-TDF-ID-00008][Error] The use of EXPLICIT scope is not currently allowed. Key questions regarding the
functionality of Binding within EXPLICIT scope are still being defined. The rest of the rules/structure relating to EXPLICIT scope are included in the spec to give the community an idea of how
these rules/structures will be defined. If there is a use-case which requires EXPLICIT scope, please send an email to ic-standards-support@iarpa.gov so that the use-case can be incorporated
while defining the behavior of EXPLICIT scope.</sch:assert>
    </sch:rule>
</sch:pattern>
```

2.9 - ../Rules/IC-TDF_ID_00009.sch

Rule Description

[IC-TDF-ID-00009][Error] For element Binding, if element BoundValueList is specified, then element SignatureValue must not specify attribute includesStatementMetadata. Human Readable: If BoundValueList is present, then it will explicitly specify includesStatementMetadata for each BoundValue and therefore attribute includesStatementMetadata on the SignatureValue is not applicable.

Code Description

For element Binding which specifies BoundValueList, this rule ensures that element SignatureValue does not specify attribute includesStatementMetadata.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00009">
    <sch:rule id="IC-TDF-ID-00009-R1" context="tdf:Binding[tdf:BoundValueList]">
        <sch:assert test="not(tdf:SignatureValue/@tdf:includesStatementMetadata)"
            flag="error"
            role="error">[IC-TDF-ID-00009][Error] For element Binding, if element BoundValueList is specified, then element SignatureValue must not specify attribute
includesStatementMetadata. Human Readable: If BoundValueList is present, then it will explicitly specify includesStatementMetadata for each BoundValue and therefore attribute
includesStatementMetadata on the SignatureValue is not applicable.</sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.10 - ../Rules/IC-TDF_ID_00010.sch

Rule Description

[IC-TDF-ID-00010][Error] For element Binding, if element BoundValueList is not specified, then element SignatureValue must specify attribute includesStatementMetadata. Human Readable: If BoundValueList is not present, then SignatureValue must indicate whether or not to include the StatementMetadata of all Assertions included in the binding.

Code Description

For element Binding that does not have child element BoundValueList, this rule ensures that child element SignatureValue specifies attribute includesStatementMetadata.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00010">
    <sch:rule id="IC-TDF-ID-00010-R1" context="tdf:Binding[not(tdf:BoundValueList)]">
        <sch:assert test="tdf:SignatureValue/@tdf:includesStatementMetadata"
            flag="error"
            role="error">[IC-TDF-ID-00010][Error] For element Binding, if element BoundValueList is not specified, then element SignatureValue must specify attribute
includesStatementMetadata. Human Readable: If BoundValueList is not present, then SignatureValue must indicate whether or not to include the StatementMetadata of all Assertions included in the
binding.</sch:assert>
    </sch:rule>
</sch:pattern>
```


2.11 - ../Rules/IC-TDF_ID_00011.sch

Rule Description

[IC-TDF-ID-00011][Error] For all BoundValue or Reference elements within a TrustedDataObject, idRef attribute values must reference the id value of a descendant of the same TrustedDataObject that contains the Reference or BoundValue element. Human Readable: Assertions and HandlingAssertions within a TrustedDataObject must reference elements local to that TrustedDataObject.

Code Description

For element TrustedDataObject, this rule ensures each attribute @idRef value has matching @id value in the same TDO.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00011">
  <sch:rule id="IC-TDF-ID-00011-R1" context="tdf:TrustedDataObject">
    <sch:let name="ids" value="//@tdf:id"/>
    <sch:let name="externalIdRefs"
      value="for $idRef in ../@tdf:idRef return if($idRef = $ids) then null else $idRef"/>
    <sch:assert test="count($externalIdRefs) = 0" flag="error" role="error">[IC-TDF-ID-00011][Error] For all BoundValue or Reference elements within a TrustedDataObject,
idRef attribute values must reference the id value of a descendant of the same TrustedDataObject that contains the Reference or BoundValue element. Human Readable: Assertions and
HandlingAssertions within a TrustedDataObject must reference elements local to that TrustedDataObject. The following idRefs reference elements outside of this TrustedDataObject: (
    <sch:value-of select="for $externalRef in $externalIdRefs return concat(string($externalRef), ', ')" />).
  </sch:assert>
  </sch:rule>
</sch:pattern>
```

2.12 - ./Rules/IC-TDF_ID_00012.sch

Rule Description

[IC-TDF-ID-00012][Error] For any element which specifies attribute scope containing [EXPLICIT], then element Binding/BoundValueList or element ReferenceList must be specified. Human Readable: For explicit scope, you must use a BoundValueList or a ReferenceList to explicitly reference elements are in scope.

Code Description

For elements which specify attribute scope with a value of [EXPLICIT], this rule ensures that element Binding/BoundValueList or ReferenceList is specified.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00012">
    <sch:rule id="IC-TDF-ID-00012-R1"
        context="*[normalize-space(string(@tdf:scope)) = 'EXPLICIT']">
        <sch:assert test="tdf:Binding/tdf:BoundValueList or tdf:ReferenceList"
            flag="error"
            role="error">[IC-TDF-ID-00012][Error] For any element which specifies attribute scope containing [EXPLICIT], then element Binding/BoundValueList or element
ReferenceList must be specified. Human Readable: For explicit scope, you must use a BoundValueList or a ReferenceList to explicitly reference elements are in scope.</sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.13 - ./Rules/IC-TDF_ID_00013.sch

Rule Description

[IC-TDF-ID-00013][Error] Elements ReferenceList and BoundValueList are currently not allowed. Key questions regarding the functionality of granular references and granular binding are still being defined. The rest of the rules/structure relating to these elements are included in the spec to give the community an idea of how these rules/structures will be defined. If there is a use-case which requires granular references or granular binding, please send an email to ic-standards-support@iarpa.gov so that the use-case can be incorporated while defining the behavior and rules.

Code Description

Elements ReferenceList and BoundValueList are not allowed in v1. This rule will in the future require that elements which specify element ReferenceList or Binding/BoundValueList have attribute scope is specified with a value of [EXPLICIT].

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00013">
    <sch:rule id="IC-TDF-ID-00013-R1"
              context="tdf:ReferenceList | tdf:Binding/tdf:BoundValueList">
        <sch:assert test="false()" flag="error" role="error">[IC-TDF-ID-00013][Error] Elements ReferenceList and BoundValueList are currently not allowed. Key questions
regarding the functionality of granular references and granular binding are still being defined. The rest of the rules/structure relating to these elements are included in the spec to give the
community an idea of how these rules/structures will be defined. If there is a use-case which requires granular references or granular binding, please send an email to ic-standards-
support@iarpa.gov so that the use-case can be incorporated while defining the behavior and rules.</sch:assert>
    </sch:rule>
</sch:pattern>
```

2.14 - ../Rules/IC-TDF_ID_00014.sch

Rule Description

[IC-TDF-ID-00014][Error] If EncryptionInformation is specified, then the data it refers to must be labeled as encrypted. (Assertion Statement or TrustedDataObject Payload).

