4 ID References

There are many motivations for referencing other message elements such as signature references or correlating signatures to security tokens. For this reason, this specification defines the `wsu:Id` attribute so that recipients need not understand the full schema of the message for processing of the security elements. That is, they need only "know" that the `wsu:Id` attribute represents a schema type of ID which is used to reference elements. However, because some key schemas used by this specification don't allow attribute extensibility (namely XML Signature and XML Encryption), this specification also allows use of their local ID attributes in addition to the `wsu:Id` attribute and the xml:id attribute [XMLID]. As a consequence, when trying to locate an element referenced in a signature, the following attributes are considered (in no particular order):

Local ID attributes on XML Signature elements
Local ID attributes on XML Encryption elements
Global `wsu:Id` attributes (described below) on elements
Profile specific defined identifiers
Global xml:id attributes on elements

In addition, when signing a part of an envelope such as the body, it is RECOMMENDED that an ID reference is used instead of a more general transformation, especially XPath [XPATH]. This is to simplify processing.

Tokens and elements that are defined in this specification and related profiles to use wsu:Id attributes SHOULD use wsu:Id. Elements to be signed MAY use xml:id or wsu:Id, and use of xml:id MAY be specified in profiles. All receivers MUST be able to identify XML elements carrying a wsu:Id attribute as representing an attribute of schema type ID and process it accordingly. All receivers SHOULD be able to identify XML elements carrying a xml:id attribute as representing an id attribute and process it accordingly. Senders MAY use xml:id or wsu:Id. Note that use of xml:id in conjunction with inclusive canonicalization may be inappropriate, as noted in [XMLID].

4.1 Id Attribute

There are many situations where elements within SOAP messages need to be referenced. For example, when signing a SOAP message, selected elements are included in the scope of the signature. XML Schema Part 2 [XMLSCHEMA] provides several built-in data types that may be used for identifying and referencing elements, but their use requires that consumers of the SOAP message either have or must be able to obtain the schemas where the identity or reference mechanisms are defined. In some circumstances, for example, intermediaries, this can be problematic and not desirable.

Consequently a mechanism is required for identifying and referencing elements, based on the SOAP foundation, which does not rely upon complete schema knowledge of the context in which an element is used. This functionality can be integrated into SOAP processors so that elements can be identified and referred to without dynamic schema discovery and processing.

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527 This section specifies a namespace-qualified global attribute for identifying an element which can
528 be applied to any element that either allows arbitrary attributes or specifically allows a particular
529 attribute. Alternatively, the xml:id attribute may be used. Applications MUST NOT specify both a
530 wsu:ID and xml:id attribute on a single element. It is an XML requirement that only one id attribute
531 be specified on a single element.

4.2 Id Schema

533 To simplify the processing for intermediaries and recipients, a common attribute is defined for
534 identifying an element. This attribute utilizes the XML Schema ID type and specifies a common
535 attribute for indicating this information for elements.
536 The syntax for this attribute is as follows:

```
538     <anyElement wsu:Id="...">...</anyElement>
```

540 The following describes the attribute illustrated above:
541 *.../@wsu:Id*
542   This attribute, defined as type `xsd:ID`, provides a well-known attribute for specifying the
543   local ID of an element.
544 Two `wsu:Id` attributes within an XML document MUST NOT have the same value.
545 Implementations MAY rely on XML Schema validation to provide rudimentary enforcement for
546 intra-document uniqueness. However, applications SHOULD NOT rely on schema validation
547 alone to enforce uniqueness.

549 This specification does not specify how this attribute will be used and it is expected that other
550 specifications MAY add additional semantics (or restrictions) for their usage of this attribute.
551 The following example illustrates use of this attribute to identify an element:

```
553     <x:myElement wsu:Id="ID1" xmlns:x="..."
554             xmlns:wsu="..."/>
```

556 Conformant processors that do support XML Schema MUST treat this attribute as if it was defined
557 using a global attribute declaration. Conformant processors that do not support dynamic XML
558 Schema or DTDs discovery and processing are strongly encouraged to integrate this into their
559 parsers. That is, to treat this attribute information item as if its PSVI has a [type definition] which
560 {target namespace} is "`http://www.w3.org/2001/XMLSchema`" and which {type} is "ID."
561 Doing so allows the processor to inherently know *how* to process the attribute without having to
562 locate and process the associated schema. Specifically, implementations MAY support the value
563 of the `wsu:Id` as the valid identifier for use as an XPointer [XPointer] shorthand pointer for
564 interoperability with XML Signature references.

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