

4.3 SML Reference Schemes

An SML reference MAY be an instance of a variety of reference schemes. SML does not mandate the use of any specific reference schemes. An SML reference scheme MAY use child elements, attributes, both, or neither to capture the information necessary to identify the reference target. It is OPTIONAL that all elements in an SML model be reachable via an SML reference. This will depend on the support defined by the chosen reference scheme.

Although SML does not require the use of any specific scheme, it does specify how a reference MUST be represented when using SML-defined reference schemes. This specification defines the [4.3.1 SML URI Reference Scheme](#) for use in SML references.

An SML reference scheme definition MUST specify all of the following:

1. The set of rules that, when satisfied, identify an SML reference as an instance of the scheme. An SML reference scheme definition MAY impose additional validity requirements on SML references recognized as instances of that scheme. Model validators MUST NOT apply such requirements to SML references that are not instances of the corresponding reference scheme.
2. The set of rules that, when evaluated, resolve the SML reference to its target element node.
3. An assertion that states whether instances of the reference scheme are transformed to [target-complete identifiers](#). If they are transformed to [target-complete identifiers](#), the reference scheme definition MUST describe the transformation process.

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An SML reference scheme definition MUST specify all of the preceding items as they apply to valid instances of the SML reference scheme, and MAY specify them for other (invalid) instances.

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4.3.1 SML URI Reference Scheme

The SML URI Reference Scheme is defined as follows:

1. An SML reference is identified as an instance of the SML URI Reference Scheme if and only if exactly one element information item whose [local name](#) is `uri` and whose [namespace name](#) is `http://www.w3.org/@@@/@/@/uri` is present as a child of that reference element.

An instance of the SML reference scheme is valid if it meets the following requirements.

The content of the `uri` element MUST be of type `xs:anyURI` as defined in the XML schema specification [[XML Schema Datatypes](#)]. The fragment identifier (if present) MUST follow the syntax of one of the following.

1. [4.3.1.1 smlxpath1\(\) scheme](#)
2. [Shorthand Pointer](#)

• An SML reference that is an instance of the SML URI Reference Scheme is resolved using the following steps:

1. An XML document **D** is obtained as follows:

1. If the URI reference is a same-document reference as defined in the applicable URI RFC, then **D** is the document containing the SML reference.
2. Otherwise, **D** is determined as follows:
 1. If the URI reference is a relative reference, then let **U** be the result of resolving the reference using the [base URI] property [*XML Information Set*] of the <sml:uri> element as the base URI. Otherwise, **U** is the URI reference itself. The computation of the [base URI] property is implementation-defined.
 2. Dereference **U**, as defined in the applicable specifications. If the document targeted by **U** is in the current SML model, then **D** is that document. Otherwise, if the document is not in the current SML model, then the SML URI Reference Scheme instance is unresolved (and **D** has no value).

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Deleted: the appropriate operation defined for the URI scheme in **U**

Note:

As a result of the above definition, if the retrieved object is not of XML media type or if it is not well-formed XML then, by definition, that object is not a document as defined by this specification. In this case, the SML reference scheme instance is unresolved.

2. If no fragment component is present in the URI reference, the SML URI Reference Scheme instance resolves to the root element of **D**.
3. If a fragment component is present in the URI reference, then the appropriate case among the following applies:
 1. If the fragment component complies with the `smlxpath1()` XPointer scheme syntax, then the reference target is obtained as defined in section **4.3.1.1 smlxpath1() scheme**.
 2. If the fragment component complies with the Shorthand Pointer syntax, then the appropriate case among the following applies:
 1. If a target **T** can be identified in **D** based on XML-Schema-determined ID, then the reference target **T**.
 2. If a target in **D** cannot be identified based on XML-Schema-determined ID, then it is implementation-defined whether the reference target in **D** is identified based on other criteria allowed for Shorthand Pointers.

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• Instances of the SML URI Reference Scheme are transformed to target-complete identifiers through standard URI processing, as described in the applicable URI RFC.