Code Description

This rule ensures that the following sibling of EncryptionInformation, the Payload or Assertion Statement, has the encrypted attribute set to true.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00014">
    <sch:rule id="IC-TDF-ID-00014-R1"
        context="tdf:EncryptionInformation[parent::tdf:Assertion] | tdf:EncryptionInformation[parent::tdf:TrustedDataObject]">
        <sch:assert test="following-sibling::tdf:*[@tdf:isEncrypted=true()]"
            flag="error"
            role="error">[IC-TDF-ID-00014][Error] If EncryptionInformation is specified, then the data it refers to must be labeled as encrypted. (Assertion Statement
or TrustedDataObject Payload).</sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.15 - ../Rules/IC-TDF_ID_00015.sch

Rule Description

[IC-TDF-ID-00015][Error] If data is labeled as encrypted, then EncryptionInformation must be specified. (Assertion Statement or TrustedDataObject Payload).

Code Description

This rule ensures that the previous sibling of the Statement or Payload marked with the encrypted attribute set to true is EncryptionInformation.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00015">
    <sch:rule id="IC-TDF-ID-00015-R1" context="tdf:*[@tdf:isEncrypted=true()]">
        <sch:assert test="preceding-sibling::tdf:EncryptionInformation"
            flag="error"
            role="error">[IC-TDF-ID-00015][Error] If data is labeled as encrypted, then EncryptionInformation must be specified. (Assertion Statement or
TrustedDataObject Payload).</sch:assert>
    </sch:rule>
</sch:pattern>
```

2.16 - ../Rules/IC-TDF_ID_00016.sch

Rule Description

[IC-TDF-ID-00016][Error] EDH HandlingAssertions with TDO scope must have an ARH security element has ism:resourceElement="true". Human Readable: An EDH HandlingAssertion with scope pertaining to the entire TrustedDataObject (TDO) must declare itself a resource level object.

Code Description

EDH HandlingAssertions with scope containing [TDO], ensure that its descendant ARH element, Security or ExternalSecurity, has ism:resourceElement="true".

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00016">
    <sch:rule id="IC-TDF-ID-00016-R1"
        context="tdf:HandlingAssertion[child::tdf:HandlingStatement/edh:Edh and util:containsAnyOfTheTokens(@tdf:scope, ('TDO'))]">
        <sch:assert test="descendant::arh:*[@ism:resourceElement=true()]"
            flag="error"
            role="error">[IC-TDF-ID-00016][Error] HandlingAssertions with scope containing the token [TDO] must have an EDH whose ARH security element has
ism:resourceElement="true" specified. Human Readable: An EDH HandlingAssertion with scope pertaining to the entire TrustedDataObject (TDO) must declare itself a resource level object.</
sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.17 - ../Rules/IC-TDF_ID_00017.sch

Rule Description

[IC-TDF-ID-00017][Error] EDH HandlingAssertions with scope containing the token [TDC] must have an EDH whose ARH security element has ism:resourceElement="true" specified. Human Readable: When a HandlingAssertion has scope pertaining to the entire TrustedDataCollection (TDC) it must declare itself a resource level object.

Code Description

Where an EDH HandlingAssertion exists with scope containing [TDC], this rule ensures that its descendant ARH element, Security or ExternalSecurity, has ism:resourceElement specified with a value of true.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
      This document has been approved for Public Release and is available for use without restriction.
-->
<sch:pattern id="IC-TDF-ID-00017">
    <sch:rule id="IC-TDF-ID-00017-R1"
        context="tdf:HandlingAssertion[child::tdf:HandlingStatement/edh:Edh and util:containsAnyOfTheTokens(@tdf:scope, ('TDC'))]">
        <sch:assert test="descendant::arh:*[@ism:resourceElement=true()]"
            flag="error"
            role="error">[IC-TDF-ID-00017][Error] HandlingAssertions with scope containing the token [TDC] must have an EDH whose ARH security element has
ism:resourceElement="true" specified. Human Readable: When a HandlingAssertion has scope pertaining to the entire TrustedDataCollection (TDC) it must declare itself a resource level object.</
sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.18 - ../Rules/IC-TDF_ID_00018.sch

Rule Description

[IC-TDF-ID-00018][Error] HandlingAssertions with scope containing the token [TDO] cannot use the ExternalEdh child element. Human Readable: When a HandlingAssertion has scope pertaining to the entire TrustedDataObject (TDO), it must never use the ExternalEdh child element because the HandlingAssertion will always refer to the object in which it resides.

Code Description

Where a HandlingAssertion exists with scope containing [TDO], this rule ensures that it does not have a child of ExternalEdh.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
      This document has been approved for Public Release and is available for use without restriction.
-->
<sch:pattern id="IC-TDF-ID-00018">
    <sch:rule id="IC-TDF-ID-00018-R1"
              context="tdf:HandlingAssertion[util:containsAnyOfTheTokens(@tdf:scope, ('TDO'))]">
        <sch:assert test="not(descendant::edh:ExternalEdh)" flag="error" role="error">[IC-TDF-ID-00018][Error] HandlingAssertions with scope containing the token [TDO] cannot
use the ExternalEdh child element. Human Readable: When a HandlingAssertion has scope pertaining to the entire TrustedDataObject (TDO), it must never use the ExternalEdh child element because
the HandlingAssertion will always refer to the object in which it resides.</sch:assert>
    </sch:rule>
</sch:pattern>
```


2.19 - ../Rules/IC-TDF_ID_00019.sch

Rule Description

[IC-TDF-ID-00019][Error] HandlingAssertions with scope containing the token [TDC] cannot use the ExternalEdh child element. Human Readable: When a HandlingAssertion has scope pertaining to the entire TrustedDataCollection (TDC), it must never use the ExternalEdh child element because the HandlingAssertion will always refer to the Collection in which it resides.

Code Description

Where a HandlingAssertion exists with scope containing [TDC], this rule ensures that it does not have a child of ExternalEdh.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
      This document has been approved for Public Release and is available for use without restriction.
-->
<sch:pattern id="IC-TDF-ID-00019">
    <sch:rule id="IC-TDF-ID-00019-R1"
              context="tdf:HandlingAssertion[util:containsAnyOfTheTokens(@tdf:scope, ('TDC'))]">
        <sch:assert test="not(descendant::edh:ExternalEdh)" flag="error" role="error">[IC-TDF-ID-00019][Error] HandlingAssertions with scope containing the token [TDC] cannot
use the ExternalEdh child element. Human Readable: When a HandlingAssertion has scope pertaining to the entire TrustedDataCollection (TDC), it must never use the ExternalEdh child element
because the HandlingAssertion will always refer to the Collection in which it resides.</sch:assert>
    </sch:rule>
</sch:pattern>
```

2.20 - ../Rules/appliesToState/IC-TDF_ID_00025.sch

Rule Description

[IC-TDF-ID-00025][Error] Attribute @appliesToState is only allowed when TDO payload attrbute @isEncrypted equals "true". Human Readable: Handling Statement state applicability can only be defined when an encrypted payload is present.

Code Description

If attribute @appliesToState is defined, this rule ensures that there is a payload element with attribute isEncrypted set to true.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
      This document has been approved for Public Release and is available for use without restriction.
-->
<sch:pattern id="IC-TDF-ID-00025">
    <sch:rule id="IC-TDF-ID-00025-R1"
              context="tdf:TrustedDataObject[tdf:HandlingAssertion/@tdf:appliesToState]">
        <sch:assert test=".*@tdf:isEncrypted = true()" flag="error" role="error">[IC-TDF-ID-00025][Error] Attribute @appliesToState is only allowed when TDO payload attrbute
@isEncrypted equals "true". Human Readable: Handling Statement state applicability can only be defined when an encrypted payload is present.</sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.21 - ./Rules/appliesToState/IC-TDF_ID_00026.sch

Rule Description

[IC-TDF-ID-00026][Error] If payload attribute @isEncrypted="true", then there needs to be two handling assertions with attribute scope="PAYL": one with attribute @appliesToState="encrypted" and the other with attribute appliesToState="unencrypted". Human Readable: Encrypted payloads require handling assertions for both encrypted and unencrypted payload states.

Code Description

If there exists a TDO payload element with attribute @isEncrypted as true, this rule ensures there is one handling assertion of @scope PAYL and @appliestostate of encrypted, and one handling assertion of @scope PAYL and @appliestostate of unencrypted.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00026">
    <sch:rule id="IC-TDF-ID-00026-R1"
        context="tdf:TrustedDataObject/tdf:*[@tdf:isEncrypted=true()]">
        <sch:assert test="count(parent::node()/tdf:HandlingAssertion[util:containsAnyOfTheTokens(@tdf:scope, ('PAYL')) and @tdf:appliesToState='encrypted'])= 1 and
count(parent::node()/tdf:HandlingAssertion[util:containsAnyOfTheTokens(@tdf:scope, ('PAYL')) and @tdf:appliesToState='unencrypted'])= 1"
            flag="error"
            role="error">[IC-TDF-ID-00026][Error] If payload attribute @isEncrypted="true", then there needs to be two handling assertions with attribute scope="PAYL":
one with attribute @appliesToState="encrypted" and the other with attribute appliesToState="unencrypted".</sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.22 - .//Rules/appliesToState/IC-TDF_ID_00027.sch

Rule Description

[IC-TDF-ID-00027][Error] If payload attribute @isEncrypted="true", the handling assertion with @scope="PAYL" that contains @appliesToState="unencrypted" must contain an edh:externalEDH. Human Readable: When content is encrypted, the handling assertion describing the content in an unencrypted state is in effect external.

Code Description

If there exists a TDO payload element with attribute @isEncrypted as true, this rule ensures that there is one handling assertion of @scope PAYL, @appliestostate of unencrypted, and has descendant element ExternalEdh.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
      This document has been approved for Public Release and is available for use without restriction.
-->
<sch:pattern id="IC-TDF-ID-00027">
    <sch:rule id="IC-TDF-ID-00027-R1"
        context="tdf:TrustedDataObject/tdf:*[@tdf:isEncrypted=true()]">
        <sch:assert test="count(parent::node()/tdf:HandlingAssertion[util:containsAnyOfTheTokens(@tdf:scope, ('PAYL')) and @tdf:appliesToState='unencrypted']/
tdf:HandlingStatement/edh:ExternalEdh)= 1"
            flag="error"
            role="error">[IC-TDF-ID-00027][Error] If payload attribute @isEncrypted="true", the handling assertion with @scope="PAYL" that contains
@appliesToState="unencrypted" must contain an edh:externalEDH. Human Readable: When content is encrypted, the handling assertion describing the content in an unencrypted state is in effect
external.</sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.23 - .//Rules/appliesToState/IC-TDF_ID_00028.sch

Rule Description

[IC-TDF-ID-00028][Error] If payload attribute @isEncrypted="true" and the payload is not external, the handling assertion with @scope="PAYL" that contains @appliesToState="encrypted" must contain a regular edh:EDH. Human Readable: Internal content requires an EDH.

Code Description

Given a TDO with an internal payload with attribute @isEncrypted="true", the handling assertion with @scope="PAYL" that contains @appliesToState="encrypted" must contain a regular edh:EDH.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00028">
    <sch:rule id="IC-TDF-ID-00028-R1"
        context="tdf:TrustedDataObject[tdf:StringPayload/@tdf:isEncrypted=true()] | tdf:TrustedDataObject[tdf:Base64BinaryPayload/@tdf:isEncrypted=true()] |
tdf:TrustedDataObject[tdf:StructuredPayload/@tdf:isEncrypted=true()]">
        <sch:assert test="count(tdf:HandlingAssertion[util:containsAnyOfTheTokens(@tdf:scope, ('PAYL')) and @tdf:appliesToState='encrypted']/tdf:HandlingStatement/edh:Edh)= 1"
            flag="error"
            role="error">[IC-TDF-ID-00028][Error] If payload attribute @isEncrypted="true" and the payload is not external, the handling assertion with @scope="PAYL"
that contains @appliesToState="encrypted" must contain a regular edh:EDH. Human Readable: Internal content requires an EDH.</sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.24 - ../Rules/appliesToState/IC-TDF_ID_00030.sch

Rule Description

[IC-TDF-ID-00030][Error] If statement attribute @isEncrypted="true", the statement metadata that contains @appliesToState="unencrypted" must contain an arh:ExternalSecurity Human Readable: When statement content is encrypted, the handling statement describing the content in an unencrypted state is in effect external.

Code Description

Given a TDO with an encrypted assertion (statement attribute @isEncrypted="true"), the statement metadata that contains @appliesToState="unencrypted" must contain an arh:ExternalSecurity.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00030">
    <sch:rule id="IC-TDF-ID-00030-R1"
        context="tdf:TrustedDataObject/tdf:Assertion/tdf:*[@tdf:isEncrypted=true()]">
        <sch:assert test="count(parent::node()/tdf:StatementMetadata[@tdf:appliesToState='unencrypted' and descendant-or-self::arh:ExternalSecurity])= 1"
            flag="error"
            role="error">[IC-TDF-ID-00030][Error] If statement attribute @isEncrypted="true", the statement metadata that contains @appliesToState="unencrypted" must
contain an arh:ExternalSecurity Human Readable: When statement content is encrypted, the handling statement describing the content in an unencrypted state is in effect external.</sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.25 - ../Rules/appliesToState/IC-TDF_ID_00031.sch

Rule Description

[IC-TDF-ID-00031][Error] If assertion statement attribute @isEncrypted="true", then there needs to be two statement metadata elements: one with attribute @appliesToState="encrypted" and the other with attribute appliesToState="unencrypted". Human Readable: If an assertion statement is encrypted, it must have statement metadata to describe handling for both its encrypted state, and unencrypted state.

Code Description

If a TDO has an encrypted assertion (@isEncrypted="true"), then there needs to be two statement metadata elements: one with attribute @appliesToState="encrypted" and the other with attribute appliesToState="unencrypted".

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
      This document has been approved for Public Release and is available for use without restriction.
-->
<sch:pattern id="IC-TDF-ID-00031">
    <sch:rule id="IC-TDF-ID-00031-R1"
              context="tdf:TrustedDataObject/tdf:Assertion/tdf:*[@tdf:isEncrypted=true()]">
        <sch:assert test="count(parent::node()/tdf:StatementMetadata[@tdf:appliesToState='encrypted'])= 1 and count(parent::node()/
tdf:StatementMetadata[@tdf:appliesToState='unencrypted'])= 1"
                  flag="error"
                  role="error">[IC-TDF-ID-00031][Error] If assertion statement attribute @isEncrypted="true", then there needs to be two statement metadata elements: one with
attribute @appliesToState="encrypted" and the other with attribute appliesToState="unencrypted". Human Readable: If an assertion statement is encrypted, it must have statement metadata to
describe handling for both for its encrypted state, and unencrypted state.</sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.26 - ../Rules/appliesToState/IC-TDF_ID_00032.sch

Rule Description

[IC-TDF-ID-00032][Error] Attribute @appliesToState is only allowed when TDO statement attribute @isEncrypted equals "true". Human Readable: StatementMetadata state applicability can only be defined when an encrypted statement is present.

Code Description

If attribute @appliesToState is defined, this rule ensures that there is a statement element with attribute isEncrypted set to true.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00032">
    <sch:rule id="IC-TDF-ID-00032-R1"
        context="tdf:TrustedDataObject/tdf:Assertion[tdf:StatementMetadata/@tdf:appliesToState]">
        <sch:assert test=".*@tdf:isEncrypted = true()" flag="error" role="error">[IC-TDF-ID-00032][Error] Attribute @appliesToState is only allowed when TDO statement
attribute @isEncrypted equals "true". Human Readable: StatementMetadata state applicability can only be defined when an encrypted statement is present.</sch:assert>
        </sch:rule>
    </sch:pattern>
```


2.27 - ../Rules/IC-TDF_ID_00033.sch

Rule Description

[IC-TDF-ID-00033][Error] A TrustedDataObject with a ReferencePayload must have an ExternalEDH element in the HandlingAssertion with scope [PAYL].

Code Description

For TrustedDataObject elements with a ReferencePayload, ensure that the HandlingAssertion with scope [PAYL] has an ExternalEDH element.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00033">
    <sch:rule id="IC-TDF-ID-00033-R1"
        context="tdf:TrustedDataObject//tdf:ReferenceValuePayload">
        <sch:assert test="ancestor::tdf:TrustedDataObject//tdf:HandlingAssertion[@tdf:scope='PAYL']//edh:ExternalEdh"
            flag="error"
            role="error">[IC-TDF-ID-00033][Error] A TrustedDataObject with a ReferencePayload must have an ExternalEDH element in the HandlingAssertion with scope
[PAYL].</sch:assert>
    </sch:rule>
</sch:pattern>
```

2.28 - ../Rules/IC-TDF_ID_00034.sch

Rule Description

[IC-TDF-ID-00034][Error] An Assertion with a ReferenceStatement must have an ExternalEDH or ExternalSecurity element in the StatementMetadata.

Code Description

For Assertion elements with a ReferenceStatement, ensure that the StatementMetadata has an ExternalEDH or ExternalSecurity element.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
      This document has been approved for Public Release and is available for use without restriction.
-->
<sch:pattern id="IC-TDF-ID-00034">
    <sch:rule id="IC-TDF-ID-00034-R1" context="tdf:Assertion//tdf:ReferenceStatement">
        <sch:assert test="ancestor::tdf:Assertion/tdf:StatementMetadata[edh:ExternalEdh or arh:ExternalSecurity]"
            flag="error"
            role="error">[IC-TDF-ID-00034][Error] An Assertion with a ReferenceStatement must have an ExternalEDH or ExternalSecurity element in the StatementMetadata.</
sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.29 - ../Rules/IC-TDF_ID_00035.sch

Rule Description

[IC-TDF-ID-00035][Error] For any handling assertion child element of TrustedDataCollection, the only allowable token for attribute scope is [TDC]. Human Readable: Scopes defined within a TrustedDataCollection Handling Assertion must refer to entire TrustedDataCollection.

Code Description

For the scope attribute specified on handlingAssertion child elements of TrustedDataCollection, we make sure that the value only contains the tokens [TDC].

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00035">
    <sch:rule id="IC-TDF-ID-00035-R1"
              context="tdf:TrustedDataCollection/tdf:HandlingAssertion">
        <sch:assert test="util:containsOnlyTheTokens(@tdf:scope, ('TDC'))"
                   flag="error"
                   role="error">[IC-TDF-ID-00035][Error] For any child handlingAssertion of TrustedDataCollection, the only allowable tokens for attribute scope is [TDC].
Human Readable: Scopes defined within a TrustedDataCollection Handling Assertion must refer to entire TrustedDataCollection.</sch:assert>
    </sch:rule>
</sch:pattern>
```

2.30 - ../Rules/IC-TDF_ID_00036.sch

Rule Description

[IC-TDF-ID-00036][Error] The @edh:DESVersion is less than the minimum version allowed: 1. Human Readable: The edh version imported by IC-TDF must be greater than or equal to 1.

Code Description

For all elements that contain @edh:DESVersion, verify that the version is greater than or equal to the minimum allowed version: 1.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00036">
  <sch:rule id="IC-TDF-ID-00036-R1" context="*[@edh:DESVersion]">
    <sch:let name="version"
      value="number(if (contains(@edh:DESVersion,'-')) then substring-before(@edh:DESVersion,'-') else @edh:DESVersion)"/>
    <sch:assert test="$version >= 1" flag="error" role="error">[IC-TDF-ID-00036][Error] The @edh:DESVersion is less than the minimum version allowed: 1. Human Readable:
The edh version imported by IC-TDF must be greater than or equal to 1.</sch:assert>
  </sch:rule>
</sch:pattern>
```

2.31 - .//Rules/IC-TDF_ID_00037.sch

Rule Description

[IC-TDF-ID-00037][Error] The @arh:DESVersion is less than the minimum version allowed: 1. Human Readable: The arh version imported by IC-TDF must be greater than or equal to 1.

Code Description

For all elements that contain @arh:DESVersion, verify that the version is greater than or equal to the minimum allowed version: 1.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00037">
  <sch:rule id="IC-TDF-ID-00037-R1" context="*[@arh:DESVersion]">
    <sch:let name="version"
      value="number(if (contains(@arh:DESVersion,'-')) then substring-before(@arh:DESVersion,'-') else @arh:DESVersion)"/>
    <sch:assert test="$version >= 1" flag="error" role="error">[IC-TDF-ID-00037][Error] The @arh:DESVersion is less than the minimum version allowed: 1. Human Readable:
The arh version imported by IC-TDF must be greater than or equal to 1.</sch:assert>
  </sch:rule>
</sch:pattern>
```

2.32 - ../Rules/IC-TDF_ID_00038.sch

Rule Description

[IC-TDF-ID-00038][Error] For the Binding element, every Signer element must specify the issuer attribute and either the serial or subject attribute.

Code Description

This rule checks that for each occurrence of tdf:Signer that @tdf:issuer and either @tdf:subject or @tdf:serial is specified.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00038">
    <sch:rule id="IC-TDF-ID-00038-R1" context="tdf:Binding/tdf:Signer">
        <sch:assert test="@tdf:issuer and (@tdf:serial or @tdf:subject)"
            flag="error"
            role="error">[IC-TDF-ID-00038][Error] For the Binding element, every Signer element must specify the issuer attribute and either the serial or subject
attribute.</sch:assert>
    </sch:rule>
</sch:pattern>
```

2.33 - ./Rules/appliesToState/IC-TDF_ID_00039.sch

Rule Description

[IC-TDF-ID-00039][Error] Attribute @appliesToState is only allowed on HandlingAssertions with scope PAYL. Human Readable: Only Handling Assertions with scope PAYL can use the appliesToState attribute because the attribute indicates the state (encrypted or unencrypted) of the payload to which the assertion appies.

Code Description

If attribute @appliesToState is defined on a handlingAssertion, this rule ensures that handlingAssertion has scope PAYL

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00039">
    <sch:rule id="IC-TDF-ID-00039-R1"
              context="tdf:TrustedDataObject/tdf:HandlingAssertion[@tdf:appliesToState]">
        <sch:assert test="@tdf:scope='PAYL'" flag="error" role="error">[IC-TDF-ID-00039][Error] Attribute @appliesToState is only allowed with HandlingAssertions of scope PAYL
Human Readable: Only Handling Assertions with scope PAYL can use the appliesToState attribute because the attribute indicates the state (encrypted or unencrypted) of the payload to which the
assertion appies.</sch:assert>
    </sch:rule>
</sch:pattern>
```

2.34 - ../Rules/IC-TDF_ID_00040.sch

Rule Description

[IC-TDF-ID-00040][Error] If there are more than one EncryptionInformation elements specified in any one EncryptionInformation Group than @tdf:sequenceNum must also be specified.

Code Description

This rule checks that if there are more than one tdf:EncryptionInformation in any encryption group (if it has siblings) then it checks that a tdf:sequenceNum attribute is present on the EncryptionInformation element.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00040">
    <sch:rule id="IC-TDF-ID-00040-R1"
        context="tdf:EncryptionInformation[count((preceding-sibling::tdf:EncryptionInformation, following-sibling::tdf:EncryptionInformation))>0]">
        <sch:assert test="@tdf:sequenceNum" flag="error" role="error">[IC-TDF-ID-00040][Error] If there are more than one EncryptionInformation elements specified in any one
EncryptionInformation Group than @tdf:sequenceNum must also be specified.</sch:assert>
    </sch:rule>
</sch:pattern>
```


2.35 - ./Rules/IC-TDF_ID_00041.sch

Rule Description

[IC-TDF-ID-00041][Error] All sequenceNum attributes in an EncryptionInformation Group must be sequential, incrementing by 1, starting with the number 1, and contain no duplicates.

Code Description

This rule triggers on the first EncryptionInformation element for each EncryptionInformation Group that has more than 1 EncryptionInformation element then checks that the sequenceNum attributes are numerically sequential by 1 starting from 1. A list, named \$nums, is created containing the value of each sequenceNum attribute within the group. If the total number of items in \$nums does not equal the number of distinct values in \$nums, then a duplicate exists return false. Otherwise, ensure that each number from 1 to N, where N is the number of items in \$nums, is contained within \$nums. If each number is contained, then return true. Otherwise, false.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00041"><!--This rule triggers on the first EncryptionInformation element for each EncryptionInformation Group
that has more than 1 EncryptionInformation element then checks that the sequenceNum attributes
are numerically sequential by 1 starting from 1. The test uses the mathematical formula
(1+last*count)/2 = sum(1...count) derived from the formula
(first+last)*count/2 = sum(first...last) where first is replaced by 1 and last
is replaced by count. This works by assuming first=1 then it must
be true that last=count.-->
<sch:rule id="IC-TDF-ID-00041-R1"
      context="tdf:EncryptionInformation[count(following-sibling::tdf:EncryptionInformation)>0][1]">
  <sch:let name="nums"
    value="for $encInfo in (., following-sibling::tdf:EncryptionInformation) return number($encInfo/@tdf:sequenceNum)" />
  <sch:assert test="(count(distinct-values($nums)) = count($nums) and (every $index in 1 to count($nums) satisfies index-of($nums, $index)))"
    flag="error"
    role="error">[IC-TDF-ID-00041][Error] All sequenceNum attributes in an EncryptionInformation Group must be sequential, incrementing by 1, starting with the
number 1, and contain no duplicates.</sch:assert>
  </sch:rule>
</sch:pattern>
```

2.36 - ../Rules/IC-TDF_ID_00042.sch

Rule Description

[IC-TDF-ID-00042][Error] The first HandlingAssertion of a TDF must have the attribute scope with a value of [TDO] or [TDC] and contain an EDH.

Code Description

This rule triggers on the first HandlingAssertion element for each TDF and tests that the value of the @tdf:scope attribute is set a value of [TDO] or [TDC] and that an EDH exists. Otherwise, an error is triggered. This prevents some other handling assertion such as Revision Recall from being the ISM resource node for the entire TDO.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
      This document has been approved for Public Release and is available for use without restriction.
-->
<sch:pattern id="IC-TDF-ID-00042">
    <sch:rule id="IC-TDF-ID-00042-R1" context="tdf:*/tdf:HandlingAssertion[1]">
        <sch:assert test="((parent::tdf:TrustedDataObject and @tdf:scope='TDO') or (parent::tdf:TrustedDataCollection and @tdf:scope='TDC')) and ./tdf:HandlingStatement/edh:Edh"
            flag="error"
            role="error">[IC-TDF-ID-00042][Error] The first HandlingAssertion of a TDF must have the attribute scope with a value of [TDO] or [TDC] and contain an EDH.</
sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.37 - ./Rules/IC-TDF_ID_00043.sch

Rule Description

[IC-TDF-ID-00043][Error] ntk:Access elements on portions of a TDO must be rolled up to the resource level. As such there must be an ntk:Access on the HandlingAssertion with scope [TDO]. Precise rollup is left to the creator to determine.
Human Readable: If there is an ntk:Access in any portion of a TDO, then there must be an ntk:Access in the HandlingAssertion with scope="TDO"

Code Description

This rule triggers on any ntk:Access that exists except for one in the tdf:HandlingAssertion with a scope [TDO]. If it triggers it checks that there is an ntk:Access in the HandlingAssertion with scope [TDO] otherwise it sets an error.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
      This document has been approved for Public Release and is available for use without restriction.
-->
<sch:pattern id="IC-TDF-ID-00043">
    <sch:rule id="IC-TDF-ID-00043-R1"
        context="tdf:TrustedDataObject//ntk:Access[not(ancestor::tdf:HandlingAssertion[@tdf:scope='TDO'] or @ntk:externalReference=true())]">
        <sch:assert test="ancestor::tdf:TrustedDataObject/tdf:HandlingAssertion[@tdf:scope='TDO']//ntk:Access"
            flag="error"
            role="error">[IC-TDF-ID-00043][Error] If there is an ntk:Access in any portion of a TDO, then there must be an ntk:Access in the HandlingAssertion with
scope="TDO"</sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.38 - ./Rules/IC-TDF_ID_00044.sch

Rule Description

[IC-TDF-ID-00044][Error] ntk:Access elements on child TDOs or Assertions must be rolled up to the resource level. As such there must be an ntk:Access on the HandlingAssertion with scope [TDC]. Precise rollup is left to the creator to determine. Human Readable: If there is an ntk:Access in any portion of a TDC, then there must be an ntk:Access in the HandlingAssertion with scope="TDC"

Code Description

This rule triggers on any ntk:Access that exists except for one in the tdf:HandlingAssertion with a scope [TDC]. If it triggers it checks that there is an ntk:Access in the HandlingAssertion with scope [TDC] otherwise it sets an error.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
      This document has been approved for Public Release and is available for use without restriction.
-->
<sch:pattern id="IC-TDF-ID-00044">
    <sch:rule id="IC-TDF-ID-00044-R1"
        context="tdf:TrustedDataCollection//ntk:Access[not(ancestor::tdf:HandlingAssertion[@tdf:scope='TDC'] or @ntk:externalReference=true())]">
        <sch:assert test="ancestor::tdf:TrustedDataCollection/tdf:HandlingAssertion[@tdf:scope='TDC']//ntk:Access"
            flag="error"
            role="error">[IC-TDF-ID-00044][Error] If there is an ntk:Access in any portion of a TDC, then there must be an ntk:Access in the HandlingAssertion with
scope="TDC"</sch:assert>
        </sch:rule>
    </sch:pattern>
```

2.39 - ../Rules/IC-TDF_ID_00045.sch

Rule Description

[IC-TDF-ID-00045][Error] The @revrecall:DESVersion is less than the minimum version allowed: 201412. Human Readable: The RevRecall version imported by IC-TDF must be greater than or equal to 2014-DEC.

Code Description

For all elements that contain @revrecall:DESVersion, ensure that the version is greater than or equal to the minimum allowed version: 201412.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
      This document has been approved for Public Release and is available for use without restriction.
-->
<sch:pattern id="IC-TDF-ID-00045">
    <sch:rule id="IC-TDF-ID-00045-R1" context="*[@revrecall:DESVersion]">
        <sch:let name="version"
            value="number(if (contains(@revrecall:DESVersion,'-')) then substring-before(@revrecall:DESVersion,'-') else @revrecall:DESVersion)"/>
        <sch:assert test="$version >= 201412" flag="error" role="error">[IC-TDF-ID-00045][Error] The @revrecall:DESVersion is less than the minimum version allowed: 201412.
Human Readable: The RevRecall version imported by IC-TDF must be greater than or equal to 2014-DEC.</sch:assert>
    </sch:rule>
</sch:pattern>
```

2.40 - .//Rules/IC-TDF_ID_00046.sch

Rule Description

[IC-TDF-ID-00046][Error] If there exist multiple version attributes in the same namespace within the TDF skeleton, then they must specify the same version number. Human Readable: The ism:DESVersion declared for a specification must be the same throughout the IC-TDF skeleton including the HandlingAssertions and StatementMetadata within assertions.

Code Description

This rule uses an abstract pattern to consolidate logic. For all ism:DESVersion attributes found on the TDF skeleton, ensure all the versions are the same. The TDF Skeleton includes the TDF elements themselves and descendents of tdf:HandlingAssertion or tdf:StatementMetadata elements.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
      This document has been approved for Public Release and is available for use without restriction.
-->
<sch:pattern id="IC-TDF-ID-00046" is-a="CompareVersionsInSkeleton">
    <sch:param name="context"
        value="//tdf:*[@ism:DESVersion] | //tdf:HandlingAssertion/*[@ism:DESVersion] | //tdf:StatementMetdata/*[@ism:DESVersion]"/>
    <sch:param name="namespace" value="'urn:us:gov:ic:ism'"/>
    <sch:param name="attrName" value="'DESVersion'"/>
    <sch:param name="ruleID" value="'IC-TDF-ID-00046'"/>
</sch:pattern>
```

2.41 - .//Rules/IC-TDF_ID_00047.sch

Rule Description

[IC-TDF-ID-00047][Error] If there exist multiple version attributes in the same namespace within the TDF skeleton, then they must specify the same version number. Human Readable: The ntk:DESVersion declared for a specification must be the same throughout the IC-TDF skeleton including the HandlingAssertions and StatementMetadata within assertions.

Code Description

This rule uses an abstract pattern to consolidate logic. For all ntk:DESVersion attributes found on the TDF skeleton, ensure all the versions are the same. The TDF Skeleton includes the TDF elements themselves and descendents of tdf:HandlingAssertion or tdf:StatementMetadata elements.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
      This document has been approved for Public Release and is available for use without restriction.
-->
<sch:pattern id="IC-TDF-ID-00047" is-a="CompareVersionsInSkeleton">
    <sch:param name="context"
        value="tdf:*[@ntk:DESVersion] | tdf:HandlingAssertion/*[@ntk:DESVersion] | tdf:StatementMetdata/*[@ntk:DESVersion]"/>
    <sch:param name="namespace" value="'urn:us:gov:ic:ntk'"/>
    <sch:param name="attrName" value="'DESVersion'"/>
    <sch:param name="ruleID" value="'IC-TDF-ID-00047'"/>
</sch:pattern>
```

2.42 - ./Rules/IC-TDF_ID_00048.sch

Rule Description

[IC-TDF-ID-00048][Error] If there exist multiple version attributes in the same namespace within the TDF skeleton, then they must specify the same version number. Human Readable: The arh:DESVersion declared for a specification must be the same throughout the IC-TDF skeleton including the HandlingAssertions and StatementMetadata within assertions.

Code Description

This rule uses an abstract pattern to consolidate logic. For all arh:DESVersion attributes found on the TDF skeleton, ensure all the versions are the same. The TDF Skeleton includes the TDF elements themselves and descendents of tdf:HandlingAssertion or tdf:StatementMetadata elements.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
      This document has been approved for Public Release and is available for use without restriction.
-->
<sch:pattern id="IC-TDF-ID-00048" is-a="CompareVersionsInSkeleton">
    <sch:param name="context"
        value="tdf:*[@arh:DESVersion] | tdf:HandlingAssertion/*[@arh:DESVersion] | tdf:StatementMetdata/*[@arh:DESVersion]"/>
    <sch:param name="namespace" value="'urn:us:gov:ic:arh'"/>
    <sch:param name="attrName" value="'DESVersion'"/>
    <sch:param name="ruleID" value="'IC-TDF-ID-00048'"/>
</sch:pattern>
```


2.43 - ./Rules/IC-TDF_ID_00049.sch

Rule Description

[IC-TDF-ID-00049][Error] If there exist multiple version attributes in the same namespace within the TDF skeleton, then they must specify the same version number. Human Readable: The edh:DESVersion declared for a specification must be the same throughout the IC-TDF skeleton including the HandlingAssertions and StatementMetadata within assertions.

Code Description

This rule uses an abstract pattern to consolidate logic. For all edh:DESVersion attributes found on the TDF skeleton, ensure all the versions are the same. The TDF Skeleton includes the TDF elements themselves and descendents of tdf:HandlingAssertion or tdf:StatementMetadata elements.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00049" is-a="CompareVersionsInSkeleton">
    <sch:param name="context"
        value="tdf:*[@edh:DESVersion] | tdf:HandlingAssertion/*[@edh:DESVersion] | tdf:StatementMetdata/*[@edh:DESVersion]"/>
    <sch:param name="namespace" value="'urn:us:gov:ic:edh'"/>
    <sch:param name="attrName" value="'DESVersion'"/>
    <sch:param name="ruleID" value="'IC-TDF-ID-00049'"/>
</sch:pattern>
```

2.44 - .//Rules/IC-TDF_ID_00050.sch

Rule Description

[IC-TDF-ID-00050][Error] If there exist multiple version attributes in the same namespace within the TDF skeleton, then they must specify the same version number. Human Readable: The icid:DESVersion declared for a specification must be the same throughout the IC-TDF skeleton including the HandlingAssertions and StatementMetadata within assertions.

Code Description

This rule uses an abstract pattern to consolidate logic. For all icid:DESVersion attributes found on the TDF skeleton, ensure all the versions are the same. The TDF Skeleton includes the TDF elements themselves and descendents of tdf:HandlingAssertion or tdf:StatementMetadata elements.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
      This document has been approved for Public Release and is available for use without restriction.
-->
<sch:pattern id="IC-TDF-ID-00050" is-a="CompareVersionsInSkeleton">
    <sch:param name="context"
        value="tdf:*[@icid:DESVersion] | tdf:HandlingAssertion/*[@icid:DESVersion] | tdf:StatementMetdata/*[@icid:DESVersion]"/>
    <sch:param name="namespace" value="'urn:us:gov:ic:id'"/>
    <sch:param name="attrName" value="'DESVersion'"/>
    <sch:param name="ruleID" value="'IC-TDF-ID-00050'"/>
</sch:pattern>
```

2.45 - ./Rules/IC-TDF_ID_00051.sch

Rule Description

[IC-TDF-ID-00051][Error] If there exist multiple version attributes in the same namespace within the TDF skeleton, then they must specify the same version number. Human Readable: The usagency:CESVersion declared for a specification must be the same throughout the IC-TDF skeleton including the HandlingAssertions and StatementMetadata within assertions.

Code Description

This rule uses an abstract pattern to consolidate logic. For all usagency:CESVersion attributes found on the TDF skeleton, ensure all the versions are the same. The TDF Skeleton includes the TDF elements themselves and descendents of tdf:HandlingAssertion or tdf:StatementMetadata elements.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
      This document has been approved for Public Release and is available for use without restriction.
-->
<sch:pattern id="IC-TDF-ID-00051" is-a="CompareVersionsInSkeleton">
    <sch:param name="context"
        value="tdf:*[@usagency:CESVersion] | tdf:HandlingAssertion//*[@usagency:CESVersion] | tdf:StatementMetdata//*[@usagency:CESVersion]"/>
    <sch:param name="namespace" value="'urn:us:gov:ic:usagency'"/>
    <sch:param name="attrName" value="'CESVersion'"/>
    <sch:param name="ruleID" value="'IC-TDF-ID-00051'"/>
</sch:pattern>
```

2.46 - ./Rules/IC-TDF_ID_00052.sch

Rule Description

[IC-TDF-ID-00052][Error] If there exist multiple version attributes in the same namespace within the TDF skeleton, then they must specify the same version number. Human Readable: The tdf:version declared for a specification must be the same throughout the IC-TDF skeleton including the HandlingAssertions and StatementMetadata within assertions.

Code Description

This rule uses an abstract pattern to consolidate logic. For all tdf:version attributes found on the TDF skeleton, ensure all the versions are the same. The TDF Skeleton includes the TDF elements themselves and descendents of tdf:HandlingAssertion or tdf:StatementMetadata elements.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00052" is-a="CompareVersionsInSkeleton">
    <sch:param name="context"
        value="tdf:*[@tdf:version] | tdf:HandlingAssertion/*[@tdf:version] | tdf:StatementMetdata/*[@tdf:version]"/>
    <sch:param name="namespace" value="'urn:us:gov:ic:tdf'"/>
    <sch:param name="attrName" value="'version'"/>
    <sch:param name="ruleID" value="'IC-TDF-ID-00052'"/>
</sch:pattern>
```

2.47 - ./Rules/IC-TDF_ID_00053.sch

Rule Description

[IC-TDF-ID-00053][Error] If there exist multiple version attributes in the same namespace within the TDF skeleton, then they must specify the same version number. Human Readable: The ism:ISMCATCESVersion declared for a specification must be the same throughout the IC-TDF skeleton including the HandlingAssertions and StatementMetadata within assertions.

Code Description

This rule uses an abstract pattern to consolidate logic. For all ism:ISMCATCESVersion attributes found on the TDF skeleton, ensure all the versions are the same. The TDF Skeleton includes the TDF elements themselves and descendents of tdf:HandlingAssertion or tdf:StatementMetadata elements.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00053" is-a="CompareVersionsInSkeleton">
    <sch:param name="context"
        value="//tdf:*[@ism:ISMCATCESVersion] | //tdf:HandlingAssertion/*[@ism:ISMCATCESVersion] | //tdf:StatementMetdata/*[@ism:ISMCATCESVersion]"/>
    <sch:param name="namespace" value="'urn:us:gov:ic:ism'"/>
    <sch:param name="attrName" value="' ISMCATCESVersion'"/>
    <sch:param name="ruleID" value="' IC-TDF-ID-00053'"/>
</sch:pattern>
```

2.48 - ../Rules/IC-TDF_ID_00054.sch

Rule Description

[IC-TDF-ID-00054][Warning] tdf:version attribute SHOULD be specified as version 201412.201707 with an optional extension.

Code Description

This rule supports extending the version identifier with an optional trailing hypen and up to 23 additional characters. The version must match the regular expression “^201412.201707(-.{1,23})?\$

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00054">
    <sch:rule id="IC-TDF-ID-00054-R1" context="*[@tdf:version]">
        <sch:assert test="matches(@tdf:version, '^201412.201707(\-.{1,23})?$')"
            flag="warning"
            role="warning">[IC-TDF-ID-00054][Warning] tdf:version attribute SHOULD be specified as version 201412.201707 with an optional extension.</sch:assert>
    </sch:rule>
</sch:pattern>
```

2.49 - ./Rules/IC-TDF_ID_00055.sch

Rule Description

[IC-TDF-ID-00055][Error] For element TrustedDataObject whose payload is NOT encrypted, there must not be more than one element HandlingAssertion that specifies attribute scope containing [PAYL] and contains an EDH element. Human Readable: For TrustedDataObjects with unencrypted payloads, there must not be more than a single EDH HandlingAssertion scoped for the payload.

Code Description

For element TrustedDataObject whose payload is NOT encrypted, ensure that the count of HandlingAssertion elements that specify attribute scope containing [PAYL] and have child::tdf:HandlingStatement/edh:Edh is not more than 1.

Schematron Code

```
<?ICEA pattern?>
<!-- Notices - Distribution Notice:
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-->
<sch:pattern id="IC-TDF-ID-00055">
    <sch:rule id="IC-TDF-ID-00055-R1"
        context="tdf:TrustedDataObject[not(tdf:*/@tdf:isEncrypted=true())]">
        <sch:assert test="not(count(child::tdf:HandlingAssertion[child::tdf:HandlingStatement/edh:Edh and @tdf:scope = 'PAYL']) > 1)"
            flag="error"
            role="error">[IC-TDF-ID-00055][Error] For element TrustedDataObject whose payload is NOT encrypted, there must not be more than one element
HandlingAssertion that specifies attribute scope containing [PAYL] and contains an EDH element. Human Readable: For TrustedDataObjects with unencrypted payloads, there must not be more than a
single EDH HandlingAssertion scoped for the payload.</sch:assert>
        </sch:rule>
    </sch:pattern>
```

Chapter 3 - Abstract Patterns

All of the Abstract Patterns for IC-TDF are listed in this section. These patterns may depend on variables defined in the Schematron Schema section.

3.1 - ./Lib/CompareVersionsInSkeleton.sch

Code Description

For all ism:DESVersion attributes found on the TDF skeleton, ensure all the versions are the same. The TDF Skeleton includes the TDF elements themselves and descendents of tdf:HandlingAssertion or tdf:StatementMetadata elements.

Schematron Code

```
<!--
  This abstract pattern checks all ism:DESVersion attributes found on the TDF skeleton to
  ensure that all the versions are the same. The TDF Skeleton includes the TDF elements
  themselves and descendents of tdf:HandlingAssertion or tdf:StatementMetadata elements.

  List of params in the form "paramName : example of what to do"
  context      := the nodes that the rule will test.
                  //tdf:*[@ism:DESVersion] | //tdf:HandlingAssertion/*[@ism:DESVersion]
                  | //tdf:StatementMetdata/*[@ism:DESVersion]
  namespace    := the namespace of the attribute to be tested i.e. urn:us:gov:ic:ism
  attrName     := the attribute that will be tested i.e. DESVersion
  ruleID       := the rule name that invokes the abstrat rule, for use in error message
                  i.e. IC-TDF-ID-00046
-->
<sch:pattern abstract="true" id="CompareVersionsInSkeleton">
  <sch:rule id="CompareVersionsInSkeleton-R1" context="$context">
    <sch:assert test="every $ver in (//tdf:*/*[@local-name()=$attrName and namespace-uri()=$namespace] | //tdf:HandlingAssertion/*[@local-name()=$attrName and namespace-
uri()=$namespace] | //tdf:StatementMetadata/*[@local-name()=$attrName and namespace-uri()=$namespace]) satisfies (number(if (contains($ver,'-')) then substring-before($ver,'-') else
$ver))=(number(if (contains(@*[local-name()=$attrName and namespace-uri()=$namespace],'-')) then substring-before(@*[local-name()=$attrName and namespace-uri()=$namespace],'-') else @*[local-
name()=$attrName and namespace-uri()=$namespace]))"
      flag="error"
      role="error">[
    <sch:value-of select="$ruleID"/>][Error] The {
    <sch:value-of select="$namespace"/>}
    <sch:value-of select="$attrName"/>declared must be the same throughout the IC-TDF skeleton including the HandlingAssertions and StatementMetadata within assertions. Versions found:
    <sch:value-of select="string-join(distinct-values(for $ver in (//tdf:*/*[@local-name()=$attrName and namespace-uri()=$namespace] | //tdf:HandlingAssertion/*[@local-name()=$attrName and
namespace-uri()=$namespace] | //tdf:StatementMetadata/*[@local-name()=$attrName and namespace-uri()=$namespace]) return $ver), ', ')" />
      </sch:assert>
    </sch:rule>
  </sch:pattern>
```

Chapter 4 - Schematron Schema

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

4.1 - ./IC-TDF_XML.sch

Code Description

This is the root file for the IC-TDF Schematron rule set. It loads all of the required CVEs, declares some global variables, and includes all of the Rule .sch files.

Schematron Code

```
<?ICEA master?>
<!-- Notices - Distribution Notice:
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-->
<sch:schema queryBinding="xslt2">
    <sch:ns prefix="tdf" uri="urn:us:gov:ic:tdf"/>
    <sch:ns prefix="ism" uri="urn:us:gov:ic:ism"/>
    <sch:ns prefix="arh" uri="urn:us:gov:ic:arh"/>
    <sch:ns prefix="edh" uri="urn:us:gov:ic:edh"/>
    <sch:ns prefix="ntk" uri="urn:us:gov:ic:ntk"/>
    <sch:ns prefix="icid" uri="urn:us:gov:ic:id"/>
    <sch:ns prefix="usagency" uri="urn:us:gov:ic:usagency"/>
    <sch:ns prefix="revrecall" uri="urn:us:gov:ic:revrecall"/>
    <sch:ns prefix="util" uri="urn:us:gov:ic:tdf:xsl:util"/>
    <!-- (U) Abstract Patterns -->
<sch:include href="Lib/CompareVersionsInSkeleton.sch"/>
    <!--*****--><!-- (U) Utility functions --><!--*****--><!--
    Returns true if any token in the attribute value matches at least one token in the provided list.
-->
<xsl:function xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
    name="util:containsAnyOfTheTokens"
    as="xs:boolean">
    <xsl:param name="attribute"/>
    <xsl:param name="tokenList" as="xs:string+"/>
    <xsl:value-of select="some $attrToken in tokenize(normalize-space(string($attribute)), ' ') satisfies $attrToken = $tokenList"/>
</xsl:function>
    <!--
    Returns true if every token in the attribute is contained in the provided list.
-->
<xsl:function xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
    name="util:containsOnlyTheTokens"
    as="xs:boolean">
    <xsl:param name="attribute"/>
    <xsl:param name="tokenList" as="xs:string+"/>
    <xsl:value-of select="every $attrToken in tokenize(normalize-space(string($attribute)), ' ') satisfies $attrToken = $tokenList"/>
</xsl:function>
    <!--*****--><!-- (U) IC-TDF ID Rules --><!--*****--><!--(U) -->
<sch:include href="./Rules/IC-TDF_ID_00001.sch"/>
    <sch:include href="./Rules/IC-TDF_ID_00002.sch"/>
    <sch:include href="./Rules/IC-TDF_ID_00003.sch"/>
    <sch:include href="./Rules/IC-TDF_ID_00004.sch"/>
    <sch:include href="./Rules/IC-TDF_ID_00005.sch"/>
    <sch:include href="./Rules/IC-TDF_ID_00006.sch"/>
    <sch:include href="./Rules/IC-TDF_ID_00007.sch"/>
    <sch:include href="./Rules/IC-TDF_ID_00008.sch"/>
    <sch:include href="./Rules/IC-TDF_ID_00009.sch"/>
    <sch:include href="./Rules/IC-TDF_ID_00010.sch"/>
    <sch:include href="./Rules/IC-TDF_ID_00011.sch"/>
    <sch:include href="./Rules/IC-TDF_ID_00012.sch"/>
    <sch:include href="./Rules/IC-TDF_ID_00013.sch"/>
    <sch:include href="./Rules/IC-TDF_ID_00014.sch"/>
    <sch:include href="./Rules/IC-TDF_ID_00015.sch"/>
```

```
<sch:include href="./Rules/IC-TDF_ID_00016.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00017.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00018.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00019.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00033.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00034.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00035.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00036.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00037.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00038.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00040.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00041.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00042.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00043.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00044.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00045.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00046.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00047.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00048.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00049.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00050.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00051.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00052.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00053.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00054.sch"/>
<sch:include href="./Rules/IC-TDF_ID_00055.sch"/>
<!--(U) appliesToState-->
<sch:include href="./Rules/appliesToState/IC-TDF_ID_00025.sch"/>
<sch:include href="./Rules/appliesToState/IC-TDF_ID_00026.sch"/>
<sch:include href="./Rules/appliesToState/IC-TDF_ID_00027.sch"/>
<sch:include href="./Rules/appliesToState/IC-TDF_ID_00028.sch"/>
<sch:include href="./Rules/appliesToState/IC-TDF_ID_00030.sch"/>
<sch:include href="./Rules/appliesToState/IC-TDF_ID_00031.sch"/>
<sch:include href="./Rules/appliesToState/IC-TDF_ID_00032.sch"/>
<sch:include href="./Rules/appliesToState/IC-TDF_ID_00039.sch"/>
</sch:schema>
```

Chapter 5 - Removed Rules

All of the numbered Rules for IC-TDF that have been removed are listed in this section. This section is just a reference for what rule numbers have been dropped. In many but not all cases there will be a reason listed. In all cases the version that the rule was dropped in is listed.

5.1 - `./Rules/deleted/IC-TDF_ID_00020.sch`

Rule Description

[IC-TDF-ID-00020][Error] Removed in V3.

5.2 - `./Rules/deleted/IC-TDF_ID_00021.sch`

Rule Description

[IC-TDF-ID-00021][Error] Removed in V3.

5.3 - `./Rules/deleted/IC-TDF_ID_00022.sch`

Rule Description

[IC-TDF-ID-00022][Error] Removed in V3.

5.4 - `./Rules/deleted/IC-TDF_ID_00023.sch`

Rule Description

[IC-TDF-ID-00023][Error] Removed in V3.

5.5 - `./Rules/deleted/IC-TDF_ID_00024.sch`

Rule Description

[IC-TDF-ID-00024][Error] Removed in V3.